NCC VOCATIONAL TECHNICAL SCHOOL DISTRICT

RENOVATIONS TO HOWARD HIGH SCHOOL OF TECHNOLOGY

BID PACKAGE 'A'

April 14, 2016

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SECTION 001113 ADVERTISEMENT FOR BID

Receipt of Bids

Public notice is hereby given that sealed bids for the following prime contract will be received for the renovations to the Howard High School of Technology. Bids will be received at the **NCC Vocational Technical School District 1417 Newport Road, Wilmington, Delaware 19804 until 2:00 PM local time on Wednesday, May 25, 2016**, at which time they will be publicly opened and read aloud. ***Bids will not be accepted at the offices of EDiS. Bidder bears the risk of late delivery. Any bids received after the stated time will be returned unopened.*** The time and location of the bid opening may be extended with a minimum of 2 calendar days notice to the Bidders.

Contract HHS-01	Demolition
Contract HHS-02	Sitework/Utilities
Contract HHS-03	Concrete
Contract HHS-04	Masonry and Masonry Restoration
Contract HHS-05	Structural and Miscellaneous Steel
Contract HHS-06	Carpentry/Rough and Finish
Contract HHS-07	Metal Framing, Drywall, Plaster
Contract HHS-08	Acoustical Ceilings and Panels
Contract HHS-09	Terrazzo Flooring
Contract HHS-10	Flooring
Contract HHS-11	Laminate Casework and Millwork
Contract HHS-12	Roofing, Sheet Metal and Waterproofing
Contract HHS-13	Ceramic Tile
Contract HHS-14	Painting and Coatings
Contract HHS-15	Wood Flooring
Contract HHS-16	Window Treatments
Contract HHS-17	Conveying Equipment
Contract HHS-18	Aluminum Windows

Bidding Document

Documents may be viewed and downloaded at EDiS' FTP site on or after Monday, May 9, 2016. Bidders requesting the log on information may obtain user name and password permission by contacting Jackie McKee with EDiS Company at jmckee@ediscompany.com. Each contractor will be required to provide the following information prior to receiving the log on information: company name, contact name, email address, phone number, fax number and postal mailing address.

It is the responsibility of each bidder to review and coordinate all Project Documents. This includes plans, specifications and addendums. Documents may be examined on the State of Delaware Online Bid Solicitation Directory, bids.delaware.gov, or at the office of the Construction Manager, EDIS Company, 110 S. Poplar Street, Suite 400, Wilmington, Delaware 19801.

Bid Security

A bid security in the amount of 10% of the bid including all alternates, plus a consent of surety must

accompany each bid. Bid Security shall specify the Owner: NCC Vocational Technical School District 1417 Newport Road, Wilmington, Delaware 19804.

Pre-Bid Meeting

A pre-bid meeting will be held at **401 East 12th Street, Wilmington, Delaware 19081 on Wednesday, May 11, 2016 at 3:30 PM local time.** A site visit will be conducted immediately following the pre-bid meeting. These site visits will be the only opportunities for the bidders to visit the existing building and review existing conditions affecting the work. Attendance is highly recommended but not mandatory.

Questions

Please contact EDiS Company, Kevin Lucas at klucas@ediscompany.com or 302-421-2893 or 302-420-3083 with questions.

Conformance to the Delaware Architectural Accessibility Act and the standards of the Architectural Accessibility Board is required on the Project.

Prevailing Wage Rates, as described by Delaware Law, must be adhered to where applicable.

Pursuant to the Office of Management and Budget (OMB) ***"4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects"*** requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds implement a Mandatory Drug Testing Program. The regulation can be downloaded from the following website:

http://regulations.delaware.gov/register/september2015/final/19%20DE%20Reg%20207%2009-01-15.pdf

END OF SECTION

SECTION 002113 - INSTRUCTIONS TO BIDDERS

1. DEFINITIONS

A. Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bid, Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders (if any), General Conditions, Supplementary General Conditions, General Requirements, Special Provisions (if any), the Bid Form (including the Non-collusion Statement), and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, as well as the Drawings, Specifications (Project Manual) and all Addenda issued prior to execution of the Contract.

B. All definitions set forth in the General Conditions and the other Contract Documents are applicable to the Bidding Documents.

C. "Addenda" are written or graphic instruments issued by the Architect/Engineer prior to the receipt of bids which modify or interpret the Bidding Documents, by additions, deletions, clarifications or corrections. Addenda become part of the contract documents upon execution of the agreement.

D. The term Work is defined in 1.1.3 of the General Conditions.

E. A "Unit of Work" includes all Work covered by the one or more Sections of the specifications listed under that particular Unit of Work in Section 011100 - SUMMARY OF WORK. A Unit of Work is the smallest portion of the Project for which a separate Bid will be accepted by the Construction Manager. The word "Unit" means "Unit of Work" whenever the context clearly implies "Unit of Work".

F. A "Bid" is a complete and properly executed proposal to do one or more Units of Work for the sum stipulated therein.

G. A "Bidder" is one who submits a Bid to the Bidding Agency for the Unit or Units of Work indicated therein.

H. A substantial amount of specification language constitutes definitions for terms found in other Contract Documents, including drawings, which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in Contract Documents are defined generally in this article. Definitions and explanations to this section are not necessarily either complete or exclusive, but are general for the work to the extent not stated more explicitly in another provision of Contract Documents.

I. General Requirements (or Conditions) apply to entire work of Contract and, where so indicated, to other elements which are included in the project.

J. The term "indicated" is a cross reference to details, notes or schedules on the Drawings, to other similar means of recording requirements in the Contract Documents. Where terms such as "shown", "noted", "schedule" and "specified" are used in lieu of "indicate," it is for purpose of helping to locate cross reference and no limitation of location is intended, except as specifically noted.

K. Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted" and "permitted" mean "directed by Construction Manager or Architect", "requested by Construction Manager or Architect", etc.

L. Where used in conjunction with Construction Manager's or Architect's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of the term "approved" will be held to limitations of Construction Manager's and Architect's responsibilities and duties as specified in General and Supplementary Conditions. In no case will "approval" by Construction Manager or Architect be interpreted as a release of Contractor from responsibilities to fulfill requirements of the Contract Documents.

M. The "Project Site" is the space available to Contractor for performance of the Work, either exclusively or in conjunction with others performing other work as part of the Project. The extent of project site is shown on the Drawings and may or may not be identical with description of the land upon which project is to be built. The Contractor shall visit the site to verify contract or construction limits.

N. Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

O. Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations as applicable in each instance.

P. Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

Q. An "Installer" is the entity, person or firm, engaged by the Contractor or his subcontractor or sub-subcontractor for the performance of a particular unit of work at the project site, including installation, erection, application and similar required operation. It is a general requirement that such installers be expert in operations they are engaged to perform.

R. The duties and obligations of the Contract apply to this Contractor (as defined herein) regardless of similar or identical duties or obligations of other Prime Contractors related to the Project. Therefore, even though other Prime Contractors may have similar, identical or overlapping duties and obligations, each and every duty and obligation set forth in this

Contract is enforceable against this Contractor.

2. BIDDER'S REPRESENTATION

A. Each Bidder in submitting its bid represents that:

1. It has read and understands the Bidding Documents and its Bid is made in accordance therewith.

2. Contractor has visited the site; familiarized himself with the local conditions under which the work is to be performed; compared the site with drawings and specifications; satisfied himself of the conditions of delivery, handling and storage of materials and all other matters that may be incidental to the Work before submitting his Bid.

3. Its Bid is based upon the materials and equipment described within the Bidding Documents without exceptions.

B. EVIDENCE OF REPRESENTATION

1. Submission of a Bid will be considered as evidence of the bidder's representation. No allowance will subsequently be made to the successful contractor by reason of any error omission on his part, due to his neglect in complying with the requirements of this article.

3. BIDDING DOCUMENTS

A. ISSUANCE

1. The drawings and specifications of preceding bid packages may not be issued with the drawings and specifications of this bid package, but are included by reference in the Table of Contents. Contractors bidding on work in this bid package are responsible for knowing what work has preceded this bid package and how it affects its work. In order to assist contractors in this effort, the contract documents from preceding or simultaneous bid packages will be available for review at the Construction Manager's main office and job site office. Bidding documents will be available on the EDiS FTP site, **bids.ediscompany.com**. It is the responsibility of each Bidder to review and coordinate all Project Documents. This includes plans, specifications and addendums. Bidding documents will be made available to qualified bidders only. Contractors are advised that no change orders will be allowed that are based on ignorance of work assigned in preceding or simultaneous bid packages.

2. Bidding Documents will not be issued to subcontractors or other individuals or organizations who will not be contracting directly with the Owner.

3. The complete set of Bidding Documents shall be used in preparing bids; neither the Owner, the Architect nor the Construction Manager assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

4. The Owner, Architect, and the Construction Manager, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining bids on the Work and do not confer a license or grant for any other use.

B. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

1. Bidders shall examine the Bidding Documents carefully and shall promptly notify the Construction Manager of any ambiguity, inconsistency or error which they may discover. No request for adjustment of Contract Time or Sum shall be permitted with regard to any purported ambiguity, inconsistency or error not promptly noticed to the Construction Manager.

2. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Construction Manager to reach him at least seven days prior to the date of receipt of bids.

3. Any interpretation, correction or change of the Bidding Documents will be made by Addendum. Interpretations, corrections, or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections, and changes.

C. SUBSTITUTIONS

1. Refer to Specification Section 016200 - MATERIAL AND EQUIPMENT.

2. Substitution requests must be made at least seven (7) days prior to the receipt of bids.

D. ADDENDA

1. Addenda will be emailed, mailed, faxed or delivered to each person or firm recorded by the Construction Manager as having received a complete set of the Bidding Documents, and will be available for inspection wherever the Bidding Documents are kept available for that purpose.
2. Sub-Bidders, Suppliers, Manufacturers and others wishing to have Addenda mailed free of charge directly to them should address a letter to the Construction Manager requesting a listing on the Addenda mailing list for this Project. Such letter must include no other subject matter, must clearly identify this Project by name, and must indicate, line for line, exactly how the name and address is to be typed on the envelope. Phone requests will not be accepted. The Construction Manager will endeavor, but expressly does not promise, to mail Addenda directly to those who have properly

requested. Such mailing list is for this one Project only.

3. Addenda issued during the time of bidding shall be listed on Bid form in the space provided. Failure of a Bidder to receive any Addendum shall not release the Bidder from any obligations under his Bid, provided said addendum was sent by email, fax or by U.S. Mail to the addresses furnished by the bidder for transmittal of mail. Faxed Addenda will be confirmed by U. S. Mail.

4. No Addenda will be issued later than three (3) days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which extends the time or changes the location for the opening of Bids.

4. BIDDING PROCEDURE

A. FORM AND STYLE OF BIDS

1. Bids shall be submitted in triplicate upon the proposal form included in these specifications, or upon an exact copy of it.

2. The Bidder shall complete all blank spaces on the Bid form.

3. Where indicated on the Bid form, sums shall be expressed in both words and figures. In case of discrepancy between the two, the written amount shall govern.

4. Any interlineation, alteration or erasure of an entry made in a blank space of the form must be initialed by the signer of the Bid. However, no interlineation, alteration or erasure shall be made in the wording printed on the bid form unless the Bidder is instructed by the Bidding Documents to do so. The Bidders shall add no stipulations or qualifications on the Bid form or accompanying the bid form unless permitted by or instructed by the Bidding Documents to do so.
5. All requested quantities, unit prices and alternates shall be included as part of the bid.

6. All signatures shall be in long hand.

7. The Bidder shall include on the Bid Form, within the Base Bid total costs associated with providing both the Labor and Material Payment and Performance Bonds.

8. The Bidder shall affix his seal to the bid form, if organized as a corporation.

B. SUBMISSION OF BIDS

1. Bids shall be deposited at the designated location prior to the time and date for receipt of Bids indicated in the Invitation to Bid, or any extension thereof made by Addendum. The time and location of the bid opening may be extended with a minimum of two (2) calendar days notice to the Bidders. Bids received after the time and date for receipt of

Bids will be marked "LATE BID" and returned.

2. The Bid Proposal (3 copies) shall be enclosed in a sealed envelope. The envelope shall be addressed to the Owner, and shall be identified with the Project name, the Bidder's name and address and the Unit of Work included in the Bid.

3. If the Bidder submits his Bid by mail, he shall enclose the above described sealed envelope in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof.

4. Bids shall include a fully executed Bid Bond, Power of Attorney, Non-collusion Statement, Consent of Surety and Subcontractor listing.

5. The Bidder shall include signed Affidavit(s) for the Bidder and each listed Subcontractor certifying compliance with OMB Regulation 4104- "Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on "Large Public Works Projects."

C. MODIFICATION OR WITHDRAWAL OF BID

1. A Bidder may modify his Bid in writing at any time prior to the time scheduled for receiving Bids, provided such written modification is received by the Construction Manager prior to said time.

2. Unless specifically authorized, faxed bids will not be considered.

3. No Bidder shall modify, withdraw or cancel his Bid or any part thereof for NINETY (90) days after the time designed for the receipt of Bids, in the Invitation to Bid. Any further extension of the time will be by mutual consent of the Owner and the Contractor.

4. A Bid may be withdrawn up until the time scheduled for receiving the Bids. Such withdrawal shall be in writing.

5. CONSIDERATIONS OF BIDS

A. OPENING OF BIDS

1. Bid shall be publicly opened and read aloud.

B. REJECTION OF BIDS

1. The Owner, in its sole discretion, shall have the right to reject any or all bids for any reason or for no reason whatsoever.

C. ACCEPTANCE OF BIDS

1. The Owner, in its sole discretion, shall have the right to waive any informality or irregularity in any Bid received.

2. The Owner shall have the right to accept Alternates in any order or combination.

6. SUBCONTRACT INFORMATION

A. SUBMISSION OF SUBCONTRACTOR LIST

1. Should the Contractor fail to utilize any or all of the Subcontractors in the Contractor's Bid statement in the performance of the Work on the public bidding, the Contractor shall be penalized in the amount of (project specific amount *). The Agency may determine to deduct payment of the penalty from the Contractor or have the amount paid directly to the Agency. Any penalty amount assessed against the Contractor may be remitted or refunded, in whole or in part, by the Agency awarding the Contract, only if it is established to the satisfaction of the Agency that the Subcontractor in question has defaulted or is no longer engaged in such business. No claim for the remission or refund of any penalty shall be granted unless an application is filed within one year after the liability of the successful Bidder accrues. All penalty amounts assessed and not refunded or remitted to the Contractor shall be reverted to the State.

* one (1) percent of the contract amount not to exceed $10,000.

2. Upon request of the Construction Manager, the Bidder shall within seven (7) days of the request submit a list of the other subcontractors or other persons or organizations (including those who are to furnish materials or equipment fabricated to a special design) if any, proposed for the various portions of the Work not included in the subcontractors list submitted with the bid.

3. The Bidder will be required to establish to the satisfaction of the Construction Manager the capability and experience of all proposed subcontractors to furnish and perform the work described in the sections of the specifications pertaining to such proposed subcontractor's respective trades.

4. Subcontractors and other persons and organizations proposed by the Bidder and accepted by the Owner must be used on the work for which they were proposed and accepted, and shall not be changed except with the written approval of the Construction Manager.

7. EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS

During the performance of this Contract, the Contractor agrees as follows:

A. The Contractor will not discriminate against any employee or applicant for employment

because of race, creed, color, sex or national origin. The Contractor will take affirmative action to ensure the applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, sex or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

B. The Contractor will, in all solicitants or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color sex, or national origin.

C. The term "Contract for public works" means construction, reconstruction, demolition, alteration and repair work and maintenance work paid for, in whole or in part, with public funds.

D. The Secretary of the Department of Labor shall be responsible for the administration of this section and shall adopt such rules and regulations and issue such orders as he deems necessary to achieve the purpose thereof, provided that no requirement established herby shall be in conflict with subchapter 6904 of this title.

8. PREVAILING WAGE REQUIREMENT

A. Wage Provisions: In accordance with Delaware Code, Title 29, Section 6960, renovation projects whose total cost shall exceed $15,000 and $100,000 for new construction, the minimum wage rates for various classes of laborers and mechanics shall be as determined by the Department of Labor, Division of Industrial Affairs of the State of Delaware.

B. The prevailing wage shall be the wage paid to a majority of employees performing similar work as reported in the Department's annual prevailing wage survey or in the absence of a majority, the average paid to all employees reported.

C. The Contractor shall pay all mechanics and labors employed directly upon the site of work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics.

D. The scale of the wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work.

E. Every contract based upon these specifications shall contain a stipulation that certified

sworn payroll reports be maintained by every Contractor and Subcontractor performing work upon the site of construction. The Contractor and Subcontractor shall keep and maintain the sworn payroll information for a period of 2 years from the last day of the work week covered by the payroll. A certified copy of these payroll reports shall be made available: 1) Effective June 30, 2007, all Contractors performing work on public work projects are required to furnish sworn payroll records on a weekly basis to the Department of Labor. Specifically, 29 Del. C. § 6960(c) states that "every contract… shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly." Further, that "the Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll." Lastly, the failure to submit payroll reports shall be subject to a civil penalty of not less than $1,000 nor more than $5,000 for each violation. 29 Del. C. § 6960(e). Sworn payroll information shall consist of a fully completed and notarized report on a form provided upon request by the Department of Labor. *See* Delaware Prevailing Wage Regulations VII A.2(c)"; 2) upon request by the public or for copies thereof. However, a request by the public must be made through the Department of Labor. The requesting party shall, prior to being provided the records, reimburse the costs of preparation by the Department of Labor in accordance with the Department's copying fee policy. The public shall not be given access to the records at the principal office of the Contractor or Subcontractor; and 3) the certified payroll records shall be on a form provided by the Department of Labor or shall contain the same information as the form provided by the Department and shall be provided within 10 days from receipt of notice requesting the records from the Department of Labor.

9. PERFORMANCE AND PAYMENT BONDS

A. The Contractor shall be required to furnish bonds covering the faithful performance of the contract and the payment of all obligations arising thereunder with such sureties secured through the Bidder's usual sources as may be agreeable to the parties. The Owner shall be noted as the obligee. The Owner is the New Castle County Vocational Technical School District.

B. The performance and payment bonds shall each be in an amount equal to 100% of the Contract Sum as adjusted from time to time. The Owner shall be noted as the obligee. The Owner is the New Castle County Vocational Technical School District.

C. TIME OF DELIVERY AND FORM OF BONDS

1. The Bidder shall deliver the required bonds within seven (7) days from receipt of request from the Construction Manager.

2. The performance and payment bonds shall be written in the form found in Section 006113 Performance and Payment Bonds.

3. The required bonds shall be by an authorized agent of the bonding company and shall

be accompanied by a certified and current copy of the bonding agent's Power of Attorney, indicating the monetary limit of such power. The bonding company shall be licensed to operate in the state which the work is to be performed.

10. EXECUTION OF AGREEMENT

A. The Agreement will be written on a contract form, stipulated by the Owner, a copy of which is included in the Specifications.

B. The Bidder shall, within seven (7) days following its presentation, execute the Agreement and return it to the Construction Manager.

C. The Bidder agrees to commence work within seven (7) days of 1) execution of the Agreement, or 2) receipt of a Letter of Intent to execute the Agreement, or other authorization to proceed, if furnished at an earlier date.

D. The Bidder shall provide two (2) business days prior to contract execution, copies of the Employee Drug Testing Program for the Bidder and all listed Subcontractors.

E. If the successful Bidder fails to execute the required Contract and Bond, as aforesaid, within twenty (20) days after the date of official Notice of the Award of the Contract, their Bid guaranty shall immediately be taken and become the property of the State for the benefit of the Agency as liquidated damages, and not as a forfeiture or as a penalty. Award will then be made to the next lowest qualified Bidder of the Work or re-advertised, as the Agency may decide.

11. GENERAL COMMENTS

A. JOINT VENTURE AGREEMENTS

In the event of a mandatory pre-bid meeting, representatives of both Joint Ventures must attend the pre-bid meeting and must be an officer and co-joint venture of the corporations involved.

Each Joint Venture shall be qualified and capable to complete the project with their own forces.

Included with the bid submission, and as a requirement to bid, a copy of the executed Joint Venture Agreement shall be submitted and signed by all Joint Ventures involved.

All required bid bonds, performance bonds, material and labor payment bonds must be executed by both Joint Ventures and be placed in both of their names.

All required insurance certificates shall name both Joint Ventures.

Both Joint Ventures shall sign the bid form and shall submit a valid Delaware Business License with their bid.

Both Joint Ventures shall include their Federal E. I. Number with the bid.

Due to exceptional circumstances and for good cause shown, one or more of these provisions may be waived at the discretion of the Owner.

B. BUSINESS LICENSES FOR SUBCONTRACTORS

The successful Bidder shall provide to the agency to which it is contracting, within 30 days of entering into such public works contract, copies of all Delaware Business licenses and taxpayer identification number (i.e. federal employer identification number or social security number) of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the Bidder entered the public works contract the Delaware Business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

C. BONDING REQUIREMENTS FOR NON-RESIDENT CONTRACTORS

All non-resident contractors are reminded that they must supply a surety or cash bond to the Division of Revenue equal to six percent (6%) of the total of all contracts exceeding $20,000 for construction within this state. For Division of Revenue purposes, cash bonds and bank letters of credit issued by financial institutions will be accepted on all contracts.

D. CONTRACT AWARD TO NON-RESIDENT CONTRACTORS

Every architect, or professional engineer or contractor or construction manager engaging in the practice of such profession shall furnish the Department of Finance within 10 days after entering into any contract with a contractor or subcontractor not a resident of this State, a statement of the total value of such contract or contracts together with the names and addresses of the contracting parties.

E. STATE LICENSE AND TAX REQUIREMENTS

The Contractor and Subcontractor shall be licensed to do business in the State of Delaware & New Castle County and shall pay all fees and taxes due under State laws. In conformance with Section 2503, Chapter 25, Title 30, Delaware Code, "the Contractor shall furnish the State Tax Department within ten (10) days after award of the Contract, a statement of the total values of each contract and subcontract, together with the names and addresses of the contracting parties . . ."

F. RIGHT TO AUDIT RECORDS

The Owner (contracting agency) shall have the right to audit the books and records of a Contractor or any Subcontractor under any Contract or Subcontract to the extent that the books and records relate to the performance of the Contract or Subcontract.

Said books and records shall be maintained by the Contractor for a period of three (3) years from the date of final payment under the Prime Contract and by the Subcontractor for a period of three (3) years from the date of final payment under the Subcontract.

G. PREFERENCE FOR DELAWARE LABOR

In the construction of all public works for the State or any political subdivision thereof or by firms contracting with the State or any political subdivision thereof, preference in employment of laborers, workers or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State. Each public works contract for the construction of public works for the State or any political subdivision thereof shall contain a stipulation that any persons, company or corporation who violates this section shall pay a penalty to the Secretary of Finance equal to the amount of compensation paid to any person in violation of this section.

END OF SECTION

Contract No. HHS-01 Demolition

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8" concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4" of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the

contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Demolition			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-01 Demolition have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-02 Sitework/Utilities

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8" concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4" of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the

contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Sitework			
2. Utilities			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-02 Sitework/Utilities have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-03 Concrete

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Concrete			
2. Waterproofing			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-03 Concrete have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-04 Masonry and Masonry Restoration

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____

(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Masonry			
2. Masonry Restoration			
3. Masonry Cleaning			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-04 Masonry and Masonry Restoration have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-05 Structural and Miscellaneous Steel

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Structural Steel			
2. Misc Metals			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-05 Structural and Miscellaneous Steel have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-06 Carpentry/Rough and Finish

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____

(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Carpentry			
2. Doors Frames/Hdw			
3. Alum Clad Windows			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-06 Carpentry/Rough and Finish have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-07 Metal Framing, Drywall and Plaster

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Metal Frames			
2. Drywall			
3. Plaster			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-07 Metal Framing, Drywall and Plaster have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-08 Acoustical Ceilings and Panels

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Acoustical			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-08 Acoustical Ceilings and Panels have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-09 Terrazzo Flooring

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____

(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Terrazzo			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-09 Terrazzo Flooring have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-10 Flooring

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8" concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4" of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the

contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Flooring			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-10 Flooring have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-11 Laminate Casework and Millwork

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____

(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Casework			
2. Millwork			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-11 Laminate Casework and Millwork have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-12 Roofing, Sheet Metal and Waterproofing

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8" concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4" of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Roofing			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-12 Roofing, Sheet Metal and Waterproofing have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-13 Ceramic Tile

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Ceramic Tile			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-13 Ceramic Tile have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-14 Painting and Coating

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Painting			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-14 Painting and Coatings have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-15 Wood Flooring

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Wood Flooring			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-15 Wood Flooring have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-16 Window Treatments

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Window Treatment			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-16 Window Treatments have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-17 Conveying Equipment

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Elevator			
2.			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-17 Conveying Equipment have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

Contract No. HHS-18 Aluminum Windows

BID FORM

For Bids Due: _____

To: NCC Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

Name of Bidder: _____

Bidder Address: _____

_____

Contact Name: _____ E-Mail Address: _____

Delaware Business License No.:_____ Taxpayer ID No.: _____

(Other License Nos.): _____
(A copy of Bidder's Delaware Business License must be attached to this form.)

Phone No.: ( ) _____ - _____ Fax No.: ( ) _____ - _____

The undersigned, representing that he has read and understands the Bidding Documents and that this bid is made in accordance therewith, that he has visited the site and has familiarized himself with the local conditions under which the Work is to be performed, and that his bid is based upon the materials, systems and equipment described in the Bidding Documents without exception, hereby proposes and agrees to provide all labor, materials, plant, equipment, supplies, transport and other facilities required to execute the work described by the aforesaid documents for the lump sum itemized below:

$_____ ($_____)

ALTERNATES
N/A

UNIT PRICES

Unit prices conform to applicable project specification section. Refer to the specifications for a complete description of the following Unit Prices:

	ADD	DEDUCT
Unit Price No. 1: Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.	_____	_____
Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.	_____	_____
Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.	_____	_____
Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.	_____	_____
Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.	_____	_____
Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.	_____	_____
Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.	_____	_____
Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.	_____	_____
Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.	_____	_____
Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.	_____	_____
Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.	_____	_____
Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.	_____	_____
Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.	_____	_____
Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.	_____	_____
Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.	_____	_____

	ADD	DEDUCT
Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.	_____	_____
Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.	_____	_____
Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.	_____	_____
Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.	_____	_____
Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.	_____	_____
Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.	_____	_____
Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.	_____	_____
Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.	_____	_____
Unit Price No. 25: Provide a unit cost to saw cut and remove 8″ concrete slab.	_____	_____
Unit Price No. 26: Provide a unit cost to remove 4″ of stone fill.	_____	_____

NOTE: The difference in price between Add and Deduct in the above Unit Prices should not exceed fifteen percent (10%).

I/We acknowledge Addendums numbered _____ and the price(s) submitted include any cost/schedule impact they may have.

This bid shall remain valid and cannot be withdrawn for ninety (90) days the date of opening of bids, and the undersigned shall abide by the Bid Security forfeiture provisions. Bid Security is attached to this Bid (if required).

The Owner shall have the right to reject any or all bids, and to waive any informality or irregularity in any bid received.

This bid is based upon work being accomplished by the Sub-Contractors named on the list attached to this bid.

The undersigned represents and warrants that he has complied and shall comply with all requirements of local, state, and national laws; that no legal requirement has been or shall be violated in making or accepting this bid, in awarding the contract to him or in the prosecution of the work required; that the bid is legal and firm; that he has not, directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken action in restraint of free competitive bidding.

Upon receipt of written notice of the acceptance of this Bid, the Bidder shall, within twenty (20) calendar days, execute the agreement in the required form and deliver the Contract Bonds, and Insurance Certificates, required by the Contract Documents.

I am / We are an Individual / a Partnership / a Corporation

By _____ Trading as _____
(Individual's / General Partner's / Corporate Name)

_____
(State of Corporation)

Business Address: _____
_____
_____
_____

Witness: _____ By: _____
(Authorized Signature)

(SEAL) _____
(Title)

Date: _____

ATTACHMENTS

Subcontractor List
Non-Collusion Statement
Bid Bond
Consent of Surety
Affidavit of Employee Drug Testing Program (1 per contractor/subcontractor)
Delaware Business License
(Others as Required by Project Manuals)

SUBCONTRACTOR LIST

In accordance with Title 29, Chapter 6962 (d)(10)b Delaware Code, the following sub-contractor listing must accompany the bid submittal. The name and address of the sub-contractor must be listed for each category where the bidder intends to use a sub-contractor to perform that category of work. In order to provide full disclosure and acceptance of the bid by the Owner, **it is required that bidders list themselves as being the sub-contractor for all categories where he/she is qualified and intends to perform such work.**

Subcontractor Category	Subcontractor	Address (City & State)	**Subcontractors tax payer ID # or Delaware Business license #**
1. Aluminum Storefront			
2. Steel Sash Windows			
3.			

NON-COLLUSION STATEMENT

This is to certify that the undersigned bidder has neither directly nor indirectly, entered into any agreement, participated in any collusion or otherwise taken any action in restraint of free competitive bidding in connection with this proposal submitted this date _____.

All the terms and conditions of Contract No.: HHS-18 Aluminum Windows have been thoroughly examined and are understood.

NAME OF BIDDER: _____

AUTHORIZED REPRESENTATIVE (TYPED): _____

AUTHORIZED REPRESENTATIVE (SIGNATURE): _____

TITLE: _____

ADDRESS OF BIDDER: _____

_____

_____

PHONE NUMBER: _____

Sworn to and Subscribed before me this _____ day of _____ 20_.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____of _____in the County of _____ and State of _____ as Principal, and _____of _____in the County of _____ and State of _____ as Surety, legally authorized to do business in the State of Delaware ('State"), are held and firmly unto the New Castle County Vocational Technical School District in the sum of _____ Dollars (S_____), or percent not to exceed _____ _____ Dollars (S_____) of amount of bid on Contract No. _____to be paid to the New Castle County Vocational Technical School District for the use and benefit of the New Castle County Vocational Technical School District for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden Principal who has submitted to the New Castle County Vocational Technical School District a certain proposal to enter into this contract for the furnishing of certain material and/or services within the State, shall be awarded this Contract, and if said Principal shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the New Castle County Vocational Technical School District this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____seal and dated this day of _____in the year of our Lord two thousand and _____(20__).

SEALED, AND DELIVERED IN THE PRESENCE OF

_____
Name of Bidder (Organization)

Corporate Seal

By:_____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness_____

_____

_____
Title

CONSENT OF SURETY

DATE_____

To:

Gentlemen:

We, the _____

_____
(Surety Company's Address)

_____

a Surety Company authorized to do business in the State of Delaware hereby agrees that if

_____
(Contractor)

_____
(Address)

_____

is awarded the Contract No. _____

We will write the required Performance and/or Labor and Material Bond required by Paragraph 9 of the Instructions to Bidders.

_____
(Surety Company)

By _____
(Attorney-in-Fact)

AFFIDAVIT
OF
EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite that complies with this regulation:

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____day of_____ 20_____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED AND NOTARIZED FOR YOUR BID TO BE CONSIDERED.

END OF SECTION

SECTION 005200 - AGREEMENT

1. SUMMARY

1.1. The Agreement Form for this Project is either the American Institute of Architects [Standard Form of Agreement between Owner and Contractor, Construction Manager as Advisor, AIA Document A132 - 2009 Edition]

1.2 A copy of AIA Document A132 – 2009 Edition is bound into this Project Manual following this page.

1.2.1 Under Article 5.1.4.5 add the following:

"Upon completion of the work under the Contract, the Owner may release 60% of the amount then retained. The balance of the amount retained will be held until:

A. All reports required of the Contract are received;
B. All Subcontractors in trades listed on the Bid Form are paid by the Contractor, unless the amount owed to the Subcontractor is disputed, in which case the Owner may withhold 150% of the amount withheld by the Contractor in its dispute with the Subcontractor; and
C. Final payment is authorized by the Owner."

END OF SECTION

DRAFT

AIA® Document A132™ – 2009

Standard Form of Agreement Between Owner and Contractor, *Construction Manager as Adviser Edition*

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

New Castle County Vocational Technical School District
1417 Newport Road
Wilmington, Delaware 4

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

Renovations to Howard High School of Technology

The Construction Manager:
(Name, legal status, address and other information)

EDiS Company
110 South Poplar Street, Suite 400
Wilmington, Delaware 19801

The Architect:
(Name, legal status, address and other information)

ABHA Architects
1621 North Lincoln Street
Wilmington, Delaware 19806

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A232™–2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™–2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

AIA Document A232™–2009 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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EXHIBIT A DETERMINATION OF THE COST OF THE WORK

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.
(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

« »

If, prior to the commencement of the Work, the Owner requires time to file mortgages, mechanics' liens and other security interests, the Owner's time requirement shall be as follows:

« »

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than « » (« ») days from the date of commencement, or as follows:
(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

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Per the construction schedule in Section 013216 Construction Schedule in the project manual.

Portion of the Work	Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

« »

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:
(Check the appropriate box.)

[X] Stipulated Sum, in accordance with Section 4.2 below

[« »] Cost of the Work plus the Contractor's Fee without a Guaranteed Maximum Price, in accordance with Section 4.3 below

[« »] Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

(Based on the selection above, complete Section 4.2, 4.3 or 4.4 below. Based on the selection above, also complete either Section 5.1.4, 5.1.5 or 5.1.6 below.)

§ 4.2 Stipulated Sum

§ 4.2.1 The Stipulated Sum shall be « » ($ « »), subject to additions and deletions as provided in the Contract Documents.

§ 4.2.2 The Stipulated Sum is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

« »

§ 4.2.3 Unit prices, if any:
(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.2.4 Allowances included in the Stipulated Sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Allowance
Miscellaneous Work as Directed by Construction Manager	$10,000

§ 4.3 Cost of the Work Plus Contractor's Fee without a Guaranteed Maximum Price

§ 4.3.1 The Contract Sum is the Cost of the Work as defined in Exhibit A, Determination of the Cost of the Work, plus the Contractor's Fee.

§ 4.3.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

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« »

§ 4.3.3 The method of adjustment of the Contractor's Fee for changes in the Work:

« »

§ 4.3.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

« »

§ 4.3.5 Rental rates for Contractor-owned equipment shall not exceed « » percent (« » %) of the standard rate paid at the place of the Project.

§ 4.3.6 Unit prices, if any:
(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.3.7 The Contractor shall prepare and submit to the Construction Manager for the Owner, in writing, a Control Estimate within 14 days of executing this Agreement. The Control Estimate shall include the items in Section A.1 of Exhibit A, Determination of the Cost of the Work.

§ 4.4 Cost of the Work Plus Contractor's Fee with a Guaranteed Maximum Price
§ 4.4.1 The Contract Sum is the Cost of the Work as defined in Exhibit A, Determination of the Cost of the Work, plus the Contractor's Fee.

§ 4.4.2 The Contractor's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee.)

« »

§ 4.4.3 The method of adjustment of the Contractor's Fee for changes in the Work:

« »

§ 4.4.4 Limitations, if any, on a Subcontractor's overhead and profit for increases in the cost of its portion of the Work:

« »

§ 4.4.5 Rental rates for Contractor-owned equipment shall not exceed « » percent (« » %) of the standard rate paid at the place of the Project.

§ 4.4.6 Unit Prices, if any:
(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.4.7 Guaranteed Maximum Price
§ 4.4.7.1 The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed « » ($ « »), subject to additions and deductions by changes in the Work as provided in the Contract Documents. Such maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.
(Insert specific provisions if the Contractor is to participate in any savings.)

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« »

§ 4.4.7.2 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

« »

§ 4.4.7.3 Allowances included in the Guaranteed Maximum Price, if any:
(Identify and state the amounts of any allowances, and state whether they include labor, materials, or both.)

Item	Allowance

§ 4.4.7.4 Assumptions, if any, on which the Guaranteed Maximum Price is based:

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor, and upon certification of the Project Application and Project Certificate for Payment or Application for Payment and Certificate for Payment by the Construction Manager and Architect and issuance by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the 25th day of a month, the Owner shall make payment of the certified amount in the Application for Payment to the Contractor not later than the 5th day of the second month. If an Application for Payment is received by the Construction Manager after the application date fixed above, payment shall be made by the Owner not later than forty five (45) days after the Construction Manager receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum

§ 5.1.4.1 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work and be prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager and Architect may require. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.4.2 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.4.3 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

.1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent (5%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Section 7.3.9 of the General Conditions;

.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved

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in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent (5%);

.3 Subtract the aggregate of previous payments made by the Owner; and

.4 Subtract amounts, if any, for which the Construction Manager or Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of the General Conditions.

§ 5.1.4.4 The progress payment amount determined in accordance with Section 5.1.4.3 shall be further modified under the following circumstances:

.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to one hundred percent (100%) of the Contract Sum, less such amounts as the Construction Manager recommends and the Architect determines for incomplete Work and unsettled claims; and

.2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of the General Conditions.

§ 5.1.4.5 Reduction or limitation of retainage, if any, shall be as follows:
(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.4.3.1 and 5.1.4.3.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

« »

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2 of AIA Document A232–2009, and to satisfy other requirements, if any, which extend beyond final payment;

.2 the Contractor has submitted a final accounting for the Cost of the Work, pursuant to Exhibit A, Determination of the Cost of the Work when payment is on the basis of the Cost of the Work, with or without a Guaranteed Maximum payment; and

.3 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect; such final payment shall be made by the Owner not more than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment, or as follows:

As described in the contract documents.

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A232–2009, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

« »
« »
« »
« »

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A232–2009, the method of binding dispute resolution shall be as follows:
(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

[« »] Arbitration pursuant to Section 15.4 of AIA Document A232–2009.

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[« »] Litigation in a court of competent jurisdiction.

[X] Other: *(Specify)*

Per 007300, "any or all remedies at law or in equity,"

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 Where the Contract Sum is a Stipulated Sum

§ 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2009.

§ 7.1.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2009.

§ 7.2 Where the Contract Sum is Based on the Cost of the Work with or without a Guaranteed Maximum Price

§ 7.2.1 Subject to the provisions of Section 7.2.2 below, the Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2009.

§ 7.2.2 The Contract may be terminated by the Owner for cause as provided in Article 14 of AIA Document A232–2009; however, the Owner shall then only pay the Contractor an amount calculated as follows:

.1 Take the Cost of the Work incurred by the Contractor to the date of termination;

.2 Add the Contractor's Fee computed upon the Cost of the Work to the date of termination at the rate stated in Sections 4.3.2 or 4.4.2, as applicable, or, if the Contractor's Fee is stated as a fixed sum, an amount that bears the same ratio to that fixed-sum Fee as the Cost of the Work at the time of termination bears to a reasonable estimate of the probable Cost of the Work upon its completion; and

.3 Subtract the aggregate of previous payments made by the Owner.

§ 7.2.3 If the Owner terminates the Contract for cause when the Contract Sum is based on the Cost of the Work with a Guaranteed Maximum Price, and as provided in Article 14 of AIA Document A232–2009, the amount, if any, to be paid to the Contractor under Section 14.2.4 of AIA Document A232–2009 shall not cause the Guaranteed Maximum Price to be exceeded, nor shall it exceed the amount calculated in Section 7.2.2.

§ 7.2.4 The Owner shall also pay the Contractor fair compensation, either by purchase or rental at the election of the Owner, for any equipment owned by the Contractor that the Owner elects to retain and that is not otherwise included in the Cost of the Work under Section 7.2.1. To the extent that the Owner elects to take legal assignment of subcontracts and purchase orders (including rental agreements), the Contractor shall, as a condition of receiving the payments referred to in this Article 7, execute and deliver all such papers and take all such steps, including the legal assignment of such subcontracts and other contractual rights of the Contractor, as the Owner may require for the purpose of fully vesting in the Owner the rights and benefits of the Contractor under such subcontracts or purchase orders.

§ 7.2.5 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A232–2009; in such case, the Contract Sum and Contract Time shall be increased as provided in Section 14.3.2 of AIA Document A232–2009, except that the term 'profit' shall be understood to mean the Contractor's Fee as described in Sections 4.3.2 and 4.4.2 of this Agreement.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A232–2009 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

« » % « »

§ 8.3 The Owner's representative:

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(Name, address and other information)

Kevin Lucas
EDiS Company
110 South Poplar Street, Suite 400
Wilmington, Delaware 19801

§ 8.4 The Contractor's representative:
(Name, address and other information)

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

« »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A132–2009, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition.

§ 9.1.2 The General Conditions are AIA Document A232–2009, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
A232-2009	Supplementary General Conditions		

§ 9.1.4 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

« »

Section	Title	Date	Pages

§ 9.1.5 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

As described in the contract documents.

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents are:

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Bid Form dated
Letter of Intent dated
State of Delaware Purchase Order

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A232–2009.
(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A232–2009.)

Type of Insurance or Bond	Limit of Liability or Bond Amount ($0.00)

This Agreement is entered into as of the day and year first written above.

NCC Vocational Technical School District	**Contractor**
OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
« »« »	« »« »
(Printed name and title)	*(Printed name and title)*

DRAFT

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SECTION 006113 – PERFORMANCE AND PAYMENT BONDS

1. PERFORMANCE AND PAYMENT BONDS

1.1 Bonds must be in the following form:

1. Form of Performance Bond (attached).
2. Form of Payment Bond (attached).

SECTION 006113 - FORM OF PAYMENT BOND

Bond Number:

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal ("Principal"), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety ("Surety"), are held and firmly bound unto the State of Delaware, New Castle County Vocational Technical School District ("Owner"), in the amount of _____ ($_____), to be paid to Owner, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns, jointly and severally, for and in the whole firmly by these presents.

Sealed with our seals and dated this _____ day of_____, 20____.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH, that if Principal, who has been awarded by Owner that certain contract known as Contract No. _____dated the _____ day of _____, 20__ (the "Contract"), which Contract is incorporated herein by reference, shall well and truly pay all and every person furnishing materials or performing labor or service in and about the performance of the work under the Contract, all and every sums of money due him. her, them or any of them, for all such materials, labor and service for which Principal is liable, shall make good and reimburse Owner sufficient funds to pay such costs in the completion of the Contract as Owner may sustain by reason of any failure or default on the part of Principal, and shall also indemnity and save harmless Owner from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of Surety and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and Surety hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to Surety as though done or omitted to be done by or in relation to Principal.

Surety hereby stipulates and agrees that no modifications, omission or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of Surety and its bond. Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to Surety or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

Witness or Attest: PRINCIPAL

By: _____ _____

Name: _____

Title: _____

(Corporate Seal)

Witness or Attest: SURETY

By: _____ _____

Name: _____

Title: _____

(Corporate Seal)

SECTION 006113 - FORM OF PERFORMANCE BOND

Bond Number: _____

KNOW ALL PERSONS BY THESE PRESENTS, that we, _____, as principal ("Principal"), and _____, a _____ corporation, legally authorized to do business in the State of Delaware, as surety ("Surety"), are held and firmly bound unto the State of Delaware, New Castle County Vocational Technical School District ("Owner"), in the amount of_____ ($_____) to be paid to Owner, for which payment well and truly to be made, we do bind ourselves, our and each and every of our heirs, executors, administrations, successors and assigns. jointly and severally, for and in the whole, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20_____.

NOW THE CONDITION OF THIS OBLICATION IS SUCH, that if Principal, who has been awarded by Owner that certain contract known as Contract No. _____ dated the _____ day of _____, 20 (the "Contract"), which Contract is incorporated herein by reference, shall well and truly provide and furnish all materials, appliances and tools and perform all the work required under and pursuant to the terms and conditions of the Contract and the Contract Documents (as defined in the Contract) or any changes or modifications thereto made as therein provided, shall make good and reimburse Owner sufficient funds to pay the costs of completing the Contract that Owner may sustain by reason of any failure or default on the part of Principal, and shall also indemnify and save harmless Owner from all costs, damages and expenses arising out of or by reason of the performance of the Contract and for as long as provided by the Contract; then this obligation shall be void, otherwise to be and remain in full force and effect.

Surety, for value received, hereby stipulates and agrees, if requested to do so by Owner, to fully perform and complete the work to be performed under the Contract pursuant to the terms, conditions and covenants thereof, if for any cause Principal fails or neglects to so fully perform and complete such work

Surety, for value received, for itself and its successors and assigns, hereby stipulates and agrees that the obligation of Surety and its bond shall be in no way impaired or affected by any extension of time, modification, omission, addition or change in or to the Contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provisions thereof, or by any assignment, subletting or other transfer thereof or of any work to be performed or any monies due or to become due thereunder; and Surety hereby waives notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers and hereby expressly stipulates and agrees that any and all things done and omitted to be done by and in relation to assignees, subcontractors, and other transferees shall have the same effect as to Surety as though done or omitted to be done by or in relation to Principal.

Surety hereby stipulates and agrees that no modifications, omissions or additions in or to the terms of the Contract shall in any way whatsoever affect the obligation of Surety and its bond.

Any proceeding, legal or equitable, under this Bond may be brought in any court of competent jurisdiction in the State of Delaware. Notices to Surety or Contractor may be mailed or delivered to them at their respective addresses shown below.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hand and seals, and such of them as are corporations have caused their corporate seal to be hereto affixed and these presents to be signed by their duly authorized officers, the day and year first above written.

Witness or Attest: PRINCIPAL

By: _____ _____

Name: _____

Title: _____

(Corporate Seal)

Witness or Attest: SURETY

By: _____ _____

Name: _____

Title: _____

(Corporate Seal)

END OF SECTION

SECTION 006216 – CERTIFICATE OF INSURANCE

In conjunction with Insurance Requirements AIA General Conditions, Article 11, the Contractor shall be bound by the following limits of liability insurance (for Contracts under this Bid Pack). The Contractor shall use the standard "ACORD" for titled "Certificate of Insurance" in submitting his liability insurance limits. The required limits to be inserted in accordance with the sample "ACORD" form in this section:

GENERAL NOTES

1. Other Insurance

   A. Contractor shall carry any necessary insurance required to cover Owned and Rental equipment that may be necessary for them to use in the performance of the Work.

2. Contractor shall have the following additional items added to his required "ACCORD" form Certificate of Insurance:

   A. Name and Address of Insured (Contractor).
   B. Description of Operations/Locations -

3. Added Insured – NCC Vocational Technical School District and EDiS Company

4. Certificate Holder – New Castle County Vocational Technical School District
   1417 Newport Road
   Wilmington, Delaware 19804

Contractors shall note that although not a part of AIA Document A232 - 2009 Edition, these additional articles apply as noted to this Project.

A sample certificate is bound into the Project Manual immediately following this Document.

END OF SECTION

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 02/16/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies)must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER

Willis of Pennsylvania, Inc.
c/o 26 Century Blvd.
P. O. Box 305191
Nashville, TN 37230-5191

CONTACT NAME:
PHONE (A/C, NO, EXT): 877-945-7378 FAX (A/C, NO): 888-467-2378
E-MAIL ADDRESS: certificates@willis.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A: North River Insurance Company	21105-001
INSURER B: United States Fire Insurance Company	21113-004
INSURER C: Catlin Specialty Insurance Company	15989-001
INSURER D:	
INSURER E:	
INSURER F:	

INSURED

EDiS Company
110 South Poplar Street
Suite 400
P.O. Box 2697
Wilmington, DE 19801

COVERAGES **CERTIFICATE NUMBER: 24134127** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY	Y		543-996167-4	10/1/2015	10/1/2016	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurence)	$ 300,000
							MED EXP (Any one person)	$ 15,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
B	AUTOMOBILE LIABILITY			133-737923-7	10/1/2015	10/1/2016	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY(Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY(Per accident)	$
	HIRED AUTOS / NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
A	X UMBRELLA LIAB X OCCUR			5811059088	10/1/2015	10/1/2016	EACH OCCURRENCE	$ 20,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ 20,000,000
	DED RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		408-727110-6	10/1/2015	10/1/2016	X PER STATUTE / OTH-ER	
							E.L. EACH ACCIDENT	$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
C	Poll./Professional			CPL-671238-1016	10/1/2015	10/1/2016	$2,000,000 each claim $3,000,000 Aggregate	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additonal Remarks Schedule, may be attached if more space is required)

Project: Renovations to Howard High School of Technology

NCC Vocational Technical School District and EDiS Company are included as Additional Insureds as respects to General Liability as required by written contract.

CERTIFICATE HOLDER

New Castle County
Vocational Technical School District
1417 Newport Road
Wilmington, DE 19804

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

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SECTION 007200 – GENERAL CONDITIONS

1. SUMMARY

A. The General Conditions for this Project are the American Institute of Architects General Conditions of the Contract for Construction, Construction Manager as Advisor Edition, AIA Document A232 - 2009 Edition.

B. A copy of AIA Document A232 - 2009 Edition is bound into this Project Manual following this page.

END OF SECTION

AIA® Document A232™ – 2009

General Conditions of the Contract for Construction, *Construction Manager as Adviser Edition*

for the following PROJECT:
(Name, and location or address)

Renovations to Howard High School of Technology
401 East 12th Street
Wilmington, Delaware 19801

THE CONSTRUCTION MANAGER:
(Name, legal status and address)

EDiS Company
110 South Poplar Street, Suite 400
Wilmington, Delaware 19801

THE OWNER:
(Name, legal status and address)

New Castle County Vocational Technical School District
1417 Newport Road
Wilmington, Delaware 19801

THE ARCHITECT:
(Name, legal status and address)

ABHA Architects
1621 North Lincoln Street
Wilmington, Delaware 19806

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A132™–2009, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™–2009, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2009, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents. The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement), and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of addenda relating to bidding requirements).

§ 1.1.2 The Contract. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

§ 1.1.3 The Work. The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Multiple Prime Contractors and by the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

§ 1.1.5 The Drawings. The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 The Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service. Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker. The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect, or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 Transmission of Data in Digital Form

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Article 4, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Information and Services Required of the Owner

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

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the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. Unless otherwise provided under the Contract Documents, the Owner, through the Construction Manager, shall secure and pay for the building permit.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.2.6 The Owner shall endeavor to forward all communications to the Contractor through the Construction Manager and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents.

§ 2.3 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to earry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect, after consultation with the Construction Manager. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The plural term "Multiple Prime Contractors" refers to persons or entities who perform construction under contracts with the Owner that are administered by the Construction Manager. The term does not include the Owner's own forces, including persons or entities under separate contracts not administered by the Construction Manager.

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§ 3.1.3 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.4 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contraetor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construetion Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences betwcen field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instruction concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner, the Construction Manager, and the Architect and shall not proceed with that portion of the Work without further written instructions from the Architect, through the Construction Manager. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

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§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, eonstruction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

The Contractor warrants to the Owner, Construction Manager, and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform with the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work or portions thereof provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices, and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Owner, through the Construction Manager, shall secure and pay for the building permit. The Contractor shall secure and pay for other permits, fees, licenses and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect and

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Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner, Construction Manager, and Contractor in writing, stating the reasons. If the Owner or Contractor disputes the Architect's determination or recommendation, either party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Doeuments, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

.1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner and Architect through the Construction Manager, the name and qualifications of a proposed superintendent. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager, or the Architect has reasonable objection to the proposed superintendent or (2) that any of them require additional time to review. Failure of the Construction Manager to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information and the Construction Manager's approval a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at

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appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Projeet schedule to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Multiple Prime Contractors or the construction or operations of the Owner's own forces.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter update it as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Construction Manager's and Architect's approval. The Architect and Construction Manager's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Construction Manager and Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall participate with other Contractors, the Construction Manager and Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager and Architect and incorporated into the approved Project schedule.

§ 3.11 Documents and Samples at the Site

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These documents shall be available to the Architect and delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.9 through 4.2.11. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Construction Manager Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the Project submittal schedule approved by the Construction Manager and Architect, or in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Multiple Prime Contractors or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples and similar submittals with related documents submitted by other Multiple Prime Contractors.

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§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been reviewed and approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Construction Manager and Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Construction Manager and Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

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§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner's own forces or of other Multiple Prime Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner's own forces or by other Multiple Prime Contractors except with written consent of the Construction Manager, Owner and such other Multiple Prime Contractors; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the other Multiple Prime Contractors or the Owner the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner, Construction Manager and Architect access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner, Architect, or Construction Manager. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect through the Construction Manager.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Construction Manager, Architect, Construction Manager's and Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER

§ 4.1 General

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

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§ 4.1.2 The Owner shall retain a construction manager lawfully licensed to practice construction management or an entity lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.3 Duties, responsibilities and limitations of authority of the Construction Manager and Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Construction Manager, Architect and Contractor. Consent shall not be unreasonably withheld.

§ 4.1.4 If the employment of the Construction Manager or Architect is terminated, the Owner shall employ a successor construction manager or architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Construction Manager or Architect, respectively.

§ 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner and Construction Manager (1) known deviations from the Contract Documents and from the most recent Project schedule prepared by the Construction Manager, and (2) defects and deficiencies observed in the Work.

§ 4.2.3 The Construction Manager shall provide a staffing plan to include one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner reasonably informed of the progress of the Work, and will report to the Owner and Architeet (1) known deviations from the Contract Documents and the most recent Project schedule, and (2) defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Multiple Prime Contractors in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4, and Architect will not have control over, or charge of, construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of or be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 Communications Facilitating Contract Administration. Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Construction Manager, and shall contemporaneously provide the same communications to the Architect about matters arising out of or relating to the Contract Documents. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with other Multiple Prime Contractors shall be through the Construction Manager and shall be contemporaneously provided to the Architect if those communications are about matters arising out of or related to the Contract Documents. Communications by and with the Owner's own forces shall be through the Owner.

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§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents and will notify each other about the rejection. The Construction Manager shall determine in general whether the Work of the Contractor is being performed in accordance with the requirements of the Contract Documents and notify the Owner, Contractor and Architect of defects and deficiencies in the Work. Whenever the Construction Manager considers it necessary or advisable, the Construction Manager will have authority to require additional inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, upon written authorization of the Owner, whether or not such Work is fabricated, installed or completed. The foregoing authority of the Construction Manager will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing any of the Work.

§ 4.2.9 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data and Samples. Where there are Multiple Prime Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from Contractor and other Multiple Prime Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.10 The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.11 Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Construction Manager and Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Construction Manager and Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.12 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.13 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7 and the Architect will have authority to order minor changes in the Work as provided in Section 7.4. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.14 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples and similar

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required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.15 The Construction Manager will assist the Architect in conducting inspections to determine the dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

§ 4.2.16 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.17 The Architect will interpret and decide matters concerning performance under, and requirements of the Contract Documents on written request of the Construction Manager, Owner or Contractor through the Construction Manager. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.18 Interpretations and decisions of the Architect will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions so rendered in good faith.

§ 4.2.19 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.20 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing to the Construction Manager to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Doeuments as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Multiple Prime Contractors or subcontractors of other Multiple Prime Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Construction Manager for review by the Owner, Construction Manager and Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Construction Manager may reply within 14 days to the Contractor in writing stating (1) whether the Owner, the Construction Manager or the Architect has reasonable objection to any such proposed person or entity or, (2) that the

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Construction Manager, Architect or Owner requires additional time for review. Failure of the Construction Manager, Owner, or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architeet has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respeet to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

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ARTICLE 6 CONSTRUCTION BY OWNER OR BY OTHER CONTRACTORS

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, which include persons or entities under separate contracts not administered by the Construction Manager, and to award other contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces including persons or entities under separate contracts not administered by the Construction Manager, the Owner shall provide for coordination of such forces with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11 and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Construction Manager and other Multiple Prime Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces or other Multiple Prime Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Construction Manager and Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's own forces or other Multiple Prime Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a separate contractor or to other Multiple Prime Contractors because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces or other Multiple Prime Contractors.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner, separate contractors, or other Multiple Prime Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and other Multiple Prime Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, other Multiple Prime Contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may elean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

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§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor; a Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 Change Orders

A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager, Architect and Contractor, stating their agreement upon all of the following:

- **.1** The change in the Work;
- **.2** The amount of the adjustment, if any, in the Contract Sum; and
- **.3** The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- **.1** Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- **.2** Unit prices stated in the Contract Documents or subsequently agreed upon;
- **.3** Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- **.4** As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager and Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

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.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers compensation insurance;
.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
.5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work
The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order issued through the Construction Manager and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 Definitions
§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion
§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

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§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner, Owner's own forces, Construction Manager, Architect, any of the other Multiple Prime Contractors or an employee of any of them, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration, or by other causes that the Architect, based on the recommendation of the Construction Manager, determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 Schedule of Values

Where the Contract is based on a Stipulated Sum or Guaranteed Maximum Price, the Contractor shall submit to the Construction Manager, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Construction Manager and Architect may require. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. In the event there is one Contractor, the Construction Manager shall forward to the Architect the Contractor's schedule of values. If there are Multiple Prime Contractors responsible for performing different portions of the Project, the Construction Manager shall forward the Multiple Prime Contractors' schedules of values only if requested by the Architect.

§ 9.3 Applications for Payment

§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner, Construction Manager or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for

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Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 Where there is only one Contractor, the Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either issue to the Owner a Certificate for Payment, with a copy to the Construction Manager, for such amount as the Architect determines is properly due, or notify the Construction Manager and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

§ 9.4.2 Where there are Multiple Prime Contractors performing portions of the Project, the Construction Manager will, within seven days after the Construction Manager receives the Multiple Prime Contractors' Applications for Payment: (1) review the Applications and certify the amount the Construction Manager determines is due each of the Multiple Prime Contractors; (2) prepare a Summary of Contractors' Applications for Payment by combining information from each Multiple Prime Contractors' application with information from similar applications for progress payments from other Multiple Prime Contractors; (3) prepare a Project Application and Certificate for Payment; (4) certify the amount the Construction Manager determines is due all Multiple Prime Contractors; and (5) forward the Summary of Contractors' Applications for Payment and Project Application and Certificate for Payment to the Architect.

§ 9.4.3 Within seven days after the Architect receives the Project Application and Project Certificate for Payment and the Summary of Contractors' Applications for Payment from the Construction Manager, the Architect will either issue to the Owner a Project Certificate for Payment, with a copy to the Construction Manager, for such amount as the Architect determines is properly due, or notify the Construction Manager and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1. The Construction Manager will promptly forward the Architect's notice of withholding certification to the Contractors.

§ 9.4.4 The Construction Manager's certification of an Application for Payment or, in the case of Multiple Prime Contractors, a Project Application and Certificate for Payment shall be based upon the Construction Manager's evaluation of the Work and the information provided as part of the Application for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information and belief, the Work has progressed to the point indicated and the quality of the Work is in accordance with the Contract Documents. The certification will also constitute a recommendation to the Architect and Owner that the Contractor be paid the amount certified.

§ 9.4.5 The Architect's issuance of a Certificate for Payment or in the case of Multiple Prime Contractors, Project Application and Certificate for Payment, shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and information provided as part of the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated, that the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified.

§ 9.4.6 The representations made pursuant to Sections 9.4.4 and 9.4.5 are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Construction Manager or Architect.

§ 9.4.7 The issuance of a separate Certificate for Payment or a Project Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed the Contractor's construction means, methods, techniques,

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sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment or Project Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.4 and 9.4.5 cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.3. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment or a Project Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment or Project Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a separate contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager and both will reflect such payment on the next Certificate for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager and Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Construction Manager will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner, Construction

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Manager nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contraetor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 Failure of Payment

If the Construction Manager and Architect do not issue a Certificate for Payment or a Project Certificate for Payment, through no fault of the Contractor, within fourteen days after the Construction Manager's receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Construction Manager and Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the list, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the requirements of the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

§ 9.8.4 When the Architect, assisted by the Construction Manager, determines that the Work or designated portion thereof is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

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§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a written notice that the Work is ready for final inspection and acceptance and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager will evaluate the completion of Work of the Contractor and then forward the notice and Application, with the Construction Manager's recommendations, to the Architect who will promptly make such inspection. When the Architect, finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment or Project Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment or Project Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

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§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- **.1** liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents; or
- **.3** terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- **.1** employees on the Work and other persons who may be affected thereby;
- **.2** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, eustody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors;
- **.3** other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and
- **.4** construction or operations by the Owner or other Contractors.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly

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employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4, except damage or loss attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property
If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials
§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to, asbestos or polychlorinated biphenyl (PCB),encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner, Construction Manager and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify a presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor, the Construction Manager and the Architect will promptly reply to the Owner in writing stating whether or not any of them has reasonable objection to the persons or entities proposed by the Owner. If the Contractor, Construction Manager or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor, the Construction Manager and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Construction Manager, Architect, their consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

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§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Liability Insurance

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- **.1** Claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
- **.2** Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- **.3** Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- **.4** Claims for damages insured by usual personal injury liability coverage;
- **.5** Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- **.6** Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle; and
- **.7** Claims for bodily injury or property damage arising out of completed operations; and
- **.8** Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be submitted to the Construction Manager for transmittal to the Owner with a copy to the Architect prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Construction Manager, the Construction Manager's consultants, the Owner, the Architect, and the

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Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 Owner's Liability Insurance
The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 Property Insurance
§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for the Architect's, Contractor's, and Construction Manager's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 Boiler and Machinery Insurance. The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Construction Manager, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

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§ 11.3.4 If the Contraetor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 Waivers of Subrogation. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees each of the other, and (2) the Construction Manager, Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as the Owner and Contractor may have to the proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, Owner's separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers eaeh in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnifieation, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insuranee shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in aceordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or distribution of insurance proceeds in accordance with the direction of the arbitrators.

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§ 11.4 Performance Bond and Payment Bond

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's or Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by either, be uncovered for their observation and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered which the Construction Manager or Architect has not specifically requested to observe prior to its being covered, the Construction Manager or Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or one of the other Contractors in which event the Owner shall be responsible for payment of such costs.

§ 12.2 Correction of Work

§ 12.2.1 Before or After Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager or Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors or other Multiple Prime Contractors caused by the

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Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 Written Notice

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity or to an officer of the corporation for which it was intended; or if delivered at or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 Rights and Remedies

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Construction Manager, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

§ 13.5 Tests and Inspections

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and

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(2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Construction Manager, Arehitect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

§ 13.5.5 If the Construction Manager or Architect is to observe tests, inspections or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 Time Limits on Claims

The Owner and the Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and the Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- **.3** Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

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§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, after consultation with the Construction Manager, and upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- **.1** Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- **.2** Accept assignment of subcontracts pursuant to Section 5.4; and
- **.3** Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

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.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
.2 that an equitable adjustment is made or denied under another provision of this Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;
.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition. A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 Notice of Claims. Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Construction Manager and or Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 Continuing Contract Performance. Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Construction Manager will prepare Change Orders and the Architect will issue a Certificate for Payment or Project Certificate for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.3.

§ 15.1.5 Claims for Additional Time

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 Claims for Consequential Damages. The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

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.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Deeision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect and Construction Manager, if the Architect or Construction Manager is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

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§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the partics mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

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§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

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STATE OF DELAWARE DIVISION OF FACILITIES MANAGEMENT

SECTION 007300 - SUPPLEMENTARY GENERAL CONDITIONS A232-2009

The following supplements modify the "General Conditions of the Contract for Construction," AIA Document A232-2009. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

TABLE OF ARTICLES

1. GENERAL PROVISIONS
2. OWNER
3. CONTRACTOR
4. ADMINISTRATION OF THE CONTRACT
5. SUBCONTRACTORS
6. CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
7. CHANGES IN THE WORK
8. TIME
9. PAYMENTS AND COMPLETION
10. PROTECTION OF PERSONS AND PROPERTY
11. INSURANCE AND BONDS
12. UNCOVERING AND CORRECTION OF WORK
13. MISCELLANEOUS PROVISIONS
14. TERMINATION OR SUSPENSION OF THE CONTRACT

STATE OF DELAWARE DIVISION OF FACILITIES MANAGEMENT

ARTICLE 1: GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

Delete the last sentence in its entirety and replace with the following:

"The Contract Documents also include Advertisement for Bid, Instructions to Bidder, sample forms, the Bid Form, the Contractor's completed Bid and the Award Letter."

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

Add the following Paragraphs:

1.2.4 In the case of an inconsistency between the Drawings and the Specifications, or within either document not clarified by addendum, the better quality or greater quantity of work shall be provided in accordance with the Architect's interpretation.

1.2.5 The word "PROVIDE" as used in the Contract Documents shall mean "FURNISH AND INSTALL" and shall include, without limitation, all labor, materials, equipment, transportation, services and other items required to complete the Work.

1.2.6 The word "PRODUCT" as used in the Contract Documents means all materials, systems and equipment.

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

Delete Paragraph 1.5.1 in its entirety and replace with the following:

"All pre-design studies, drawings, specifications and other documents, including those in electronic form, prepared by the Architect under this Agreement are, and shall remain, the property of the Owner whether the Project for which they are made is executed or not. Such documents may be used by the Owner to construct one or more like Projects without the approval of, or additional compensation to, the Architect. The Contractor, Subcontractors, Sub-subcontractors and Material or Equipment Suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants appropriate to and for use in the execution of their Work under the Contract Documents. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or Material and Equipment Supplier on other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and Architect's consultants.

The Architect shall not be liable for injury or damage resulting from the re-use of drawings and specifications if the Architect is not involved in the re-use Project. ."

Delete Paragraph 1.5.2 in its entirety.

STATE OF DELAWARE DIVISION OF FACILITIES MANAGEMENT

ARTICLE 2: OWNER

2.1 General

2.1.2 Delete Paragraph 2.1.2 in its entirety.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 Delete the last sentence in this paragraph.

2.2.3 Add the following sentence:

"The Contractor, at their expense shall bear the costs to accurately identify the location of all underground utilities in the area of their excavation and shall bear all cost for any repairs required, out of failure to accurately identify said utilities."

2.2.5 Delete Subparagraph 2.2.5 in its entirety and substitute the following:

2.2.5 The Contractor shall be responsible to provide all Contract Documents (plans/specs) for their contract use. Owner will not supply documents.

ARTICLE 3: CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

Delete the third sentence in Paragraph 3.2.4.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

Add the following Paragraphs:

3.3.2.1 The Contractor shall immediately remove from the Work, whenever requested to do so by the Owner, any person who is considered by the Owner or Architect to be incompetent or disposed to be disorderly, or who for any reason is not satisfactory to the Owner, and that person shall not again be employed on the Work without the consent of the Owner or the Architect.

3.3.4 The Contractor must provide suitable storage facilities at the Site for the proper protection and safe storage of their materials. Consult the Owner and the Architect before storing any materials.

3.3.5 When any room is used as a shop, storeroom, office, etc., by the Contractor or Subcontractor(s) during the construction of the Work, the Contractor making use of these areas will be held responsible for any repairs, patching or cleaning arising from such use.

3.4 LABOR AND MATERIALS

Add the Following Paragraphs:

3.4.4 Before starting the Work, each Contractor shall carefully examine all preparatory Work that has been executed to receive their Work. Check carefully, by whatever means are required, to insure that its Work and adjacent, related Work, will finish to proper contours, planes and levels. Promptly notify the General Contractor/Construction Manager of any defects or imperfections in preparatory Work which will in any way affect satisfactory completion of its Work. Absence of such notification will be construed as an acceptance of preparatory Work and later claims of defects will not be recognized.

3.4.5 Under no circumstances shall the Contractor's Work proceed prior to preparatory Work proceed prior to preparatory Work having been completely cured, dried and/or otherwise made satisfactory to receive this Work. Responsibility for timely installation of all materials rests solely with the Contractor responsible for that Work, who shall maintain coordination at all times.

3.5 WARRANTY

Add the following Paragraphs:

3.5.1 The Contractor will warrant all materials and workmanship against original defects, except injury from proper and usual wear when used for the purpose intended, for two year after Acceptance by the Owner, and will maintain all items in condition that conforms with the Contract Documents during the period of warranty.

3.5.2 Non-conforming workduring the period of warranty will be corrected by the Contractor at its expense upon demand of the Owner, it being required that the Work conforms to the Contract Documents at the expiration of the warranty period.

3.5.3 In addition to the General Warranty there are other warranties required for certain items for different periods of time than the one year as above, and are particularly so stated in that part of the specifications referring to same. The said warranties will commence at the same time as the General Warranty.

3.5.4 If the Contractor fails to remedy any failure, defect or damage within a reasonable time after receipt of notice, the Owner will have the right to replace, repair, or otherwise remedy the failure, defect or damage at the Contractor's expense.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

Add the following Paragraphs:

3.11.1 During the course of the Work, the Contractor shall maintain a record set of drawings on which the Contractor shall mark the actual physical location of all piping, valves, equipment, conduit, outlets, access panels, controls, actuators, including all appurtenances that will be concealed once construction is complete, etc., including all invert elevations.

3.11.2 At the completion of the project, the Contractor shall obtain a set of reproducible drawings from the Architect, and neatly transfer all information outlined in 3.11.1 to provide a complete record of the as-built conditions.

3.11.3 The Contractor shall provide two (2) prints of the as-built conditions, along with the reproducible drawings themselves, to the Owner and one (1) set to the Architect. In addition, attach one complete set to each of the Operating and Maintenance Instructions/Manuals.

3.17 In the second sentence of the paragraph, insert "indemnify and" between "shall" and "hold".

ARTICLE 4: ARCHITECT AND CONSTRUCTION MANAGER

4.1 General

4.1.2 Insert "As required by law," at the beginning of the first sentence.

4.2 Administration of the Contract

Delete the first sentence of Paragraph 4.2.10 and replace with the following:

The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples for the purpose of checking for conformance with the Contract Documents.

Delete the second sentence of Paragraph 4.2.10 and replace with the following:

The Architect's action will be taken with such reasonable promptness as to cause no delay in the Work in the activities of the Owner, Contractor or separate Contractors, while allowing sufficient time in the Owner's professional judgment to permit adequate review.

Add the following to Paragraph 4.2.16:

There will be no full-time project representative provided by the Owner or Architect on this project.

Add to Paragraph 4.2.19 "and in compliance with all applicable codes, regulations and ordinances." to the end of the sentence.

ARTICLE 5: SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

Delete Paragraph 5.2.3 in its entirety and replace with the following:

5.2.3 If the Owner, Architect or Construction Manager has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Architect or Construction Manager has no reasonable objection, subject to the statutory requirements of 29 Delaware Code § 6962(d)(10)b.3 and 4.

STATE OF DELAWARE DIVISION OF FACILITIES MANAGEMENT

ARTICLE 6: CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

Delete Paragraph 6.1.3 in its entirety and replace with the following:

"When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Constructor who executes each separate Owner-Contractor Agreement."

6.2 MUTUAL RESPONSIBILITY

6.2.3 In the second sentence, strike the word "shall" and insert the word "may".

ARTICLE 7: CHANGES IN THE WORK

(SEE ARTICLE 7: CHANGES IN WORK IN THE GENERAL REQUIREMENTS)

ARTICLE 8: TIME

8.2 PROGRESS AND COMPLETION

Add the following Paragraphs:

8.2.1.1 Refer to Specification Section SUMMARY OF WORK for Contract time requirements.

8.2.4 If the Work falls behind the Progress Schedule as submitted by the Contractor, the Contractor shall employ additional labor and/or equipment necessary to bring the Work into compliance with the Progress Schedule at no additional cost to the Owner.

8.3 DELAYS AND EXTENSION OF TIME

8.3.1 Strike "arbitration" and insert "remedies at law or in equity".

Add the following Paragraph:

8.3.2.1 The Contractor shall update the status of the suspension, delay, or interruption of the Work with each Application for Payment. (The Contractor shall report the termination of such cause immediately upon the termination thereof.) Failure to comply with this procedure shall constitute a waiver for any claim for adjustment of time or price based upon said cause.

Delete Paragraph 8.3.3 in its entirety and replace with the following:

8.3.3 Except in the case of a suspension of the Work directed by the Owner, an extension of time under the provisions of Paragraph 8.3.1 shall be the

Contractor's sole remedy in the progress of the Work and there shall be no payment or compensation to the Contractor for any expense or damage resulting from the delay.

Add the following Paragraph:

8.3.4 By permitting the Contractor to work after the expired time for completion of the project, the Owner does not waive its rights under the Contract.

8.3.5 The parties agree that Paragraph 8.3.3 of the Supplementary General Conditions does not apply to the Construction Manager in the event of a delay caused by a party other than the Construction Manager.

ARTICLE 9: PAYMENTS AND COMPLETION

9.2 SCHEDULE OF VALUES

Add the following Paragraphs:

9.2.1 The Schedule of Values shall be submitted into Building Blok (EDiS' Web-Based Project Management software) using AIA Document G702, Continuation Sheet to G703.

9.3 APPLICATIONS FOR PAYMENT

Add the following Paragraph:

9.3.1.3 Application for Payment shall be submitted on AIA Document G702 "Application and Certificate for Payment", supported by AIA Document G703 "Continuation Sheet". Said Applications shall be fully executed and notarized.

Add the following Paragraphs:

9.3.4 Until Closeout Documents have been received and outstanding items completed the Owner will pay 95% (ninety-five percent) of the amount due the Contractor on account of progress payments.

9.3.5 The Contractor shall provide a current and updated Progress Schedule to the Architect with each Application for Payment. Failure to provide Schedule will be just cause for rejection of Application for Payment.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

Add the following to 9.5.1:

.8 failure to provide a current Progress Schedule;
.9 a lien or attachment is filed;
.10 failure to comply with mandatory requirements for maintaining Record Documents.

9.6 PROGRESS PAYMENTS

Delete Paragraph 9.6.1 in its entirety and replace with the following:

9.6.1 After the Architect and the Construction Manager have approved and issued a Certificate for Payment, payment shall be made by the Owner within 30 days after Owner's receipt of the Certificate for Payment.

9.7 FAILURE OF PAYMENT

In first sentence, strike the first reference to "seven" and insert "thirty (30)". Also strike "binding dispute resolution" and insert "remedies at law or in equity".

9.8 SUBSTANTIAL COMPLETION

9.8.5 In the second sentence, strike "shall" and insert "may".

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

Add the following Paragraphs:

10.1.1 Each Contractor shall develop a safety program in accordance with the Occupational Safety and Health Act of 1970. A copy of said plan shall be furnished to the Owner and Architect prior to the commencement of that Contractor's Work.

10.1.2 Each Contractor shall appoint a Safety Representative. Safety Representatives shall be someone who is on site on a full time basis. If deemed necessary by the Owner or Architect, Contractor Safety meetings will be scheduled. The attendance of all Safety Representatives will be required. Minutes will be recorded of said meetings by the Contractor and will be distributed to all parties as well as posted in all job offices/trailers etc.

10.2 SAFETY OF PERSONS AND PROPERTY

Add the following Paragraph:

10.2.4.1 As required in the Hazardous Chemical Act of June 1984, all vendors supplying any material that may be defined as hazardous must provide Material Safety Data Sheets for those products. Any chemical product should be considered hazardous if it has a caution warning on the label relating to a potential physical or health hazard, if it is known to be present in the work place, and if employees may be exposed under normal conditions or in foreseeable emergency situations. Material Safety Data Sheets shall be provided directly to the Owner, along with the shipping slips that include those products.

10.3 HAZARDOUS MATERIALS

Delete Paragraph 10.3.3 in its entirety.

Delete Paragraphs 10.3.6 in its entirety.

ARTICLE 11: INSURANCE AND BONDS

STATE OF DELAWARE DIVISION OF FACILITIES MANAGEMENT

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.4 Strike "the Owner" immediately following "(1)" and strike "and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations."

11.2 OWNER'S LIABILITY INSURANCE

Delete Paragraph 11.2 in its entirety.

11.3 PROPERTY INSURANCE

Delete Paragraph 11.3 and its subparagraphs in their entirety and replace with the following:

11.3 The Owner will not provide Builder's All Risk Insurance for the Project. The Contractor and all Subcontractors shall provide property coverage for their tools and equipment, as necessary. Any mandatory deductible required by the Contractor's Insurance shall be the responsibility of the Contractor.

11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 Add the following sentence: "The bonds will conform to those forms approved by the Office of Management and Budget."

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.2.2 AFTER SUBSTANTIAL COMPLETION

Add the following Paragraph:

12.2.2.1.1 At any time during the progress of the Work, or in any case where the nature of the defects will be such that it is not expedient to have corrected, the Owner, at its option, will have the right to deduct such sum, or sums, of money from the amount of the Contract as it considers justified to adjust the difference in value between the defective work and that required under contract including any damage to the structure.

12.2.2.2 Strike "one" and insert "two".

12.2.2.3 Strike "one" and insert "two".

12.2.5 In second sentence, strike "one" and insert "two".

ARTICLE 13: MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

Strike "except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4."

Insert "except that, if the parties have selected arbitration as the method of dispute resolution, the Delaware Arbitration Act, 10 Del. C. §5701, shall govern Section 15.4."

13.6 INTEREST

Strike "the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located." Insert "30 days of presentment of the authorized Certificate of Payment at the annual rate of 12% or 1% per month.

13.7 TIME LIMITS ON CLAIMS

Strike the last sentence.

Add the following Paragraph:

13.8 CONFLICTS WITH FEDERAL STATUTES OR REGULATIONS

13.8.1 If any provision, specifications or requirement of the Contract Documents conflict or is inconsistent with any statute, law or regulation of the government of the United State of America, the Contractor shall notify the Architect and Owner immediately upon discovery.

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

Delete Paragraph 14.4.3 in its entirety and replace with the following:

14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and cost incurred by reason of such termination along with reasonable overhead.

ARTICLE 15: CLAIMS AND DISPUTES

15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

Delete Paragraph 15.1.6 and its subparagraphs in their entirety.

15.2 INITIAL DECISION

Delete Paragraph 15.2.5 in its entirety and replace with the following:

15.2.5 The Architect will approve or reject Claims by written decision, which shall state the reasons therefore and shall notify the parties of any change in the Contract Sum or Contract Time or both. The approval or rejection of a Claim by the Architect shall be subject to mediation and other remedies at law or in equity.

Delete Paragraph 15.2.6 and its subparagraphs in their entirety.

15.3 MEDIATION

15.3.1 Strike “binding dispute resolution” and insert “any or all remedies at law or in equity”.

15.3.2 In the first sentence, delete “administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedure in effect on the date of the Agreement,”. Also strike “binding dispute resolution” and insert “remedies at law and in equity”.

15.4 ARBITRATION

Delete Paragraph 15.4 and its subparagraphs in their entirety.

END OF SUPPLEMENTARY GENERAL CONDITIONS

SECTION 007343 – WAGE RATE REQUIREMENTS

1. SUMMARY

A. In accordance with Delaware Code, Title 29, Chapter 69, Section 6912, all laborers and mechanics of the Contractor and all subcontractors employed to perform work directly upon the site of the work shall be paid unconditionally and not less often than once a week and without subsequent deduction or rebate on any account the full amounts accrued at the time of payment computed at wage rates not less than those determined by the Division of Industrial Affairs, Department of Labor, State of Delaware, as the prevailing rates in this area.

B. This approved scale of wages must be posted by the Contractor in a prominent and easily accessible place at the site of the work.

C. It is further stipulated that there may be withheld from the Contractor such accrued payment as may be considered necessary by the contracting officer to pay laborers and mechanics employed by the Contractor or any subcontractors on the work the difference between the rates of wages required and the rate of wages received by such laborers and mechanics and not refunded to the Contractor, subcontractor or their agents.

D. Where wage rates are published in this Manual they are issued by the State Department of Labor on the date indicated and is included for the convenience of Bidders. The Owner, the Architect, and the Construction Manager, accept no responsibility for the accuracy or applicability of any rates included herein. The actual wage rate determinations which will apply to the work will be those in effect on the first day of public advertisement for bids as determined by the State Department of Labor. It will be the responsibility of each bidder to contact the State Department of Labor and to incorporate these rates in his bid.

E. "In accordance with Delaware Code, Title 29, Section 6912, as amended July 5, 1994, contractors shall furnish sworn payroll information to the Department of Labor on a weekly basis for each contract which exceeds $15,000 for renovation work and $100,000 for new construction. The construction contract amount is based on a cumulative total of all contracts bid for a specific project. Payroll forms for submission may be obtained from the Department of Labor."

1. A Payroll Report, available from the Department of Labor is to be used to provide this information.

F. A copy of the Prevailing Wages for the project is attached hereto.

END OF SECTION

STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
225 Corporate Boulevard, Suite 104
Newark, Delaware 19702

TELEPHONE (302) 761-8200
(302) 451-3423
Fax (302) 368-6604

Via Facsimile and Regular Mail

March 16, 2016

EDIS
MAR 21 2016
RECEIVED

Mr. Kevin Lucas
Project Manager
Edis Company
110 S. Poplar Street
Suite 400
Wilmington, DE 19801

Re: New Castle County-Howard High school Bid Package A ,New Castle County

Dear Mr. Lucas:

I am responding to your request for a category determination for the New Castle County-Howard High school Bid Package A , which is a state funded construction project located in New Castle County, DE. The work consists of all assocaited work regarding additions and renovations to the 1927 Howard High School. You estimate the total cost of construction for this project to be $40,137,002.00.

Based upon the information you provided the Department of Labor has determined that this project is a Building Construction project.

Delaware's Prevailing Wage Regulations provide that the rates applicable to a project are the rates in effect on the date of publication of the specifications for that project. **I have enclosed a certified copy of the March 15, 2016, prevailing wage rates for Building Construction to be included in your bid specification.** However, please be advised that, in the event that a contract for a project is not executed within one hundred and twenty (120) days from the earliest date the specifications were published, the rates in effect at the time of the execution of the contract shall be the applicable rates for the project.

If you have any questions or I can provide any additional assistance, please do not hesitate to contact me at (302) 430-7702.

Sincerely,

Dan Nelson
Labor Law Enforcement Supervisor
daniel.nelson@state.de.us

Enclosure

New Castle County Vocational Technical School District
Renovations to Howard High School of Technology
Bid Pack A

April 14, 2016

STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 451-3423

Mailing Address:
225 CORPORATE BOULEVARD
SUITE 104
NEWARK, DE 19702

Located at:
225 CORPORATE BOULEVARD
SUITE 104
NEWARK, DE 19702

PREVAILING WAGES FOR **BUILDING CONSTRUCTION** EFFECTIVE MARCH 15, 2016

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
ASBESTOS WORKERS	22.58	27.81	40.47
BOILERMAKERS	67.59	34.29	50.41
BRICKLAYERS	50.49	50.49	50.49
CARPENTERS	52.81	52.81	41.97
CEMENT FINISHERS	70.82	30.05	21.89
ELECTRICAL LINE WORKERS	44.90	38.50	29.36
ELECTRICIANS	65.10	65.10	65.10
ELEVATOR CONSTRUCTORS	83.06	63.69	31.54
GLAZIERS	69.30	69.30	55.95
INSULATORS	54.38	54.38	54.38
IRON WORKERS	61.20	61.20	61.20
LABORERS	43.60	43.60	43.60
MILLWRIGHTS	66.83	66.83	53.40
PAINTERS	46.72	46.72	46.72
PILEDRIVERS	72.97	38.86	31.43
PLASTERERS	29.47	29.47	21.84
PLUMBERS/PIPEFITTERS/STEAMFITTERS	65.95	50.85	55.34
POWER EQUIPMENT OPERATORS	61.36	61.36	43.28
ROOFERS-COMPOSITION	23.49	23.40	20.87
ROOFERS-SHINGLE/SLATE/TILE	18.16	18.07	16.98
SHEET METAL WORKERS	65.14	65.14	65.14
SOFT FLOOR LAYERS	49.77	49.77	49.77
SPRINKLER FITTERS	54.57	54.57	54.57
TERRAZZO/MARBLE/TILE FNRS	55.72	55.72	46.92
TERRAZZO/MARBLE/TILE STRS	63.98	63.98	54.33
TRUCK DRIVERS	28.39	27.10	20.68

CERTIFIED: 3/16/16

BY: _____
ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 451-3423.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: New Castle County-Howard High school Bid Package A , New Castle County

SECTION 008114 – DRUG TESTING FORMS

1. SUMMARY

A. Pursuant to 4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds submit Testing Report Forms to the Owner no less than quarterly. See the form attached hereto.

B. The Contractor will notify the Owner in writing of any positive results of random drug testing. See the form attached hereto. The results must be reported to the Owner within 24 hours of receipt of the test results.

EMPLOYEE DRUG TESTING REPORT FORM
Period Ending:_____

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds submit Testing Report Forms to the Owner no less than quarterly.

Project Number: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Number of employees who worked on the jobsite during the report period:_____

Number of employees subject to random testing during the report period:_____

Number of Negative Results _____ Number of Positive Results _____

Action taken on employee(s) in response to a failed or positive random test:

_____

_____

_____

Authorized Representative of Contractor/Subcontractor: _____
(typed or printed)

Authorized Representative of Contractor/Subcontractor: _____
(signature)

Date: _____

EMPLOYEE DRUG TESTING
REPORT OF POSITIVE RESULTS

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors who work on Large Public Works Contracts funded all or in part with public funds to notify the Owner in writing of a positive random drug test.

Project Number: _____

Project Name: _____

Contractor/Subcontractor Name: _____

Contractor/Subcontractor Address: _____

_____

_____

Name of employee with positive test result:_____

Last 4 digits of employee SSN:_____

Date test results received:_____

Action taken on employee in response to a positive test result:

_____

_____

_____

Authorized Representative of Contractor/Subcontractor: _____
(typed or printed)

Authorized Representative of Contractor/Subcontractor: _____
(signature)

Date: _____

This form shall be sent by mail to the Owner within 24 hours of receipt of test results.

Enclose this test results form in a sealed envelope with the notation "Drug Testing Form – DO NOT OPEN" on the face thereof and place in a separate mailing envelope.

END OF SECTION

SECTION 011100 - SUMMARY OF WORK

1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Sections, apply to work of this Section.

2. CONTRACTS

A. The work will be performed under separate prime contracts managed by the Construction Manager.

3. ALTERATIONS & COORDINATION

A. Contractor shall be responsible to coordinate their work with the work of others, including, but not limited to, the preparation of general coordination drawings, diagrams and schedules, and control of site utilization, from the beginning of activity, through project close-out and warranty periods.

4. KNOWLEDGE OF CONTRACT REQUIREMENTS

A. The Contractor and his Subcontractors, Sub-subcontractors and material men shall consult in detail the Contract Documents for instructions and requirements pertaining to the Work, and at his and their cost, shall provide all labor, materials, equipment and services necessary to furnish, install and complete the work in strict conformance with all provisions thereof.

B. The Contractor will be held to have examined the site of the Work prior to submitting his proposal and informed himself, his Subcontractors, Sub-subcontractors and material men of all existing conditions affecting the execution of the Work.

C. The Contractor will be held to have examined the Contract Documents and modifications thereto, as they may affect subdivisions of the Work and informed himself, his Subcontractors, Sub-subcontractors and material men of all conditions thereof affecting the execution of the Work.

D. The Scope of Work for the Contract is not necessarily limited to the description of each section of the Specifications and the illustrations shown on the Drawings. Include all minor items not expressly indicated in the Contract Documents, or as might be found necessary as a result of field conditions, in order to complete the Work as it is intended, without any gaps between the various subdivisions of work.

E. The Contractor will be held to be thoroughly familiar with all conditions affecting labor in the area of the Project including, but not limited to, Unions, incentive pay, procurements, living, parking and commuting conditions and to have informed his

Subcontractors and Sub-subcontractors thereof.

5. CONTRACT DOCUMENTS INFORMATION

A. The Contract Documents are prepared in accordance with available information as to existing conditions and locations. If, during construction, conditions are revealed at variance with the Contract Documents, notify the Construction Manager immediately, but no more than three (3) days from the day the variance is first known. Failure to give timely notice shall operate to waive any claim Contractor might otherwise have for an adjustment to Contract Time or Sum as a consequence of such variance.

B. The Specifications determine the kinds and methods of installation of the various materials, the Drawings establish the quantities, dimensions and details of materials, the schedules on the Drawings give the location, type and extent of the materials.

C. Dimensions given on the Drawings govern scale measurements and large scale drawings govern small scale drawings, except as to anything omitted unless such omission is expressly noted on the large scale drawings.

D. The techniques or methods of specifying to record requirements varies throughout text, and may include “prescriptive”, “open generic/descriptive”, “compliance with standards”, “performance”, “proprietary”, or a combination of these. The methods used for specifying one unit of work has no bearing on requirements for another unit of work.

E. Whenever a material, article or piece of equipment is referred to in the singular number in the Contract Documents, it shall be the same as referring to it in the plural. As many such materials, articles or pieces of equipment shall be provided as are required to complete the Work.

F. Whenever a material, article or piece of equipment is specified by reference to a governmental, trade association of similar standard, it shall comply with the requirements of the latest publication thereof and amendments thereto in effect on the bid date.

G. In addition to the requirements of the Contract Documents, Contractor’s work shall also comply with applicable standards of the construction industry and those industry standards are made a part of Contract Documents by reference, as if copied directly into Contract Documents, or as if published copies were bound herein.

H. Where compliance with two (2) or more industry standards, contract requirements, or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, then the most stringent requirements, which are generally recognized to be also the most costly, is intended and will be enforced, unless specifically detailed language written into the Contract Documents clearly indicates that a less stringent requirement is to be fulfilled.

Refer apparently equal but different requirements, and uncertainties as to which level of quality is more stringent, to Architect for decision before proceeding.

I. Reference standards referenced directly in Contract Documents or by governing regulations have precedence over non-reference standards which are recognized in industry for applicability of work.

J. Contractor's bid is based on the complete set of Contract Documents including documents not specifically issued as part of the bid pack but referenced in same.

6. SCOPE OF WORK/GENERAL INFORMATION

A. A Scope of Work for each contract to be awarded on the project follows in this section. When a Contract has been awarded to a Contractor, the successful Contractor will be listed after the title of the Contract. When no Contract has yet been awarded, no Contractor's name will be listed. Previous Scopes of Work include addendum changes.

B. Contractor is responsible for performing the work listed in the Summary of Work for his contract. Contractor is also responsible for knowing the work that has been assigned to preceding contracts. No additional compensation or extension of time will be allowed a Contractor due to his ignorance of the work assigned to his Contract or to other contracts which may affect his work. The Contractor is responsible, however, for all items which are covered in the Specifications and Drawings relating to their Contract if not specifically mentioned in the Summary of Work.

C. The Construction Manager will provide on-site a source for temporary electric, temporary water and portable sanitation facilities only. It is each Contractor's responsibility to make the necessary connections, including all material for temporary electric and water. Please note that utility charges for office trailers will be the responsibility of the individual Contractors.

D. A dumpster will be provided on site for free use by Contractors to dispose of non-hazardous, common, work-related refuse. Clean-up is the responsibility of each Contractor. Clean up shall be performed on a daily basis. Contractors not complying will be advised in writing and back charged for all costs associated with the cleanup of their work.

E. Contractors are reminded that there are limited storage areas available on site. Off-site storage will be the responsibility of each individual Contractor. Neither the owner or construction manager will be charged additional costs for storage during the project.

F. Office trailer permits off site will be the responsibility of each individual Contractor. On site Contractor's field offices, one (1) per Contractor, if required, will be located as directed by the Construction Manager.

G. Contractor will be prepared to discuss and submit a detailed project schedule seven (7) days after receipt of Notice to Proceed and to begin its submittal process. The Project Schedule is an integral part of this contract. Certain construction sequences and priorities must take place in order to meet the target dates. Concentrated work periods will occur and each Contractor is responsible to staff the project as required by the current Construction Schedule or as directed by the Construction Manager. Contractor will cooperate with the Construction Manager in planning and meeting the required sequences of work and Project Schedule as periodically updated by the Construction Manager.

H. All bids must include insurance limits in accordance with Article 11 of the Section 007300 SUPPLEMENTARY CONDITIONS.

I. Hoisting, scaffolding and material handling is the responsibility of each Contractor, unless otherwise noted.

J. Contractor will be responsible for layout of its own work. The Construction Manager will provide benchmark and layout of the building line.

K. Contractor will be responsible to keep clean public roadways soiled by construction traffic on a daily basis. If cleaning is not done, the Construction Manager may perform the cleaning on an overtime basis and backcharge the Contractor responsible.

L. Contractor Scopes of Work and Schedule are interrelated. Familiarity with each is required.

M. The Construction Manager will provide testing services for soil, concrete and steel. Other testing as required by the Contract Documents will be in accordance with the technical specifications and/or the individual scope of work. Refer to Specification Section 004500 - QUALITY CONTROL.

N. Safety is the responsibility of each individual Contractor. The project will be governed under the guidelines of OSHA.

O. Inter-Contractor shop drawing distribution will be performed by the Construction Manager. Contractor is individually responsible for either coordinating his work with these distributed drawings or notifying the Construction Manager, in writing, of any discrepancies.

P. Coordination with other trades will be required. The Contractor will be required to attend periodic coordination meetings with other trades where requirements, conflicts and coordination issues will be discussed and resolved. Attendance when requested will be mandatory. If inter-Contractor coordination is not satisfactorily performed, the conflicting Contractors shall mutually share the cost to relocate and/or reinstall their work.

Q. Contractor shall submit a schedule of values to the Construction Manager, through Building Blok Management System, prior to the submission of their first invoice for approval.

R. Contractor is expected to review and coordinate its Work with the complete set of Contract Documents, including all items noted as by his trade whether or not shown on that particular set of drawings. Documents are available at the site for review.

S. Contractor is responsible for obtaining all necessary permits required for his work, including street permits. Unless otherwise noted, building permit shall be secured by the Construction Manager. Any subcontractor who will be restricting access to street, right of way or adjacent property must notify the Construction Manager 48 hours in advance.

T. Contractor's License: Submit a copy of all business licenses required by local and state agencies.

U. Contractor shall absorb, without additional compensation, any and all costs of working beyond normal hours to maintain job progress in accordance with the current construction schedule.

V. No asbestos or PCB's in or on any material or equipment will be accepted or allowed on this project. All hazardous materials will be treated in accordance with all State and Federal regulations.

W. Each individual Contractor will provide fine clean up on a daily basis. Fine cleaning will be defined as those means/methods utilized to ensure that all odors, dust, and debris will be non-existent within the project area at the end of each workday. In addition, means and methods shall be utilized that prevent the migration of odors, dust, debris, and excessive noise from migrating into non-working areas. An approved cleanup plan will be required before the initial start of the work. The construction manager reserves the right to stop the work, or any portion thereof, upon failure to provide the required cleaning. Contractors will be individually back charged by the Construction Manager for clean up not satisfactorily performed by the Contractor.

X. In the event asbestos is uncovered, the Contractor shall notify the Construction Manager of the areas requiring removal of asbestos. The Construction Manager shall then coordinate the removal with the Owner.

Y. This project is to be constructed adjacent to and in existing buildings. Contractor shall exercise all due precautions to minimize noise, air pollution and any other construction hazards which in any way would cause discomfort or danger to the occupants of the existing building in the area.

Z. Existing mechanical, electrical, plumbing, sprinkler, medical gas, fire alarm, etc. systems will be shut off and locked out by the Owner as required by the Work. Tie-in and

modifications to those systems will be performed by the specific Contractor associated with the work as indicated in the Contract Documents. Re-energizing and re-startup of all systems should be performed by the Owner.

AA. NOT USED

AB. Normal work hours for this project are from 7:00 a.m. to 3:30 p.m. Any work to be performed outside of these hours must receive prior approval from the Construction Manager. Requests to work beyond normal work hours shall be submitted at least 48 hours prior.

AC. Contractor is responsible for having a competent project superintendent/foreman on-site during all work performed under its contract.

AD. In the event the Contractor has non-English speaking employees or subcontractors on the project, they shall have a superintendent or foreman on site, at all times, who speaks English and can communicate with Contractor's employees. Should the Contractor fail to meet this requirement, at any time, Construction Manager may direct all Work to stop until the proper supervision is on site. The Contractor will be responsible for maintaining the project work schedule and make up at its own expense, any delay to the Schedule resulting from the work stoppage.

AE. Punch List Procedures: Contractor shall be given a copy of the punch list with his appropriate work identified. Contractor shall have nine (9) calendar work days to complete its punch list work. On the 10th day or as determined by the Construction Manager, the Construction Manager shall employ other contractors, as required, to complete any incomplete punch list work and retain from the appropriate Contractors retainage all costs incurred.

AF. Contractor shall provide the necessary safety barricades and railings required to complete their work and comply with all OSHA, local code and contract specifications.

AG. Temporary Protection: Provide temporary protection to ensure that no damages occur to existing or new finishes, building components, materials, equipment, etc. In addition, provide all approved signage and safety devices applicable to the referenced temporary protection. An approved temporary protection plan will be required before the initial start of the work.

AH. All contractors will be responsible to review and be familiar with the classroom mock up; established to provide a level of expectation to the bidders during the bidding process.

AI. The contractor's shall be responsible for all quality control and the craftsmanship of the final products delivered.

AJ. Should any work not meet the expectations of the mock ups and the contract documents

it will be rejected and replaced at the contractors cost.

AK. Contractors are expected to be present with their estimating team at the Pre-Construction meeting; this meeting with discuss the level of expectation expected by all contractors. These meetings are not mandatory; but you are responsible to view and understand the existing conditions of the project before bidding

CONTRACT NO. HHS-01 - DEMOLITION

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 02 4100	Demolition

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all labor, material, trucking, equipment, hoisting, scaffolding, power, temporary facilities, permit fees, supervision, layout, clean up, etc. for the complete performance of all demolition work.

2. Demolition of roof to be performed by Contract HHS-02 Roofing.

3. This Contractor shall include all demolition and wrecking of the existing structures at the following location: 401 East 12th Street, Wilmington, Delaware 19801.

4. Demolish all structures and buildings and their appertains construction to new subgrade grade level. Fill in all depressions to new subgrade grade level including vaults and areaways beyond the face of the building. Fill shall consist of clean non-combustible material such as brick and other masonry debris in compliance with the City building code. Excess material to be removed from site in a legal manner. Fill must be clean common compactable fill or select material.

5. Remove from site all combustible material including, but not limited to wood, steel, iron, structural steel, and dispose of in a legal manner. No on site burning of material will be allowed at any time.

6. Remove from site concrete slabs on grade, hot mix paving, retaining walls (concrete and masonry) in a legal manner.

7. All foundation walls, areaway walls, vault walls, shop walls, yard walls shall be demolished to 1'0" below existing grade and filled of depression to subgrade with non-combustible fill material.

8. Items of demolition shall include, but not necessarily be limited to, complete structures, wall

framing, masonry walls, structural steel, interior partitions, roofing, mechanical and electrical equipment and fixtures, and related equipment.

9. Remove all concrete troughs completely including miscellaneous steel then fill all areas with stone fill to subgrade.

10. Remove all grease traps and associated piping.

11. Remove all oil and fuel storage tanks that are located within the structure in accordance will all City, State and Federal regulations.

12. Remove all concrete (including hot mix, brick and stone) curbs and sidewalks on as shown. Maintain all utilities.

13. This Contractor shall notify the Construction Manager immediately if hazardous materials (i.e. asbestos, lead, PCB's, etc.) are uncovered. At that time, all work in the affected area will be stopped until proper removal can be completed by others (i.e. hazardous material abatement contractor).

14. Temporary maintenance standby labor such as for temporary water, temporary power, temporary light and the like where required due to this Contractor's work is to be included within the Contract Price.

15. If this Project is to be constructed adjacent to existing buildings, this Contractor shall exercise all due precautions to minimize noise, air pollution and any other construction hazards which in any way would cause discomfort or danger to the occupants of the existing buildings in the area.

16. This Contractor shall clean public streets and sidewalks daily. This Contractor shall collect and remove from the site daily all rubbish, scrap and other debris resulting from its operations.

17. This Contractor shall include in the Contract Price and unit prices, the cost of all police traffic details required for the execution of the Work.

18. All light, power, water and any other utilities, including special provisions for hookups to same for this Contractor's operations will be provided by this Contractor within the Contract Price and unit prices.

19. This Contractor shall comply with all Federal, State and local laws requiring noise control and hours which work is to be conducted. Mufflers, "whisperized" compressors, etc., shall be used as required for compliance with laws and ordinances throughout the course of the Work.

20. It is understood that all Work under this Contract shall be in strict accordance with the Building Code with the City, State and any other agency having jurisdiction. In the event of any conflict in any provisions of any regulatory agency and Contract Documents, the more stringent

requirements shall apply.

21. This Contractor is aware of the structural capacities of various portions of the structure. Cranes, materials, deliveries and material storage, shall not exceed rated capacities without this Contractor taking appropriate steps to compensate for the imposition of loads which may exceed the design criteria and which are imposed solely by this Contractor's operations.

22. This Contractor shall provide any and all "fire watch" personnel required due to the Contractor's cutting, burning, welding or other open flame activity.

23. This Contractor shall submit proposed methods and operations of building demolition to the Owner, his representative or agents for review prior to the start of work, including a schedule of coordinating the shut off, capping and/or continuation of utility services as required.

24. This Contractor shall visit the site of the proposed work, fully acquaint and familiarize himself with the conditions as they exist and the character of the operations to be carried out under the proposed Contract, and make such investigation as he may see fit so that he shall fully understand the facilities, physical conditions and restrictions affecting the work under the Contract. Claims for additional compensation and/or extensions of time because of Contractor's failure to familiarize himself with all conditions which might affect the work shall not be allowed.

25. Before proceeding with the demolition work, this Contractor shall obtain a permit from the City, protect all public sidewalks, streets or thoroughfares and all property adjacent to the site as required by such codes, ordinances, rules and regulations, including, but not limited to, scaffolding, sidewalk bridges, fences, barricades, aprons, warning signs and lights.

26. This Contractor, before commencement of any part of the Work, shall give any notices, required to be given to an adjoining landowner and other parties.

27. This Contractor, in the performance of the Work under his subcontractor, shall maintain all required means of egress from the existing buildings and alter such stairs, platforms and fire escapes as required to satisfy all agencies having jurisdiction.

28. Before demolition work is started, existing sewer, water, gas and other service lines to the existing buildings shall be shut off, disconnected and capped or plugged in accordance with the requirements of the utility companies or other authorities having jurisdiction. This Contractor shall notify all such authorities in advance and obtain their approval and cooperation in shutting off utilities. All costs in connection with disconnecting utilities shall be borne by this Contractor.

29. This Contractor shall take special precautions to shore, brace, support or relocate any utility lines as may be required to satisfy all agencies having jurisdiction.

30. Any existing piping, subsoil drainage systems, conduit, manholes, tanks, catch basins, etc.,

which are abandoned shall be plugged with concrete and to the extent within or beneath the limits of excavation, removed. All others are to be maintained and repaired or otherwise restored to proper operating condition.

31. This Contractor shall, in cooperation with utility companies, remove or cause to be removed all light and power poles if required to be removed, at such time as the services utilizing said poles are no longer required.

32. If required, this Contractor shall relocate power or light poles, fire hydrants, traffic signs or signals and similar utility and public service items in use and shall cooperate with all governmental agencies having jurisdiction over such items so as not to interfere with the services of such governmental agencies.

33. Street openings made for the shutting off or tapping of utility lines or for any other purpose shall be backfilled, tamped and the surfaces restored in accordance with the requirement of applicable local codes or to match existing; whichever is greater.

34. Existing services to remain will be defined by the Owner prior to or immediately after the start of demolition work.

35. Utility equipment belonging to the utility companies, if to be retained by these companies, will be removed from the site by the company owning the equipment upon notification by this Contractor.

36. This Contractor shall make a careful examination of the structures to be demolished and the adjoining property and utilities which are to remain; take whatever precautions are necessary and carry on operations so as to prevent personal injury and any settlement, collapse, damage from falling debris or other causes to adjacent building.

37. Any damage to public property, private property, or to utilities due to demolition operations, or the Contractor's neglect, shall be corrected by this Contractor, in a manner approved by the Owner and the parties whose property has been damaged, all at no additional cost to the Owner.

38. Miscellaneous equipment and furnishings belonging to the Owner, if to be retained by the Owner, will be removed before the commencement of the demolition work. All other equipment or furnishings attached, remaining, in the building at the start of the demolition work shall become the property of this Contractor and shall be removed and disposed of by this Contractor.

39. All equipment, materials and debris shall be regularly removed by this Contractor from the Site as work progresses in such manner as not to create a nuisance, and shall be disposed of by this Contractor at his own expense, at locations to be determined by this Contractor. Permits required in connection with the disposal of the materials shall be obtained by this Contractor. Disposal shall be in accordance with all Federal, State and local laws, rules, codes, orders and

regulations.

40. Materials and equipment to be salvaged or which have been sold to others by this Contractor must be promptly removed by this Contractor, and shall not be stored at the site. The offering, advertising, display or sale of materials and equipment will not be permitted.

41. Contractor shall remove debris promptly and will not burn anything on the site. Contractor shall keep required fire extinguishing equipment in serviceable condition, properly distributed so that it will be available for immediate use, particularly during any acetylene cutting operations. This Contractor shall afford adequate facilities for inspection by, and carry out the recommendations of, the local Fire Department. This Contractor shall maintain one fire riser during demolition.

42. This Contractor shall, prior to the start of Work, provide the name and location of proposed dump site to receive the demolition debris. Dump site must be licensed and acceptable to all local government agencies having jurisdiction.

43. This Contractor shall provide signed and stamped dump site debris tickets identifying the location, date, time and quantity of debris deposited at the dump site.

44. This contract contains the demolition related to the Phase I portion of the project; it is expected that you will begin work in early June of 2016. The demolition of the exterior structures and attachments will require a crew to start work immediately. A second crew will be required to begin interior demolition at the same time. Multiple crews will be required from July 2016 – August 2016. The Annex demolition and bus level main building demolition all to commence in June and with multiple crews.

45. Coordination with the MEP trades will be required; include a minimum of 3 remobilization in your bid for the interior demolition.

46. All debris will be removed from the site daily; recycling of materials should be required to meet LEED/State regulations.

47. All saw cutting of floors, walls and roof deck will require a pre-approved saw cut layout shop drawing.

48. This contract requires all gas, diesel powered equipment to be equipped with “air scrubbers” per OSHA standards.

49. All areas of demolition shall be kept in a safe working manner at all times; include in your proposal all measures that may be required to provide a safe working area at all times.

50. This contractor shall be responsible to remove all electrical, mechanical and other piping from the project site. The Electrical and Mechanical contractor will cut, cap and safe off all equipment, piping, conduits etc. This contractor to remove and take off site.

51. Existing floor slabs have been cored to allow this contractor to review existing conditions for the basis of bid preparations.

52. This contractor to include an allowance of $75,000 for work associated with unknown substrates.

53. This contractor to include an allowance of $75,000 to be used at the discretion of the Construction Manager.

CONTRACT NO. HHS - 02 – SITEWORK/UTILITIES

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Division 3	Concrete
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 03 3000	Cast-In-Place Concrete
Section 04 2000	Unit Masonry
Section 31 2000	Earth Moving
Section 32 1216	Asphalt Paving
Section 32 1313	Concrete Paving
Section 33 1100	Water Utility Piping
Section 33 4100	Sanitary Storm Drainage Piping

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all exterior utility piping including but not limited to sanitary lines, stormwater, gas, fire, mains, etc.

2. Provide all necessary permits required by all State and Local authorities including City of Wilmington and DelDOT.

3. Fire Connections to building system are to be included in this contractor's scope of work.

4. Provide all site clearing per Section 31 100.

5. Protection of existing utilities.

6. Provide all site preparations as specified.

7. Dewatering to be included for all work pertaining to this contractor, including maintenance and permits.

8. All backfill to be suitable per specification or clean imported fill.

9. All spoils and unusable soils to be removed from site at contractor's cost, daily.

10. Provide all asphalt paving.

11. Provide all concrete paving.

12. Coordinate all work with mechanical, electrical and fire protection contractors.

13. Rock excavation and backfilling for structures and trenches is defined as work consisting of "bedrock and ledgerock removal for structures and trenches that cannot be accomplished without either blasting or using rippers. This work also consists of the use or disposal of such excavated material and backfilling the excavation with suitable material" per DelDOT Standard Specifications dated August 2001

14. Provide unit cost to remove rock per cubic yard.

15. Rock that is removable by hydraulic excavation will not be paid for as unit cost.

16. Provide an allowance of $75,000 for work to be used at the discretion of the Owner or Construction Manager.

CONTRACT NO. HHS - 03 - CONCRETE

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Division 3	Concrete
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 04 2000	Unit Masonry
Section 03 0510	Concrete Moisture Vapor Reduction Admixture (MVRA)
Section 03 3000	Cast-In-Place Concrete
Section 03 3511	Concrete Floor Finishes
Section 07 1300	Sheet Waterproofing
Section 07 2616	Under-Slab Vapor Barrier/Retarder
Section 07 9200	Joint Sealants

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all form work, concrete, reinforcement, excavation, etc. required to complete. The concrete work per Contract Documents.

2. Install all embedments including, but not limited to, anchor bolts, plates, etc.

3. Pumping of open excavations and maintenance is part of this contract.

4. Provide miscellaneous excavation.

5. Backfilling is the responsibility of this Contractor. Soil types shall be select material or stone products. Establishment of subgrade and additional fill material shall be part of this contract.

6. 95% compaction on soils required before placing concrete.

7. Coordinate all work with other prime Contractors.

8. This Contractor owns all floor slab replacement as well as mechanical and electrical equipment pads noted on contract documents.

9. Provide concrete foundations, slabs on grade, slabs on deck and all reinforcing steel.

10. This Contractor will be responsible for laying out all concrete work as shown on the structural and architectural drawings.

11. This Contractor to furnish and install reinforcing steel, admixtures, curing compound, sealers as required in the Contract Documents.

12. Perimeter insulation at foundation walls if required.

13. Underslab vapor barrier, insulation, reglets, waterstops, control and construction joints (including required caulking at control and construction joints).

14. Placement of related items furnished under other Specification Sections.

15. Anchor bolts and leveling plates to be installed by this Contractor and furnished by the Structural Steel contractor. Installation within required tolerances. Anchor bolt assemblies to be placed with templates only. Contractor shall supply as-built drawings to steel erector for coordination prior to steel placement.

16. All blockouts and embedments required by plans and specifications.

17. This Contractor to furnish and install all sleeves for incoming utilities at the perimeter walls.

18. This Contractor is responsible for grouting all structural steel base or leveling plates and elevator sill angles.

19. Include all weather, frost protection, and water pumping as required. This Contractor is also responsible for the premiums required for hot water, heated aggregate and admixtures for cold weather concrete.

20. Coordinate the "Notch" in the concrete slabs to allow for a future Contractor to easily install expansion joint details.

21. Provide concrete fill at steel pan stair treads, landings and associated items.

22. Provide dewatering as required to perform your work.

23. Provide and maintain perimeter fall protection at excavated area per OSHA standards.

24. Provide certified anchor bolt verification drawings to the Construction Manager for review prior to steel erection.

25. Equipment bases and foundations shall be the responsibility of the Contractor providing the equipment.

26. Asphalt concrete paving and portland cement concrete paving, sidewalks and curbs shall be

provided by others.

27. All concrete testing will be completed by the Construction Manager, however, it will be the responsibility of this Contractor to furnish all samples.

28. Provide off site disposal of all unsuitable excavated materials.

29. Provide specified sloping for floor drains/trenches in kitchen, showers, as detailed (Drains to be furnished by Mechanical Contractor.)

30. This Contractor shall include the finishing of concrete slabs around a minimum of seventy-five (75) floor penetrations throughout the first and second floor slab areas. These penetrations will consist of electrical boxes, stubbed conduits, mechanical piping and electrical and technology conduit stubs, etc.

31. This Contractor shall also include all work included in finishing the concrete floors to a minimum of 30 floor drains and or trench drains. Include all sloping and beveling to create a positive flow to the drains.

32. This Contractor shall provide written documentation that all concrete slabs are within the tolerance required by the contract documents. Testing and analysis to be paid for by this Contractor.

33. This Contractor shall include a minimum of two additional out of sequence remobilizations for concrete slab installation.

34. Provide slabs on grade, slabs on deck and welded wire reinforcement.

35. This Contractor is responsible for excavating all elevator pits, stairs and ramps as shown on drawings. This Contractor is also responsible for the backfill of these areas.

36. Maintain access for Elevator Contractor's drilling rig.

37. All costs for barricades, arrows, pedestrian protections, flag men, etc. will be part of this Contract.

38. Provide foundation waterproofing.

39. The work associated with this contract will need to coordinate closely with the demolition contractor as well as the MEP contractors to establish a schedule for replacing concrete floors after the underground work is completed.

40. This contract requires multiple crews to accommodate the interior concrete reconstruction as well as the new construction.

41. This contractor will be responsible for proving the necessary subgrade to allow for the new concrete slab. Imported materials required to adjust the existing grades shall be part of this contract; the materials used for slab fill shall be #57 stone or an acceptable equal stone based product.

42. This contractor shall be responsible for the elevator pit complete; including waterproofing and installation of imbeds.

43. This contractor shall be responsible for all dewatering associated with their work. Well pointing may be necessary to control water during excavation and installation of foundation and slabs.

44. This contractor shall be responsible for infill of all floor areas, tranches and openings created by the demolition contractor and MEP trades.

45. This contractor shall be responsible for all concrete decks at the floor levels and roof areas. Lightweight concrete shall be installed where indicated on contract documents.

46. This contractor to provide a unit price cost to saw cut and remove 8″ concrete slab and 4″ of stone fill.

47. This contractor shall include multiple mobilizations to coordinate concrete floor pours. Allow a minimum of 10 separate concrete pours for Phase I slab areas.

48. All concrete shall be placed with the use of concrete pumps and the costs shall be part of our base bid proposal.

49. This contractor shall be responsible for providing and maintain the concrete wash out areas and or the concrete dumpsters. This cost shall be part of your base bid.

50. This contractor shall be responsible for providing additional mechanical ventilation of the work area when concrete pours are taking place and curing.

51. This contractor shall include any and all concrete pads as indicated on the structural documents; housekeeping pads indicated on architectural and MEP drawings will be provided by the contractor providing the equipment.

52. This contractor shall include an allowance of $50,000 for additional concrete floor slab replacement including reinforcing and vapor barrier.

53. This contractor shall include an allowance of $75,000 to be used at the discretion of the Construction Manager.

CONTRACT NO. HHS-04 – MASONRY AND MASONRY RESTORATION

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Division 4	Masonry
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 04 0125	Masonry Cleaning
Section 04 0126	Masonry Restoration
Section 04 2000	Unit Masonry
Section 07 1300	Sheet Waterproofing
Section 07 1800	Cold Fluid-Applied Waterproofing

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide masonry units, reinforcing, accessories and related work.

2. Provide all masonry restoration.

3. Caulking of masonry to masonry and to dissimilar materials.

4. Provide all stone and cast stone masonry and repair.

5. Provide DNREC approval rinsing station and maintenance for duration of this contract's work.

6. Provide and install sheet metal roofing for your work.

7. This contractor shall include removal of existing treads and risers at stairs and furnish and install new blue stone tread and riser. All subbase preparation and caulking to be included.

8. Furnish and install exterior treads and landing of blue stone. Include all stainless steel accessories.

9. Integral masonry flashings, expansion joints, insulation and other related items as required.

10. Mock up as required: including samples of masonry repair and cleaning for Owner

approval.

11. Grouting of door frames at masonry openings.

12. Weather protection and temporary heat as required to perform the work and maintain the project schedule. Include winterization as needed.

13. Scaffolding as required to complete the work.

14. Dewatering of work areas.

15. Layout of the work including responsibility for all elevations and dimensions as they affect other Contractor's work.

16. Lintels either required by this Contract or install loose lintels furnished by others.

17. Fill at hollow concrete masonry units.

18. Setting of reinforcing steel in block walls.

19. Cementitious parging.

20. Silicone waterproofing.

21. Cast stone/limestone work.

22. Temporary protection of stone work after installation.

23. Temporary protection for final wash down/cleaning of masonry.

24. All flashing as required by contract documents.

25. Thru wall and cavity flashing below the roof line shall be by the Masonry Contractor.

26. Thru wall and cavity flashing above the roof line shall be by the Roofing Contractor.

27. Cutting, fitting and building into masonry work, embedments provided by others.

28. Provide all firesafing and fire caulking as required. Work related to masonry work.

29. Furnish masonry veneer anchors to Exterior Structural Stud Contractor for installation.

30. Bond beams including reinforcing and fill.

31. At elevator entrance, tooth outside walls and add additional temporary lintel above

elevator door frame.

32. Furnish and install all masonry veneer anchors where required.

33. This Contractor shall be responsible for all disposal of masonry debris.

34. This Contractor to include in their bid 500 CO-OP hours to be coordinated with the District's program. The wages paid to the CO_OP students would be funded by the NCC Vocational School District through their program sources. The contractor would be responsible to coordinate and provide on the job training for the Vo-Tech students.

35. Provide an allowance of $30,000 for additional slate and stone work as directed by Owner and Project Manager.

36. Provide an allowance of $30,000 for patching and repair of holes related to removal of fixtures, fasteners and supports, etc.

37. Provide an allowance of $50,000 for additional work as directed by Owner and Construction Manager.

CONTRACT NO. HHS-05 - STRUCTURAL AND MISCELLANEOUS STEEL

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Division 5	Structural Steel and Miscellaneous Metals
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 05 1200	Structural Steel
Section 05 2100	Steel Joist Framing
Section 05 100	Steel Decking
Section 05 3100	Metal Stairs
Section 05 5000	Metal Fabrications
Section 05 5213	Pipe and Tube Railings
Section 08 9100	Louvers

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide structural steel, joists and metal floor and roof decking.

2. Furnish anchor bolts and leveling plates to the Concrete Contractor for placement in concrete piers.

3. This Contractor shall include a $10,000 allowance for the maintenance portion of the perimeter cables. All other items remain the responsibility of the Steel Contractor. The allowance will be allocated by the Construction Manager on a time and material basis. All remaining allowance shall be returned to the Owner at completion.

4. Field check all anchor bolts prior to beginning erection.

5. Roof sump pans and related work.

6. Framing out for openings (roof drains, mechanical openings, access hatches, skylight, stairs, etc.). Assume opening frames will be field installed. This contract to cut or repair all metal decking.

7. Prime paint systems, galvanizing, and related finishing of steel items, including touch up.

8. Masonry or precast anchors welded to steel columns and beams.

9. Supply and install shear studs.

10. Furnish and install pipe metal gate at second floor exterior elevation.

11. Furnish, install, maintain and remove perimeter safety steel cables and supports at all floor levels to conform with all OHSA standards for all trades.

12. The Steel Contractor will own all connections to masonry whether they are field welds or shop welds. Conditions that require in field welding and assembly are the responsibility of this Contractor. Field coordination with the masonry installer will be this Contractor's responsibility.

13. All steel testing will be the responsibility of the Construction Manager, however, this Contractor will cooperate with the testing agency in the inspection at the fabrication shop and in the field.

14. Layout, installation and alignment of attachments at the slab edge condition.

15. No electrical power for welders will be provided.

16. Provide data and submittal information related to the Scope of this Contract signed and sealed by a Professional Engineer as required by the Contract Documents.

17. This Contractor shall fabricate, weld and install all reinforcing anchors that connect the structural steel to the masonry systems. Provide all shop fabrication, a field installation and field welding regardless of the weld symbols.

18. This Contractor shall include all necessary staging, rigging, matting and remobilizations to accommodate this erection sequence.

19. Provide stairs, loose lintels, handrails, railings, steel ladders and accessories.

20. Furnish loose steel lintels, angles, plates and embedded items to the Concrete and Masonry contractors.

21. Miscellaneous rough hardware, iron shapes, framing and support angles.

22. Pipe bollards.

23. Stair nosings.

24. Gratings.

25. Roof screens, supports and grillage.

26. Louvers and grilles.

27. Overhead door frames.

28. Elevator hoist beams.

29. Elevator sill angles.

30. Toilet partition supports.

31. Dock bumpers and loading dock equipment.

32. Ships ladder.

33. Galvanizing, as required.

34. Anchoring devices, fasteners, inserts and other related items associated with the installation of the above items.

35. Verify field dimensions and field measure prior to order materials.

36. This Contractor to include in their bid 500 CO-OP hours to be coordinated with the District's program. The wages paid to the CO_OP students would be funded by the NCC Vocational School District through their program sources. The contractor would be responsible to coordinate and provide on the job training for the Vo-Tech students.

37. This contract will include all work necessary to refurbish, replace and reinstall all steel handrails as indicated on the contract documents.

38. This contractor shall include a $40,000 allowance for work to be directed by the owner and Construction manager.

CONTRACT NO. HHS - 06 – CARPENTRY/ROUGH AND FINISH

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 06 1000	Rough Carpentry
Section 06 2000	Finish Carpentry
Section 08 1113	Hollow Metal Doors and Frames
Section 08 1423	Clad Commercial Door
Section 08 1433	Stile and Rail Wood Doors
Section 08 5200	Aluminum Clad Wood Windows
Section 08 7100	Door Hardware
Section 08 7111	Hardware Sets
Section 10 1101	Visual Display Boards
Section 10 2113.19	Plastic Toilet Compartments
Section 10 2226	Vertical Folding Partitions
Section 10 2601	Corner Guards
Section 10 2800	Toilet, Bath, and Laundry Accessories
Section 10 4400	Fire Protection Specialties
Section 10 5100	Lockers
Section 11 5213	Projection Screens
Section 11 6623	Gymnasium Equipment

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide labor and materials to perform the work related to all carpentry and general work.

2. All rough carpentry related to the exterior skin of the building including wood nailers and blocking, exterior sheathing, and MEP roof curb blocking.

3. All rough carpentry related to the interior of the building including blocking, wood nailers, etc. for the installation of fire extinguishers, doors, windows, toilet accessories, cabinets, toilet partitions, casework, millwork, etc. including fire treating, as required.

4. All field trimming required to adjust to existing conditions.

5. Furnish and install all trims, rails, crown moldings, sills and aprons.

6. Furnish and install chalk and tack boards.

7. Furnish and install projection screens.

8. Furnish and install signage.

9. Furnish and install lockers. Including restoration as required.

10. Furnish and install toilet partitions.

11. Furnish and install fire extinguishers, cabinets and accessories.

12. Furnish and install operable partitions and panel walls.

13. Furnish and install toilet and bath accessories.

14. Provide all canopies related to window pockets, blocking and wood trims.

15. Recessed entrance mats and frames.

16. Coordinate cutting holes in casework with other trades.

17. Wall and corner guards.

18. Display and trophy cases.

19. Anchoring devices, fasteners, inserts and other related items associated with the installation of the above items.

20. Provide safety protection for stair and elevator opening.

21. This Contractor shall include in the base bid three hundred fifty (350) hours of Journeyman carpenter time and five hundred (500) hours of common labor time for work to be directed by the Construction Manager.

22. This Contractor shall at a minimum provide and maintain for the length of the project, one temporary fire extinguisher for each 3,000 sq. ft of the protected building area. Fire extinguishers shall be 10lb, Multi-Purpose (ABC) dry chemical, UL labeled, with a rating of 3a:40bc. Include maintenance for project duration.

23. This contract owns all caulking and sealants for work of this contract.

24. Install hold open closers with fire alarm interface: Power wiring by Electrical Contractor. Fire alarm ties in by Electrical Contractor.

25. Coordinate card reader requirements with hardware supplier and Electrical Contractor.

26. This contractor shall be responsible purchase, receive, unload, handle, store, account for and install all hardware, woods doors door frames, custom doors and metal doors.

27. This contractor will list the name of the subcontractor or vendor that is supplying the hardware, wood doors, metal doors and frames. (add to sub list on bid form)

28. This contractor shall include an allowance of 160 man hours of carpenter rate to remove and store historical millwork for Phase I

29. This contractor shall include an allowance of 100 carpenter man hours to install temporary doors for the security of the building. Allow $10,000 for purchasing of materials required such as hardware, locks, doors etc.

30. This contractor shall be responsible for demolition and removal of the existing window openings prior to the installation of the new window systems.

31. Include in your proposal 240 laborer man hours for cleanup operations as directed by the Project Manager.

32. This contractor will buy and install all new aluminum clad windows for the Phase I work; include all blocking, trim, accessories as indicated on the contract documents for all openings.

33. Provide clad commercial door system.

34. This contractor shall be responsible to cover and maintain all openings related to the elevator for the duration of Phase I

35. All installation of trim shall be filled, sanded, caulked and prepared for painting by this contractor.

36. This contractor shall own any and all caulking as it relates to materials installed by this contract.

37. This contractor shall include the cost of purchasing, storing and installing all custom trim materials".

38. This contractor shall include all "finish" carpentry items including but not limited to trim, wood rails, MDF, closure pieces and corner guards.

39. This Contractor to include in their bid 500 CO-OP hours to be coordinated with the District's program. The wages paid to the CO_OP students would be funded by the NCC Vocational School District through their program sources. The contractor would be responsible to

coordinate and provide on the job training for the Vo-Tech students.

40. This contractor shall include a $30,000 allowance to provide and maintain temporary window and door openings in Phase I.

41. This contractor shall include an allowance of $30,000 to provide, install and maintain floor protection as directed by the Construction Manager.

42. This contractor shall include an allowance of $30,000 to provide for upgraded hand dryers.

43. This contractor shall include an allowance of $50,000 for work to be directed by the construction manager.

CONTRACT NO. HHS - 07 – METAL FRAMING, DRYWALL, PLASTER

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 05 4000	Cold-Formed Metal Framing
Section 05 7500	Decorative Formed Metal
Section 08 3100	Access Doors and Panels
Section 09 2116	Gypsum Board Assemblies
Section 09 2236.23	Metal Lath
Section 09 2300	Gypsum Plastering
Section 09 2613	Gypsum Veneer Plastering

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide metal studs, insulation, gypsum wallboard, taping, spackling, plaster and stucco.

2. Provide all metal stud framing required to back up other materials.

3. Batt insulation, both thermal and acoustical and related work.

4. Plaster systems.

5. Plaster and stucco.

6. Include molded shapes and special shapes.

7. Acoustical sealant of penetrations in drywall partitions and plaster partitions.

8. Provide all fireproofing where noted.

9. Furnish and install sixty (60) access panels to meet local and fire codes.

10. Include fire taping and sealing at perimeter edge and as shown on the Drawings.

11. Provide architectural expansion joint systems, including joint covers materials at concrete slab, drywall and masonry construction (interior only).

12. Scaffolding and lifts for this work.

13. Comebacks and out-of-sequence work may be required and as such should be included.

14. Include all necessary field measurements.

15. Include two (2) passes per floor to "touch-up" mechanical penetrations to ensure ratings required. The first pass will be required prior to ceiling grid installation and the second pass will be required prior to final inspection for Certificate of Occupancy.

16. Bidders are advised to pay particular attention to top of wall conditions, fire and smoke safing of slabs and acoustical sealants.

17. Provide metal furring.

18. Engineered shop and installation drawings.

19. Coordination and allowing full access to other trades so they can perform their work will be included and part of this Contractor's obligation.

20. This contractor shall include the cost of providing 5000 Sq., Ft. of plater patching as directed by the Construction Manager. Also include a unit cost per square foot for work over and above the 5000 Sq., Ft allotted.

21. This contractor shall include an allowance of $25,000 for work to be directed by the Construction Manager

CONTRACT NO. HHS - 08 - ACOUSTICAL CEILINGS AND PANELS

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 09 5100	Suspended Acoustical Ceilings
Section 09 8400	Acoustic Room Components

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide acoustical panel ceilings, suspension system and hangers.

2. Acoustical lay in insulation blankets above ceiling where required by Specifications or Drawings.

3. Supplemental suspension hangers at large ducts above ceilings and at openings for lighting fixtures.

4. Continuous acoustical sealant on back of vertical leg before installing moldings.

5. Furnish and install hold down clips where required by governing regulations for fire resistant ratings

6. Expansion joints related to acoustical ceilings.

7. Reflected ceiling layout. Include field survey and identification of existing conditions.

8. This Contractor shall cut openings in ceilings for sprinkler heads, lights, mechanical diffusers and grilles, etc.

9. Attic stock.

10. Provide acoustical wall treatment and acoustical room components.

11. This contractor shall include multiple mobilizations to the site; to accommodate coordination with the MEP trades during construction.

12. Attachment to existing structure may require some minor demolition work in certain areas; this should be included in your base bid proposal.

13. All cut edges shall be finished per manufacturer's recommendations.

14. This contractor to review to existing mock up for minimum level of quality.

15. This contractor shall allow for 2 additional passes through the building before final turnover to replace damage tiles. Include an allowance for material of $20,000 for materials to complete this work.

16. This contractor shall include a $75,000 allowance in their proposal for work to be directed by the construction Manager.

CONTRACT NO. HHS -09 – TERRAZZO FLOORING

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 09 6613	Portland Cement Terrazzo Flooring
Section 09 6623	Resinous Matrix Terrazzo Flooring

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide terrazzo flooring and patching in accordance with the finish schedule and specifications.

2. Provide all cement terrazzo flooring.

3. Provide all resinous terrazzo flooring.

4. Barricades, protection and touch up as required.

5. Cleaning and protection.

6. Shop drawings and control joint drawings.

7. Provide cutting and fitting around work of others.

8. This contractor to include floor leveling and patching for all areas that are to receive Terrazzo flooring including mesh crack refining membrane.

9. This contractor will be responsible for removing the existing stone stair treads and, preparing the setting bed, purchasing new stair treads and installing.

10. Include an allowance of $50,000 for work to be directed by the Construction Manager and Owner.

CONTRACT NO. HHS -10 – FLOORING

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 09 0561	Common Work Results For Flooring Preparation
Section 09 6229	Cork Flooring
Section 09 6500	Resilient Flooring
Section 09 6800	Carpeting
Section 09 6813	Tile Carpeting

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide flooring in accordance with the finish schedule and specifications.

2. Prepare subfloor for finished flooring including leveling and patching. Base bid shall include all flashing patching and surface preparation required to perform the work of this Contractor. Include "shot blasting" of all existing floor areas prior to floor preparation.

3. Resilient flooring.

4. Provide all seam-molding as required by manufacturer's recommendations.

5. Carpeting.

6. Resilient base.

7. Cork flooring and finish.

8. Resilient transition and reducer strips at edges of resilient flooring and at edges of carpeting.

9. Cleaning and protection.

10. Seaming diagrams.

11. Sheet vinyl.

12. Attic stock.

13. Provide entrance mat. Furnish entrance mat frame to be installed by Carpentry Contractor.

14. This contractor to review to existing mock up for minimum level of quality.

15. Provide two coat wax system prior to substantial completion, if required.

16. Provide finish floor material in elevator cab.

17. Provide cutting and fitting around work of others.

18. This contractor shall include "shot blasting" of all subfloors prior to installation of floor patching and leveling.

19. This contractor shall include an allowance of $40,000 for floor leveling and patching.

20. This contractor shall include an allowance of $75,000 for work to be directed by the owner and construction manager.

CONTRACT NO. HHS - 11 – LAMINATE CASEWORK AND MILLWORK

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 06 1000	Rough Carpentry
Section 06 4100	Architectural Wood Casework
Section 12 3400	Laminate Clad Casework
Section 12 3600	Countertops

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Furnish and install all laminate casework, custom casework, refurbished casework and millwork.

2. Coordinate all work with other trades.

3. Coordinate with plumbing and electrical submittal for cut outs in counter tops and casework.

4. Provide all caulking and sealants for all work provided by this contract.

5. Note: this contractor will be manufacturing and relocating existing millwork for this project.

6. This contractor shall include an allowance of $30,000 for work to be directed by the Owner and Construction Manager.

CONTRACT NO. HHS -12 – ROOFING, SHEET METAL AND WATERPROOFING

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 07 1300	Sheet Waterproofing
Section 07 5300	Elastomeric Membrane Roofing
Section 07 6200	Sheet Metal Flashing and Trim
Section 07 7200	Roof Accessories
Section 07 9200	Joint Sealants

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide single ply flexible roofing system, including rigid and tapered insulation and all related accessories.

2. This contractor to provide demolition and removal of existing roof.

3. This contractor shall carefully review the edge of roof details to determine if the roof can be placed before the exterior wall assembly is complete. This contractor shall include all costs associated with returning to the jobsite to complete the roof perimeter after wall assembly is complete.

4. Foundation dampproofing and waterproofing.

5. Caulking related to roofing, flashing and roof accessories.

6. Roof drains and associated plumbing shall be provided by the Mechanical Contractor. Flashing of the roof drains shall be by the Roofing Contractor. Openings for the roof drains in the roofing materials shall be cut by the Roofing Contractor. Openings in the metal deck shall be cut by others.

7. Metal parapet coping.

8. Roof hatches.

9. Walk pads.

10. Perform cutting, patching and maintenance of temporary patch for work performed by others on existing roofs intended to be re-roofed as part of this work.

11. Metal drip edges.

12. Gravel stops.

13. Roof curbs.

14. Smoke vents.

15. Provide expansion joints that are integral to the roof.

16. Provide permanent patching of existing roofing systems at areas of demolition. Demolition of roof drains, mechanical and electrical equipment shall be performed by others. All patching shall conform to original warranty requirements and documents.

17. Gutters, downspouts and splash pans.

18. Metal scuppers and related work.

19. Wood blocking shall be provided by others.

20. Coordinate all roofing with MEP trades.

21. Flashing and sheet metal.

21. Flashing Summary:

    a. Thru wall and cavity flashing below the roof line shall be by the Masonry Contractor.
    b. Thru wall and cavity flashing above the roof line shall be by the Roofing Contractor.

22. This contractor shall coordinate the removal of the old and installation of the new roofing system with the MEP trades and the carpentry contractor.

23. This contractor is responsible for all demolition of the existing roofing systems, trims, gutters etc.

24. All debris removal shall be the responsibility of this contractor.

25. Include in our proposal 150 roofer man hours to assist perform temporary weather protection to be directed by the Construction Manager.

26. Include an allowance of $35,000 for work as directed by the construction Manager.

CONTRACT NO. HHS -13 – CERAMIC TILE

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 09 3000	Tiling

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide ceramic tile, marble tile and thresholds.
2. Quarry tile.
3. Porcelain pavers, etc.
4. Setting beds.
5. Grout.
6. Cutting and fitting around work installed by others.
7. Precast mop receptors.
8. Patching and leveling.
9. Provide protection of finished products until acceptance by Construction Manager.
10. Attic stock.
11. Provide crack suppression membrane for thin set tile installation.
12. Provide cementious backer units as part of the tile installation.
13. Provide metal strips installed as part of the tile installation.
14. Include all floor and wall preparations of existing conditions.

15. Furnish and install all required special shapes.

16. Provide an allowance of $25,000 for additional tile work as directed by the Owner and Construction Manager.

CONTRACT NO. HHS-14 – PAINTING AND COATINGS

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 07 2119	Foam-in-Place Insulation
Section 09 9000	Paintings and Coating

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all painting and vinyl or fabric wall covering (all walls and ceilings indicated on the finish schedule).

2. Sealing all interior joints between dissimilar materials that require sealants.

3. Paint all exposed block work and concrete work.

4. Prime, stain or seal all wood trim and doors.

5. Paint exposed piping and ductwork (sprinkler, plumbing, electrical) in accordance with the Drawings and Specifications.

6. All exposed structural including steel to be painted.

7. Provide supplementary ventilation as required in enclosed spaces.

8. Paint and caulk all hollow metal frames and doors as shown on the door schedule.

9. Paint metal stairs and railings.

10. Prefinished items <u>will</u> <u>not</u> be painted by this Contractor.

11. Paint all semi-exposed wood blocking as indicated on the drawing.

12. Protection of adjacent surfaces.

13. Minor patching prior to application of finishes.

14. Clean up.

15. Seal all tops, bottoms and cut edges of all wood doors.

16. This Contractor to allow two hundred fifty (250) man hours and all required paint materials for these man hours to be used as directed by the Construction Manager.
17. Attic stock.

18. Final coat of paint is to be installed after ceilings are installed, if directed by Construction Manager.

19. This contractor shall include preparation and painting of the existing locker faces; the interior do not get painted. Refer to hallway mock up for level of quality.

20. This contractor shall be include caulking and preparation of all painted materials prior to painting.

21. This contractor shall include painting of all exposed ceiling areas.

22. Furnish and install all intermescent coating as required by contract documents.

23. Provide foamed in place insulation.

24. This contractor shall include 2 additional passes on each floor after the final coat has been applied to touch up walls and door frames. Include an allowance of $10,000 for materials to complete this work.

25. This contractor shall provide an allowance of $20,000 to utilize electro static painting on lockers in lieu of hand painting.

26. This contractor shall include an allowance of $30,000 for work to be determined by the construction Manager

CONTRACT NO. HHS -15 – WOOD FLOORING

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 09 6429	Wood Strip Flooring

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide flooring in accordance with the finish schedule and specifications.

2. Prepare subfloor for finished flooring including leveling and patching. Base bid shall include all flashing patching and surface preparation required to perform the work of this Contractor. Include preparation of existing conditions.

3. Include all sub floor sleeper systems as required.

4. Thresholds and transition strips to other materials.

5. Provide all sanding, epoxy and floor finish.

6. Cleaning and protection.

7. Attic stock.

8. Provide cutting and fitting around work of others.

9. Note: all demolition of wood floors to be by the Asbestos abatement contractor.

10. This contractor shall include an allowance of $50,000 to provide floor leveling and subfloor as associate with the wood floor installation.

11. This contractor shall include an allowance of $30,000 for additional work to be directed by the Construction Manager.

CONTRACT NO. HHS - 16 – WINDOW TREATMENTS

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 12 2413	Window Treatment – Roller Shades

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Furnish and install roller shade system complete. This contractor owns all accessories, fasteners, etc.

2. Coordinate all power and wiring with Electrical Contractor.

3. Provide attic stock.

4. Provide final cleaning and touch up prior to Owner occupancy.

5. This contractor required to coordinate with the finish trades for window treatment installation.

6. This contractor to include an allowance of $20,000 for additional work to be directed by the Construction Manager.

CONTRACT NO. HHS – 17 – CONVEYING EQUIPMENT

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 14 2010	Passenger Elevators
Section 14 2705	Elevator Cabs and Hoistway Doors

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all elevators, cabs, hoistway doors complete.

2. This Contractor shall cooperate with the Construction Manager in laying out the core dimensions and sill elevations.

3. The elevator installation to be phased: Phase I will provide all elevators. Phase I installation must be limited to the lower level of the main building and the annex. Phase II will include installation of elevator at main building. This work will start June 2017.

4. Grouting of all elevator sill angles will be the responsibility of the Concrete Contractor.

5. This Contractor to furnish and install all rough wiring necessary for the installation of emergency telephones. All communication devices will be furnished and installed by the Owner.

6. Electric service and disconnect switch for the elevators are the responsibility of the Electrical Contractor. All other control wiring, as specified, will be the responsibility of this Contractor.

7. Provide temporary protection and railings at hoist ways after installation has started.

8. Provide central control panel as required.

9. Grouting of all elevator sill angles will be the responsibility of the Concrete Contractor.

10. This Contractor to furnish and install all rough wiring necessary for the installation of emergency telephones. All communication devices will be furnished and installed by the

Owner.

11. Electric service and disconnect switch for the elevator are the responsibility of the Electrical Contractor. All other control wiring as specified, will be the responsibility of this Contractor.

12. This Contractor to submit for approval layout and excavation information for the elevator jack holes. The Construction Manager will supply all necessary bench marks.

13. This Contractor will be responsible for dewatering in order to complete installation of the jackholes.

14. This Contractor will be responsible for drilling the jackholes through unclassified material. Excavated material shall be disposed of by this Contractor.

15. Include the cost and warranty to allow temporary use of the elevators for four (4) months during the construction, operator to be included.

16. Provide jack hole sleeve where indicated on the drawing.

17. This contractor shall furnish and install all elevators for Phase I and Phase II of this project.

18. The work will be phased from June of 2016 to July of 2017; include any cost associated with this Phasing in your base bid.

19. This contractor shall include all permit applications, fees and inspection required by the City of Wilmington and the Fire marshal's office.

20. Coordination with the contractors for the elevator shafts is required.

21. This contractor will include a $25,000 allowance for additional work to be directed by the Construction manager.

CONTRACT NO. HHS-18 – ALUMINUM WINDOWS

A. Work included in this contract consists of, but is not necessarily limited to, all labor, materials and equipment for:

- Technical Specification Sections:

Division 0	Bidding and Contract Requirements
Division 1	General Requirements
Division 2	Existing Conditions
Section 01 9113	General Commissioning Requirements
Section 01 9115	Exterior Enclosure Commissioning
Section 08 5114	Aluminum Windows
Section 08 8000	Glazing

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide curtain wall, storefront, glass and glazing systems.

2. Provide manual aluminum door systems and handling.

3. All aluminum windows. (Aluminum clad windows in Contract HHS-06)

4. Provide automatic aluminum door systems, including hardware/ADA accountable systems included.

5. Curtain wall systems.

6. All mirrors.

7. Finish hardware for aluminum doors only.

8. All glass and glazing at interior and exterior of building.

9. Caulking related to storefront doors and curtain wall systems.

10. Mock-ups as required by the Drawings and Specifications.

11. Custom breakmetal trim and infill.

12. Hoisting/scaffolding related to the work of this Contract.

13. Coordinate edge of slab tolerances and field verify all rough openings.

14. Caulk between the materials supplied under this section and the adjacent surfaces.

15. Provide interior glass and glazing systems.

16. Interior door, partition, vision panel and window glass.

17. Caulking related to interior glazing.

18. Do not provide interior hollow metal or hardware. These items will be provided by others.

19. Coordinate glass types with partition and door fire ratings. Contact Construction Manager with any discrepancies.

20. This contractor to include an allowance of $30,000 for work to be determined by the owner and construction manager.

END OF SECTION

SECTION 012100 - ALLOWANCES

1. RELATED DOCUMENTS

A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

B. Refer to provisions in AIA Document A232 – 2009 EDITION, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER AS ADVISOR EDITION, for requirements in addition to those specified in Division 1.

C. Refer to Scope Information Sheets for all contracts bound in the Project Manual under Section 011100 - SUMMARY OF WORK. The Scope Information Sheets describe generally the work included in each contract, but the work is not necessarily limited to that described.

D. For work being constructed under separate prime contracts, provisions of this Section apply to each contract being bid.

E. Include in the Contract Sum all lump sum and unit cost allowances stated in the Contract Documents.

F. Designate in the construction progress schedule the delivery dates for products specified under each allowance.

G. Designate in the Schedule of Values the quantities of materials required under each unit cost allowance.

2. ALLOWANCES FOR PRODUCTS

A. The amount of each allowance includes:

1. The cost of the product or labor to the Contractor or Subcontractor, less any applicable trade discounts.

2. Delivery to the site.

3. Labor required under the allowance, only when labor in specified to be included in the allowance. If labor is not specified to be included in the allowance, it shall be included in the Contractor's bid and in the resulting Contract Sum.

4. Applicable taxes.

5. Profit and overhead.

B. In addition to the amount of each allowance, include in the Contract Sum the Contractor's costs for:

1. Handling at the site; including unloading, uncrating and storage.

2. Protection from the elements and from damage.

3. Labor for installation and finishing, except where labor is specified to be a part of the allowance.

4. Other expenses required to complete the installation.

5. Contractor's and Subcontractor's overhead and profit.

C. Refer to Scope Information Sheets under Section 011100 - SUMMARY OF WORK for the amount of each lump sum allowance and for work specified in the specification sections.

3. ADJUSTMENT OF COSTS

A. Should the net cost be more or less than the specified amount of the allowance, the Contract Sum will be adjusted accordingly by Change Order.

1. For products and labor specified under a unit cost allowance, the unit cost shall apply to the quantities actually used with a nominal allowance for waste, as determined by receipted invoices, or by field measurement.

B. At Contract closeout, reflect all approved changes in Contract amounts in the final statement of accounting.

END OF SECTION

SECTION 012200 - UNIT PRICES

1. GENERAL PROVISIONS

   A. The general provision of the Contract, including the Conditions of the Contract (General, Supplementary and other conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

   B. Refer to provisions in AIA Document A232 – 2009 EDITION, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER AS ADVISOR EDITION, for requirements in addition to those specified in Division 1.

   C. For work being constructed under separate prime contract, provisions of this Section apply to each contract being bid.

2. BASE BID

   A. The Base Bid shall consist of all work shown or specified in the Contract Documents, exclusive of any Additive Unit Prices specified herein.

   B. The Base Bid shall include all work in any Subtractive Unit Prices specified herein.

3. UNIT PRICES

   A. State in the Bid Form the amount to be added to (or subtracted from) the Base Bid per unit of measurement for each Unit Price specified. State this amount to include all overhead and profit. No surcharge in addition to the Unit Price listed will be permitted.

   B. See Section 002113, INSTRUCTIONS TO BIDDERS for related information.

   C. For description of Unit Prices requested, refer to the specification. The method of stating the Unit Prices is described in the Bid Form.

   D. Where both add and deduct unit prices are requested, there shall not be more that a 10% variation between the two.

4. APPLICATION OF UNIT PRICES

   A. Unit prices stated in the Bid Form will apply from the time the Bid is submitted until Contract completion.

5. MEASUREMENT OF QUANTITIES

   A. Quantities shall be determined by field measurement by contractor personnel and as verified by the Construction Manager.

B. At the Contractor's option, and at his expense, measurement may be made by a registered surveyor.

6. LIST AND DESCRIPTION OF UNIT PRICES

A. Unit Price No. 1: Provide unit price for natural polished concrete per sq. ft.

B. Unit Price No. 2: Provide unit price for stained polished concrete per sq. ft.

C. Unit Price No. 3: Provide unit price for cleaning of masonry exterior/per 500 sq. ft.

D. Unit Price No. 4: Provide unit price for restoring masonry exterior walls/per 500 sq. ft.

E. Unit Price No. 5: Provide unit price to furnish and install exterior brick walls complete/per 100 sq. ft.

F. Unit Price No. 6: Provide pipe and tube railing unit cost to furnish and install exterior metal rails per code/per lineal foot.

G. Unit Price No. 7: Provide and install sheet waterproofing unit cost for below grade waterproofing/per sq. ft.

H. Unit Price No. 8: Provide and install unit cost for cold applied fluid waterproofing/per sq. ft.

I. Unit Price No. 9: Provide unit cost to furnish and install under-slab vapor barrier-retarder at slab areas/per sq. ft.

J. Unit Price No. 10: Provide unit cost to furnish and install clad commercial doors/per unit.

K. Unit Price No. 11: Provide unit cost to furnish and install stile and rail wood doors/per unit.

L. Unit Price No. 12: Provide unit cost to furnish and install aluminum clad windows/per unit.

M. Unit Price No. 13: Provide unit price to furnish and install gypsum veneer plaster to patch wall surfaces/per sq. ft.

N. Unit Price No. 14: Provide a unit cost to furnish and install ceramic wall and floor tiling/per sq. ft.

O. Unit Price No. 15: Provide a unit cost to furnish and install wood flooring and substrate/per sq. ft.

P. Unit Price No. 16: Provide a unit cost to furnish and install resilient flooring including floor shot blasting and preparation/per 100 sq. ft.

Q. Unit Price No. 17: Provide a unit cost to furnish and install resinous terrazzo flooring/per sq. ft.

R. Unit Price No. 18: Provide a unit cost to furnish and install tile carpeting/per sq. yd.

S. Unit Price No. 19: Provide a unit cost to furnish and install a two coat paint process on finish surfaces/per sq. ft.

T. Unit Price No. 20: Provide a unit cost to furnish and install visual display boards/per 30 sq. ft. unit.

U. Unit Price No. 21: Provide unit cost to furnish and install solid color reinforced composite toilet compartments/per stall.

V. Unit Price No. 22: Provide unit cost to furnish and install corner guards/per lineal ft.

W. Unit Price No. 23: Provide unit cost to furnish and install lockers/per locker.

X. Unit Price No. 24: Provide a unit cost to restore and paint exterior of hallway lockers/per locker.

END OF SECTION

SECTION 012300 - ALTERNATES

1. GENERAL PROVISIONS

A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

B. Refer to provisions in AIA Document A232 – 2009 Edition, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER AS ADVISOR EDITION, for requirements in addition to those specified in Division 1.

C. For work being constructed under separate prime contracts, provisions of this Section apply to each contract being bid.

2. BASE BID

A. The Base Bid shall consist of all work shown or specified in the Contract Documents, exclusive of any Additive Alternates specified herein.

B. The Base Bid shall include all work in any Subtractive Alternates specified herein.

3. ALTERNATES

A. State in the Bid Form the amount to be added to the Base Bid for each Alternate specified.

B. See Section 002113 - INSTRUCTIONS TO BIDDERS for related information.

C. The description of Alternates contained herein is in summary form. Detailed requirements for materials and execution shall be as specified in other sections and as shown on drawings.

N/A

END OF SECTION

SECTION 013216 - CONSTRUCTION SCHEDULE

1. PRE-BID CONSTRUCTION SCHEDULE

A. Time is a critical element of this Project. By entering a bid, the Contractor agrees to adhere to the intermediate Milestone Dates and Dates of Substantial and Final Completion established herein. The Contractor also understands that all work must be performed in an orderly and closely coordinated sequence in order to achieve the specified Milestones and Completion Dates, and the Contractor hereby agrees to perform his work in conformance with the Pre-Bid Construction Schedule established herein, or with the then current and approved Project Construction Schedule as amended from time to time by the Construction Manager.

B. The Pre-Bid Construction Schedule includes allowances for time lost due to adverse and abnormal weather conditions, other than floods, hurricanes, tornadoes, lightening and other like acts of God. The Contractor understands and agrees that it shall not be entitled to any extensions of the Contract Time or adjustment to the Contract Sum, except as allowed in the General Conditions of the Contract for Construction. The Contractor further acknowledges that the Work may be required to be performed during the winter season, that conditions during this season may be adverse and abnormal, but that such conditions will not be the basis for an extension of the Contract Time or adjustment to the Contract Sum.

2. SCHEDULING OF THE WORK AFTER AWARD OF CONTRACT

A. After award of Contract, or issuance of a Notice to Proceed, the Contractor will meet with the Construction Manager to review the Pre-Bid Construction Schedule, and the overall project plan for construction. Following the above review the Contractor will meet with each subcontractor and supplier to view the detailed plans for performing his Work. Following these meetings and within fourteen (14) days after award of the Contract or issuance of a Notice to Proceed, the Contractor shall prepare and submit for the Construction Manager's approval a Work Schedule providing for the expeditious, timely and practical execution of the Work. The Contractor's Work Schedule shall include activity descriptions and durations for shop drawings, fabrication, delivery and installation. If the Construction Manager so requests, the Contractor shall provide adequate explanation regarding crew sizes, production rates and similar data used to arrive at the durations and sequences.

B. The Construction Manager shall review the Contractor's Work Schedule, coordinate it with the separate work by other contractors, the Owner and the Construction Manager, and after coordination, shall incorporate it into the approved Project Construction Schedule. The approved Project Construction Schedule shall be issued to the Contractor and the Contractor shall perform his Work in conformity therewith.

C. The Contractor shall submit proposed schedule revisions and obtain the written

approval of the Construction Manager therefore before deviating from the Project Construction Schedule.

C. The Construction Manager will incorporate approved schedule revisions into the Project Construction Schedule, and shall otherwise update and revise the Project Construction Schedule as the Construction Manager, at his sole discretion, deems necessary.

3. ADHERENCE TO THE SCHEDULE

A. The Contractor shall start each part of its Work on the date designated for start in the approved Project Construction Schedule unless advised by the Construction Manager. The Contractor shall carry the Work forward expeditiously with adequate forces, equipment and materials, and shall complete each part of his work on or before the date designated in the approved Project Construction Schedule.

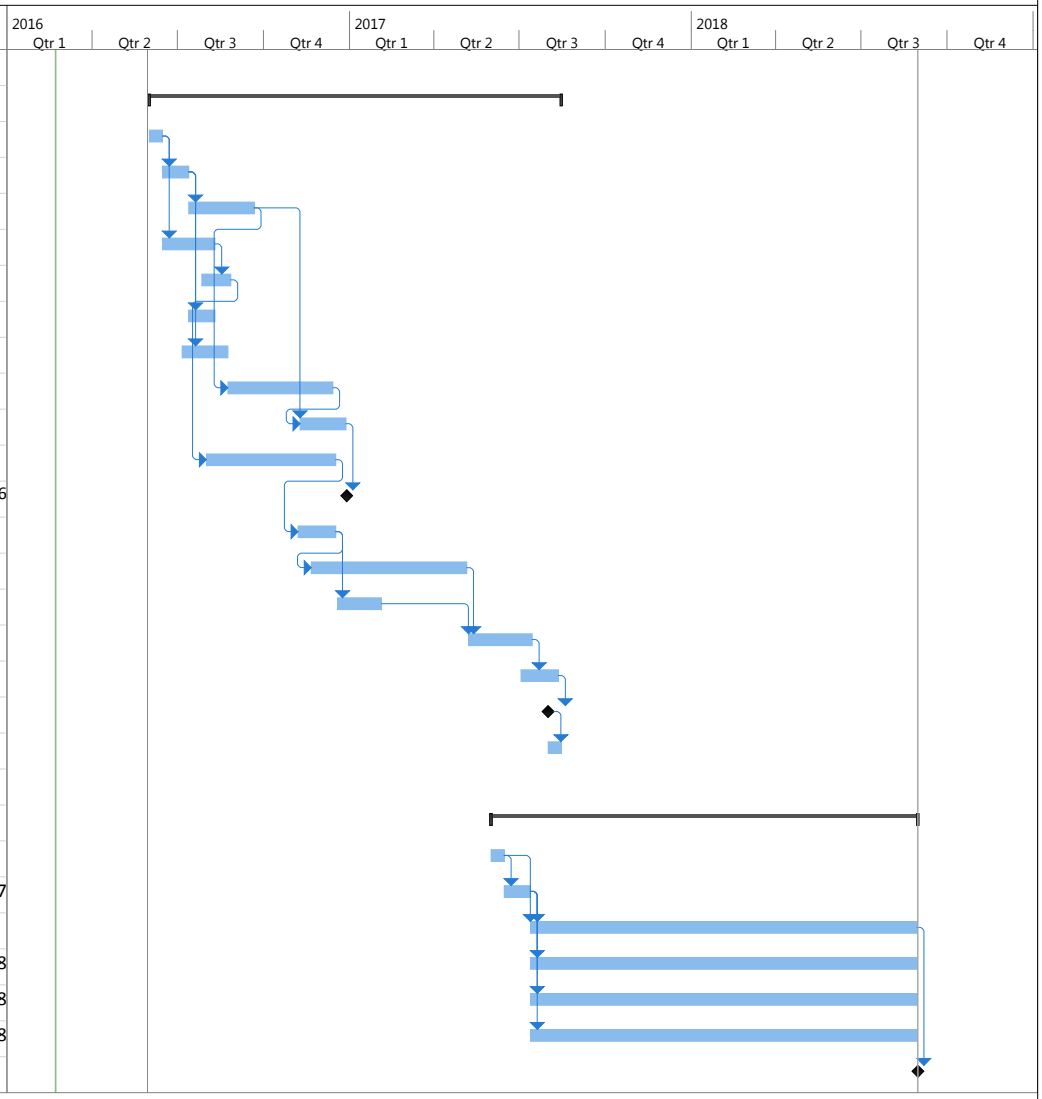
B. If the Construction Manager determines that the Contractor is behind schedule, the Construction Manager shall have the right to require that the Contractor take steps, at the Contractor's expense, to accelerate its Work. Such steps shall include increases in manpower, equipment and materials and/or overtime as the Construction Manager may deem necessary. If the Contractor fails to comply with the Construction Manager's instructions relating to improved rate of progress, the Contractor may be held in default under the appropriate provisions of the General Conditions of the Contract.

C. Each Contractor shall, if directed by the Construction Manager, provide the Construction Manager a 2-week look ahead of anticipated manpower showing the number of men, classification, and anticipated work.

END OF SECTION

NCC Howard HS Phase I
BP-A Bid Schedule
12/22/2016

ID	Task Mode	Task Name	Duration	Start	Finish
1					
2		**PHASE I BP-A Construction Duration**	**314 days**	**Wed 6/1/16**	**Mon 8/14/17**
3		Mobilization	10 days	Wed 6/1/16	Tue 6/14/16
4		Asbestos Abatement	20 days	Wed 6/15/16	Tue 7/12/16
5		Demolition and Removal	50 days	Wed 7/13/16	Tue 9/20/16
6		Site - Underground Utilities	40 days	Wed 6/15/16	Tue 8/9/16
7		UG Plumbing and Concrete Replacement	23 days	Wed 7/27/16	Fri 8/26/16
8		Temporary Plumbing Rerouting	20 days	Wed 7/13/16	Tue 8/9/16
9		Temporary HVAC Rerouting	35 days	Wed 7/6/16	Tue 8/23/16
10		MEP Rough In	80 days	Wed 8/24/16	Tue 12/13/16
11		Roof Demolition and Replacement	35 days	Wed 11/9/16	Tue 12/27/16
12		Building construction and Renovations	100 days	Mon 8/1/16	Fri 12/16/16
13		Building Watertight	1 day	Wed 12/28/16	Wed 12/28/16
14		MEP Rough Interior	30 days	Mon 11/7/16	Fri 12/16/16
15		Interior Construction / Finishes	120 days	Mon 11/21/16	Fri 5/5/17
16		MEP Start Up	35 days	Mon 12/19/16	Fri 2/3/17
17		Final Finishes and Accessories	50 days	Mon 5/8/17	Fri 7/14/17
18		Punchlist and Clean Up	30 days	Mon 7/3/17	Fri 8/11/17
19		Substantial Completion	1 day	Mon 7/31/17	Mon 7/31/17
20		Owner Occupy Space	10 days	Tue 8/1/17	Mon 8/14/17
21					
22		**PHASE II BP-B Construction Duration**	**326 days**	**Thu 6/1/17**	**Thu 8/30/18**
23		Mobilize	10 days	Thu 6/1/17	Wed 6/14/17
24		Asbestos Abatement	20 days	Thu 6/15/17	Wed 7/12/17
25		General Construction	295 days	Thu 7/13/17	Wed 8/29/18
26		BPA - HVAC & Plumbing	295 days	Thu 7/13/17	Wed 8/29/18
27		BPA - Electrical	295 days	Thu 7/13/17	Wed 8/29/18
28		BPA - Fire Sprinkler	295 days	Thu 7/13/17	Wed 8/29/18
29		Substantial Completion	1 day	Thu 8/30/18	Thu 8/30/18



Project: Howard HS Phase I Bid
Date: Mon 2/22/16

Task		Project Summary		Manual Task		Start-only		Deadline	
Split		Inactive Task		Duration-only		Finish-only		Progress	
Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
Summary		Inactive Summary		Manual Summary		External Milestone			

SECTION 012600 - CHANGE ORDER PROCEDURES

1. GENERAL:

A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

B. Refer to provisions in AIA Document A232 – 2009 EDITION, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER AS ADVISOR EDITION, for requirements in addition to those specified in Division 1.

C. The Construction Manager is responsible for processing all change orders. Each request will be assigned a change order request (COR) number. The Change Order Request & Execution Form will be initiated via the web-based project management system (Building Blok) used by the CM.

D. It is to be clearly understood that no extra work shall commence without an approved written and executed change order from the Owner.

2. INITIATING A CHANGE ORDER:

A. Specific changes initiated by the Owner, Architect, Construction Manager (CM) or Contractor will be processed as follows:

1. The Owner will authorize the Architect to prepare sufficient documents to establish an accurate price. These documents to be forwarded to the Construction Manager and Owner "for pricing only, not authorized for construction." The Construction Manager will develop the estimate (within 2 weeks) showing a breakdown by trades with all trade contractor quotes. The Owner will approve or reject the change request within two (2) weeks. If the Owner elects to proceed with the change, the Construction Manager will prepare formal change orders to the various trade contractors involved in the change and reference in all formal change orders the original change order request number.

2. Field Change: Contractor shall immediately notify the Construction Manager of a change due to field conditions or site conditions. If documents cannot be prepared for pricing due to schedule constraints, the Construction Manager will make every effort in estimating the field change. If the Owner and Construction Manager agree that certain field changes should be handled on a time and material basis, the Construction Manager will closely monitor the Contractor's labor and material affecting this change. At the completion of the work a formal change order will be issued.

3. Contractor Change: If a Contractor initiates a change order for work not included in the Contract, the Construction Manager and Architect will research the validity of the request, verify quantities and pricing and submit to the Owner for approval on a change order request.

B. The additional cost, or credit to the Owner resulting from a change in the Work shall be by mutual agreement of the Owner, Contractor, Construction Manager and the Architect.

3. PROCESSING A CHANGE ORDER:

A. The Contractor will fill in the Change Order Request & Execution Form (COREF) with a brief description of the change, any time extension, and cost changes.

B. The Contractor will attach to the COREF copies of the written quotations from the trade contractors, Contractors, and suppliers. The Labor Detail Sheet and the Change Order Detail forms must be added as an attachment to the COREF. The Contractor and each sub-tier contractor (as applicable) must fill out the Labor Detail Sheet and Change Order Detail Sheet. Samples of these forms are attached.

C. In all cases, this cost or credit shall be based on the "DPE" wages required and the "invoice price" of the materials/equipment needed.

D. "DPE" shall be defined to mean "direct personnel expense". Direct payroll expense includes direct salary plus customary fringe benefits (prevailing wage rates) and documented statutory costs such as workman's compensation insurance, FICA, and unemployment insurance (a maximum multiplier of 1.35 times DPE).

1. "Fringe Benefit" is any medical, life or disability insurance, paid time off, etc.

2. "Worker's Compensation" is the insurance required for injuries including medical leave, etc.

3. "FICA" is the costs association with Social Security and Medicare insurance.

4. "Unemployment insurance" is the cost associated with the governmental assessment for employee's unemployment benefits.

E. "Invoice price" of materials/equipment shall be defined to mean the actual cost of materials and/or equipment that is paid by the Contractor (or Subcontractor) to a material distributor, direct factory vendor, store, material provider, or equipment leasing entity.

F. In addition to the above, the Contractor is allowed markup for overhead and profit on additional work performed as outlined in Specification Section 012613, Contractor Compensation.

G. Building Blok Procedures: The Contractor will submit all change order requests and supporting documentation via the Building Blok web-based project management system. Each Contractor will be issued a unique login and password. Each contractor must submit the information as follows:

1. Create a new change order, from your "To-Do List" by clicking on the "Create Issue"

tab in the upper right corner and select "Change Order Request".

2. The Contractor will enter a brief description of the change in the "Summary" block. A detailed description of the change will be entered in the "Description of Change" block, to include any changes to documents or time extension. The cost of the change will be entered in the "Total Cost Change" block.

3. The Labor Detail Sheet and the Change Order Detail forms must be added as an attachment to the request. The Contractor and each sub-tier contractor (as applicable) must fill out the Labor Detail Sheet and Change Order Detail Sheet. Samples of these forms are included behind this section. In addition to these forms, the Contractor also must attach any material and equipment rental quotations. All of these documents should be scanned and saved as a PDF file. Click on the "Browse" box to upload the file. Be sure to wait until Building Blok tells you the file was "Uploaded Successfully".

4. Once the information is entered on the form and the proper attachments are uploaded, the contractor will click "Save". The Contractor will be prompted to enter their password to approve an electronic signature. Once you save the request you will have an opportunity to check it before submitting it to the CM. After you verify the COREF is correct click "Recommend Approval" to submit the change request to the CM. The Contractor will then be prompted to re-enter the password to approve an electronic signature and complete the submission request. Click on "Home" in the upper left corner to make sure the change order does not appear on your To-Do List.

5. The Change Order Request will then be reviewed by the CM Project Manager and Recommended for Approval, Rejected, or returned to the Contractor for additional information. Once the Construction Manager, Owner, and Architect have approved the request all parties will receive an email from Building Blok notifying them that a fully executed Change Order and Contract Recalculation Form can be downloaded from Building Blok. Hard copies of the executed change order and recalculation form will not be provided by the CM.

6. Once approved on Building Blok, the Contractor is to print out a copy of the approved change order request form and send a signed hard copy of the request with a printout of the associated back-up to the Construction Manager.

It is to be clearly stated that no extra work shall commence without an approval from the **Owner or Construction Manager** or Owner's representative.

END OF SECTION

CHANGE ORDER REQUEST & EXECUTION FORM

110 South Poplar Street
Suite 400
Wilmington, DE 19801

Tel. 302-421-5700
Fax 302-421-5715

DATE:
CONTRACT:
CONTRACTOR:

PROJECT NAME: Howard High School
REQUEST NUMBER:
CHANGE ORDER NUMBER:
STATE PO NUMBER:

The following is a summary of the request submitted by the contractor as described above. All supporting documents have been attached and described herewith. This summary shall contain a total amount of compensation requested by the contractor as well as any request for an extension in contract time. It shall be understood that the amounts described below shall remain valid for a period of sixty days from the date described above unless otherwise stated.

A detailed breakdown of Labor, material, equipment, and subcontract costs must be attached to be considered for review.

1. Summary Description(s):
2. Changes to the Contract Drawings:
3. Changes to the Project Manual:
4. Total Cost Change:
5. Total Time Change:

REVIEWED

This request has been reviewed and____approval_____disapproval is recommended by:

Name Title Date

APPROVED

This change order request is not approved until executed by all parties bound by a contractual relationship. Upon execution it shall represent a modification to the agreement and is subject to all terms and conditions of the contract documents.

Contractor:	Architect:
Signed By:	Signed By:
Title:	Title:
Date:	Date:
EDiS Company	Owner:
Signed By:	Signed By:
Title:	Title:
Date:	Date:

CHANGE ORDER DETAIL FORM

(Provided by contractor, subcontractor or sub tier contractor)

DATE SUBMITTED:

CONTRACT:

CONTRACTOR:

PROJECT NAME: Renovations to Howard High School of Technology

CHANGE ORDER REQUEST #:

LABOR SECTION

TRADESMAN(s):	LABOR HOURS	RATE (per schedule)	SUBTOTAL
Subtotal			

MATERIAL SECTION

MATERIAL:	QUANTITY	UNIT COST	SUBTOTAL
Subtotal			

EQUIPMENT SECTION

EQUIPMENT:	QUANTITY	UNIT COST	SUBTOTAL
Subtotal			

SUBTOTAL	
SUBCONTRACTOR/ SUB TIER*	
OH & PROFIT (10% on sub/sub tier only))	
BOND COST	
OH & PROFIT (15% on own work)	
GRAND TOTAL	

3/2012

CHANGE ORDER DETAIL FORM

(Provided by contractor, subcontractor or sub tier contractor)

DATE SUBMITTED:

CONTRACT:

CONTRACTOR:

PROJECT NAME:

CHANGE ORDER REQUEST #:

LABOR SECTION

TRADESMAN(s):	LABOR HOURS	RATE (per schedule)	SUBTOTAL
Subtotal			

MATERIAL SECTION

MATERIAL:	QUANTITY	UNIT COST	SUBTOTAL
Subtotal			

EQUIPMENT SECTION

EQUIPMENT:	QUANTITY	UNIT COST	SUBTOTAL
Subtotal			

SUBTOTAL	
SUBCONTRACTOR/ SUB TIER*	
OH & PROFIT (10% on sub/sub tier only))	
BOND COST	
OH & PROFIT (15% on own work)	
GRAND TOTAL	

SECTION 012613 - CONTRACTOR COMPENSATION

1. GENERAL

A. The Contractor agrees to perform any additional Work, for the net cost of materials and labor (including wages paid, payroll taxes, and all insurance) plus the following percentage for all of his overhead and profit, which includes Field Supervision:

The percentages to be added or allowed for any Work change involving both added Work and omitted Work shall be applied only to the net difference in cost.

1. 15% mark-up (10% overhead and 5% profit) by the Contractor on Work performed by his own forces.

2. For work done by a Subcontractor, 10% for subcontractor overhead and 5% for subcontractor profit to which the Contractor may add 7.5% for his overhead and profit combined.

3. Contractor mark-up shall include supervision, home and field overhead, all self-owned small tools and equipment.

B. When the Contractor is directed to perform overtime work at the CM (Owner) expense to accelerate contractual work, the cost for same shall only be the actual premium costs incurred by the Contractor.

END OF SECTION

SECTION 012900 - PAYMENT PROCEDURES

1. GENERAL PROVISIONS

A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

B. Refer to provisions in AIA Document A232 - 2009 Edition, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CONSTRUCTION MANAGER AS ADVISOR EDITION, for requirements in addition to those specified in Division 1.

C. For work being constructed under separate prime contracts, provisions of this Section apply to each contract being bid.

2. REQUIREMENTS INCLUDED

A. Submit Applications for Payment to Construction Manager in accordance with the schedule and procedures established in the Contract Documents.

3. RELATED REQUIREMENTS

A. Owner-Contractor Agreement.

B. Conditions of the Contract: Article 9 PAYMENTS AND COMPLETION.

C. Section 01 31 13: Project Coordination Meetings

D. Section 01 33 00: Submittal Procedures

E. Section 01 77 00: Closeout Procedures

4. FORMAT AND DATA REQUIRED

A. Submit itemized applications inputted into Building Blok (EDiS' Web-Based Project Management software), examples of which will be furnished to the Contractor at the Pre-Construction meeting.

B. Provide itemized data on Continuation Sheet:

1. Format, schedules, line items and values: Duplicates of those of the schedule of values previously accepted by the Construction Manager.

C. Once approved on Building Blok, print out two copies and submit signed and notarized copies to the Construction Manager.

5. PREPARATION OF APPLICATIONS FOR PROGRESS PAYMENTS

A. Form: AIA Document G702/CMa

1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.

2. Fill in summary of dollar values to agree with respective totals indicated on Continuation Sheets.

B. Continuation Sheets:

1. Line items of components of Work will be subject to Owner's review and approval under the Provisions of Section 013300 - SUBMITTALS, and the General Conditions. Continuation Sheets shall follow Schedule of Values submitted with the first application for payment.

2. Fill in total list of all scheduled components of Work, with item number and scheduled dollar value for each item. Fill in values of work completed in the period.

3. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored; round off values to nearest dollar.

4. List each Change Order executed prior to date of submission, at the end of the Continuation Sheets; list by Change Order Number, and description, as for an original component item of work.

5. Contractor is to include a line item for "Closeout Documents" equaling 3.5% of their contract value.

6. PREPARATION OF APPLICATION FOR FINAL PAYMENT

A. Fill in Application form as specified in progress payments.

7. SUBMITTAL PROCEDURES

A. Complete Payment Applications:

1. Submit completed Application to the Construction Manager by the date stipulated in the Project Manual.

B. Number: Submit 2 copies of each Building Blok invoice signed and notarized payment application.

END OF SECTION

SECTION 013113 - PROJECT COORDINATION MEETING

1. PROJECT COORDINATION MEETING

   A. An on-site project coordination meeting will be held on a biweekly basis throughout the project construction period.

2. ATTENDANCE

   A. Attendance at the project coordination meeting is mandatory of each Contractor or major supplier on the project.

   B. The representative of the Contractor shall be the Project Manager and field superintendent, unless a substitute representative has been approved by the Construction Manager.

   C. Contractor will begin attending the Project Coordination Meetings at least 4 weeks prior to mobilization on site, and will continue until the Contractor has fulfilled the obligations of his Contract.

3. AGENDA

   A. The Construction Manager will set the agenda for the biweekly Project Coordination Meeting.
   B. At a minimum, the Contractor shall be prepared to discuss the following:

      1. Actual vs. as planned progress for the prior two week period.

      2. Planned construction activities for the next four weeks.

      3. Contract document clarifications.

      4. Coordination items with other contractors.

      5. Quality Control.

      6. Recently issued change orders.

      7. Potential change orders.

      8. Submittals and shop drawings.

      9. Other items requiring Construction Manager's attention.

END OF SECTION

SECTION 013119 – PRE-INSTALLATION MEETINGS

1. PRE-INSTALLATION MEETINGS

A. An on-site pre-installation meeting will be held at least two weeks prior to commencement of installation of work.

2. ATTENDANCE

A. Attendance at the pre-installation meeting is mandatory of each Contractor and/or major supplier as required for each specific meeting listed below.

B. The following individuals shall attend these meetings:
- Contractors' Project Manager
- Contractors' Field Superintendent
- Contractors' Safety Representative (as needed)
- Key Subcontractors, Suppliers, and Vendors
- EDiS Project Manager
- EDiS Field Manager
- EDiS Safety Director (as needed)
- EDiS MEP Specialist (as needed)
- Owner's Representative (as needed)
- Architect/Engineer (as needed)
- Governmental Agency Representatives (as needed)
- Testing/Inspection Agency Representatives (as needed)
- Utility Company Representatives (as needed)

3. SUBMITTALS

A. Each contractor is responsible to have all submittals and mock-ups, as related to the pre-installation meeting scope of work, submitted and approved prior to commencement of the pre-installation meeting.

4. LIST OF REQUIRED MEETINGS
- Foundations & Concrete Slabs
- Underslab Utilities
- Structural Steel Erection & Miscellaneous Metals OSHA mandated Safety Meeting
- Roofing OSHA mandated Safety Meeting
- Masonry
- Windows, Storefront, & Glazing
- Doors/Frames/Hardware
- Casework & Millwork
- Acoustical Ceilings
- Paint and VWC
- Flooring (VCT, Carpet)
- Epoxy Flooring
- Food Service Equipment

- Partition Walls
  - Metal Studs
  - Drywall
  - Insulation
  - Doors/Frames/Hardware
- Fire Protection
  - Fire Sprinkler Systems
  - Fire Alarm Systems
- MEP Coordination
  - Mechanical Piping Roughin
  - Plumbing Roughin
  - Insulation
  - Electrical Roughin
  - Electrical – Bonding, grounding, lightning protection
  - Automatic Temperature Controls
  - Commissioning

5. AGENDA

A. At a minimum, the Contractor shall be prepared to discuss the items as listed on the agenda template shown on the following page:

PROJECT: RENOVATIONS HOWARD HIGH SCHOOL OF TECHNOLOGY
PRE-INSTALLATION MEETING: (Phase of Work)

A. ATTENDEES:

NAME	COMPANY	WORK ITEM	CONTRACT

B. TESTING & INSPECTION REQUIREMENTS

C. REVIEW CONTRACT DRAWINGS AND SPECIFICATIONS

Drawing / Spec No.	Comments / Conflicts

D. REVIEW SCOPES OF WORK

E. REVIEW RELEVANT RFI'S

F. REVIEW SUBMITTALS

G. REVIEW MATERIALS AND DELIVERIES

H. REVIEW SCHEDULE AND SEQUENCE OF WORK

I. JOB SITE SAFETY

- Safety Plans must be submitted before the start of work
- Certificates of Insurance need to be submitted before the start of work
- Minimum PPE – Hardhats, steel toe boots, safety glasses
- Lock-out, Tag, Test and Try ALL utilities is critical before the start of demolition
- Signage & HAZCOM Requirements
- Potential Hazards
    - Excavations >4 ft
    - Slips/trips/falls
    - Existing utilities to remain and protected

- Overhead debris
- Power tools
- Heavy equipment

J. COORDINATION WITH OTHER TRADES

K. ACTION ITEMS AND RESPONSIBILITY

L. CLOSEOUT

END OF SECTION

SECTION 013125– WEB-BASED PROJECT MANAGEMENT SYSTEM

1. GENERAL PROVISIONS

A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

B. Refer to provisions in AIA Document A232 – 2009 EDITION, GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, for requirements in addition to those specified in Division 1.

C. Refer to Scope Information Sheets for all contracts bound in the Project Manual under Section 011100 - SUMMARY OF WORK. The Scope Information Sheets describe generally the work included in each contract, but the work is not necessarily limited to that described.

D. All Contractors shall use Internet/Web-based project management software to transmit documents, track, and otherwise manage this project.

E. Use of this project management software will not change any contractual responsibilities of the construction team members.

2. DEFINITIONS

A. System: A real time web-based software that shares data, translates data, organizes data, facilitates communication, archives actions, and offers scheduling prompts to identified Users.

B. Users: Authorized participants of this project furnished with a unique password and authorized to access the system to view/input/export data. Owner, Construction Manager, Architect, and the Contractors are all Users. Other Users may be added as necessary.

C. Contacts: Entities identified to automatically receive specific transmissions or entities selected to receive specific information sent by the system through to an e-mail address.

D. Signees: Those individuals identified, by the Contractors, authorized to sign change orders and payment applications via electronic signature. This electronic signature is as contractually binding as an original signature on paper.

3. USE OF SYSTEM

A. The use of the system is mandatory for the documentation of the transmittal of all non-oral information, even if the actual transmission of the information is by another means.

B. The use of the system will be mandatory by the Contractors to send, retrieve, and respond to data.

C. In addition to this web-based project management system, the Contractors will be required to use electronic mail (email) for day-to-day communication and correspondence. Email will be the primary means of transmitting written communication (i.e. meeting minutes, draft pay applications, etc.).

4. QUALITY ASSURANCE

A. A three hour training session in the use of the software for this project will be offered by the Construction Manager at a location convenient to the project site. Attendance by one member of each Contractor's organization is mandatory. Additional attendees may enroll based on availability of training space. All attendees must have a working knowledge of computers. Training can not begin until three working days after the receipt of the submittals indicated below.

B. Technical assistance will be provided by on-line help, email, or telephone for all Users through-out the life of the project.

5. SUBMITTALS

A. Submit to the Construction Manager, within 5 days following the receipt of the letter of intent to award, in an electronic template, the following:

1. Electronic logo of organization (as needed)
2. Names, mailing address and electronic address of its Users and Contacts.
3. Designation the role/responsibility for each User

6. SOFTWARE AND HARDWARE REQUIREMENTS

A. Each User shall provide and maintain a computer with high speed internet access and an email address. The computer shall have a high speed internet browser (Internet Explorer 8.0 or higher, Firefox version 3.6.12 or higher, Google Chrome or Safari version 5.0 or higher) and a high speed cable Internet access, high speed DSL or T1 line.

B. License(s) to Use System - Each Contractor will be provided unlimited licenses to use the system for this project. Each license will allow secure unlimited usage from the notice to proceed until the original contract completion date.

7. SYSTEM DESCRIPTION

A. The web based project management system is a "secure, real-time, interactive, centralized database" specifically established and maintained for the management of this construction project. The product is designed to facilitate communication and improve the time management of its users by facilitating the sharing of information.

Information will be available 24/7, from any computer meeting the specifications listed above. The information is fully protected. The electronic platform allows information to be transmitted across the internet reducing printing and postage costs and the time associated with such activities.

B. The system contains a directory of the project participants.

C. The system includes templates, with the CM's letterhead, for each document created inside the system. The template allows the use of "pull down" menus to complete significant portions of each document.

D. The system allows the templates (and attached documents created outside the system) to be distributed to Users and Contacts.

E. The System contains "translation software" to permit the viewing (and marking) of documents created outside the system. The system can view documents created by different software programs and can deliver images of its translation to any computer meeting the criteria listed above.

F. The system can be personalized by the Construction Manager to automatically send e-mail notices upon issuance of certain documents if such a practice facilitates the User's business needs.

G. The system is the product of ***Building Blok LLC*** (www.buildingblok.com) and will be continuously updated.

H. The Construction Manager will administer the Building Blok User accounts for this project.

8. DOCUMENTS CREATED INSIDE THE SYSTEM

A. The following documents shall be created on templates inside the system.

1. Transmittals for submittals processed in the system. The transmittals are automatically created by the system when the submittal is uploaded.
2. Submittal Register showing all of the submittals required of the contract, assigned to each Contractor.
3. Submittal Log: The CM will maintain submittal log after it is initialized.
4. RFI (Requests for Information)
5. Change Orders
6. RFP (Requests for Proposal)
7. ASI (Architect's Supplemental Instructions)
8. Tasks & Memos as determined by the CM
9. Payment Applications
10. Closeout Tracking Log

B. The following documents may, at each Users option, be created on the system.

1. Morning & Afternoon Activity Reports generated by the system
2. E-mails: Contacts that do not have access to the system may be sent information from the system, by the system.
3. Reports of information on the system
4. Project Notices: "Broadcast" messages can be sent to other Users system entry screen.

9. DOCUMENTS CREATED OUTSIDE THE SYSTEM AND DISTRIBUTED BY THE SYSTEM

A. The following documents are expected to be created outside the system and distributed through the system. The actual documents may be scanned or electronically attached to the transmittal.

1. Technical Submittals: Shop drawings, product data, testing reports, certifications, installation instructions, operation & maintenance manuals, will be submitted and distributed through the system. The Architect will return all submissions through the system electronically. The Construction Manager will distribute submittals (after Architect's action) electronically. Contractors may download and distribute submittals to their subcontractors and suppliers or elect to print paper copies for distribution, or both.
2. Photographs: Digital photographs and scanned images can be loaded onto the system and shared.
3. Schedule of Values/ Payment Applications: (The "pencil" review of these documents can occur inside the system).
4. Change Orders: (The "pencil" review of these documents can occur inside the system.)
5. Schedules: The schedule document(s) will be available for review on the system.
6. Data created in other software may be uploaded to the system electronically.

10. DOCUMENTS CREATED OUTSIDE THE SYSTEM AND DISTRIBUTED OUTSIDE THE SYSTEM

A. The following documents are expected to be created outside the system and distributed outside the system. The actual documents may be scanned or electronically attached to the transmittal.

1. Schedules: The Construction Manager will develop the Master Schedule through Microsoft Project 2003. The schedule will be distributed either through hard copies at meetings or through email.
2. Product samples, color samples, physical samples are still required to be provided per the technical specifications, however, the transmittal documenting the distribution shall be done inside the system and submitted electronically and printed to accompany the actual submission.
3. Meeting minutes will be created using Microsoft Word 2003 and distributed

through hard copies at meetings or through email.

4. AIA closeout documents, which require an "original" signature, will created and distributed outside the system.

END OF SECTION

SECTION 013219 - SUBMITTAL REGISTER

1. SUBMITTALS/SUBMITTAL REGISTER

A. The Contractor shall submit all items listed or specified within the sections of the Specifications included in its Work. Submittals shall include such items as: contractor's, manufacturer's or fabricator's drawings; descriptive literature including, but not limited to, catalog cuts, diagrams, operation charts or curves; test reports; samples, operations and maintenance manuals, including parts lists; certifications; warranties and other required submittals. Submittals pertinent to materials and equipment which are subject to advance approval shall be scheduled and made prior to the acquisition or the delivery thereof.

B. The Contractor shall carefully control procurement operations to assure that each individual submittal is made on or before the dates required for timely performance of its Work.

C. Within seven (7) days after award of Contract or issuance of Notice to Proceed, the Contractor shall execute and submit to the Construction Manager, seven (7) copies of the Submittal Register, on a form to be provided by the Construction Manager, on which shall be listed each item of equipment and material of each type for which fabricator's drawings and/or related descriptive data, test reports, samples, spare parts, operation and maintenance manuals, or other types of submittals required by the Specifications. The Submittal Register form shall be reproduced by the Contractor. The order of listing of items on the Register shall conform to the sequence of the items as they occur within the divisions. Drawings of component items forming a system or that are interrelated shall be scheduled to be correlated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time shall be allowed for review and approval and possible resubmittal of any item subject to approval, because no delay damages or time extensions will be allowed for time lost in late submittals or resubmittals. The Construction Manager and Architect/Engineer will review the Submittal Register for approval action. The approved Register will become a part of the Contract and Contractor will be subject to requirements thereof. The Contractor shall revise and/or update the Register monthly to take into account all changes in the Contract. Each such revised edition and/or revision to the Register shall be resubmitted to the Construction Manager. This Register shall be coordinated with related submittals of other Contractors.

2. SAMPLES

A. Submit tagged or labeled samples in triplicate, unless another quantity is otherwise specified by the Construction Manager.

B. Tags or labels shall be securely affixed and contain as a minimum the following information: Project Name, Contractor's Name, Contract Title and Number, Date, Transmittal Number, Product Manufacturer's or Fabricator's Name and Product Identifier.

END OF SECTION

SECTION 013226 - CONTRACTOR DAILY REPORTS

1. CONTRACTOR DAILY REPORTS

A. The Contractor shall submit a Daily Report to the Construction Manager on the forms provided covering the following subjects:

1. Work in Progress, including areas where work is being performed, nature of the operations in progress, and the manpower assigned.

2. Extra Work (Time and Material) in progress.

3. Materials Received.

4. Trade labor breakdown including identification of all workers on site and the number of hours (or portions thereof) worked by each.

5. Inspection Checklist (performed daily).

B. The Contractor shall submit the Daily Report to the Construction Manager by 9:00 AM on the next workday following the workday covered in the Daily Report.

2. DAILY EXTRA WORK REPORT

A. The Contractor shall submit on the form provided a Daily Extra Work Report on each day he performs authorized Extra Work on a time and material basis.

B. A separate Daily Extra Work Report shall be submitted for each separate authorized Extra Work item done on a time and material basis.

C. The Contractor shall submit his Daily Extra Work Report as an attachment to his Daily Report by 9:00 AM on the next workday following the workday covered in the Daily Extra Work Report.

3. Sample Daily Report

A. A sample daily report follows this section for your reference.

END OF SECTION

EDiS COMPANY

CONTRACTOR'S DAILY REPORT

Project Name: Renovations to Howard High School of Technology

Date:

Contractor:

Contract No. & Description:

Weather:

Foreman's Name (Print)

TRADE	*CLASS	MANPOWER COUNT	TOTAL MAN HOURS	TODAY'S DESCRIPTION / LOCATION OF WORK
	TOTAL			

* *INDICATE: F = FOREMAN; J = JOURNEYMAN; A = APPRENTICE*

Work Status/Work Planned:

Construction Equipment:

Qualified Operator(s)

Deliveries or Materials:

Machinery, tools, material, and equipment to be used:

Inspection of work area, machinery, tools, material, or equipment

The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirement
Is prohibited. Such machine, tool, material or equipment shall either be identified as unsafe by tagging or locking The controls to render them inoperable or shall be physically removed from its place of operation.

Please See Other Side

Below is a general checklist of requirements on this project. Contractors will check off items that pertain to their contract and project tasks. Notify EDiS Field Manager of any issues. This checklist is not meant to be all inclusive. Please refer to additional OSHA regulations for compliance.

House Keeping

- ☐ Material Storage Area's Orderly
- ☐ Trash Containers Available and Emptied daily
- ☐ Fire Hazards
- ☐ Lighting and ventilation
- ☐ Exits and Stair clear passage
- ☐ Walkways, corridors clear passage
- ☐ Daily debris /trash removal
- ☐ _____

Personal Protective Equipment

- ☐ Hard Hats being worn
- ☐ Safety Glasses with side shields being worn
- ☐ Secondary Eye/Face protection
- ☐ Respirators as required
- ☐ Hand protection when needed
- ☐ Ear protection when needed
- ☐ Inspected & Maintained
- ☐ _____

Fire Prevention

- ☐ Fire extinguishers inspected
- ☐ Flammable / Combustibles properly store
- ☐ Approved Fuel cans used and labeled
- ☐ Oxygen / Acetylenes stored properly
- ☐ _____

Electrical

- ☐ GFI in use
- ☐ Three prong insulated extension cords used
- ☐ Extension cords in good condition
- ☐ Lockout / Tag-out program in use
- ☐ _____

Excavations

- ☐ Miss Utility been contacted
- ☐ Properly Barricaded
- ☐ Ladders in use at depths over 4'-0"
- ☐ Ladders every 25'-0" distance
- ☐ Shored, sloped, benched as required
- ☐ Dewatering as needed
- ☐ _____

Ladders

- ☐ Good condition
- ☐ Correct pitch
- ☐ Extends 3'-0" above landing
- ☐ Open and secured / tied off
- ☐ _____

Scaffolds

- ☐ Certified Scaffold Installer
- ☐ Guardrails, toe boards, and planking secured
- ☐ Appropriate signage
- ☐ Adequate cross bracing
- ☐ Secured to building over 25'-0" in height
- ☐ _____

Cranes

- ☐ Rated Load Capacity available in cab
- ☐ Swing Radius barricaded
- ☐ Appropriate certificates / decals / hand signals
- ☐ Daily safety inspection log completed
- ☐ _____

Fall Protection

- ☐ Fall protection plan on file
- ☐ Full harness / shock absorbing lanyard used
- ☐ Anchoring points secured
- ☐ Perimeter barricades
- ☐ Open sided floor protection
- ☐ 6'-0" Tie-off utilized
- ☐ _____

Paperwork

- ☐ MSDS Information
- ☐ Contractors Safety Program
- ☐ Hazardous Communications Training
- ☐ Hazardous Communications Program
- ☐ Contractor Qualified Representation
- ☐ _____

Other

- ☐ _____
- ☐ _____

Foreman / Competent Person:

Print Name_____

SECTION 013300 – SUBMITTAL PROCEDURES

1. GENERAL PROVISIONS

A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate, apply to the Work specified in this Section.

2. ITEMS TO BE SUBMITTED AT START OF WORK

A. Performance/Labor and Material Payment Bond(s): One (1) copy of each bond simultaneously with the signed Agreement. See General Conditions Article 11.4 and Supplementary Conditions.

B. Policies or Certificates of Insurance: Two (2) copies simultaneously with the signed Agreement. See General Conditions Article 11 and Supplementary Conditions.

C. Contractor's License: Submit a copy of all business licenses required by local and state agencies.

D. Contractor's Schedule of Values: Two (2) copies for approval within 21 days after the Agreement is signed. See General Conditions Article 9.2 and provisions in this Section.

E. Contractor's Progress Schedule: Two (2) copies for review and reference within 21 days after the Agreement is signed. See General Conditions Article 3.10 and provisions in this Section.

F. Submittal Schedule: Two (2) copies for review and reference within 21 days after the Agreement is signed. See provisions in this Section.

G. Products List: Two (2) copies for approval within 30 days after the Agreement is signed. See provisions in Section 016200 - MATERIAL AND EQUIPMENT.

3. NON-RESIDENT CONTRACTOR & SUBCONTRACTORS BONDS

A. Refer to requirements in Section 011100 - INSTRUCTIONS TO BIDDERS for filing of Surety Bonds with the Division of Revenue.

B. If such bonds are required on this project, it will be the responsibility of the Contractor to produce evidence to the Construction Manager that they have been filed, or if not required, to supply a notarized statement that they are not required. This must be done within seven (7) days after award of Contract and in any event before construction starts.

4. RELATED REQUIREMENTS

A. See Section 017700 - CONTRACT CLOSE OUT: for submittal requirements for Contract Close out.

5. SUBMITTALS

A. All submittals shall be directed to the Construction Manager in the manner directed by the Construction Manager, and paragraph 9 of this section. Contractor shall use the Contractor Submittal Form appended to this section.

B. Prepare a Submittal's Schedule for Shop Drawings, Product Data and Samples. Show:

1. The dates for Contractor's submittals.

2. The dates submittals will be required for Owner-furnished products.

3. The date approved submittals will be required from the Architect.

C. Should the Architect or Construction Manager elect to omit any items from the list of items to be reviewed, it shall not relieve the Contractor from compliance with the Contract Documents with regard to that item. In such instance, the Contractor may still elect to have submittals prepared for his own use without review by the Architect or Construction Manager.

6. SHOP DRAWINGS

A. Conform to provisions in General Conditions applying to Shop Drawings.

B. Present in a clear and thorough manner.

1. Identify details by reference to sheet and details, schedule or room numbers shown on Contract Drawings.

2. Maximum sheet size: 30″ x 42″.

7. PRODUCT DATA

A. Conform to provisions in General Conditions applying to Product Data.

B. Preparation:

1. Clearly mark each copy to specifically identify products or models pertinent to project.

2. Show performance characteristics and capacities.

3. Show dimensions and clearances required.

4. Show wiring or piping diagrams and controls.

C. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the Work.

2. Supplement standard information to provide information specifically applicable to the Work.

8. SAMPLES

A. Conform to provisions in General Conditions applying to Samples.

B. Provide samples of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the project, with integrally related parts and attachment devices.

2. Full range of color, texture and pattern.

C. Field samples and mock-ups; See requirements, if any, in other specification Sections.

9. SUBMITTAL REQUIREMENTS

A. Make submittals promptly through the Construction Manager in accordance with published schedule, and in such sequence as to cause no delay in the Work or in the Work of any other contractor.

B. Number of submittals required.

1. Shop drawings: Submit eight (8) copies for each submittal. Copies will be marked up with corrections and comments, stamped and returned. Any additional copies required by the Contractor shall be made by him.

2. Product Data: Submit a clear .pdf scan of each submittal on to Building Blok. Scanned shop drawings will be marked up with corrections and comments, stamped and returned. Any additional copies required by the Subcontractor shall be made by him from the returned scan.

3. Samples: Submit three (3) each. Submit a scanned picture of the submittal on to

Building Blok with a transmittal document showing the date sent to the construction manager. When approved it will be returned to the Construction Manager to be retained at the site for reference use.

C. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.

2. The Project title and number.

3. Contract identification.

4. The names of the Contractor, Supplier and Manufacturer.

5. Identification of the product, with the specification section number.

6. Field dimensions, clearly identified as such.

7. Relation to adjacent or critical features of the Work or materials.

8. Applicable standards, such as ASTM or Federal Specification numbers.

9. Identification of deviations from Contract Documents.

10. Identification of revisions on resubmittals.

11. An 8 inch x 3 inch blank space for Contractor and Architect's stamps.

12. Contractor's stamp, initialed or signed, certifying review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work and of Contract Documents. Submittals which have not been stamped with this stamp or its approved equivalent will be returned without being reviewed.

D. Shop Drawing coordination and interface with work of other Contracts and adjacent work is the responsibility of each individual Contractor.

E. All submittals shall be accompanied by the contractor's submittal form, a copy of which is part of this section. The contractor's submittal form must be completed in its entirety by the contractor.

10. RESUBMISSION REQUIREMENTS

A. Make any corrections or changes in the submittals required by the Architect and resubmit until approved.

B. Shop drawings and Product Data:

1. Revise initial drawings or data, and resubmit as specified for the initial submittal.

2. Indicate any changes which have been made other than those requested by the Architect.

C. Samples: Submit new samples as required for initial submittal.

11. FINAL DISTRIBUTION OF APPROVED SUBMITTALS

A. The Construction Manager will receive and log submittals and forward to Architect after processing.

B. The Construction Manager will distribute copies of Shop Drawings and Product Data which carry the Architect's stamp to:

1. Contractor that made submittal.

2. Jobsite File.

3. Record Document File.

4. Other Contractors, as required for coordination.

C. The Construction Manager will distribute samples as required.

D. The Contractor will distribute copies of Shop Drawings and Product Data which carry the Architect's stamp to:

1. Subcontractors.

2. Suppliers.

3. Fabricators.

12. SCHEDULE OF VALUES

A. Input online using Building Blok version of AIA Document G703, Continuation Sheet to G702.

13. PROGRESS SCHEDULE

A. Prepare schedules in the form of a horizontal bar chart.

1. Provide separate horizontal bar chart for each trade or operation.

2. Horizontal time scale: Identify the first work day of each week.

3. Scale and spacing: To allow space for notations and future revisions.

4. Minimum sheet size 11 inches by 17 inches.

B. Format of listings: The chronological order of the start of each item of work.

C. Show the complete sequence of construction by activity.

D. Show the dates for the beginning, and completion of, each major element of construction such as:

1. Site clearing.

2. Site utilities.

3. Foundation work.

4. Structural framing.

5. Subcontractor work.

6. Equipment installation.

E. Show projected percentage of completion for each item as of the first day of each month.

F. Update Progress Schedule monthly and submit with Application for Payment and Schedule of values.

G. Indicate progress of each activity to date of submission.

H. Show changes occurring since previous submission of schedule:

1. Major changes in scope.

2. Activities modified since previous submission.

3. Revised projections of progress and completion.

4. Other identifiable changes.

I. Provide a narrative report as needed to define:

   1. Problem areas, anticipated delays and the impact of the schedule.

   2. Corrective action recommended, and its effect.

   3. The effect of changes on schedules of other prime contractors.

J. Submit one reproducible transparency.

K. After review, distribute copies of the schedule to:

   1. Jobsite File.

   2. Subcontractors.

   3. Architect.

   4. Owner.

L. Instruct recipients to report promptly to the Contractor, in writing, any problems anticipated by the projections shown in the schedules.

END OF SECTION

SECTION 013500 – CONTRACTOR EMPLOYEE BACKGROUND CHECK

1. It is the Contractor's responsibility to perform background checks and screen all employees working onsite. The background check must include checking for a previous history of Child Abuse Convictions, Child Molestation Convictions, Felony Convictions, and Drug Convictions within the last 5 years. Any employee with any of these convictions may not enter the job site or school campus. This background check must be completed and screened by the contractor prior to an employee entering the job site. The background check cannot be any older than 1 year prior to the date of the contract between the Contractor and the Owner. The Construction Manager, the Owner's representative and the Owner have the right to request that the screening data be submitted on a case-by-case basis.

2. The contractor is required to provide the Construction Manager written notice verifying background checks were completed and screened by the contractor prior to an employee entering the job site. This notice will contain the individual's name and the last four digits of their social security numbers. Notices must be received no later than two (2) working days before access is required. Notices will be forwarded electronically to the Construction Manager. A sample notice follows this section for your reference.

END OF SECTION

Date

Project Manager
EDiS Company
110 South Poplar Street
Wilmington, DE 19805

RE: INSERT PROJECT NAME - Certification of Background Checks

Dear _____:

This letter is to certify that background checks have been completed in accordance with Section 013500 Contractor Employee Background Check. The following individuals are certified as having met the requirements of the specification:

Name	Last 4 SSN
Mr. John Smith	1234

If you require any additional information you may contact INSERT POINT OF CONTACT, PHONE NUMBER AND EMAIL ADDRESS.

Sincerely,

Company

NAME
TITLE

SECTION 013523 - SAFETY PROGRAM

1. GENERAL

A, The Contractor shall be responsible for initiating, maintaining and supervising all safety activities and programs in connection with the Work.

B. Contractor shall be responsible for the safety of its personnel.

C. Hard hats and safety glasses must be worn by all personnel on the jobsite, except in contractor's administrative office/trailer. All equipment must comply with OSHA standards. All job site personnel shall wear long pants, shirts (no tank tops), high visibility garments, and work boots.

2. SAFETY PROGRAM

A. Prior to commencing the Work, the Contractor shall submit to the Construction Manager (1) electronic copy and (1) bound copy of its safety program and one (1) copy of MSDS information in a 2" ringed notebook. One paper copy of the safety program and MSDS will be retained by the Construction Manager in the field office.

B. The safety program shall outline those hazards peculiar to the Contractor's Work, and the steps to be taken to eliminate or reduce the risk of injury or loss due to those hazards. The program shall be site specific. Contractor shall implement and enforce its safety program, which is in accordance with all OSHA, Federal, State and local laws.

C. Contractor shall designate a qualified Safety Supervisor to implement the safety program. Unless otherwise approved by the Construction Manager, the Safety Supervisor shall be the Contractor's field Superintendent/Foremen.

D. Contractor shall furnish the names and qualifications of the competent persons and qualified persons who may be required for their scope of work by the Contractor's safety procedures, and by federal, state and/or local regulations. Examples include competent persons and/or qualified persons for steel erection, excavation, scaffold erection, confined space entry, crane and rigging operations, annual crane inspections, fall protection including horizontal lifeline systems, etc.

E. The employer shall verify compliance by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall include the date the employer determined the prior training was adequate rather than the date of actual training.

F. Copies of any and all documents, including information stored electronically, such as safety and health program handbooks and training certification records.

1. The employer shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury. Please forward certification (document) of training for each employee on an EDiS project. The latest training certificate shall be maintained.

G. Contractor Daily Reports with Safety Inspection Checklist will be submitted daily to Field Manager, verifying inspection of work area, machinery, equipment and tools.

H. Prior to starting work on-site, the Contractor shall arrange with the on-site Field Manager to have their employees complete the EDiS Company Zero Accidents Safety Orientation program.

I. Contractor shall hold weekly safety toolbox talks with all of its employees every Monday at 12:30 PM. The Contractor shall designate a responsible, capable person to conduct these meetings. Contractor's safety supervisor or superintendent must submit to the Construction Manager weekly toolbox talks attendance sheets and the topics discussed.

3. SUBSTANCE ABUSE POLICY STATEMENT

The Construction Manager is committed to providing a safe work site environment for its employees and Contractors' employees. The Construction Manager does not condone or permit employees and Contractors' employees to use or be under the influence of drugs or alcohol while they are on any of the Construction Manager work sites. The Policy is as follows:

A. It is a violation of the Construction Manager's policy for employees and Contractors' employees to use, possess, sell, trade, or otherwise engage in the use of illegal drugs and alcohol.

B. It is a violation for employees and Contractors' employees to report to work while influenced by illegal drugs or alcohol.

C. It is a violation for employees and Contractors' employees to use prescription drugs illegally (i.e. to use prescription drugs that have not been legally obtained) and to use prescription drugs in a manner other than the prescribed intentions.

D. Employees and Contractors' employees who are taking medication, which is prescribed by their physician, are expected to discuss potential side effects with their prescribing physician, as it relates to the work requirements.

Violations of this policy will require disciplinary action. If any employees or Contractors' employees are observed or suspected of being influenced by drugs or alcohol, they will be instructed to stop work and may be required to leave the work site.

4. EXECUTION

A. Contractor shall comply with all applicable federal, state and local laws, regulations and orders relating to occupational safety and health, and related procedures, and shall, to the extent permitted by law, indemnify and hold Construction Manager, Owner and Architect, and their respective directors, officers, or agents and employees, harmless from any and all liability, public or private, penalties, contractual or otherwise, losses, damages, costs, attorney's fees, expenses, causes of action, claims or judgments resulting from a claim filed by anyone in connection with the aforementioned acts, or any rule, regulation or order promulgated thereunder, arising out of the Contractor's Work, this Agreement or any subcontract executed in prosecution of the Work. Contractor further agrees in the event of a claim of violation of any such laws, regulations, orders or procedures arising out of or in any way connected with the performance of this agreement, Construction Manager may immediately take whatever action is deemed necessary by Owner and/or Construction Manager to remedy the claim or violation. Any and all costs or expenses paid or incurred by Owner and/or Construction Manager in taking such action shall be borne by Contractor, and may be deducted from any payments due Contractor.

B. The Contractor agrees to (1) take all necessary steps to promote safety and health on the job site; (2) cooperate with Owner and/or Construction Manager and other Contractors in preventing and eliminating safety and health hazards: (3) train, instruct and provide adequate supervision to ensure that its employees are aware of, and comply with, applicable Federal and State safety and health laws, standards, regulations and rules, safe healthful work practices and all applicable safety rules, regulations and work practices and procedures (4) not create any hazards or expose any of its employees, employees of the Owner and/or Construction Manager or employees of Contractors to any hazards; and (5) where the Contractor is aware of the existence of a hazard not within its control, notify the Construction Manager of the hazard as well as warn exposed persons to avoid the hazard.

C. The Contractor's Superintendent or Safety Supervisor shall immediately, verbally report, and promptly thereafter confirm in writing to the Construction Manager any unsafe conditions or practices that are observed, or violations of job safety which are not within the Contractor's control.

D. Contractors shall immediately, verbally report, and promptly thereafter confirm in writing, to the Construction Manager any unsafe practices or conditions that are observed which are not under the Contractor's control.

E. The Contractor's Superintendent or Safety Supervisor shall insure that adequate first aid supplies are available, and that personnel are qualified to administer first aid/CPR, as required by State and/or Federal regulations.

F. Contractor shall promptly notify Construction Manager of any personal injury requiring medical treatment of any of the Contractor's employees at the Project site; or of significant damage to property arising in connection with Contractor's performance, as promptly as possible after the occurrence of such injury or damage. Within twenty-four hours of such occurrence, Contractor shall furnish to Construction Manager a complete written report of such injury or damage.

G. Contractor certifies that the forgoing terms shall be made applicable to all Contractors' suppliers, materialmen or anyone furnishing labor and/or materials to the site.

H. The Contractor shall continue to educate his job Safety Supervisor or Superintendent of their responsibilities, which shall include:

1. Instructing workers and subcontractors under its supervision in safe work practices and work methods at the time they are given work assignments.

2. Ensuring that its workers and subcontractors have and use the proper protective equipment and suitable tools for the job.

3. Continuously checking to see that no unsafe practices or conditions are allowed to exist on any part of his job.

4. Acquainting its workers and subcontractors with all applicable safety requirements and seeing that they are enforced.

5. Setting a good example for his workers.

6. Making a complete investigation of accidents to determine facts necessary to take corrective action.

7. Promptly completing a "Supervisor's Investigation Form" with his Supervisor's assistance and distributing as required. This form will be provided by the Construction Manager.
8. Holding weekly "tool box" safety meetings with his men to:

   a. Discuss observed unsafe work practices or conditions including a review of current Construction Manager safety report.

   b. Review the accident experience of his crew and discuss correction of accident

causes.

c. Encourage safety suggestions from his men.

9. Seeing that prompt medical treatment is administered to an injured employee.

10. Correcting or reporting immediately to job superintendent any observed unsafe conditions, practices or violations of job security.

11. Making all reports required by these Contract Documents to the Construction Manager in a full and timely fashion.

5. SAFETY MEETINGS

A. The Contractor's Project Manager or Superintendent shall attend weekly or biweekly supervisory job meetings. The first topic of these meetings will be job site safety. The weekly safety reports will be reviewed and violations must be corrected immediately. Contractors will be encouraged to participate in the on-going jobsite safety.

6. TOOL BOX SAFETY MEETINGS

A. The Contractor shall schedule weekly "tool box" safety sessions to be held by his job safety supervisor or superintendent for all of his employees.

B. A member of the Contractor's management staff shall periodically attend "tool box" safety sessions to evaluate their effectiveness and offer any appropriate suggestions for improvement.

7. REPORTS

A. Contractors shall report all accidents or injuries on a timely basis in accordance with all applicable regulations.

B. Contractors shall promptly complete an accident investigation report of all accidents.

C. A record of all "tool box" safety sessions shall be made and submitted to the Construction Manager on forms to be provided.

8. SAFETY REPRESENTATIVE

A. The Construction Manager may employ the services of a Safety Representativ*e* on the project.

B. The Safety Representative *will* visit the job site on a weekly basis to determine if the work is being performed in a safe manner and in accordance with OSHA, State and

Local safety regulations. Safety representative is not responsible for observing and documenting all possible safety violations. The Contractor's Safety Representative or Superintendent shall attend job site safety inspections with the Safety Representative on a weekly basis.

C. The Safety Representative will file a written report with the Construction Manager at the end of each inspection listing the safety violations observed during the inspection.

D. The Construction Manager will distribute the Safety Representative's report to all Contractors. All safety violations must be corrected immediately.

9. RIGHT TO STOP THE WORK DUE TO SAFETY VIOLATIONS

A. The Construction Manager, in its sole discretion, may order the Contractor to stop the work due to safety violations under the following circumstances:

1. If the Construction Manager observes the Contractor is violating safety regulations and the Contractor takes no immediate action to correct the violation.

2. If the Contractor has been notified by the Construction Manager in writing that he is in violation of safety regulations and fails to take action to correct the violation within 24 hours of the notice.

B. If the Construction Manager directs the Contractor to stop the work due to safety violation, it will be done in accordance with the General Conditions of the Contract. Contractor shall not be permitted an adjustment of the Contract Time or Sum for the days lost to any suspension of work.

C. If the Construction Manager or Safety Representative observes Contractor's employee violating this safety program or OSHA Standards in an habitual manner, or creating a serious life safety violation, the Construction Manager or Safety Representative may instruct the Contractor's superintendent or foreman to remove the violator from the work site for failure to comply with the safety program and the contract.

10. EMERGENCY PROCEDURES

A. The Construction Manager shall establish a central meeting location for the assembly of all Contractors' employees in the event of a major job site emergency.

B. Contractor shall assemble all of their personnel and account for all employees. Contractor must immediately report to the Project Superintendent with the status of their employees.

11. FALL PROTECTION PROCEDURES

A. Contractor is responsible, in accordance with federal, state, local laws and regulations including OSHA. Contractor to provide and enforce their own site specific fall protection program and equipment. The following fall protection procedures shall be enforced by all Contractors as a minimum standard.

All workers on walking/working surfaces with unprotected sides or edges six feet (6′) or higher above the next lower level must be protected from falls by the use of guardrail systems, net systems, fall arrest systems or control access zone programs. It is intended that when fall protection is required, it is required 100% of the time. All contractors are reminded that relevant industry regulations require that contractors comply with the following standards.

1. Workers constructing or working near leading edges must be protected.

2. Workers on the face of formwork or reinforcing steel must be protected at a height of 6 feet (6′) or greater.

3. Scaffolds shall be guarded at 6 feet (6′) above next lower level.

4. Brick layers performing overhand bricklaying and related work six feet (6′) or higher above lower levels must be protected from falls.

5. Roofers must comply with OSHA standards for roof work.

6. The Contractor's controlled access zone plan shall be included in their site-specific safety program and shall be submitted prior to the start of work. Contractors are responsible for assuring programs are OSHA compliant.

7. Guidelines for Residential Construction or any interpretations will not be accepted in lieu of 1926 Standards.

8. Contractors must provide certification per OSHA CFR29 § 1926.503(b) of employee training and retraining on fall protection upon request.

B. Contractor shall provide its own fall protection. Fall protection may be provided by guardrail systems, net systems, or personal fall arrest systems. All fall protection systems must comply with OSHA standards.

C. Stepladders, exposed to shafts or edges of the building, greater than six feet (6′) above the next lower level, must be tied off or otherwise secured. Employee must wear fall protection, i.e. harness/lanyard.

D. The Safety Cable System shall not be altered or removed without a written request submitted to the Project Manager with a copy to the Field Manager. It shall be the responsibility of each and every Contractor that is removing or altering the Safety

Cable System to maintain the fall protection safety provided by the safety cable and not leave the area unprotected. Each and every Contractor shall be responsible to re-install the Safety Cable System immediately after work is completed. Each and every Contractor shall be responsible to re-install the Safety Cable System in accordance to OSHA standards.

E. Fall protection will be enforced for Structural Steel Erectors.

1. As for a Contractor engaged in structural steel erection, the Contractor is specifically advised that structural steel erectors shall comply with all protection requirements for all work at a height of six feet (6′) or greater above the next lower level, 100 percent of the time, by any of the following means.

a. Standard guardrail system.

b. Personal Fall Arrest System (PFAS) – full body harness with shock absorbing lanyard. Maximum free fall distance permitted, with lanyard and lanyard attachment shall not exceed six feet (6′). Anchor point must be capable of supporting five thousand pounds. Perimeter guard cables or alignment cables may not be used for anchor points.

c. Access to work area shall be provided by ladders. There shall be sufficient number of ladders available to reduce the amount of "beam walking." When it is absolutely necessary to traverse a beam, 100% fall protection must be utilized.

d. Steel erection Contractors must, at all times, be able to certify in writing that each of his employees has been properly trained in both OSHA fall protection standards and the Contractor's site specific project fall protection procedures.

e. Prior to the erection of the steel, the Contractor shall meet with the Project Manager and Safety Representatives to review and document site specific procedures.

12. AIRBORNE CONTAMINENTS PROCEDURES

A. Contractor must provide and use equipment furnished with Exhaust Purifiers / Scrubbers when any equipment produces airborne containments and will be used in an enclosed building.

B. The Contractor shall verify air quality by the use of air monitoring equipment and document such verified air quality on the daily report. The monitoring equipment shall, at a minimum, be designed with an auditory alarm and shall provide continuous

monitoring of these four gases: Oxygen, Hydrogen Sulfide, Carbon Monoxide and Combustible gases.

C. The Contractor must provide administrative or engineering controls to protect its workers from exposure to occupational health, environmental or other hazards to be implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed by local, state, and federal regulations. Any equipment and technical measures used for this purpose must first be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used, their use shall comply with 1926.103.

END OF SECTION

CONTRACTOR
COMPETENT / QUALIFIED PERSON DESIGNATION LOG

Project: **Field Manager:**

Contract: Contrctor:	Applicable to Subcontractor (yes / no)		Foreman	Competent Person (if not foreman)
Subpart C-General Provisions				
1926-20 General Safety				
Subpart D - Health and Environmental Controls				
1926-53 Ionizing Radiation				
1926-55 Gases, Vapors, Fumes, Dusts, Mists				
1926-57 Ventilation				
1926.59 Hazard Communication				
1926.62 Lead				
Subpart E - Personal Protective Equipment				
1926.101 Hearing				
1926.103 Respirator Protection				
Subpart H - Materials Handling, Storage				
1926.251 Rigging Equipment for Material Handling				
Subpart J - Welding and Cutting				
1926.354 Welding, Cutting and Heating				
Subpart K - Electrical				
1926.404 Wiring Design and Protection				
Subpart L - Scaffolding				
1926.451 Scaffolding				
Subpart M - Fall Protection				
1926.502 Fall Protection Criteria and Practices				
1926.503 Training				
Subpart N - Cranes, Derrick -Redesignated 1926.1501				
Subpart O - Motor Vehicles and Equipment				
1926.601 Motor Vehicles				
Subpart P - Excavations				
1926.651 Specific Excavation Requirements				
1926.652 Requirements to Protective Systems				
Subpart S - Tunnels, Shafts, Caissons				
1926.800 Tunnels, Shafts, Caissons				
1926.803 Compressed Air				
Subpart T - Demolition				
1926.850 Preparatory Operations				
1926.852 Chutes				
1926.859 Mechanical Demolition				

Contract: Contrctor:	Applicable to Subcontractor (yes / no)		Foreman	Competent Person (if not foreman)
Subpart V - Power Transmission and Distribution				
1926.955 Overhead Lines				
Subpart X - Stairways and Ladders				
1926.1053 Ladders				
1926.1060 Training Requirements				
Subpart Z - Toxic and Hazardous Substances				
1926.1101 Asbestos				
1926.1101 thru 1926.1148 Toxic and Hazardous Substances				

I certify that the listed employees are competent persons, as defined and required by specific OSHA standards. They are capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

_____
Name (print)

_____
Contractor Signature

_____
Date

PU09, Revised 3/2012

Certification of Training Documents to be Submitted with Safety Policy/Program

Provide a certification of training for employees on your safety program.

In addition, Contractor shall provide certification of training on the following programs, as they pertain to your contract and project tasks. Certification of training must include: Employee's name, date of training, person conducting the training, topics covered, and a statement that the student has successfully completed the course. This list is not meant to be all inclusive: please refer to OSHA regulations for applicable safety requirements.

a. ☐ Scaffold: 1926.454

b. ☐ Fall Protection 1926.503

c. ☐ Crane Operator: 1926.1427

d. ☐ Signal person (this is for any persons connecting material or equipment for lifting): 1926.1428

e. ☐ Crane maintenance: 1926.1429

f. ☐ Steel erection fall protection: 1926.761

g. ☐ Respiratory protection (medical clearance and training records complying with 1910.134

h. ☐ Powder-actuated tools: 1926.302

i. ☐ Motor Vehicles (are those vehicles that operate within an off-highway jobsite, not open to public traffic): 1926.21

SECTION 014500 - QUALITY CONTROL

1. DESCRIPTION

A. Quality control services include inspections and tests performed by independent agencies and governing authorities, as well as by the Contractor. Inspection and testing services are intended to determine compliance of the work with requirements specified. Specific quality control requirements are specified in individual specification sections.

2. RESPONSIBILITIES

A. Contractor Responsibilities: Except where indicated as being the Owner's responsibility, quality control services are the Contractor's responsibility, including those specified to be performed by an independent agency and not by the Contractor. The Contractor shall employ and pay an independent agency, testing laboratory or other qualified firm to perform quality control services specified.

1. The Owner will engage and pay for services of an independent agency to perform the inspections and tests that are specified as Owner's responsibilities.

B. Retest Responsibility: Where results of inspections or test do not indicate compliance with Contract Documents, retests are the Contractor's responsibility.

C. Responsibility for Associated Services: The Contractor shall cooperate with independent agencies performing inspections or test. Provide auxiliary services as are reasonable. Auxiliary services include:

1. Provide access to the Work.

2. Assist taking samples.

3. Deliver samples to test laboratory.

D. Coordination: The Contractor and independent test agency shall coordinate the sequence of their activities and shall avoid removing and replacing work to accommodate inspections and test. The Contractor is responsible for scheduling time for inspections and tests.

E. Qualifications for Service Agencies: Contractor shall engage only inspection and test service agencies which are pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories.

F. Submittals: Contractor shall submit a certified written report of each test, Inspection

or similar service, in duplicate to the Construction Manager. Contractor shall submit additional copies of each report to any governing authority, when the authority so directs.

G. Report Data: Written inspection or test reports shall include:

1. Name of testing agency or test laboratory.

2. Dates and locations of samples, tests or inspections.

3. Names of individual present.

4. Complete inspection of test data.

5. Test results.

6. Interpretations.

7. Recommendations.

H. Repair and Protection: Upon completion of inspection or testing, Contractor shall repair damaged work and restore substrates and finishes. Contractor shall comply with requirements for "Cutting and Patching."

I The 2013 IBC code the following testing is code required:

1. Structural tests and special inspections must be conducted by an approved agency (an agency or firm regularly engaged in conducting tests or furnishing inspection services, approved by the authority having jurisdiction.) This means that contractors will no longer be allowed to cast their own test cylinders for example.

2. Continuous special inspection (the full-time observation of work by an approved special inspector who is present until completion of the work) is required for any steel welds and connections. Critical elements may include: all slip critical bolted connections, complete and partial groove welds, multi-pass fillet welds and single pass fillet welds greater than 5/16".

3. Continuous special inspection is required during the placement of all concrete and shotcrete for the proper application techniques with a few exceptions.

4. Periodic special inspection (the part-time observation by an approved special inspector) is required for any steel welds and connections. Critical elements may include: all slip critical bolted connections, complete and partial groove welds, multi-pass fillet welds and single pass fillet welds greater than 5/16".

5. Spray applied fireproofing requires periodic special inspection for the structural member surface conditions, application, thickness, density and bond strength.

6. Based on the classification, occupancy, and design of the structure, the code requires periodic special inspection for placement of masonry units and reinforcing steel and continuous special inspection of grout placement.

END OF SECTION

SECTION 015113 - TEMPORARY ELECTRICITY

1. GENERAL

A. RELATED WORK SPECIFIED ELSEWHERE

1. Electrical Basic Materials and Methods, Division 26.

B. DESCRIPTION OF SYSTEM

1. Power Source

a. Suppliers: Delaware Electric Cooperative

b. The Construction Manager shall provide 277/480 volt, three phase, 60 cycle power service to the site from the existing service.

c. The Construction Manager will make all arrangements for bringing the power supply to the site and for installation of appropriate temporary transformers to provide for the power supply in 1.B.1.b, above.

d. The source will be adequate to service temporary electrical needs of the proposed construction.

2. Electrical Service

a. Contractor will be responsible to pay for all costs associated with providing electrical service from the power source to their respective site office, temporary storage facilities or temporary construction buildings as appropriate.

b. Prior to issuance of the Notice to Proceed for the electrical contract, the Construction Manager will be responsible for providing temporary electrical service as provided in 1.B.2.c, below. After issuance of the Notice to Proceed for the electrical contract, the Electrical Contractor shall become responsible for maintaining all electrical power supply and service facilities installed by the Construction Manager. The Electrical Contractor shall also, from that date forward, be responsible for providing and maintaining temporary electrical service to the site as provided in 1.B.2.c, below.

c. The Construction Manager or Electrical Contractor, as provided in 1.B.2.b, above, shall install temporary electric service for items below, throughout the construction period, such that power can be secured at any desired point with no more than a 60 foot extension:

(1) Power Centers for miscellaneous tools and equipment used in the construction work shall be provided with a minimum of four 20-amp, 120 volt grounding type outlets. Each outlet shall be provided with ground fault detecting circuit breaker protection.

(2) Adequate lighting for safe working conditions shall be provided and maintained on a 24 hour per day basis throughout the building, tunnels, and stairways per OSHA requirements. Each lamp must be rated at least 100 watts. Voltage of each socket must be at least 110 volts.

(3) Power for testing and checking equipment must be supplied.

3. Capacity

a. All electrical power supply and service lines installed shall be of adequate capacity for construction use by all trades during the construction period at the locations necessary.

b. The Electrical Contractor shall notify the Power Company if unusually heavy loads, such as welding units, are anticipated.

4. Power Costs

a. The Construction Manager will pay all costs of temporary electrical power used during construction.

b. The Owner will pay all costs of power used in the permanent wiring.

C. REQUIREMENTS AND REGULATORY AGENCIES

1. The Electrical Contractor will obtain permits as required by local governmental authorities.

2. The temporary electrical service shall comply with National Electrical Code, Latest Edition and applicable local codes and utility regulations.

D. USE OF PERMANENT SYSTEM

1. The Electrical Contractor shall regulate any part of the permanent electrical system which is used for construction purposes to prevent interference with safety and orderly progress of the Work.

2. Contractors shall leave permanent electrical services in a condition as good as

new and clean.

2. PRODUCTS

A. MATERIALS

1. General

a. The materials may be new or used, but must be adequate in capacity for the purposes intended and must not create unsafe conditions or violate the requirements of applicable codes.

2. Conductors

a. Use wire, cable, or busses of appropriate type, sized in accordance with the National Electrical Code for the applied loads.

b. Use only UL labeled wire and devices.

B. EQUIPMENT

1. Provide appropriate enclosure for the environment in which used in compliance with NEMA standards.

3. EXECUTION

A. GENERAL

1. Install all work with a neat and orderly appearance.

2. Make structurally sound throughout.

3. Maintain to give continuous service and to provide safe working conditions.

4. Modify temporary power and light installation as job progress requires.

B. INSTALLATION

1. Locate so that interference with storage areas, traffic areas and work under other Contracts is avoided.

C. REMOVAL

1. Remove all temporary equipment and materials completely upon completion of construction.

2. Repair all damage caused by the installation and restore to satisfactory condition.

END OF SECTION

SECTION 015123 - TEMPORARY HEATING, COOLING AND VENTILATING

1. GENERAL

A. RELATED REQUIREMENTS SPECIFIED ELSEWHERE

1. Temporary Electric: Section 015113

2. Temporary Facilities: Section 015200

3. Heating Requirements for Cold Weather Installation and Protection of Materials: Respective specification section for each item of work.

B. DEFINITIONS

1. Temporary Enclosures: Sufficient preliminary enclosures of an area of structure, or of an entire building, to prevent entrance or infiltration of rain water, wind or other elements and which will prevent undue heat loss from within enclosed area.

2. Permanent Enclosure: Stage of construction at which all moisture and weather protection elements of construction have been installed in accordance with Contract Documents, either for a portion of structure, or for an entire building.

C. DESCRIPTION OF SYSTEM

1. Prior to the building or portion of building being permanently enclosed, the contractor shall provide temporary heat and ventilation and weather protection necessary for its work, as described below. After permanent enclosure, the Construction Manager will arrange for and coordinate temporary heat and ventilation in enclosed areas required to:

a. Facilitate progress of Work.

b. Protect Work and products against dampness and cold.

c. Prevent moisture condensation on surfaces.

d. Provide suitable ambient temperatures and humidity levels for installation and curing of materials.

e. Provide adequate ventilation to meet health regulations for safe working environment.

2. Temperatures Required

   a. Generally, 24 hours a day: Minimum of 40 degrees F.

   b. 24 hours a day during placing, setting and curing of cementitious materials: As required by specification section for each product.

   c. 24 hours a day, seven days prior to, and during, placing of interior finishes: woodwork, resilient floors, painting and finishing: As required by specification section for each product.

   d. 24 hours a day after application of finishes, and until Substantial Completion: Minimum of 50 degrees F.

3. Ventilation Required:

   a. Contractors shall prevent hazardous accumulations of dusts, fumes, mists, vapors or gases in areas occupied during construction.

      (1) Provide local exhaust ventilation to prevent harmful dispersal of hazardous substances into atmosphere of occupied areas.

      (2) Dispose of exhaust materials in manner that will not result in harmful dispersal of hazardous substances into atmosphere of occupied areas.

      (3) Continuously ventilate storage spaces containing hazardous or volatile materials.

      (4) Contractor must provide and use equipment which is furnished with Exhaust Purifiers/Scribbers or is electrically power driven when any such equipment produces airborne containments and will be used in an enclosed building.

      (5) The Contractor shall verify air quality by the use of air monitoring equipment and document the verified air quality on the daily report. The monitoring equipment shall, at a minimum, be designed with an auditory alarm and shall provide continuous monitoring of those four gasses, Oxygen, Hydrogen Sulfide, Carbon Monoxide and Combustible gasses.

4. Contractors shall provide adequate ventilation for:

   a. Curing installed materials.

   b. Dispersal of humidity.

c. Temporary sanitary facilities.

5. Duration of Operations:

a. For Personnel:

(1) At all times personnel occupy an area subject to hazardous accumulations of harmful elements.

(2) Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful elements.

b. For curing installed materials: As required by specification section for respective materials.

c. For humidity dispersal: Continuously ventilate to provide suitable ambient conditions for work.

d. The Contractor shall maintain supervision and operation of temporary heating and ventilating equipment in order to:

(1) Enforce conformance with applicable codes and standards.

(2) Enforce safe practices.

(3) Prevent abuse of services.

D. COSTS OF INSTALLATION AND OPERATION

1. The Contractor shall be responsible for all installation and operating costs for any heat and ventilation as required in this section until the permanent HVAC system is in operation.

2. After the permanent HVAC system is operational, the Owner will pay the costs of fuel for temporary heat and ventilation. The Contractor will pay the costs for maintaining the system until final acceptance by the Owner.

3. The Contractor shall be responsible for all installation and operating costs for any heat required to supplement that which is to be supplied by the Construction Manager in 1.C.1, above.

E. REQUIREMENTS OF REGULATORY AGENCIES

1. The Construction Manager will obtain and pay for permits as required by

governing authorities for those activities required by this Section.

2. Contractor shall comply with Federal, State and local codes, and utility company regulations.

2. PRODUCTS

A. MATERIALS

1. General

a. Materials may be new or used, but must be adequate for purposes intended and must not create unsafe conditions nor violate requirements of applicable codes.

B. EQUIPMENT

1. Standard products, meeting code requirements.

2. Provide required facilities, including piping, wiring and controls.

3. Portable Heater: Standard Units, meeting code requirements.

a. Safety Controls against explosion, overheating, and carbon monoxide build up.

b. Vent direct-fired units to outside.

c. Provide adequate combustion air.

4. Oil-Fired heaters will not be allowed.

3. EXECUTION

A. GENERAL

1. Comply with applicable sections of Division 15 - Mechanical.

2. Install work in neat and orderly manner.

3. Make structurally, mechanically and electrically sound throughout.

4. Maintain to give safe, continuous service at required times and to provide safe working conditions.

5. Modify and extend system as work progress requires.

B. INSTALLATION

1. Locate units to provide equitable distribution of heat and air movements.

2. Locate to avoid interference with, or hazards to:

   a. Work or movement of personnel.

   b. Traffic areas.

   c. Materials handling.

   d. Storage areas.

   e. Work of other Contractors.

   f. Finishes.

C. OPERATION OF PERMANENT EQUIPMENT

1. The Construction Manager will coordinate with Contractor.

2. The Contractor will place permanent HVAC system in operation only upon written authorization by the Construction Manager.

3. Before operating the permanent HVAC equipment, the Contractor shall confirm to the Construction Manager that:

   a. Inspection has been made by proper authorities.

   b. Systems, equipment piping, strainers, filters and associated operating items are sufficiently complete, cleaned, and ready for operation.

   c. Controls and safety devices are complete and tested, or adequate temporary controls are provided.

   d. Before operating the permanent HVAC equipment, the Contractor shall install temporary filters:

      (1) For air handling units.

      (2) For permanent ducts.

D. REMOVAL

1. The Contractor shall completely remove temporary materials and equipment when no longer required, or on completion of construction.

2. The Contractor shall clean and repair damage caused by temporary installation, and restore equipment to specified or original condition.

3. The Contractor shall remove temporary filters and install new filters, or clean permanent filters, in the permanent HVAC system prior to final acceptance by the Owner.

END OF SECTION

SECTION 015200 - CONSTRUCTION FACILITIES & TEMPORARY CONTROLS

1. GENERAL

A. DESCRIPTION

1. Construction Manager and Contractors shall provide all temporary facilities throughout the construction period unless otherwise indicated in the Contract Documents.

2. Construction Manager and Contractors shall pay all costs for providing, maintaining and removing of all temporary facilities unless otherwise indicated in the Contract Documents.

B. RELATED WORK SPECIFIED ELSEWHERE

1. Temporary Electric: Section 015113.

2. FACILITIES

A. TEMPORARY SANITATION FACILITIES

1. Construction Manager will provide and maintain sanitary facilities for all personnel on the project.

2. The number of sanitary facilities required shall be based on the total number or workers employed on the site and shall be in accordance with the provisions of the applicable code.

3. Construction Manager will maintain sanitary facilities in a sanitary and clean condition at all times.

B. TEMPORARY WATER

1. Drinking Water: Contractor shall provide potable water for drinking purposes for all his personnel on the site. He shall furnish disposable drinking cups at water stations. Each water station shall be equipped with a suitable trash container for disposal of the drinking cups.

2. Construction Water: Contractor will provide and maintain tap locations for construction water of sufficiently pure and potable quality to avoid deleterious effect on any materials used. Location of construction water tap locations will be determined by the Construction Manager. Contractor shall provide and maintain all hoses, piping and valves as required for obtaining construction water from taps provided by the Construction Manager.

C. TEMPORARY TELEPHONES

1. Construction Manager will not provide any telephones or fax machines for Contractor's personnel. Each Contractor is responsible for its own phones and fax machines.

D. FIELD OFFICE

1. During the period of the Work and until final acceptance of the project, the Construction Manager will provide a weatherproof building for the Construction Manager's Field Project Manager(s) and Superintendent(s). Contractor shall make provisions for its own field office, subject to approval by the Construction Manager.

E. FIRE PROTECTION

1. The Carpentry & General Work Contractor will provide and maintain portable fire extinguishers on each floor level and building area. Number to conform to applicable codes.

2. Contractor shall provide additional fire extinguishers as required by OSHA regulations for its work.

3. Fire extinguishers shall be 10lb, Multi-Purpose (ABC) dry chemical, UL labeled, with a rating of 3a:40bc.

F. ACCESS ROADS AND PARKING AREAS

1. The Utility & Sitework Contractor will provide and maintain access roads on the site.

2. Parking for Contractor's personnel on the project site will be at locations determined by the Owner and Construction Manager. Parking at locations other than designated areas is PROHIBITED.

G. STORAGE AREAS

1. The Construction Manager will assign storage areas on the site. Storage areas are extremely limited and will be assigned in a manner which will best facilitate the work.

2. Contractor shall provide all other storage space required for its work at off-site locations.

3. All combustible or flammable materials must be safely stored in a secured area in strict accordance with regulations, codes and laws enforced by local, State or

Federal agencies, whatsoever is the most stringent.

H. FIRST AID STATION

1. The Contractor's Superintendent or Safety Supervisor shall insure that adequate first aid supplies are available, and that personnel are qualified to administer first aid/CPR, as required by State and/or Federal regulations.

I. SECURITY

1. The Construction Manager will provide the following security measures at the site: security lighting will be provided.

2. All other safety and security measures shall be the responsibility of each Contractor. These measures shall include but are not limited to the provision of secured storage for tools, construction equipment, and materials and equipment scheduled for installation in the building.

J. BENCH MARKS AND BASELINE

1. The Construction Manager will lay out and establish and maintain bench marks and baselines.

2. The Contractor shall lay out his own work and shall be responsible for the accuracy of same.

3. Contractor shall check grades, lines, levels and dimensions as shown on the drawings and shall promptly report errors or inconsistencies in same to the Construction Manager before Work proceeds.

4. The Contractor is responsible for damaging or altering the bench marks and baselines established by the Construction Manager and shall bear the costs of replacing same.

K. FIELD OFFICE AND STORAGE TRAILERS

1. Contractor shall provide and maintain its own field office and storage trailers as required.

2. Contractor shall provide temporary heat and power for its field office and storage trailer.

3. Contractor’s field offices and storage trailers shall be located as directed by the Construction Manager.

L. PROJECT SIGN

1. The Construction Manager will provide a Project Sign naming the major participants, as determined by the Owner.

M. TRASH DISPOSAL

1. Each Contractor shall be responsible for daily clean up and depositing its common trash in the dumpsters provided by the Construction Manager.

2. The Construction Manager will not provide a trash chute.

3. The Construction Manager will provide dumpsters, and will arrange for disposal of common, non-hazardous, work-related trash deposited in these dumpsters. Contractors will not use the owner's dumpsters.

N. HOISTING

1. Contractor shall provide its own materials hoists and cranes. No personnel hoist will be provided.

O. SCAFFOLDING AND WORKING PLATFORMS

1. No scaffolding shall be provided by the Construction Manager. Each Contractor shall provide all scaffolding required to perform its Work.

P. SAFETY BARRICADES AND RAILINGS

1. The Contractor creating the hazard shall provide barricades **and protective barriers** around stairs, shafts and cut openings in floors and roofs, and edges of floors and roofs. The methods and materials used in barricading shall be in accordance with OSHA and local code regulations. Barricades and protective barriers will be installed immediately after the installation of the floor slab on any level or part of a level on the Building. When a warning barricade is used to prohibit employees from entering a restricted work area. The "warning barricade" shall meet the requirements of CFR 1926.502 (f)(2). The supported rope, wire, or chain shall be flagged at not more than 6-foot (1.8 m) intervals with high-visibility material and maintain between 34 and 39 inches above the walking/working surface; Warning signs and tags shall be used in accordance with Subpart G of CFR OSHA Construction Industry Regulations.

2. After the barricades and protective barriers are no longer needed, the Structural Contractor will remove the barricades from the site. The Construction Manager will determine the location and scheduling of barriers to be removed.

3. Contractor shall provide for its own barricades at all other trenches, excavations, and locations not specifically identified in Paragraph 1 above.

4. Contractors who remove barricades shall be responsible for replacing them. If, after proper notification, in writing, from the Construction Manager the responsible Contractor does not correct his deficiencies in safety barricade placement, the Construction Manager reserves the right to undertake this work and backcharge the responsible Contractor(s).

5. During the execution of his work, Contractor will provide daily maintenance of, and upon completion of same, restore all barricades in a manner acceptable to prevailing safety standards enforced by local, State or Federal ordinance, whatsoever is most stringent. The intent is to leave no floor penetration or perimeter opening in an unsafe condition.

Q. PUMPING AND DRAINAGE

1. Contractor shall provide its own pumping and drainage.

2. When an area is released by one Contractor to another, the Contractor releasing an area shall be responsible for leaving it in a drained condition. The incoming Contractor shall assume responsibility for drainage on the day that he is scheduled to start work in the area. If the incoming Contractor is late in starting work, he shall assume responsibility for pumping and drainage arising as a result.

R. TEMPORARY BUILDING ENCLOSURES

1. The Construction Manager will equip all temporary exterior doors of the building with self-closing hardware and padlocks.

2. All other temporary enclosures and protection shall be provided by the Contractor requiring the protection.

3. Temporary enclosures required due to late delivery of materials or untimely installation of work shall be the responsibility of the Contractor responsible for the delay.

S. TEMPORARY POWER AND LIGHTING

1. Contractor shall provide all extension cords and outlets as required for obtaining electric power from power centers. Refer to Section 015113 - TEMPORARY ELECTRIC.

2. Contractor shall provide its own additional temporary lighting of sufficient lighting levels to properly install his work.

T. TEMPORARY HEAT

1. Contractor shall provide temporary heat as required for its operations. Once a building has reached the "Permanent Enclosure" stage, temporary heat will be provided as specified in Section 015123 - TEMPORARY HEAT AND VENTILATION.

2. Equipment and methods of temporary heating shall be reported to the Construction Manager.

U. PROTECTION OF ADJACENT MATERIALS

1. Contractor shall protect adjacent materials and finishes from damage as a result of its work.

V. CLEAN UP

1. Contractor shall arrange for clean up and removal of debris resulting from its operations, and shall dispose of debris in accordance with the provisions of Paragraph 2.M above. Clean up shall be on a continual basis to ensure that building, grounds and public properties are maintained free from accumulations of waste materials and trash.

2. The Contractor will limit use of and ensure that all materials, including waste, that are combustible or flammable will be removed from the building continually, as work progresses, **and at a minimum** at the end of each work day. All trash which is potentially edible or may attract rodents or insects will be disposed of in metal containers and removed by the end of the work day.

3. At completion of its Work, each Contractor shall remove waste materials, rubbish, tools, equipment, and clean up all exposed surfaces in preparation for final cleaning.

4. If, after notification in writing from the Construction Manager, the Contractor does not correct its deficiencies in housekeeping within twenty four (24) hours, the Construction Manager reserves the right to undertake the Work and to backcharge the Contractor.

5. Final clean up prior to Owner occupancy shall be arranged for by the Construction Manager.

W. DUST PROTECTION

1. Contractor shall erect and maintain dust proof protection whenever its operations will produce dust and dirt that might filter through the building into occupied or finished areas. Contractor shall be responsible for all cleaning required due to its failure to provide adequate dust protection.

X. PROTECTION OF EXISTING CONSTRUCTION

1. Contractor shall be responsible for all damage that it may cause to materials and equipment stored or installed by other Contractors.

Y. OTHER

1. Contractor shall provide any other Temporary Facilities and services that it requires and which are not specifically identified above.

3. PERMITS

3.1 The Construction Manager will obtain the Building Permit. All other permits are to be obtained and paid for by the Contractor requiring them.

4. EXECUTION

A. GENERAL

1. Contractor shall install all temporary facilities in accordance with applicable codes.

2. Contractor shall maintain temporary facilities for which it is responsible throughout the construction period.

3. Contractor shall remove all temporary facilities for which it is responsible when they are no longer required or when the Construction Manager directs the removal of same.

4. Contractor shall repair all damage to the Project Site caused by the installation of its temporary facilities.

END OF SECTION

SECTION 016200 - MATERIAL AND EQUIPMENT

1. GENERAL CONDITIONS

A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions, if any) and Division 1 as appropriate apply to the Work specified in this Section.

B. Where work is to be executed under Separate Prime Contracts, the provisions of this Section apply to each Contract.

2. REQUIREMENTS INCLUDED

A. All materials and equipment incorporated into the Work shall:

1. be new;

2. conform to applicable specifications and standards; and

3. comply with size, make, type and quality specified, or as specifically approved in writing by the Architect.

B. Manufactured and Fabricated Products shall conform to the following requirements:

1. Designed, fabricated and assembled in accord with the best engineering and shop practices.

2. Manufactured like parts of duplicate units to standard sizes and gauges, to be interchangeable.

3. Two or more items of the same kind shall be identical, by the same manufacturer.

4. Products shall be suitable for service conditions.

5. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.

C. Contractor shall not use materials or equipment for any purpose other than that for which it is designated or is specified.

D. Materials removed form existing structures shall not be reused in the completed work unless specifically indicated or specified.

E. For materials and equipment specifically indicated or specified to be reused in the Work:

1. Contractor shall use special care on removal, handling storage and reinstallation, to assure proper function in the completed Work.

2. Arrange for transportation, storage and handling of products which require off-site storage, restoration or renovation. Pay all costs for such work.

3. MANUFACTURER'S INSTRUCTIONS

A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, Contractor shall obtain and distribute copies of such instructions to parties involved in the installation, including two copies to Construction Manager.

1. Maintain one set of complete instructions at the job site during installation and until completion.

B. Contractor shall handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, Contractor shall consult with Construction Manager for further instructions.

2. Contractor shall perform work in accord with manufacturer's instructions. Contractor shall not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

4. TRANSPORTATION AND HANDLING

A. Contractor shall arrange deliveries of Products in accord with construction schedules, coordinate to avoid conflict with work and conditions at the site.

1. Deliver Products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

2. Contractor shall immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that Products are properly protected and undamaged.

B. Contractor shall provide equipment and personnel to handle Products by methods to prevent soiling or damage to Products or packaging.

5. STORAGE AND PROTECTION

A. Contractor shall store Products in accord with manufacturer's instructions, with seals and labels intact and legible.

1. Contractor shall store Products subject to damage by the elements in weathertight enclosures.

2. Contractor shall maintain temperature and humidity within the ranges required by manufacture's instructions.

B. Exterior Storage

1. Contractor shall store fabricated Products above the ground, on blocking or skids, to prevent soiling or staining. Cover Products which are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.

2. Contractor shall store loose granular materials in a well-drained area on soiled surfaces to prevent mixing with foreign matter.

C. Contractor shall arrange storage in a manner to provide easy access for inspection. Contractor shall make periodic inspections of stored Products to assure that Products are maintained under specified conditions, and free from damage or deterioration.

D. Contractor shall store flammable materials so as to prevent contact with flames and fire. Conform with manufacturer's recommendations and local laws. Pay particular attention to storage of:

1. Roof insulation.

2. Roofing materials, including solvents.

3. Paint materials.

4. Cleaning and other solvents.

5. Fuels.

E. Protection after Installation:

1. Contractor shall provide substantial coverings as necessary to protect installed Products from damage from traffic and subsequent construction operations. Remove when no longer needed.

6. <u>SUBSTITUTIONS AND PRODUCT OPTIONS</u>

A. Product List.

1. Within 30 days after Contract Date, Contractor shall submit to Construction Manager a complete list of major products proposed to be used, with the name of the manufacturer and the installing Contractor.

B. Contractor's Options.

1. For Products specified only by reference standard, Contractor shall select any Product meeting that standard.

2. For Products specified by naming several Products or manufacturers, Contractor shall select any one of the Products or manufacturers named which complies with the specifications.

3. For Products specified by naming one or more Products or manufacturers and "or equal", Bidders must, during the bidding period, submit a request for substitutions for any Product or manufacturer not specifically named. See provisions in Paragraph 6.C, below.

4. For Products specified by naming only one Product and manufacturer, there is no option; and Contractor shall provide the precise Product specified.

C. Substitutions.

1. Until a date no later than seven (7) days before the date Bids are due, Architect will consider written requests from bidders for substitution of Products. **The contractor will submit any substitution requests to the Construction Manager for transmittal to the Architect. The** architect will review requests and will notify Bidders in an Addendum if the requested substitution is acceptable.

2. Should the Bidder desire a substitution, it shall submit a separate request for each Product, supported with complete data, with drawings and samples as appropriate, including:

a. Comparison of the qualities of the proposed substitution with that specified.

b. Changes required in other elements of the Work because of the substitution.

c. Effect on the construction schedule.

d. Cost data comparing the proposed substitution with the Product specified.

e. Any required license fees or royalties.

f. Availability of maintenance service, and source of replacement materials.

3. Architect, in its sole discretion, shall be the judge of the acceptability of the proposed substitution.

4. A request for a substitution constitutes a representation that Bidder:

a. has investigated the proposed Product and determined that it is equal to or superior in all respects to that specified;

b. will provide the same warranties or bonds for the substitution as for the Product specified;

c. will coordinate the installation of an accepted substitution into the Work, and make such other changes as may be required to make the Work complete in all respects; and

d. waives all claims for additional costs, under his responsibility, which may subsequently become apparent.

D. Architect will review requests for substitutions with reasonable promptness, and notify Bidders, in writing, through the Construction Manager, of the decision to accept or reject the requested substitution. Any decision to accept a substitution must be confirmed in an Addendum issued during the bidding period in order to be valid. Oral approvals will not be binding.

END OF SECTION

SECTION 017329 - CUTTING AND PATCHING

1. GENERAL

A. Definition: "Cutting and Patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition.

B. Refer to Other Sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.

C. Structural Work: Do not cut and patch structural work in a manner resulting in a reduction of load carrying capacity or load deflection ratio. Submit proposal and request and obtain Architect's/Engineer's approval before proceeding with cut and patch of structural work.

D. Operational/Safety Limitations: Do not cut and patch operational elements and safety components in a manner resulting in decreased performance, shortened useful life, or increased maintenance. Submit proposals and requests and obtain Architect's/Engineer's approval before proceeding with cut and patches of structural work.

E. Visual/Quality Limitations: Do not cut and patch work exposed to view (exterior and interior) in manner resulting in noticeable reduction of aesthetic qualities and similar qualities, as judged by Architect/Engineer.

1. Engage the original Installer/Fabricator, or (if not available) an acceptable equivalent entity, to cut and patch the following categories of exposed work but not limited to
2. Exterior wall materials, ie., curtain wall
3. Finish floor materials, ie., substrate, carpet, ceramic tile
4. Walls
5. Ceilings

F. Limitation on Approvals: Architect's/Engineer's approval to proceed with cutting and patching does not waive right to later acquire removal/replacement of work found to be cut and patched in an unsatisfactory manner, as judged by Architect/Engineer.

2. MATERIALS

A. General: Use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal or better

performance characteristics.

3. EXECUTION

A. Inspection: Before cutting, examine surfaces to be cut and patched and conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.

B. Temporary Support: To prevent failure provide temporary support of work to be cut.

C. Protection: Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations.

1. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

2. Take precautions not to cut existing pipe, conduit or duct serving the building but scheduled to be relocated until provisions have been made to bypass them.

D. Cutting: Cut the work using methods that are least likely to damage work to be retained or adjoining work. Where possible review proposed procedures with the original installer; comply with original installer's recommendations.

1. Where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine such as a carborundum saw or core drill. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut and drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.

E. Patching: Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.

1. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and finishing.

END OF SECTION

SECTION 017700 – CONTRACT CLOSEOUT

1. DESCRIPTION OF REQUIREMENTS

A. Provisions of this section apply to the procedural requirements for the actual close out of the Work, not to the administrative matters such as final payment or the change over of insurance. Close out requirements relate to both substantial and final completion of the Work; they also apply to individual portions of completed work as well as the Total work. Specific requirements contained in other sections have precedence over the general requirements contained in this section.

2. PROCEDURES AT SUBSTANTIAL COMPLETION

A. Prerequisites: Contractor shall comply with the General Conditions and complete the following before requesting inspection of the Work, or a designated portion of the Work, for certification of substantial completion:

1. submit executed warranties, workmanship bonds, maintenance agreements, inspection certificates, releases of liens, tax certification and similar required documentation for specific units of work, and documents needed to enable Owner's unrestricted occupancy and use;

2. submit record documentation, maintenance manuals, tools, spare parts, keys and similar operational items;

3. complete instructions of Owner's operating personnel, and start up of systems; and

4. complete final cleaning and remove temporary facilities and tools.

B. Inspection Procedures: Upon receipt of Contractor's request, Architect/Engineer will either proceed with inspection or advise Construction Manger of prerequisites not fulfilled. Following initial inspection, Architect/Engineer will either prepare certificate of substantial completion, or advise Construction Manager of work which must be performed prior to issuance of certificate. The Architect/Engineer will repeat the inspection when requested and assure that the work has been substantially completed. Results of the completed inspection will form the initial "punch list" for final acceptance.

C. Punch List Procedures: Each Contractor shall be given a copy of the punch list with its appropriate work identified. Each Contractor shall be given 9 (nine) calendar work days to complete their punch list work. On the 10th day or as determined by the Construction Manager the Construction Manager shall employ other Contractors, as required, to complete any incomplete punch list work and retain from the appropriate Contractors retainage all costs incurred.

3. PROCEDURES AT FINAL ACCEPTANCE

A. Reinspection Procedure: The Architect/Engineer will reinspect the Work upon receipt of the Contractor's notice that, except for those items whose completion has been delayed due to circumstances that are acceptable to the Architect/Engineer, the Work has been completed, including punch list items from earlier inspections. Upon completion of reinspection, the Architect/Engineer will either recommend final acceptance and final payment, or will advise the Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, this procedure will be repeated.

4. RECORD DOCUMENTATION

A. Record Drawings: Contractor shall maintain a complete set of either blue or black line prints of the contract documents and shop drawings for record mark up purposes throughout the Contract Time. Contractor shall mark up these drawings during the course of the Work to show both changes and the actual installation, in sufficient detail to form a complete record for Owner's purposes giving particular attention to work that will be concealed and difficult to measure and record at a later date, and Work which may require servicing or replacement during the life of the project. Require the entities marking prints to sign and date each mark up. Bind prints into manageable sets, with durable paper cover, appropriately labeled.

B. Installation, Operation and Maintenance Manual: Contractor shall provide 3-ring vinyl covered binders containing required maintenance manuals, properly identified and indexed and including operating and maintenance instructions extended to cover emergencies, spare parts, warranties, inspection procedures, diagrams, safety, security, and similar appropriate data for each system of equipment item.

C. State Tax Certification: Contractor shall provide recent Delaware State Tax Certification form as issued by State of Delaware, Department of Finance, Division of Revenue, Carvel State Office Building, 820 N. French Street, Wilmington, Delaware 19801.

D. AIA Documents: Contractors shall provide the following AIA documents with their final payment application submission:
- AIA G732, Application for Payment for 100% Complete
- AIA G732, Final Application for Payment for Retainage
- AIA G704-CMA, Certificate of Substantial Completion – 4 originals
- AIA G706, Affidavit of Payment of Debts & Claims
- AIA G706A, Affidavit of Release of Liens
- AIA G707, Consent of Surety

E. Release of Liens: Contractors shall provide the following release of liens with their final payment application submission:

- Prime Contractor's Release of Liens
- Subcontractors' & Suppliers' Release of Liens (major subs and suppliers)

5. GENERAL CLOSE OUT REQUIREMENTS

A. Operator Instruction: Contractor shall require each Installer of systems requiring continued operation and maintenance by Owner's operating personnel, to provide on location instruction to Owner's personnel, sufficient to ensure safe, secure, efficient, non-failing utilization and operation of systems. Contractor shall provide instructions for the following categories of work:

1. Mechanical/electrical/electronic systems (not limited to work of Division 15 and 16).
2. Roofing, flashing, joint sealers.
3. Floor finishes.
4. Door hardware

6. FINAL CLEANING

A. At the time of project close out Contractor shall clean or re-clean the Work to the condition expected from a normal, commercial building cleaning and maintenance program. Complete the following cleaning operations before requesting the Architect/Engineer's inspection for certification of substantial completion:

1. Remove non-permanent protections and labels.
2. Polish glass.
3. Clean exposed finishes.
4. Touch up minor finish damage.
5. Clean or replace mechanical systems filters.
6. Remove debris.
7. Broom clean unoccupied spaces.
8. Sanitize plumbing and food service facilities.
9. Clean light fixtures and replace burned out lamps.
10. Sweep and wash paved areas.
11. Police yards and grounds.

END OF SECTION

SECTION 01 9113
GENERAL COMMISSIONING REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Commissioning is intended to achieve the following specific objectives; this section specifies the Contractor's responsibilities for commissioning:
   1. Verify and document that functional performance is in accordance with the Contract Documents: Functional Tests executed by Contractor and witnessed by the Commissioning Authority are utilized to achieve this.
   2. Verify that operation and maintenance manuals submitted to Owner are complete: Detailed operation and maintenance (O&M) data submittals by Contractor are utilized to achieve this.
   3. Verify that the Owner's operating personnel are adequately trained: Formal training conducted by Contractor is utilized to achieve this.

B. Commissioning, including Functional Tests, O&M documentation review, and training, is to occur after startup and initial checkout and be completed before Substantial Completion

C. The Commissioning Authority is employed by Owner.

1.02 SCOPE OF COMMISSIONING

A. The following are to be commissioned:

B. Building envelope.

C. Other equipment and systems explicitly identified elsewhere in Contract Documents as requiring commissioning.

1.03 RELATED REQUIREMENTS

A. Section 01 7800 - Closeout Submittals: Scope and procedures for operation and maintenance manuals and project record documents.

B. Section 04 0125 - Masonry Cleaning

C. Section 04 0126 - Masonry Restoration

D. Section 07 9200 - Joint Sealants

1.04 REFERENCE STANDARDS

A. PECI (Samples) - Sample Forms for Prefunctional Checklists and Functional Performance Tests; Portland Energy Conservation, Inc.; located at http://www.peci.org/library/mcpgs.htm; current edition.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures; except:
   1. Make all submittals specified in this section, and elsewhere where indicated for commissioning purposes, directly to the Commissioning Authority, unless they require review by Architect; in that case, submit to Architect first.
   2. Submit one copy to the Commissioning Authority, not to be returned.
   3. Make commissioning submittals on time schedule specified by Construction Manager.
   4. Submittals indicated as "Draft" are intended for the use of the Commissioning Authority in preparation of Prefunctional Checklists or Functional Test requirements; submit in editable electronic format, Microsoft Word 2010 preferred.

5. As soon as possible after submittals made to Architect are approved, submit copy of approved submittal to the Commissioning Authority.

B. Manufacturers' Instructions: Submit copies of all manufacturer-provided instructions that are shipped with the material as soon as the material is delivered.

C. Product Data: If submittals to Architect do not include the following, submit copies as soon as possible:
1. Manufacturer's product data, cut sheets, and shop drawings.
2. Manufacturer's installation instructions.
3. Factory test reports.
4. Warranty information, including details of Owner's responsibilities in regard to keeping warranties in force.

D. Completed Prefunctional Checklists.

PART 2 PRODUCTS

2.01 TEST EQUIPMENT

A. Provide all standard testing equipment required to perform startup and initial checkout and required Functional Testing; unless otherwise noted such testing equipment will NOT become the property of Owner.

B. Equipment-Specific Tools: Where special testing equipment, tools and instruments are specific to a piece of equipment, are only available from the vendor, and are required in order to accomplish startup or Functional Testing, provide such equipment, tools, and instruments as part of the work at no extra cost to Owner; such equipment, tools, and instruments are to become the property of Owner.

PART 3 EXECUTION

3.01 COMMISSIONING PLAN

A. Commissioning Authority will prepare the Commissioning Plan.
1. Attend meetings called by the Commissioning Authority for purposes of completing the commissioning plan.
2. Require attendance and participation of relevant subcontractors, installers, suppliers, and manufacturer representatives.

B. Contractor is responsible for compliance with the Commissioning Plan.

C. Commissioning Plan: The commissioning schedule, procedures, and coordination requirements for all parties in the commissioning process.

D. Commissioning Schedule:
1. Prefunctional Checklists and Functional Tests are to be performed in sequence from components, to subsystems, to systems.
2. Provide sufficient notice to Commissioning Authority for delivery of relevant Checklists and Functional Test procedures, to avoid delay.

3.02 DOCUMENTATION IDENTIFICATION SYSTEM

A. Give each submitted form or report a unique identification; use the following scheme.

B. Type of Document: Use the following prefixes:
1. Functional Test Procedure: FTP-.
2. Functional Test Report: FTR-.

C. Component Number: Assign numbers sequentially, using 1, 2, or 3 digits as required to accommodate the number of units in the system.

D. Test, Revision, or Submittal Number: Number each successive iteration sequentially, starting with 1.

E. Example: PC-2320-001.2 would be the Prefunctional Checklist for equipment item 1 in the HVAC piping system, probably a pump; this is the second, revised submittal of this checklist.

3.03 STARTUP PLANS AND REPORTS

A. Startup Plans: For each item of equipment and system for which the manufacturer provides a startup plan, submit the plan not less than 8 weeks prior to startup.

B. Startup Reports: For each item of equipment and system for which the manufacturer provides a startup checklist (or startup plan or field checkout sheet), document compliance by submitting the completed startup checklist prior to startup, signed and dated by responsible entity.

C. Submit directly to the Commissioning Authority.

3.04 PREFUNCTIONAL CHECKLISTS

A. A Prefunctional Checklist is required to be filled out for each item of equipment or other assembly specified to be commissioned.
   1. No sampling of identical or near-identical items is allowed.
   2. These checklists do not replace manufacturers' recommended startup checklists, regardless of apparent redundancy.
   3. Prefunctional Checklist forms will not be complete until after award of the contract; the following types of information will be gathered via the completed Checklist forms:
      a. Certification by installing contractor that the unit is properly installed, started up, and operating and ready for Functional Testing.
      b. Confirmation of receipt of each shop drawing and commissioning submittal specified, itemized by unit.
      c. Manufacturer, model number, and relevant capacity information; list information "as specified," "as submitted," and "as installed."
      d. Serial number of installed unit.
      e. List of inspections to be conducted to document proper installation prior to startup and Functional Testing; these will be primarily static inspections and procedures; for equipment and systems may include normal manufacturer’s start-up checklist items and minor testing.
      f. Sensor and actuator calibration information.
   4. Samples of Prefunctional Checklist forms that indicate anticipated level of detail can be found at http://www.peci.org/library/mcpgs.htm.

B. Contractor is responsible for filling out Prefunctional Checklists, after completion of installation and before startup; witnessing by the Commissioning Authority is not required unless otherwise specified.
   1. Each line item without deficiency is to be witnessed, initialed, and dated by the actual witness; checklists are not complete until all line items are initialed and dated complete without deficiencies.
   2. Checklists with incomplete items may be submitted for approval provided the Contractor attests that incomplete items do not preclude the performance of safe and reliable Functional Testing; re-submission of the Checklist is required upon completion of remaining items.

3. Individual Checklists may contain line items that are the responsibility of more than one installer; Contractor shall assign responsibility to appropriate installers or subcontractors, with identification recorded on the form.
4. If any Checklist line item is not relevant, record reasons on the form.
5. Contractor may independently perform startup inspections and/or tests, at his option.
6. Regardless of these reporting requirements, Contractor is responsible for correct startup and operation.
7. Submit completed Checklists to Commissioning Authority within two days of completion.

C. Commissioning Authority is responsible for furnishing the Prefunctional Checklists to Contractor.
1. Initial Drafts: Contractor is responsible for initial draft of Prefunctional Checklist where so indicated in the Contract Documents.
2. Provide all additional information requested by Commissioning Authority to aid in preparation of checklists, such as shop drawing submittals, manufacturers' startup checklists, and O&M data.
3. Commissioning Authority may add any relevant items deemed necessary regardless of whether they are explicitly mentioned in the Contract Documents or not.
4. When asked to review the proposed Checklists, do so in a timely manner.

D. Commissioning Authority Witnessing: Required for:
1. Each piece of primary equipment, unless sampling of multiple similar units is allowed by the commissioning plan.
2. A sampling of non-primary equipment, as allowed by the commissioning plan.

E. Deficiencies: Correct deficiencies and re-inspect or re-test, as applicable, at no extra cost to Owner.
1. If difficulty in correction would delay progress, report deficiency to the Commissioning Authority immediately.

3.05 FUNCTIONAL TESTS

A. A Functional Test is required for each item of equipment, system, or other assembly specified to be commissioned, unless sampling of multiple identical or near-identical units is allowed by the final test procedures.

B. Contractor is responsible for execution of required Functional Tests, after completion of Prefunctional Checklist and before closeout.

C. Commissioning Authority is responsible for witnessing and reporting results of Functional Tests, including preparation and completion of forms for that purpose.

D. Contractor is responsible for correction of deficiencies and re-testing at no extra cost to Owner; if a deficiency is not corrected and re-tested immediately, the Commissioning Authority will document the deficiency and the Contractor's stated intentions regarding correction.
1. Deficiencies are any condition in the installation or function of a component, piece of equipment or system that is not in compliance with the Contract Documents or does not perform properly.
2. When the deficiency has been corrected, the Contractor completes the form certifying that the item is ready to be re-tested and returns the form to the Commissioning Authority; the Commissioning Authority will reschedule the test and the Contractor shall re-test.
3. Identical or Near-Identical Items: If 10 percent, or three, whichever is greater, of identical or near-identical items fail to perform due to material or manufacturing defect, all items will be considered defective; provide a proposal for correction within 2 weeks after

notification of defect, including provision for testing sample installations prior to replacement of all items.

4. Contractor shall bear the cost of Owner and Commissioning Authority personnel time witnessing re-testing.
5. Contractor shall bear the cost of Owner and Commissioning Authority personnel time witnessing re-testing if the test failed due to failure to execute the relevant Prefunctional Checklist correctly; if the test failed for reasons that would not have been identified in the Prefunctional Checklist process, Contractor shall bear the cost of the second and subsequent re-tests.

E. Functional Test Procedures:
1. Some test procedures are included in the Contract Documents; where Functional Test procedures are not included in the Contract Documents, test procedures will be determined by the Commissioning Authority with input by and coordination with Contractor.
2. Examples of Functional Testing:
a. Test for sealant adhesive and cohesive failure.
b. Test windows for resistance to water penetration.

3.06 TEST PROCEDURES - GENERAL

A. Provide skilled technicians to execute starting of equipment and to execute the Functional Tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.

B. Provide all necessary materials and system modifications required to produce the flows, pressures, temperatures, and conditions necessary to execute the test according to the specified conditions. At completion of the test, return all affected equipment and systems to their pre-test condition.

C. Sampling: Where Functional Testing of fewer than the total number of multiple identical or near-identical items is explicitly permitted, perform sampling as follows:
1. Identical Units: Defined as units with same application and sequence of operation; only minor size or capacity difference.
2. If frequent failures occur, resulting in more troubleshooting than testing, the Commissioning Authority may stop the testing and require Contractor to perform and document a checkout of the remaining units prior to continuing testing.

D. Manual Testing: Use hand-held instruments, immediate control system readouts, or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the “observation”).

3.07 OPERATION AND MAINTENANCE MANUALS

A. See Section 01 7800 - Closeout Submittals for additional requirements.

B. Add design intent documentation furnished by Architect to manuals prior to submission to Owner.

C. Submit manuals related to items that were commissioned to Commissioning Authority for review; make changes recommended by Commissioning Authority.

D. Commissioning Authority will add commissioning records to manuals after submission to Owner.

END OF SECTION

SECTION 01 9115
EXTERIOR ENCLOSURE COMMISSIONING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes exterior enclosure commissioning procedures, including exterior enclosure, and roofing construction that protects climate-controlled interior spaces from unconditioned spaces and the exterior environment, as follows:
   1. Below-grade construction including foundations, basements, and slab-on-grade that functions as part of the exterior enclosure system but excluding structural systems and components.
   2. Superstructure floor and roof construction that functions as part of the exterior enclosure system.
   3. Exterior enclosure construction, above grade, including exterior opaque walls, windows, and doors including sheathing, framing, and insulation, and interior finish materials attached to the exterior wall.
   4. Roofing, including roofing system, roofing insulation, and skylights, hatches, and other roof openings.

1.02 RELATED SECTIONS:

A. Division 01 Section "General Commissioning Requirements" for general requirements for commissioning including definitions, commissioning team membership, Owner's responsibilities, Contractor's responsibilities, and Commissioning Authority's responsibilities.

B. Division 03 through 14 Sections for facility exterior enclosure commissioning requirements specific to the Work of each Section.

1.03 ALLOWANCES

A. Commissioning testing and inspection costs are included in the Commissioning Testing Allowance in Division 01 Section "Allowances."

1.04 UNIT PRICE

A. Commissioning Testing Allowance may be adjusted up or down by the "Commissioning Testing Man-Hour" unit prices in Division 01 Section "Unit Prices" when actual man hours are computed at the end of commissioning testing.

1.05 CONTRACTOR'S RESPONSIBILITIES

A. Attend construction-phase coordination meetings.

B. Provide schedule of field quality control tests and inspections required by the Contract Documents to Commissioning Authority.
   1. Update schedule biweekly throughout the construction period.

C. Submit field quality control testing and inspection reports on exterior enclosure construction to the Commissioning Authority.

D. Submit operation and maintenance data for systems, subsystems, and components to the Commissioning Authority.

E. Participate in testing-procedures meetings.

F. Participate in testing of installed systems, subsystems, and construction.

G. Provide test data, inspection reports, and certificates to Commissioning Authority.

H. Participate in maintenance orientation and inspection.

I. Participate in operation and maintenance training sessions.

J. Participate in final review at acceptance meeting.

K. Provide input for final commissioning documentation.

1.06 COMMISSIONING AUTHORITY'S RESPONSIBILITIES

A. Provide Project-specific construction checklists and commissioning process test procedures.

B. Witness systems, assemblies, equipment, and component startup.

C. Compile test data, inspection reports, and certificates and include them in the systems manual and commissioning process report.

1.07 COMMISSIONING DOCUMENTATION

A. Provide the following information to Commissioning Authority for inclusion in the Commissioning Plan:
   1. Submittals, information for systems manuals, and other required documents and reports.
   2. Identification of installed exterior enclosure components, assemblies, systems, and equipment, including design changes that occurred during the construction phase.
   3. Certificate of completion, certifying that exterior enclosure assemblies, systems, equipment, and associated controls are complete and ready for testing.
   4. Test and inspection reports and certificates.
   5. Corrective action documents.

1.08 PRECONSTRUCTION TESTING

A. Preconstruction Mockup Testing:
   1. Provide adhesion testing of sealant.
   2. Provide stain testing of sealant.
   3. Provide water penetration resistance testing of windows.
   4. Provide mortar pointing samples for brick work.

1.09 COMMISSIONING SUBMITTALS

A. Submit commissioning submittals to Commissioning Authority. Submittals requiring Architect’s action will be returned to Construction Manager, through Architect.

1.10 QUALITY ASSURANCE

A. Quality Assurance and Control: Specific commissioning quality-assurance and-control requirements for individual construction activities are specified in the Sections that specify those activities. Specified commissioning tests, inspections, and related actions do not limit Contractor's other quality-assurance and-control procedures that facilitate compliance with the Contract Document requirements.

B. Preconstruction Commissioning Conference: Commissioning Authority will schedule a preconstruction commissioning conference before construction of the exterior enclosure starts, at a time convenient to Owner, Construction Manager, Contractor, and Architect, but no later than 15 days after execution of the Agreement with the Contractor. Allow for the conference to be held at Project site or another convenient location. The Commissioning Authority will conduct the meeting to review commissioning responsibilities and personnel assignments.
   1. Attendees: Authorized representatives of Owner, Construction Manager, Commissioning Authority, Architect and consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to commissioning.

2. Agenda: Discuss items of significance that could affect progress, including the following:
   a. Commissioning plan
   b. Tentative construction schedule.
   c. Phasing.
   d. Critical work sequencing and long-lead items.
   e. Designation of key personnel and their duties.
   f. Procedures for testing and inspecting.
   g. Submittal procedures.
   h. LEED requirements.
   i. Preparation of Record Documents.
   j. Owner's occupancy requirements.
   k. Security.
3. Minutes: Record and distribute meeting minutes.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 VERIFICATION

A. Certify that building exterior enclosure systems, subsystems, and construction have been completed according to the Contract Documents.

B. Commissioning Authority will witness and document field quality-control tests and inspections.

C. Verify that field quality control testing of building exterior enclosure has been completed and approved, that discrepancies have been corrected, and corrective work approved.
   1. Annotate checklist or data sheet when a deficiency is observed.

D. Deferred Testing:
   1. If tests cannot be completed because of a deficiency outside the scope of the Building Exterior Enclosure, the deficiency shall be documented and reported to Owner. Deficiencies shall be resolved and corrected by Contractor and tests rescheduled.
   2. If the testing plan indicates specific seasonal testing, appropriate initial performance tests shall be completed and documented and additional tests scheduled.

E. Testing Reports:
   1. Reports shall include measured data, data sheets, and a comprehensive summary describing the building exterior enclosure systems at the time of testing.
   2. Prepare a preliminary test report. Deficiencies will be evaluated by Architect to determine corrective action. Deficiencies shall be corrected and test repeated.

3.02 BUILDING ENVELOPE TEST FORMS

A. Test forms follow this section.

END OF SECTION

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Building demolition excluding removal of hazardous materials and toxic substances.

B. Selective demolition of building elements for alteration purposes.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 1000 - Summary: Description of items to be salvaged or removed for re-use by Contractor.

C. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

D. Section 01 6000 - Product Requirements: Handling and storage of items removed for salvage and relocation.

E. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Site Plan: Showing:
   1. Areas for temporary construction and field offices.

C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
   1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
   2. Identify demolition firm and submit qualifications.
   3. Include a summary of safety procedures.

D. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.
   1. Minimum of five years of documented experience.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.01 SCOPE

A. Remove the entire buildings designated Storage Building, Tank Storage Building and Receiving Building.

B. Remove paving and curbs as required to accomplish new work.

C. Within area of new construction, remove foundation walls and footings to a minimum of 3 feet below finished grade.

D. Outside area of new construction, remove foundation walls and footings to a minimum of 2 feet below finished grade.

E. Remove concrete slabs on grade as indicated on drawings.

F. Remove other items indicated, for salvage, relocation, and recycling.
   1. Salvage existing brick for reuse.
      a. Remove mortar and stack unbroken bricks salvaged from demolition.
   2. Salvage original lighting fixtures, as indicated.
      a. Turn over to the Owner.
   3. Salvage original wall clocks, as indicated.
      a. Turn over to the Owner.

G. Fill excavations, open pits, and holes in ground areas generated as result of removals, using specified fill; compact fill as required so that required rough grade elevations do not subside within one year after completion.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Comply with applicable requirements of NFPA 241.
   3. Use of explosives is not permitted.
   4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   5. Provide, erect, and maintain temporary barriers and security devices.
   6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
   8. Do not close or obstruct roadways or sidewalks without permit.
   9. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
   10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Do not begin removal until built elements to be salvaged or relocated have been removed.

D. Protect existing structures and other elements that are not to be removed.
   1. Provide bracing and shoring.
   2. Prevent movement or settlement of adjacent structures.
   3. Stop work immediately if adjacent structures appear to be in danger.

E. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

F. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

G. Perform demolition in a manner that maximizes salvage and recycling of materials.
   1. Dismantle existing construction and separate materials.
   2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

H. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 5000 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.

2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
3. Verify that abandoned services serve only abandoned facilities before removal.
4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

F. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 0510

CONCRETE MOISTURE VAPOR REDUCTION ADMIXTURE (MVRA)

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. High Performance Concrete Moisture Vapor Reducing Admixture (MVRA) for all new concrete slabs, including slab-on- grade, elevated slabs, stair treads and landings.

1.02 RELATED SECTIONS:

A. Division 03 Section "Cast-in-Place Concrete" for vapor retarder.

B. Division 09 Flooring Sections for flooring materials installed over concrete slabs that contain integral moisture vapor reduction admixture and for preparation requirements.

1.03 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.04 REFERENCES

A. American Society for Testing and Materials International (ASTM)

1. ASTM D 5084: Standard Test Methods for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter.
2. ASTM E 1643: Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.
3. ASTM E 1745: Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
4. ASTM F 710: Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
5. ASTM C 494/C 494M-08a: Standard Specification for Chemical Admixtures for Concrete Type S.

1.05 SUBMITTALS

A. Product Data: Manufacturer’s printed data.

B. Product test reports performed by a qualified independent testing agency evidencing compliance of products with specified requirements of moisture vapor transmission based on comprehensive testing of current products.

C. Manufacturer’s certificate certifying admixture provided meets or exceeds specified requirements.

D. Sample life of the concrete warranty.

E. Sample adhesion guarantee.

F. Sample moisture letter.

G. MSDS.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm with not less than ten (10) years’ experience in the manufacture of the specified concrete moisture vapor reduction admixture, capable of providing test reports indicating compliance with specified performance requirements, and able to provide on-site technical representation should the need arise. Selected product must have

certification of compliance with ASTM C494 /C494M testing protocols from an independent AASHTO approved laboratory.

B. Pre-installation Conference.
   1. Verify all are familiar with MVRA project specific quality control procedures, review concrete mix designs and examine procedures for ensuring quality of concrete materials. Each entity directly concerned with MVRA dosed concrete must attend in person, conference call, or provide electronic review of documents, mix designs and procedures. Those required to participate or to review include but are not limited to:
      a. Construction Manager.
      b. Independent testing agency responsible for concrete design mixtures, sampling and testing.
      c. Ready-mix concrete manufacturer.
      d. Concrete subcontractor
      e. Moisture Vapor Reduction Admixture manufacturer.

C. Ready Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
   1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

D. Moisture Vapor Reduction Admixture Collection Agent / Representative Qualifications
   1. Personnel conducting field sampling on behalf of the MVRA manufacturer shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

E. Slab Moisture Testing and Evaluation: Personnel performing laboratory tests shall be certified in the conduct of ASTM D5084 under the supervision of a licensed geotechnical engineer.
   1. The determination as to whether the concrete slab is prepared to receive flooring or coatings, rests with the MVRA manufacturer.

F. Source Limitations: Obtain each type of concrete moisture vapor reducing admixture from the same manufacturer.

G. ACI Publications: For slabs to receive moisture sensitive coatings or material, comply with the following unless modified by requirements in the Contract Documents:
   1. ACI 302.2R-06, "Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring".

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver MVRA in manufacturer’s original, undamaged containers.

B. Store MVRA protected from exposure to harmful weather conditions and in a temperature controlled area above 36 degrees F.

C. Do not allow product to freeze. Should product freeze, immediately contact the MVRA manufacturer for further instructions.

1.08 WARRANTY

A. Moisture Vapor Reduction Admixture (MVRA):
   1. MVRA must be installed according to, and in compliance with, the manufacturer's published data sheet to include, but not limited to:
      a. Dosing instructions.
      b. Onsite representation and sampling requirements.

c. Use of an ASTM E 1745 vapor retarder installed following ASTM E 1643 and ASTM F710 guidelines.

2. Manufacturer's Warranty: To include:
   a. Term: Life of the concrete.
   b. Repair and/or removal of failed flooring.
   c. Placement of a topical moisture remediation system.
   d. Replacement of flooring materials like original installed to include material and labor.
3. Adhesion Warranty: MVRA Manufacturer shall provide an adhesion warranty to match the term of the adhesive and primer manufacturer's material defect warranty upon MVRA manufacturer's acceptance of field bond test.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design "Barrier One High Performance Moisture Vapor Reduction Admixture"
   1. Manufactured by Barrier One, Inc..; 522 S. Hunt Club Blvd., #303, Apopka, Florida 32703; P: 877.224.5850, F: 866.594.3490; Email at: info@barrierone.com

B. Subject to compliance with the requirements of this section, under provisions of Section 01 6000, substitutions may be considered.
   1. Failure to provide a product that meets or exceeds the MVRA warranty requirements of Part I and the MVRA field quality control requirements of Part 3 will result in all subsequent testing and slab remediation costs being borne by the ready mix supplier.

2.02 MATERIALS

A. Concrete moisture vapor reduction admixture (MVRA) for all interior slabs shall be a non-toxic, liquid admixture that is free of all volatile organic compounds.

B. Chemical reaction shall form a permanent barrier (capillary break) that is integral to the concrete, insoluble, and irremovable.

1.	Hydraulic conductivity:	Project specific maximum of 6.0 E-8 cm/s per ASTM D5084
2.	Toxicity:	None
3.	Odor:	None
4.	Flammability:	None
5.	VOC levels:	Zero
6.	Solvent:	Water
7.	Freeze Temp:	32 degrees Fahrenheit (00 C)(store above 360 F (2.30 C))
8.	Acid resistance:	Excellent
9.	Hazardous vapors:	None
10.	Installation:	All concrete
11.	Capillary break:	Calcium Silicate Hydrate
12.	pH:	11.3
13.	weight:	10.3 lbs/gal (net)

14. Integral biocide to inhibit growth of mold and bacteria

2.03 RELATED MATERIALS

A. Sheet Vapor Retarder: ASTM E 1745 compliant material, with a maximum permeance of 0.1 US Perms and a minimum thickness of 0.01". Include manufacturer's recommended adhesive or pressure-sensitive tape.
   1. Refer to Section 07 2616 - Under Slab Vapor Barrier/ Retarder.

2. It is the responsibility of the vapor retarder manufacturer to show compliance with the most current version of ASTM E1745.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Comply with the requirements of Division 03 Cast-in-Place Concrete, or other appropriate section, for concrete mixing, placing and curing.

B. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E1643, ASTM F710, ACI 302.2R-06 and manufacturer's written instructions.

C. Add MVRA in accordance with manufacturer's printed data sheet instructions:

D. For mix designs ranging from 0.42 to 0.52 w/cm, dose at 14 ounces per 100 pounds (414ml/45kg) of total cementitious materials.
   1. Remove an equal amount of water from the mix.
   2. Add separately from other admixtures at the tail end of the load.
   3. Mix designs below 0.42 and above 0.52 may require adjustment and consultation with MVRA manufacturer is required prior to their use.
   4. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete with MVRA according to ASTM C 94/C 94M; furnish batch ticket information showing dosage of MVRA.
   5. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Add the MVRA to where it makes direct contact with the ready mix and then rotate drum of batch truck on high for at least seven minutes prior to discharge.

E. Freshening onsite with held back mix water is acceptable so long as the practice is in accordance with published ACI guidelines and does not exceed the original water to cementitious material ratio or instructions of the structural engineer.

F. Use of water reducing admixtures is recommended to achieve slumps greater than 4" (102mm).

G. Use of other admixtures in the same batch as MVRA is acceptable so long as each admixture is added separately.

H. The inclusion of a shrink reducing admixture (SRA) is not acceptable

I. Cold-Weather Placement: Comply with ACI 306.1.

J. Hot-Weather Placement: Comply with ACI 301.

3.02 CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Cure concrete slabs to receive moisture sensitive coatings according to ACI 302.2R-06, by one or a combination of the following methods:
   1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure concrete containing MVRA for not less than 24 hours, longer if ambient conditions are hot, windy, and sunny or subject to periods of very low humidity. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
   2. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall

within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3. Removal: After curing period has elapsed, mechanically remove curing compound prior to the installation of final flooring material in accordance with ASTM F-710.
   a. Do not chemically remove.

3.03 FIELD QUALITY CONTROL

A. Testing and Inspecting: The manufacturer of the moisture vapor reduction admixture will, at their expense, engage qualified agencies to obtain project specific sample cylinders and independent certified laboratories for subsequent testing per ASTM D5084 and preparation of test reports.

B. Testing of Slabs Containing MVRA:
   1. The moisture vapor reduction admixture (MVRA) manufacturer will perform all moisture testing in accordance with this specification and will issue project specific warranties and adhesion guarantees prior to installation of any slab finishes; no further field slab moisture nor pH testing shall be required.
      a. Failure to provide a product that meets or exceeds these requirements will result in all subsequent testing and slab remediation costs being borne by the contractor.
   2. A representative or agent of the MVRA manufacturer must be present at the jobsite during placement of all MVRA treated concrete.
      a. Do not proceed without this representative being present.
      b. A minimum of one business day notification is required.
   3. Field testing technician shall, at the expense of the MVRA Manufacturer, procure at least one 4 inch (102 mm) cylinder from every day of placement of MVRA dosed concrete for the purpose of subsequent hydraulic conductivity/coefficient of permeability testing.
   4. All cylinders shall be independently lab tested in accordance with ASTM D 5084 at the expense of the MVRA manufacturer.
   5. Test results must conform to specified limits.
      a. Should any cylinder from any day of placement deliver results in excess of 6.0 E-08 cm/sec, the concrete moisture vapor reduction admixture manufacturer shall procure, at their expense, a core (or cores) from that day of placement. This core (cores) shall be sent to an independent laboratory for hydraulic conductivity (coefficient or permeability) per ASTM D 5084.
      b. Should any core deliver results in excess of 6.0 E-08 cm/sec per ASTM D 5084, the concrete moisture vapor reduction admixture manufacturer shall provide, at their expense, a topical moisture mitigation system for all areas not meeting the stated limit.
   6. Proceeding with placement of concrete dosed with the MVRA without the required representation will result in the contractor bearing the cost to core and ship appropriate material for testing per ASTM D 5084.

3.04 REPAIRS

A. Make repairs to slab in accordance with Division 03 Section “Cast-in-Place Concrete” and as recommended by concrete moisture vapor reduction admixture manufacturer.

END OF SECTION

SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Floors and slabs on grade.

B. Concrete foundations.

C. Concrete reinforcement.

D. Joint devices associated with concrete work.

E. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Products and installation for sealants for saw cut joints and isolation joints in slabs.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. Provide an allowance for 500 square feet of concrete slab-on-fill or slab-on-grade:
      a. Concrete - 4 inch thick Slab-on-Fill or Slab-on-Grade: Includes formwork, reinforcement as specified in Section 03 2000, concrete, placement accessories, underslab vapor retarder, moisture vapor reducing admixture, consolidating and leveling, troweling, and curing.
      b. This allowance shall be included in the Base Bid and adjusted by the Unit Price.

B. Unit Prices:
   1. Unit Price for concrete slab-on-fill or slab-on-grade:
      a. Unit of measure: Square foot of placed and finished 4 inch thick concrete slab-on-fill or slab-on-grade.

1.04 REFERENCE STANDARDS

A. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials; American Concrete Institute International; 2010.

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Structural Concrete; American Concrete Institute International; 2010 (Errata 2012).

D. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.

F. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.

G. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 2010.

H. ACI 308R - Guide to Curing Concrete; American Concrete Institute International; 2001 (Reapproved 2008).

I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2011.

J. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon Billet-Steel Bars for Concrete Reinforcement; 2015.

K. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2015.

L. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.

M. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2014.

N. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2015.

O. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.

P. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2007.

Q. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2014.

R. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a.

S. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2011.

T. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete; 2014.

U. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2012.

V. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2013.

W. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2014.

X. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).

Y. ASTM E1155 - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers; 1996 (Reapproved 2008).

Z. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2011.

AA. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2011.

AB. NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015).

AC. NSF 372 - Drinking Water System Components - Lead Content; 2011.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.
   1. For curing compounds, provide data on method of removal in the event of incompatibility with floor covering adhesives.

C. Mix Design: Submit proposed concrete mix design.

1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.

D. Samples: Submit samples of underslab vapor retarder to be used.

E. Samples: Submit two, 12 inch long samples of waterstops.

F. Manufacturer's Installation Instructions: For concrete accessories, indicate installation procedures and interface required with adjacent construction.

G. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

H. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

I. Reinforcement: Shop and placement drawings detailing bending and placement of reinforcement.

1.06 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Slabs with Moisture Vapor Reducing Admixture (MVRA): Provide warranty to cover the cost of flooring failures due to moisture migration from slabs for ten years.
1. Include cost of repair or removal of failed flooring, placement of topical moisture remediation system, and replacement of flooring with comparable flooring system.

C. Moisture Emission Reducing Curing and Sealing Compound: Provide warranty to cost of flooring delamination failures for 10 years.
1. Include cost of repair or removal of failed flooring, remediation with a moisture vapor impermeable surface coating, and replacement of flooring with comparable flooring system.

PART 2 PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
1. Type: Deformed billet-steel bars.
2. Finish: Unfinished, unless otherwise indicated.

B. Steel Welded Wire Reinforcement (WWR): Plain type, ASTM A1064/A1064M.
1. Form: Flat Sheets.
2. WWR Style: As indicated on drawings.

C. Reinforcement Accessories:
1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.02 CONCRETE MATERIALS

A. Cement: ASTM C150, Type I - Normal Portland type.

1. Acquire all cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C 33.
1. Acquire all aggregates for entire project from same source.

C. Lightweight Aggregate: ASTM C330/C330M.

D. Fly Ash: ASTM C618, Class C or F.

E. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.

F. Water: Clean and not detrimental to concrete.

2.03 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C260/C260M.

2.04 ACCESSORY MATERIALS

A. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
1. Installation: Comply with ASTM E1643.
2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.
3. Products:
a. Fortifiber Building Systems Group; Moistop Ultra 15: www.fortifiber.com.
b. Stego Industries, LLC: www.stegoindustries.com.
c. W.R. Meadows, Inc.; PERMINATOR Class A - 15 mils: www.wrmeadows.com.

2.05 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.

B. Waterstops: Bentonite and butyl rubber, complying with NSF 61 and NSF 372.
1. Configuration: As indicated on drawings.
2. Size: As indicated on drawings.

C. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.
1. Material: ASTM D1751, cellulose fiber.

2.06 CURING MATERIALS

A. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.
1. Product dissipates within 7 to 10 days.
2. Products:
a. Dayton Superior Corporation; Clear Cure VOC J7WB: www.daytonsuperior.com.
b. Kaufman Products Inc.; Thinfilm 420 Resin Base: www.kaufmanproducts.net.

B. Moisture-Retaining Sheet: ASTM C171.
1. Curing paper, regular.

2.07 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

1. Replace as much Portland cement as possible with fly ash, ground granulated blast furnace slag, silica fume, or rice hull ash as is consistent with ACI recommendations.

B. Concrete Strength: Establish required average strength for concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
   1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

D. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: As indicated on drawings.
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
   3. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.
   4. Water-Cement Ratio: Maximum 50 percent by weight.
   5. Total Air Content: 6 percent, determined in accordance with ASTM C173/C173M.
   6. Maximum Slump: 4 inches.
   7. Maximum Aggregate Size: 3/4 inch.

2.08 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
   1. Use latex bonding agent only for non-load-bearing applications.

B. Interior Slabs on Grade: Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor retarder before covering.
   1. Vapor Retarder Over Granular Fill: Install compactible granular fill before placing vapor retarder as shown on the drawings. Do not use sand.

3.03 INSTALLING REINFORCEMENT AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

D. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

E. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

F. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.05 SLAB JOINTING

A. Locate joints as indicated on the drawings.

B. Anchor joint fillers and devices to prevent movement during concrete placement.

C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.
   1. Install wherever necessary to separate slab from other building members, including columns, walls, equipment foundations, footings, stairs, manholes, sumps, and drains.

D. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch thick blade and cut at least 1 inch deep but not less than one quarter (1/4) the depth of the slab.

3.06 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. An independent testing agency, as specified in Section 01 4000, will inspect finished slabs for conformance to specified tolerances.

B. Minimum F(F) Floor Flatness and F(L) Floor Levelness Values:
   1. Exposed to View and Foot Traffic: F(F) of 20; F(L) of 15, on-grade only.
   2. Under Thick-Bed Tile: F(F) of 20; F(L) of 15, on-grade only.
   3. Under Carpeting: F(F) of 25; F(L) of 20, on-grade only.
   4. Under Thin Resilient Flooring and Thinset Tile: F(F) of 35; F(L) of 25, on-grade only.

C. Measure F(F) and F(L) in accordance with ASTM E1155, within 48 hours after slab installation; report both composite overall values and local values for each measured section.

D. Correct the slab surface if composite overall value is less than specified and if local value is less than two-thirds of specified value or less than F(F) 13/F(L) 10.

E. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

3.07 CONCRETE FINISHING

A. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Surfaces to Receive Thick Floor Coverings: "Wood float" as described in ACI 302.1R; thick floor coverings include quarry tile, ceramic tile, and terrazzo with full bed setting system.
   2. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, thin set quarry tile, and thin set ceramic tile.
   3. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.
   2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   3. Final Curing: Begin after initial curing but before surface is dry.

3.09 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design to inspection and testing firm for review prior to commencement of concrete operations.

D. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

E. Compressive Strength Tests: ASTM C39/C39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cu yd or less of concrete placed.

F. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

3.10 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect for each individual area.

3.11 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

END OF SECTION

SECTION 03 3511
CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface treatments for concrete floors and slabs.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Finishing of concrete surface to tolerance; floating, troweling, and similar operations; curing.

B. Section 03 3000 - Cast-in-Place Concrete: Curing compounds that also function as sealers.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. Provide an allowance for 200 square feet of polished concrete floor:
      a. Polished Concrete System: Includes materials, equipment, and procedures designed and furnished by a single manufacturer to produce dense polished concrete of the specified sheen.
      b. This allowance shall be included in the Base Bid and adjusted by the Unit Price.
   2. Provide an allowance to redo 200 square feet of polished concrete floor:
      a. Redo Polished Concrete System: Includes materials, equipment, and procedures designed and furnished by a single manufacturer to refinish a previously finished section of dense polished concrete to produce an approved sheen.
      b. This allowance shall be included in the Base Bid and adjusted by the Unit Price.
   3. Provide an allowance for 200 square feet of stained and polished concrete floor:
      a. Stained and Polished Concrete System: Includes materials, equipment, and procedures designed and furnished by a single manufacturer to produce dense polished concrete of the specified sheen and approved color.
      b. This allowance shall be included in the Base Bid and adjusted by the Unit Price.
   4. Provide an allowance to redo 200 square feet of stained and polished concrete floor:
      a. Redo Stained and Polished Concrete System: Includes materials, equipment, and procedures designed and furnished by a single manufacturer to refinish a previously finished section of dense stained and polished concrete to produce an approved finish color and sheen.
      b. This allowance shall be included in the Base Bid and adjusted by the Unit Price.

B. Unit Prices:
   1. Unit Price for polished concrete floor:
      a. Unit of measure: Square foot of finished polished concrete floor.
   2. Unit Price to redo polished concrete floor:
      a. Unit of measure: Square foot of refinished polished concrete floor.
   3. Unit Price for stained and polished concrete floor:
      a. Unit of measure: Square foot of finished stained and polished concrete floor.
   4. Unit Price to redo stained and polished concrete floor:
      a. Unit of measure: Square foot of refinished stained and polished concrete floor.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with concrete floor placement and concrete floor curing.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.

C. Maintenance Data: Provide data on maintenance and renewal of applied finishes.

1.06 MOCK-UP

A. Mock-Up Size: 10 feet square.

B. Locate where directed.

C. Mock-up may remain as part of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's sealed packaging, including application instructions.

1.08 FIELD CONDITIONS

A. Maintain light level equivalent to a minimum 200 W light source at 8 feet above the floor surface over each 20 foot square area of floor being finished.

B. Do not finish floors until interior heating system is operational.

C. Maintain ambient temperature of 50 degrees F minimum.

PART 2 PRODUCTS

2.01 CONCRETE FLOOR FINISH APPLICATIONS

A. Unless otherwise indicated, all concrete floors are to be finished using polished concrete finish.

B. High Gloss Clear Sealer:

2.02 COATINGS

A. Concrete Stain or Dye: Translucent, penetrating compound for interior or exterior use; must be finished with a topical sealer.
   1. Products:
      a. L.M. Scofield Company; LITHOCHROME Tintura Concrete Stain: www.scofield.com.

B. High Gloss Clear Sealer: Transparent, non-yellowing, water- or solvent-based coating.
   1. Composition: Acrylic polymer-based.

2.03 POLISHED CONCRETE SYSTEM

A. Polished Concrete System: Materials, equipment, and procedures designed and furnished by a single manufacturer to produce dense polished concrete of the specified sheen.
   1. Acceptable Systems:
      a. ARDEX Engineered Cements; ULTRAFLOR Polished Concrete System; ARDEX PC-T Concrete Topping; ARDEX PC Finish sealer: www.ardexamericas.com.
      b. L&M Construction Chemicals, Inc., a subsidiary of Laticrete International, Inc.; FGS Permashine Concrete Polishing System: www.lmcc.com.
      c. L.M. Scofield Company; SCOFIELD® Formula One™ Ground & Polished Concrete Systems: www.scofield.com.
      d. W.R. Meadows, Inc; Induroshine and Bellatrix Concrete Enhancer: www.wrmeadows.com.
      e. Substitutions: See Section 01 6000 - Product Requirements.

B. MATERIALS

1. Solvent based color liquid dye concentrate: by L. M. SCOFIELD COMPANY.
   a. Provide manufacturer's companion Lithium Densifier and final finish product to help ensure color and protection.
   b. Acceptable product:
      1) SCOFIELD Formula One™ Liquid Dye Concentrate by L. M. Scofield company.
      2) SCOFIELD Formula One™ Lithium Densifier MP by L. M. SCOFIELD COMPANY.
      3) SCOFIELD Formula One™ Guard-W by L. M. SCOFIELD COMPANY.
   c. Chemical Hardener/Densifiers Manufactured by L. M. SCOFIELD COMPANY:
      1) Materials:
         (a) SCOFIELD® Formula One™-LD MP is a high performing hardening and dust proofing compound that is chemically reactive and permanently bonds to concrete formulated to be used in conjunction with integrally colored concrete as well as uncolored concrete.
         (b) SCOFIELD® Formula One™ Guard-W is water-borne acrylic penetrating material formulated to protect polished concrete from normal staining and to enhance gloss.
      2) Planetary grinding equipment must be capable of providing a multiple step process starting with course metal bond diamonds and ending with fine resin bond diamonds.
2. Substitutions: The use of products other than those specified will be considered providing that the Contractor requests its use in writing within 7-days prior to bid date. This request shall be accompanied by the following:
   a. A certificate of compliance from material manufacturer stating that proposed products meet or exceed requirements of this Section.
   b. Documented proof that proposed materials have a 5-year proven record of performance, confirmed by at least 5 local projects that Architect can examine.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that floor surfaces are acceptable to receive the work of this section.

B. Verify that flaws in concrete have been patched and joints filled with methods and materials suitable for further finishes.

C. Applicator shall examine the areas and conditions under which work of this section will be provided and the General Contractor shall correct conditions detrimental to the timely and proper completion of the work and the Applicator shall not proceed until unsatisfactory conditions are resolved. Unless determined prior to bid, the condition of the floor before the polishing process is the responsibility of the General Contractor. The floor must be protected from damage during general construction.

3.02 GENERAL

A. Apply materials in accordance with manufacturer's instructions.

3.03 COATING APPLICATION

A. Verify that surface is free of previous coatings, sealers, curing compounds, water repellents, laitance, efflorescence, fats, oils, grease, wax, soluble salts, residues from cleaning agents, and other impediments to adhesion.

B. Protect adjacent non-coated areas from drips, overflow, and overspray; immediately remove excess material.

C. Apply coatings in accordance with manufacturer's instructions, matching approved mock-ups for color, special effects, sealing and workmanship.

3.04 CONCRETE POLISHING

A. Execute using materials, equipment, and procedures specified by manufacturer, using manufacturer approved installer.
   1. Final Polished Sheen: Semigloss finish; other sheens are included as comparison to illustrate required sheen; final sheen is before addition of any sealer or coating, regardless of whether that is also specified or not.

B. Grind the concrete floor with metal bond diamonds removing construction debris until the specified Grade is obtained. The first cut must be performed with a metal bond diamond.

C. After the 400 grit resin bond diamond has been used apply liquid dye and liquid hardener according to the manufacturer’s current literature. Allow 12 hours to cure before continuing.

D. Finish honing and polishing the floor to desired Class.

E. After the polishing process has been completed apply protection guard material according to the products current technical bulletin. Allow to cure for 2-4 hours.

F. Using a high-speed burnishing machine and diamond impregnated pads, burnish the surface to the desires gloss level.

G. Protect finished surface as required and as recommended by manufacturer of polishing system.
   1. Temporary Floor Protection will be Proguard Duracover as manufactured by L. M. Scofield Company, Douglasville, GA (800-800-9900). Seaming of the temporary floor protection will be performed with Scofield Proguard Heavy Duty Seaming Tape. Both products will be installed following the manufacturer’s published installation procedures.
   2. Do not apply the heavy duty seaming tape to bare or finished floors or wall surfaces at any time. It will permanently damage the floor

3.05 CLEANING

A. The work area shall be kept clean and free of debris at all times.

B. Remove slurry and dust from adjoining surfaces as necessary.

C. Dispose of material containers in accordance with local regulations.

D. Protect finished work until fully cured per manufacturer’s recommendations.

END OF SECTION

SECTION 04 0125
MASONRY CLEANING

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. General cleaning of brick and limestone masonry

B. Spot cleaning of rust from brick and limestone masonry

C. Spot cleaning of paint from brick and limestone masonry

1.02 SUBMITTALS

A. Product data for all specified masonry cleaning products.

B. Cleaning Procedures:
   1. Submit procedures for all types of masonry cleaning after completion of all specified test panels.
   2. Procedures shall include sequence of work, products and equipment to be used, application parameters (concentration, pressure, dwell time, etc), and protection measures for surrounding materials.
   3. Manufacturer's Instructions: For cleaning materials, indicate special procedures, conditions requiring special attention.

1.03 QUALITY ASSURANCE

A. Test Panels: prepare test panel for each type of masonry cleaning specified to confirm efficacy of specified product and application parameters.
   1. Locate where directed.
   2. Acceptable panel and procedures employed will become the standard for work of this section.

B. General brick and limestone cleaning: Approximately 10 linear feet (location and extent shown on drawings) from grade to parapet
   1. Repeat, using different cleaning methods for up to three different panels.

C. Spot cleaning: One square foot each, brick and limestone

1.04 PROJECT / SITE CONDITIONS

A. Complete masonry cleaning prior to masonry restoration

B. Remove appurtenances that may be damaged by cleaning materials

C. Protect adjacent structures and vehicles from overspray

PART 2 - PRODUCTS

2.01 GENERAL CLEANING

A. SafRestorer, (ProSoCo, Inc., Kansas City, KS) - dilution to be determined during product testing 2016.

B. Artisan Heavy Duty Restoration Cleaner, (Chemique, Morrestown, NJ) - product to be used full- strength - product testing 2016

2.02 RUST REMOVER

A. Sodium citrate powder, available at drugstores and online gourmet food suppliers.

B. Glycerine liquid, available at drug and hardware stores

C. Mix 7 parts glycerine to 1 part sodium citrate to 6 parts water.

1. Mix solution with inert poultice material such as white flour, fullers earth or clean paper pulp to form a paste.

2.03 PAINT REMOVER

A. Back to Nature (Dynacraft Products, Manalapan, NJ).

B. S-301 Stripper (Cathedral Stone Products, Jessup, MD).

C. Architect-approved equivalent.

2.04 TOOLS AND EQUIPMENT

A. Do not use wire brushes. Use natural bristle brushes or plastic brushes.

B. For chemical cleaning, use only brushes that are resistant to chemical cleaners being used.

C. Low-Pressure Sprayers:
1. Provide hand-pumped, very low-pressure (< 100 psi) sprayers for application of cleaning solutions to masonry surfaces.
2. Do not apply cleaning solutions with gasoline-powered or electric pressure washing equipment.
3. All components of sprayer must be compatible with solutions to be applied.

D. Pressure Washing Equipment:
1. Provide gasoline-powered or electric pressure washing equipment for rinsing of cleaned masonry surfaces.
2. Equipment shall be equipped with 45 degree fan-tip nozzle.
3. Provide pressure gauge and regulator at nozzle for monitoring and adjustment by the operator.

PART 3 - EXECUTION

3.01 GENERAL

A. Complete masonry cleaning prior to completing masonry restoration

B. Complete cleaning of ferrous stains only after ferrous components have been removed or painted.

3.02 SURFACE PREPARATION

A. Inspect substrates prior to cleaning.

B. Fill open cracks, joints, penetrations, etc with removable sealant to prevent penetration of cleaning materials and rinse water to building interior.

3.03 GENERAL CLEANING

A. Pre-saturate masonry walls prior to application of cleaning products

B. Apply cleaning materials with low-pressure sprayer, working from bottom to top.
1. Dwell time: TBD.
2. Agitate with natural or plastic bristle brushes to loosen soiling

C. Rinse cleaned surfaces with clean water, working from bottom to top.
1. Use a 15-45 degree fan tip nozzle.
2. Nozzle pressure not to exceed 800 psi, 6 to 8 gpm.
3. Nozzle distance no less than 12 inches from masonry surface.

3.04 SPOT CLEANING: FERROUS STAINS

A. Dampen stone surfaces to be cleaned with glycerine/sodium citrate solution.

B. Mix remaining solution with filler to form poultice paste.

C. Apply a thick (1/4 inch) layer of poultice paste to the masonry surface extending several inches beyond the boundary of the stained area.

D. Cover poultice with plastic sheeting and seal with masking tape.

E. Allow poultice to dwell on the surface for 48 hours before removing plastic sheeting.

F. Remove poultice material with wood or plastic scraper and rinse the surface with clean water and allow to dry.

3.05 SPOT CLEANING: PAINT

A. Apply specified paint remover to spattered areas.
   1. Allow product to dwell until paint is softened and dissolved.
   2. Dwell time shall be as determined in the performance of the approved test panel.

B. Agitate with a bristle brush to loosen and lift deposits.

C. Flush surface with water to remove paint and stripper residue.
   1. Neutralize if required by manufacturer's instructions.

D. Repeat application as necessary to completely remove paint marks.

END OF SECTION

SECTION 04 0126
MASONRY RESTORATION

PART 1 - GENERAL:

1.01 SECTION INCLUDES

A. Repair of damaged masonry.

B. Repointing mortar joints.
   1. Contractor shall assume multiple pointing/patching mortars may be required to achieve suitable color matches

1.02 RELATED REQUIREMENTS

A. Section 04 0125 - Masonry Cleaning

B. Section 04 2000 - Unit Masonry: Brick masonry units.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. Provide an allowance for repointing 100 square feet of brick.
      a. This allowance includes purchase, delivery, and installation of brick pointing, as approved by the Architect.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.
   2. Provide an allowance for patching 1 square foot of brick.
      a. This allowance includes purchase, delivery, and installation of brick patching, as approved by the Architect.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.
   3. Provide an allowance for replacing 100 bricks.
      a. This allowance includes purchase, delivery, and installation of brick replacement, as approved by the Architect.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.
   4. Provide an allowance for patching 10 linear feet by 3 inches high by 2 inches deep limestone with patching mortar.
      a. This allowance includes purchase, delivery, and installation of limestone mortar patch, as approved by the Architect.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.
   5. Provide an allowance for repairing 3 linear feet by 3 inches high by 4 inches deep limestone with a dutchman patch.
      a. This allowance includes purchase, delivery, and installation of limestone dutchman patch, as approved by the Architect.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.
   6. Provide an allowance for replacing 10 linear of limestone coping, (Annex "square" profile).
      a. This allowance includes purchase, delivery, and installation of limestone coping, as approved by the Architect.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices
   1. Unit price for pointing brick.
      a. Unit of measure: Square foot of wall repointed.
   2. Unit price for patching brick.
      a. Unit of measure: Per patch, 1” wide x 1” high x 1” deep.

3. Unit price for replacing brick.
   a. Unit of measure: Each brick replaced.
4. Unit price for patching limestone.
   a. Unit of measure: Per patch, 3” wide x 3” high x 2” deep.
5. Unit price for providing a limestone dutchman repair.
   a. Unit of measure: Per patch, 3” wide x 3” high x 4” deep.
6. Unit price for providing a limestone replacement.
   a. Unit of measure: Per coping stone, approximately 10” wide x 5 1/2” high x 3'-4" long.
   b. Verify dimensions in field.

1.04 REFERENCE STANDARDS

A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures and Related Commentaries; American Concrete Institute International; 2011.

B. ASTM C241 - Standard Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic; 90(2005).

C. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2014a.

D. ASTM C568/C568M - Standard Specification for Limestone Dimension Stone; 2010.

E. ASTM C 616/C616M - Standard Specification for Quartz-Based Dimension Stone; 2015.

F. ILI (HB) - Indiana Limestone Handbook; Indiana Limestone Institute of America, Inc.; 2007, 22nd Edition.

1.05 SUBMITTALS

A. Product data for all masonry restoration materials.

B. Samples of pointing/patching mortars provide cured samples of proposed mixes.
   1. Contractor shall be prepared to submit up to 6 samples each of pointing/patching mortars without additional compensation.
   2. Pointing / patching materials to be matched to cleaned masonry.

C. Samples of new stone materials

D. Shop drawings of new stone fabrications.

E. Submit certification of completion of manufacturer’s training for each mechanic if required by manufacturer of patching mortar

1.06 QUALITY ASSURANCE

A. Provide mock-up panels of brick pointing/patching/replacement and limestone pointing / patching.

B. Mock-up panels to be evaluated twice, once after joints are raked/patches are prepped and again after pointing/patching is completed.

C. The Work of this contract shall be performed by the same mechanics constructing the mock-up panel.

1.07 MOCK-UP

A. Provide a mock up of limestone repair, including a cementitious repair, a dutchman repair and a complete unit replacement.
   1. Limestone mortar patch: provide three 1'-0" wide by 3 inch high by 2 inch deep patches.
   2. Limestone dutchman repair: provide one 1'-0" wide by 3 inch high by 4 inch deep patch.
   3. Limestone replacement: Provide one coping stone (Annex "square" profile).

B. Provide a mock up of brick repair, including repointing, brick patching and unit replacement.
   1. Brick repointing: Provide three 2'-0" wide by 2'-0" high samples of repointing.
   2. Brick patching: Provide patched three bricks.
   3. Brick replacement: Replace 10 bricks in at least five discrete locations.

C. Locate where directed.

D. Mock-up may remain as part of the Work, if approved by the Architect.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect stone from discoloration during storage on site.

B. Provide ventilation to prevent condensation from forming on stone.

C. Handle and store cut limestone items in protective cartons or trays. Do not remove from protective packaging until ready for installation.

1.09 PROJECT / SITE CONDITIONS

A. Reference Masonry Institute of America temperature requirements for masonry work.
   1. Cold Weather Requirements: Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

B. Provide protection for membrane roofs.

C. Provide protection of copings if swing stages to be used.

D. Provide protection of mechanical /ventilation intakes from dust during joint raking and repointing.

PART 2 - PRODUCTS:

2.01 MATERIALS

A. Portland Cement: ASTM C150.
   1. Type: Type II.
   2. Color: White, non-staining, color as required to match existing mortar.

B. Hydrated Lime: ASTM C207, Type S.

C. Mortar Aggregate: ASTM C144. Clean, hard natural sand, free from salt, clay, loam and other foriegn materials.
   1. Sand sieve analysis:
      a. Passing through #8 sieve not less than 100%
      b. Passing through #10 sieve not less than 95%
      c. Passing through #30 sieve between 70% and 90%
      d. Passing through #50 sieve between 15% and 40%
      e. Passing through #100 sieve not over 15%

D. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.
   1. Color(s): To match existing historic mortar, and as approved by the Architect.

E. Water: Clean and potable.

F. Bonding Agent: Latex type approved by patching mortar manufacturer.

2.02 LIMESTONE PATCHING MORTAR:

A. Jahn M70 Restoration Mortar (Cathedral Stone Products, Jessup, MD)

B. Lithomex Stone Repair Mortar (deGruchy Limeworks, Media, PA)

C. HL60 Limestone Repair Mortar (US Heritage Group, Chicago, IL)

D. Architect-approved equivalent

2.03 POINTING MORTAR:

A. Masonry Cement: Not permitted.

B. Brick and limestone - Type N, setting mortar (field-mix).
   1. 1 part Portland cement
   2. 1 parts lime
   3. 6 parts sand

C. Historic Exterior Masonry Pointing Mortar: Type O; color to match existing.
   1. 1 part Portland cement
   2. 2 parts lime
   3. 7 parts sand

D. Bluestone - Type S
   1. 1 part Portland cement.
   2. 1/2 part lime
   3. 4 1/2 parts sand

2.04 STONE:

A. Limestone: Indiana Oolitic Limestone; complying with ASTM C568/C568M Classification II - Medium Density.
   1. Grade: Standard, per ILI Handbook.
   2. Color: Gray, to match existing.
   3. Surface Texture: Match existing.
   4. Acceptable Producers:
      a. Indiana Limestone Company: www.indianalimestonecompany.com.

B. Bluestone: Paving slabs made from quartz-based stone complying with the requirements of ASTM C 616, Classification II Quartzitic Sandstone.
   1. Stone Abrasion Resistance: Minimum value of 15, based on testing according to ASTM C 241.
   2. Finish: Thermal

2.05 ACCESSORIES:

A. Type 304 stainless steel threaded rods, wire hooks as required for anchorage of patches

B. Epoxy adhesive for embedding anchors and pins shall be a high modulus epoxy resin conforming to ASTM C-881, Type I, II, IV and V, Grade 3 epoxy resin adhesive.

C. Lead "T" strip: WEATHERCAP Joint Protective System.

PART 3 - EXECUTION:

3.01 GENERAL

A. Masonry cleaning to be completed prior to masonry restoration

B. All pointing and masonry restoration to be complete prior to application of fluid-applied membrane coating and penetrating masonry sealers

3.02 PREPARATION

A. Remove external appurtenances including downspouts, signage/plaques, etc. to permit raking and repointing the wall behind these items.

B. The use of power tools for mortar removal must be demonstrated on a sample mock-up and approved by the Architect.

1. Final preparation of the joint shall be done by hand tools.
2. Limestone joints to be raked using low-pressure pneumatic chisel rather than grinder
3. Grinders may be used for raking joints in brick masonry but intersections between head and bed joints are to be finished by chisel to avoid overrunning into adjacent bricks

C. Rake joints to be repointed to a minimum depth of ¾ inch or to sound mortar.
   1. Remove any loose or disintegrated mortar beyond this minimum depth.

D. Areas of stone to be patched shall be squared off and excavated by low-pressure pneumatic chisel to a minimum depth of ¾ inch.
   1. Do not featheredge patching mortar

E. Cross-joints in masonry parapets shall be raked to a depth for joint cap installation. Repoint, leaving sufficient depth to receive sealant and anchor flange of lead joint cap.

F. Remove mortar cleanly from bricks, leaving square corners at the back of the cut.

G. Before filling, remove loose particles and dust with a jet of water.

H. Joint surfaces shall be damp without standing water for repointing.

I. Mix dry mortar ingredients thououghly before mixin with water.
   1. Add half the amount of water into the dry mixture and mix thoroughly.
   2. Add remaining water in small portions until desired working consistancy is achieved.

3.03 INSTALLATION

A. Fill areas where mortar has been removed to a depth greater than one inch first, compacting the pointing mortar in several layers.

B. Fill the entire joint in successive 1/4 inch layers from the back, compressing the mortar into the corners.

C. Continue filling the joint with successive 1/4 inch layers when the previous layer has achieved thumb-print hardness. Continue until the pointing mortar is flush with the face of the brick.
   1. For molded or uneven-edged brick, recess the final surface of repointing mortar.

D. When final layer of repointing mortar is thumb-print hard, tool the joint to match the historic joint.

E. Horizontal water-shedding joints: Rake out joint to required depth and install lead "T" strip joint protection.
   1. Rake back and cut out all joints to a depth to accommodate anchor shaft length plus 1/4 inch.
   2. Seat specified backer rod to proper depth of 1/4’’ below anticipated position of tip of lead "T" strip anchor shaft.
   3. Prime stone, if required, allowing for tacky dry. Mask stone at edges of "T" strip.
   4. Fill joint with selected sealant/caulk to an excess of 1/8 inch of masonry surface.
   5. Seat pre-contoured lead "T" strip and firmly bed the bonding grooves on the underside of lead "T" strip in sealant with no voids between lead "T" strip and masonry.
   6. Remove excess sealant, and when set, remove masking tape.

3.04 LIMESTONE PATCHING

A. Do not use any additives, such as bonding agents, accelerators, or retardants in the mortar.

B. Preparation for Repairs:
   1. Remove loose mortar and masonry prior to installation of the repair mortar.
   2. Verify integrity by "sounding" masonry with a hammer.
   3. Cut the edges of the repair area to provide a minimum depth of 1/4 inch.

a. The edges of the repair should be square cut.
b. Do not allow any feathered edges in the repair area.

4. Pre-wet the substrate to prevent the substrate from drawing moisture out of the repair. Re-wet the surface immediately before applying the repair material.

C. Mixing Mortar for Repairs
1. Do not mix more material than can be used within 30 minutes.
a. Discard any mixed material that has been unused for 30 minutes.
2. Follow manufacturer's instructions for mixing ratios.

D. Application of Repair Material
1. Apply the mortar mix according to manufacturer's directions.

E. Finishing Techniques
1. Obtain a smooth finish repair to match existing stone.
a. Scrape down to the original profile.
b. Trowel to leave a smooth surface.
c. Clean any mortar residues from area surrounding the repair by sponging with clean water before repair material sets.

F. Curing Procedure
1. Lightly mist the repair with water to wet the entire surface of the finished repair according to the manufacturer's instructions.
2. Time will vary with temperature and humidity.
3. Mist several times a day on the three days following the repair installation.

3.05 CLEANING

A. After tooling and the mortar has dried but before fully hardened, remove excess mortar from the edge of the joint with a stiff bristle brush.

B. No chemical or acid cleaning shall be started without a demonstration sample approved by the Architect.

C. Remove uncured limestone patching mortar from the perimeter of the repair before it dries using clean water and a rubber sponge. Repeat several times with clean water to prevent staining of adjacent masonry. Cured mortar may only be removed chemically or mechanically.

D. Remove uncured mortar from tools and equipment with water as soon as possible. Cured material may only be removed chemically or mechanically

END OF SECTION

SECTION 04 2000
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete Block.

B. Clay Facing Brick.

C. Interior Slate Stools

D. Bluestone treads and sills.

E. Reinforcement and Anchorage.

F. Flashings.

G. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 04 0125 - Masonry Cleaning

B. Section 04 0126 - Masonry Restoration

C. Section 04 4301 - Stone Masonry Repair: Stone restoration and replacement.

D. Section 07 2100 - Thermal Insulation: Insulation for cavity spaces.

E. Section 07 6200 - Sheet Metal Flashing and Trim: Metal flashing and trim.

F. Section 07 9200 - Joint Sealants: Sealing control and expansion joints.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:

1. Provide an allowance of 1000 face bricks.

a. This allowance includes purchase, delivery, and installation of face brick to match existing, as approved by the Architect.

b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices:

1. Unit price for providing new face brick.

a. Unit of measure: Each brick installed.

1.04 REFERENCE STANDARDS

A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures and Related Commentaries; American Concrete Institute International; 2011.

B. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units; 2014.

C. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006 (Reapproved 2011).

D. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made From Clay or Shale); 2014.

E. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

C. Samples: Submit four samples of facing brick units to illustrate color, texture, and extremes of color range.

D. Samples of slate stool material.

E. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Comply with provisions of ACI 530/530.1/ERTA, except where exceeded by requirements of the contract documents.

B. The Work of this contract shall be performed by the same mechanics constructing the mock-up panel.

1.07 MOCK-UP

A. Construct a masonry wall as a mock-up panel representing the appearance and workmanship of the new construction, sized 8 feet long by 6 feet high; include mortar, accessories, structural backup, and flashings (with lap joint, corner, and end dam) in mock-up.

B. Locate where directed.

C. Mock-up may not remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 x 8 inches and nominal depths as indicated on the drawings for specific locations.
   2. Special Shapes: Provide non-standard blocks configured for corners.
   3. Load-Bearing and Non-Loadbearing Units: ASTM C90, medium weight.
      a. Hollow block, as indicated.
      b. Exposed Faces: Manufacturer's standard color and texture.

2.02 BRICK UNITS

A. Facing Brick: ASTM C216, Type FBS, Grade SW.
   1. Color and texture to match Architect's sample.
   2. Nominal size: As indicated on drawings.
   3. Special shapes: Molded units as required by conditions indicated, unless standard units can be sawn to produce equivalent effect.

B. Existing Salvaged Facing Brick:
   1. Reuse existing brick salvaged from demolition.
      a. Reuse unbroken units.

2.03 SLATE

A. Hard, non-absorbent, sound blue/black Pennsylvania slate.
   1. Manufactured and distributed by Williams & Sons, Slate and Tile, Inc. http://www.williamsslate.com/product.htm

B. Substitutions: See Section 01 6000 - Product Requirements.

2.04 BLUESTONE

A. Sawn and finished bluestone treads and sills.
   1. Manufactured and distributed by Wicki Stone, Inc.
      P.O.Box 104, 17 Cemetery Road
      Great Meadows, NJ 07838

2.05 **MORTAR AND GROUT MATERIALS**

A. Mortar: As specified in Section 04 0511.

B. Hydrated Lime: ASTM C207, Type S.

C. Grout Aggregate: ASTM C404.

2.06 FLASHINGS

A. Refer to Section 07 6200 - Sheet Metal Flashing and Trim.

2.07 ACCESSORIES

A. Joint Filler: Closed cell rubber; sized for joint width; 1/4 to 3/8 inch wide to suit joint width. Profiled to match coping and allow for sealant and lead "T" weathercap installation.
   1. Manufacturers:
      a. Williams Products, Inc.; Neoprene Type NN1, 1040 Series..
      b. Substitutions: See Section 01 6000 - Product Requirements.

B. Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.
   1. Mortar Diverter: Semi-rigid mesh designed for installation at flashing locations.
      a. Manufacturers:
         1) Advanced Building Products Inc; Mortar Break DT: www.advancedflashing.com.
         2) Mortar Net Solutions: www.mortarnet.com.
         3) Substitutions: See Section 01 6000 - Product Requirements.

C. Weeps:
   1. Type: Integral with flashing..

D. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COLD AND HOT WEATHER REQUIREMENTS

A. Comply with requirements of ACI 530/530.1/ERTA or applicable building code, whichever is more stringent.

3.04 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
   1. Bond: Running.
   2. Coursing: One unit and one mortar joint to equal 8 inches.
   3. Mortar Joints: Concave.

D. Brick Units:
   1. Bond: Flemish bond above Main Building first floor line; 3 course common bond with Flemish headers below first floor line. Brick soldier course header above windows and service doors. Double rowlock course at north side of auditorium/gymnasium. Rowlock and soldier course above base at Annex Building.
   2. Coursing: Three units and three mortar joints to equal 8 inches.
   3. Mortar Joints: Match historic profile.

3.05 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Remove excess mortar and mortar smears as work progresses.

E. Interlock intersections and external corners.

F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

H. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

I. Isolate masonry partitions from vertical structural framing members with a control joint.

J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

3.06 WEEPS/CAVITY VENTS

A. Weeps are integral with and continuous above built-in flashing.

3.07 CAVITY MORTAR CONTROL

A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.

B. For cavity walls, build inner wythe ahead of outer wythe to accommodate accessories.

C. Install cavity mortar diverter at base of cavity and at other flashing locations as recommended by manufacturer to prevent mortar droppings from blocking weep/cavity vents.

3.08 REINFORCEMENT AND ANCHORAGE - GENERAL

A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches on center.

B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

C. Place continuous joint reinforcement in first and second joint below top of walls.

D. Lap joint reinforcement ends minimum 6 inches.

E. Reinforce joint corners and intersections with strap anchors 16 inches on center.

F. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches horizontally and 24 inches vertically.

3.09 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER

A. Masonry Back-Up: Embed anchors to bond veneer at maximum 16 inches on center vertically and 24 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

3.10 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
   1. Extend flashings full width at such interruptions and at least 6 inches into adjacent masonry or turn up at least 8 inches to form watertight pan at non-masonry construction.
   2. Remove or cover protrusions or sharp edges that could puncture flashings.
   3. Seal lapped ends and penetrations of flashing before covering with mortar.

B. Extend metal flashings through exterior face of masonry and turn down to form drip. Install joint sealer below drip edge to prevent moisture migration under flashing.

C. Lap end joints of flashings at least 6 inches and seal watertight with flashing sealant/adhesive.

3.11 LINTELS

A. Install loose steel lintels over openings.

B. Maintain minimum 6 to 8 inch bearing on each side of opening.

3.12 GROUTED COMPONENTS

A. Reinforce bond beams with 2, No. 4 bars, 1 inch from bottom web.

B. Lap splices minimum 24 bar diameters.

C. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

D. Place and consolidate grout fill without displacing reinforcing.

E. At bearing locations, fill masonry cores with grout for a minimum 12 inches either side of opening.

3.13 CONTROL AND EXPANSION JOINTS

A. Do not continue horizontal joint reinforcement through control or expansion joints.

B. Form control joint with a sheet building paper bond breaker fitted to one side of the hollow contour end of the block unit. Fill the resultant core with grout fill. Rake joint at exposed unit faces for placement of backer rod and sealant.

C. Size control joints as indicated on drawings; if not shown, 3/4 inch wide and deep.

3.14 TOLERANCES

A. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

B. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

C. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

3.15 CUTTING AND FITTING

A. Cut and fit for chases, pipes, conduit, and sleeves. Coordinate with other sections of work to provide correct size, shape, and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.16 CLEANING

A. Remove excess mortar and mortar droppings.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.17 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

SECTION 05 1200
STRUCTURAL STEEL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. See Structural Drawings.

B. Grouting under base plates.

1.02 RELATED REQUIREMENTS

A. Section 05 5000 - Metal Fabrications: Steel fabrications affecting structural steel work.

1.03 REFERENCE STANDARDS

A. AISC (MAN) - Steel Construction Manual; American Institute of Steel Construction, Inc.; 2011.

B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.; 2010.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

D. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

E. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2014.

F. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2014.

G. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts; 2007a (Reapproved 2014).

H. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2011 (Reapproved 2015).

I. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2014.

J. ASTM F436 - Standard Specification for Hardened Steel Washers; 2011.

K. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2011 w/Errata.

L. RCSC (HSBOLT) - Specification for Structural Joints Using High-Strength Bolts; Research Council on Structural Connections; 2009.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:

1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.

C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel Angles and Plates: ASTM A36/A36M.

B. Steel W Shapes and Tees: ASTM A992/A992M.

C. Rolled Steel Structural Shapes: ASTM A992/A992M.

D. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A galvanized to ASTM A 153/A 153M, Class C.

E. High-Strength Structural Bolts, Nuts, and Washers: ASTM A325 or ASTM A325M, Type 1, medium carbon, galvanized, with matching compatible ASTM A563 or ASTM A563M nuts and ASTM F436 washers.

F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

G. Grout: Non-shrink, non-metallic aggregate type, complying with ASTM C1107/C1107M and capable of developing a minimum compressive strength of 7,000 psi at 28 days.

H. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

I. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

A. Shop fabricate to greatest extent possible.

B. Continuously seal joined members by continuous welds. Grind exposed welds smooth.

C. Fabricate connections for bolt, nut, and washer connectors.

2.03 FINISH

A. Prepare structural component surfaces in accordance with SSPC SP 2.

B. Shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted.

PART 3 EXECUTION

3.01 ERECTION

A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".

B. Field weld components indicated on shop drawings.

C. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with RCSC "Specification for Structural Joints Using High-Strength Bolts".

D. Do not field cut or alter structural members without approval of Architect.

E. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

F. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

3.02 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

END OF SECTION

SECTION 05 3100
STEEL DECKING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. See Structural Drawings.

B. Roof deck.

C. Composite floor deck.

1.02 RELATED REQUIREMENTS

A. Section 04 2000 - Unit Masonry: Placement of anchors for bearing plates embedded in unit masonry assemblies.

B. Section 05 1200 - Structural Steel: Support framing for openings larger than 18 inches .

C. Section 05 5000 - Metal Fabrications: Steel angle concrete stops at deck edges.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

B. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2011 w/Errata.

C. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel; American Welding Society; 2008.

D. ICC-ES AC43 - Acceptance Criteria for Steel Deck Roof and Floor Systems; ICC Evaluation Service, Inc.; 2010 (R2013).

E. SDI (DM) - Publication No.31, Design Manual for Composite Decks, Form Decks, Roof Decks; Steel Deck Institute; 2007.

F. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittals procedures.

B. Shop Drawings: Indicate deck plan, support locations, projections, openings, reinforcement, pertinent details, and accessories.

C. Product Data: Provide deck profile characteristics, dimensions, structural properties, and finishes.

D. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this Section with minimum five years of experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Cut plastic wrap to encourage ventilation.

B. Separate sheets and store deck on dry wood sleepers; slope for positive drainage.

PART 2 PRODUCTS

2.01 STEEL DECK

A. Roof Deck: Non-composite form deck type, fluted steel sheet:
   1. Galvanized Steel Sheet: ASTM A653/A653M, Structural Steel (SS) Grade 33/230, with G90/Z275 galvanized coating.
   2. Minimum Base Metal Thickness: 20 gage, 0.0359 inch.
   3. Nominal Height: 9/16 inch.
   4. Profile: Fluted UFS by US Deck or equal.
   5. Formed Sheet Width: 35 inch.
   6. Side Joints: Lapped, mechanically fastened.
   7. End Joints: Lapped, mechanically fastened.

B. Composite Floor Deck: Fluted steel sheet embossed to interlock with concrete:
   1. Galvanized Steel Sheet: ASTM A653/A653M, Structural Steel (SS) Grade 33/230, with G90/Z275 galvanized coating.
   2. Span Design: Double.
   3. Minimum Base Metal Thickness: 16 gage, .0598 inch.
   4. Nominal Height: 3 inches.
   5. Profile: Fluted.
   6. Formed Sheet Width: 24 inch.
   7. Side Joints: Lapped, mechanically fastened.
   8. End Joints: Lapped, mechanically fastened.

2.02 ACCESSORY MATERIALS

A. Welding Materials: AWS D1.1/D1.1M.

B. Fasteners: Galvanized hardened steel, self tapping.

C. Mechanical Fasteners: Steel; hex washer head, self-drilling, self-tapping.
   1. Design Requirements for Sidelap Connections: Provide number and type of fasteners that comply with the applicable requirements of SDI design method for roof deck and floor deck applications and ICC-ES AC43.

D. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, complying with VOC limitations of authorities having jurisdiction.

E. Flute Closures: Closed cell foam rubber, 1 inch thick; profiled to fit tight to the deck.

2.03 FABRICATED DECK ACCESSORIES

A. Sheet Metal Deck Accessories: Metal closure strips, wet concrete stops, and cover plates, 20 gage, 0.0359 inch thick sheet steel; of profile and size as indicated; finished same as deck.

PART 3 EXECUTION

3.01 INSTALLATION

A. Erect metal deck in accordance with SDI Design Manual and manufacturer's instructions. Align and level.

B. On concrete and masonry surfaces provide minimum 4 inch bearing.

C. On steel supports provide minimum 1-1/2 inch bearing.

D. Fasten deck to steel support members at ends and intermediate supports at 12 inches on center maximum, parallel with the deck flute and at each transverse flute using methods specified.

E. At mechanically fastened male/female side laps fasten at 18 inches on center maximum.

F. Drive mechanical sidelap connectors completely through adjacent lapped sheets; positively engage adjacent sheets with minimum three-thread penetration.

G. Weld deck in accordance with AWS D1.3/D1.3M.

H. At deck openings from 6 inches to 18 inches in size, provide 2 by 2 by 1/4 inch steel angle reinforcement. Place angles perpendicular to flutes; extend minimum two flutes beyond each side of opening and fusion weld to deck at each flute.

I. At floor edges, install concrete stops upturned to top surface of slab, to contain wet concrete. Provide stops of sufficient strength to remain stationary without distortion.

J. At openings between deck and walls, columns, and openings, provide sheet steel closures and angle flashings to close openings.

K. Close openings above walls and partitions perpendicular to deck flutes with single row of foam cell closures.

L. Immediately after welding deck and other metal components in position, coat welds, burned areas, and damaged surface coating, with touch-up primer.

END OF SECTION

SECTION 05 4000
COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Formed steel stud exterior wall framing.

B. Formed steel joist and purlin framing and bridging.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

C. ASTM C955 - Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases; 2011c.

D. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on standard framing members; describe materials and finish, product criteria, limitations .

C. Manufacturer's Installation Instructions: Indicate special procedures, conditions requiring special attention .

PART 2 PRODUCTS

2.01 FRAMING MATERIALS

A. Studs and Track: ASTM C955; studs formed to channel, "C", or "Sigma" shape with punched web; U-shaped track in matching nominal width and compatible height.
   1. Gage and Depth: As indicated on the drawings.
   2. Galvanized in accordance with ASTM A653/A653M, G90/Z275 coating.

B. Framing Connectors: Factory-made, formed steel sheet.
   1. Material: ASTM A653/A653M SS Grade 33 (minimum), with G60/Z275 hot dipped galvanized coating for base metal thickness less than 10 gage, 0.1345 inch, and factory punched holes and slots.
   2. Fixed Connections: Provide non-movement connections for tie-down to foundation, floor-to-floor tie-down, roof-to-wall tie-down, joist hangers, gusset plates, and stiffeners.

2.02 ACCESSORIES

A. Bracing, Furring, Bridging: Formed sheet steel, thickness determined for conditions encountered; finish to match framing components.

B. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.03 FASTENERS

A. Self-Drilling, Self-Tapping Screws, Bolts, Nuts and Washers: Hot dip galvanized per ASTM A153/A153M.

B. Anchorage Devices: Powder actuated.

PART 3 EXECUTION

3.01 INSTALLATION OF JOISTS AND PURLINS

A. Install framing components in accordance with manufacturer's instructions.

B. Make provisions for erection stresses. Provide temporary alignment and bracing.

C. Place joists at 32 inches on center; not more than 2 inches from abutting walls. Connect joists to supports using fastener method.

D. Locate joist end bearing directly over load bearing studs or provide load distributing member to top of stud track.

E. Touch-up field welds and damaged primed surfaces with primer.

END OF SECTION

SECTION 05 5000
METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel and aluminum items.

B. Prefabricated ladders.

1.02 RELATED REQUIREMENTS

A. Section 04 2000 - Unit Masonry: Placement of metal fabrications in masonry.

B. Section 05 5100 - Metal Stairs.

1.03 REFERENCE STANDARDS

A. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements; 2008.

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.

D. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2014.

E. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.

F. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2014.

G. ASTM B210 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes; 2012.

H. ASTM B210M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes (Metric); 2012.

I. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire; 2012e1.

J. ASTM B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold-Finished Bar, Rod, and Wire (Metric); 2012e1.

K. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2014.

L. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2011 w/Errata.

M. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).

N. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Sections: ASTM A36/A36M.

B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.

C. Plates: ASTM A283.

D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.

E. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

F. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

G. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 MATERIALS - ALUMINUM

A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.

B. Sheet Aluminum: ASTM B209 (ASTM B209M), 5052 alloy, H32 or H22 temper.

C. Aluminum-Alloy Drawn Seamless Tubes: ASTM B210 (ASTM B210M), 6063 alloy, T6 temper.

D. Aluminum-Alloy Bars: ASTM B211 (ASTM B211M), 6061 alloy, T6 temper.

2.03 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

D. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.04 2.04 ROUGH HARDWARE

A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required.

B. Manufacture or fabricate items of sizes, shapes and dimension required.

2.05 FABRICATED ITEMS

A. Ladders: Steel; in compliance with ANSI A14.3; with mounting brackets and attachments; prime paint finish.
   1. Side Rails: 3/8 x 2 inches members spaced at 20 inches.
   2. Rungs: one inch diameter solid round bar spaced 12 inches on center.
   3. Space rungs 7 inches from wall surface.

B. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.

C. Lintels: As detailed; galvanized finish.

D. Key Angle:

1. Where new masonry walls intersect existing and where shown on the drawings, provide 1-1/2" x 1-1/2" x 5/16" continuous steel angle for construction joints. Expansion bolt angle to masonry walls.

E. Angle support for vanity:
1. Provide welded steel angle supports for vanities.
2. Secure to walls by bolting or screwing into blocking in walls.
3. Prepare for attachment of wood blocking and plastic laminate as specified elsewhere and shown on the drawings.

F. Elevator shaft hoist beam: Size per structural drawings.

G. Elevator sill angles:
1. Provide 5" x 5" x 5/16" sill angles at each elevator entrance.
2. Secure to floor structure and fill with grout as directed on the elevator shop drawings

H. Elevator pit ladder: Provide elevator pit ladder where shown on the drawings.
1. Ladder shall extend a min. of 4'-0" above finished floor.
2. Construct ladder of 1/2" x 2-1/2" structural steel flat bars spaced 1'-6" apart with 1" square solid rungs spaced a max. of 1'-0" apart.
   a. Fit rungs on centerline of side rails,
3. Add brackets at top and bottom welded to rails and bolted to building structure.

I. Dunnage for roof top equipment: Provide as shown on the drawings steel pipe supports and framing for roof top mechanical equipment.

2.06 PREFABRICATED LADDERS

A. Prefabricated Ladder: Welded metal unit complying with ANSI A14.3; factory fabricated to greatest degree practical and in the largest components possible.
1. Components: Manufacturer's standard rails, rungs, treads, handrails. returns, platforms and safety devices complying with the requirements of the MATERIALS article of this section.
2. Materials: Aluminum; ASTM B221 (ASTM B221M), 6063 alloy, T52 temper.
3. Finish: Manufacturer's standard clear anodized coating, comply with AAMA 611, Class 1.
4. Manufacturer:
   a. Precision Ladders, LLC, P.O. Box 2279, Morristown, TN 37816; www.PrecisionLadders.com.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Obtain approval prior to site cutting or making adjustments not scheduled.

END OF SECTION

SECTION 05 5100
METAL STAIRS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Stairs with concrete treads.

B. Structural steel stair framing and supports.

C. Handrails and guards.

1.02 RELATED REQUIREMENTS

A. Section 04 2000 - Unit Masonry: Placement of metal fabrications in masonry.

B. Section 05 5000 - Metal Fabrications.

1.03 REFERENCE STANDARDS

A. AISC 201 - AISC Certification Program for Structural Steel Fabricators, Standard for Steel Building Structures; 2006.

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.

D. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.

E. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2014.

F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2015.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.

H. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2011 w/Errata.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.

C. Welders' Certificates.

D. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is certified under AISC 201.

1.05 QUALITY ASSURANCE

A. Welder Qualifications: Show certification of welders employed on the Work, verifying AWS qualification within the previous 12 months.

PART 2 PRODUCTS

2.01 METAL STAIRS - GENERAL

A. Metal Stairs: Provide stairs of the design specified, complete with landing platforms, vertical and horizontal supports, railings, and guards, fabricated accurately for anchorage to each other and to building structure.
   1. Regulatory Requirements: Provide stairs and railings complying with the most stringent requirements of local, state, and federal regulations; where requirements of the contract documents exceed those of regulations, comply with the contract documents.
   2. Dimensions: As indicated on drawings.
   3. Shop assemble components; disassemble into largest practical sections suitable for transport and access to site.
   4. No sharp or rough areas on exposed travel surfaces and surfaces accessible to touch.
   5. Separate dissimilar metals using paint or permanent tape.

B. Metal Jointing and Finish Quality Levels:
   1. Architectural: All joints as inconspicuous as possible, whether welded or mechanical.
      a. Welded Joints: Continuously welded and ground smooth and flush.
      b. Mechanical Joints: Butted tight, flush, and hairline; concealed fastenings only.
      c. Exposed Edges and Corners: Eased to small uniform radius.
      d. Metal Surfaces to be Painted: Sanded or ground smooth, suitable for highest quality gloss finish.
   2. Industrial: All joints made neatly.
      a. Welded Joints: Welded on back side wherever possible.
      b. Welds Exposed to Touch: Ground smooth.
      c. Bolts Exposed to Touch in Travel Area: No nuts or screw threads exposed to touch.

C. Fasteners: Same material or compatible with materials being fastened; type consistent with design and specified quality level.

D. Anchors and Related Components: Same material and finish as item to be anchored, except where specifically indicated otherwise; provide all anchors and fasteners required.

2.02 METAL STAIRS WITH CONCRETE TREADS

A. Jointing and Finish Quality Level: Industrial, as defined above.

B. Risers: Closed.

C. Treads: Metal pan with field-installed concrete fill.
   1. Concrete Depth: 1-1/2 inches, minimum.
   2. Tread Pan Material: Steel sheet.
   3. Tread Pan Thickness: 14 gage, 0.075 inch minimum.
   4. Concrete Reinforcement: None.
   5. Concrete Finish: For resilient floor covering.

D. Risers: Same material and thickness as tread pans.
   1. Nosing Depth: Not more than 1-1/2 inch overhang.
   2. Nosing Return: Flush with top of concrete fill, not more than 1/2 inch wide.

E. Stringers: Rolled steel channels.
   1. Stringer Depth: As indicated on drawings.
   2. End Closure: Sheet steel of same thickness as risers welded across ends.

F. Landings: Similar construction, using corrugated steel decking as indicated, supported and reinforced as indicated.

G. Railings: Steel picket railings.

H. Finish: Shop- or factory-prime painted.

I. Under Side of Stair: Exposed to view, to be finished same as specified for other exposed to view surfaces.

2.03 HANDRAILS AND GUARDS

A. Wall-Mounted Rails: As specified in Section 05 5213.

B. Guards:
   1. Top Rails: Round pipe or tube rails unless otherwise indicated.
      a. Outside Diameter: 1-1/4 inch, minimum, to 1-1/2 inches, maximum.
   2. Infill at Picket Railings: Vertical pickets.
      a. Horizontal Spacing: Maximum 4 inches on center.
      b. Material: Solid steel bar.
      c. Shape: Square.
      d. Size: 1/4 inch square.
      e. Top Mounting: Welded to underside of top rail.
      f. Bottom Mounting: Welded to top surface of stringer.
   3. End and Intermediate Posts: Same material and size as top rails.
      a. Horizontal Spacing: As indicated on drawings.
      b. Mounting: Welded to top surface of stringer.

2.04 MATERIALS

A. Steel Sections: ASTM A36/A36M.

B. Steel Tubing: ASTM A500/A500M or ASTM A501/A501M structural tubing, round and shapes as indicated.

C. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.

D. Ungalvanized Steel Sheet: Hot- or cold-rolled, except use cold-rolled where finished work will be exposed to view.
   1. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Designation CS (commercial steel).
   2. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Designation CS (commercial steel).

PART 3 EXECUTION

3.01 INSTALLATION

A. Install components plumb and level, accurately fitted, free from distortion or defects.

B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Provide welded field joints where specifically indicated on drawings. Perform field welding in accordance with AWS D1.1/D1.1M.

D. Other field joints may be either welded or bolted provided the result complies with the limitations specified for jointing quality levels.

E. Obtain approval prior to site cutting or creating adjustments not scheduled.

F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized, except surfaces to be in contact with concrete.

END OF SECTION

SECTION 05 5213
PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall mounted handrails.

B. Stair railings and guardrails.

1.02 RELATED REQUIREMENTS

A. Section 04 2000 - Unit Masonry: Placement of anchors in masonry.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. Provide an allowance of 10 linear feet of wall mounted handrails, including handrail brackets at 4 feet on center and 2 end-returns
      a. This allowance includes purchase, delivery, and installation of wall mounted handrails.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.
   2. Provide an allowance of 10 linear feet of stair railings and guardrails, including handrail brackets at 4 feet on center, ballusters, intermediate rails and decorative features as shown, at height as shown.
      a. This allowance includes purchase, delivery, and installation of stair railings and guardrails.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices:
   1. Unit price for providing new wall mounted handrail.
      a. Unit of measure: Linear foot of wall mounted handrail.
   2. Unit price for providing new stair railings and guardrails.
      a. Unit of measure: Linear foot of stair railings and guardrails at height shown and specified.

1.04 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2000 (Reapproved 2006).

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

PART 2 PRODUCTS

2.01 RAILINGS - GENERAL REQUIREMENTS

A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of ASTM E985 and applicable local code.

B. Allow for expansion and contraction of members and building movement without damage to connections or members.

C. Dimensions: See drawings for configurations and heights.

D. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.

E. Provide slip-on non-weld mechanical fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.02 STEEL RAILING SYSTEM

A. Welding Fittings: Factory- or shop-welded from matching pipe or tube; seams continuously welded; joints and seams ground smooth.

2.03 FABRICATION

A. Accurately form components to suit specific project conditions and for proper connection to building structure.

B. Fit and shop assemble components in largest practical sizes for delivery to site.

C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.

D. Welded Joints:
   1. Exterior Components: Continuously seal joined pieces by intermittent welds and plastic filler. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
   2. Interior Components: Continuously seal joined pieces by intermittent welds and plastic filler.
   3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.

C. Install railings in compliance with ADA Standards for accessible design at applicable locations.

D. Anchor railings securely to structure.

E. Field weld anchors as indicated on drawings. Touch-up welds with primer. Grind welds smooth.

3.02 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 05 7500
DECORATIVE FORMED METAL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior fabrications made of formed metal sheet, secondary supports, and anchors to structure, including:
   1. Closures, trim, and filler panels.
   2. Lighting coves.
   3. Pockets for window treatment.

1.02 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

B. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.

C. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes; 2015.

D. ASTM A480/A480M - Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip; 2014a.

E. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

F. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.

G. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2014.

H. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2013.

I. ASTM E488/E488M - Standard Test Methods for Strength of Anchors in Concrete Elements; 2015.

J. ASTM F1941 - Standard Specification for Electrodeposited Coatings on Threaded Fasteners; 2010.

K. NAAMM AMP 500-06 - Metal Finishes Manual; 2006.

1.03 SUBMITTALS

A. Shop Drawings: Show layout and elevations, dimensions and thickness of panels, connections, details and location of joints, sealants and gaskets, method of anchorage, number of anchors, supports, reinforcement, trim, flashings, and accessories.
   1. Differentiate between shop and field fabrication.
   2. Indicate substrates and adjacent work with which the fabrications must be coordinated.
   3. Include large-scale details of anchorages and connecting elements.
   4. Include large-scale details or schematic, exploded or isometric diagrams to fully explain flashing at a scale of not less than 1-1/2 inches per 12 inches.

B. Selection Samples: For each finish product specified, color chips representing manufacturer's full range of available colors and patterns.

C. Maintenance Data: Care of finishes and warranty requirements.

1.04 QUALITY ASSURANCE

A. Mock-Up: Provide a mock-up for evaluation of fabrication workmanship.
   1. Locate where directed.
   2. Provide products finished as specified.
   3. Mock-up may remain as part of the Work.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.
   1. Protect finishes by applying heavy duty removable plastic film during production.
   2. Package for protection against transportation damage.
   3. Provide markings to identify components consistently with drawings.
   4. Exercise care in unloading, storing and installing panels to prevent bending, warping, twisting and surface damage.

B. Store products protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
   1. Store in well ventilated space out of direct sunlight.
   2. Protect from moisture and condensation with tarpaulins or other suitable weather tight covering installed to provide ventilation.
   3. Store at a slope to ensure positive drainage of any accumulated water.
   4. Do not store in any enclosed space where ambient temperature can exceed 120 degrees F.
   5. Avoid contact with any other materials that might cause staining, denting, or other surface damage.

PART 2 PRODUCTS

2.01 FORMED METAL FABRICATIONS - GENERAL

A. Shop Assembly: Preassemble items to greatest extent possible. Minimize field splices and field assembly. Disassemble only as necessary for transportation and handling. Mark items clearly for assembly and installation.

B. Coordination: Match dimensions and attachment of formed metal items to adjacent construction. Produce integrated assemblies. Closely fit joints; align edges and flat surfaces unless indicated otherwise.

C. Forming: Profiles indicated. Maximize lengths. Fold exposed edges to form hem indicated or ease edges to radius indicated with concealed stiffener. Provide flat, flush surfaces without cracking or grain separation at bends.

D. Reinforcement: Increase metal thickness; use concealed stiffeners, backing materials or both. Provide stretcher leveled standard of flatness and stiffness required to maintain flatness and hold adjacent items in flush alignment.

E. Anchors: Straps, plates and anchors as required to support and anchor items to adjacent construction.

F. Supports: Miscellaneous framing, mounting, clips, sleeves, fasteners and accessories required for installation.

G. Welding and Brazing: Weld or braze joints continuously. Grind, fill or dress to produce smooth, flush, exposed surfaces. Do not discolor metal. Grind smooth, polish, and restore damaged finishes to required condition.

2.02 FORMED METAL FABRICATIONS - SHEET METAL

A. Closures, Trim and Fill Panels:
   1. Form closures from type and thickness of metal indicated.
   2. Conceal fasteners when possible.
   3. Drill and tap holes for securing to other surfaces.
   4. Provide gaskets where indicated or needed for continuous seal at adjacent surfaces.
   5. Miter or cope at corners and reinforce with bent metal plate. Form tight joints.

B. Lighting Coves: Form lighting coves from type and thickness of metal indicated. Provide cutouts for electrical wiring and fasteners. Coordinate size of coves, cutouts and anchoring system with lighting system shown on drawings.

C. Pockets for Window Treatment:
   1. Form pockets from metal of type and thickness indicated. Coordinate dimensions and attachment method with window treatment, window frames, ceiling system and other adjacent construction.
   2. Reinforce for attaching window treatment and hardware.
   3. Divide continuous pockets with built in partitions. Separate adjoining drapery and blind units, align with window mullions and accommodate filler panel at ends of pocket.

2.03 MATERIALS

A. General: Provide sheet metal without pitting, seam marks, roller marks, stains, discolorations, or other imperfections exposed to view on finished units.

B. Aluminum Sheet: ASTM B209 or B209M, 5005-H32 minimum; alloy and temper recommended by aluminum producer and finisher for use and finish indicated.

C. Anchors, Clips and Accessories: Use one of the following:
   1. Stainless steel complying with ASTM A276/A276M, ASTM A480/A480M, or ASTM A666.
   2. Interior Locations: Carbon steel; zinc coated in accordance with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5.
   3. Structural Anchors: Provide anchors where work is indicated to comply with design loads.
      a. Type: Provide chemical or torque-controlled expansion anchors.
      b. Capacity: When tested according to ASTM E488/E488M; four times the load imposed when installed in concrete.
   4. Nonstructural Anchors: Provide metal expansion sleeve anchors where work is not indicated to comply with design loads. Provide size and number required for load, installation, and as recommended by manufacturer, unless indicated otherwise.

D. Fasteners, General: Same basic metal and alloy as formed metal sheet unless indicated otherwise. Do not use metals incompatible with the materials joined.

E. Bituminous Coating: Cold-applied asphalt mastic, noncorrosive compound free of asbestos, sulfur, and other deleterious impurities; 15 mil dry film thickness per coat.

F. Laminating Adhesive: Recommended by metal fabricator; fully bond metal to metal, prevent telegraphing and oil canning; compatible with substrate; noncombustible after curing. VOC contents calculated according to 40 CFR 59, Subpart D (EPA Method 24) listed below.

G. Isolation Coating: Manufacturer's standard epoxy coating.

2.04 PAINTS AND COATINGS

A. As specified in Section 09 9000.

2.05 FINISHES

A. Finishes, General: Comply with NAAMM 500-06.
   1. Complete mechanical finishes before fabrication. After fabrication, finish joints, bends, abrasions and surface blemishes to match sheet.
   2. Protect mechanical finishes on exposed surfaces from damage.
   3. Apply organic and anodic finishes to formed metal after fabrication unless otherwise indicated.
   4. Appearance: Limit variations in appearance of adjacent to one-half the range represented in approved samples. Noticeable variations in the same piece are not acceptable. Install components within the range of approved samples to minimize contrast.

B. Aluminum Finishes:
   1. Superior Performing Organic Coatings: AAMA 2605 multiple coat, thermally cured polyvinylidene fluoride system.
   2. Color: To be selected by Architect from manufacturer's custom range.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and interfaces with other work.

B. Verify substrate on-site to determine that conditions are acceptable for product installation in accordance with manufacturer's written instructions.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

D. Notify Architect in writing of conditions detrimental to proper and timely completion of work. Do not proceed with erection until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Protect adjacent work areas and finish surfaces from damage during installation.

B. Coat concrete and masonry surfaces that will be in contact with metal surfaces with bituminous coating.

3.03 INSTALLATION - SHEET METAL FABRICATIONS

A. Locate and place decorative formed sheet metal items level and plumb; align with adjacent construction. Cut, drill and fit as required to install.

B. Do not cut or abrade sheet metal finishes that cannot be completely restored in the field. Return such items to manufacturer or fabricator for required alterations and refinishing or provide new items.

C. Use concealed anchorages where possible. Provide washers where needed on bolts or screws to protect metal surfaces and make weathertight connection.

D. Form tight joints with exposed connections accurately fitted together. Provide reveals and openings for sealants and joint fillers indicated.

3.04 CLEANING

A. Restore finishes damaged during installation and construction period. Return items that cannot be refinished in the field to manufacturer or fabricator. Refinish entire unit or provide new units.

B. Remove protective film after installation of joint sealers, after cleaning of adjacent materials, and immediately prior to completion of work.

C. Remove temporary coverings and protection of adjacent work areas.

D. Clean installed products in accordance with manufacturer's instructions.

3.05 PROTECTION

A. Protect installed products from damage during construction.

END OF SECTION

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Non-structural dimension lumber framing.

C. Rough opening framing for doors, windows, and roof openings.

D. Sheathing.

E. Subflooring.

F. Roof-mounted curbs.

G. Roofing nailers.

H. Communications and electrical room mounting boards.

I. Concealed wood blocking, nailers, and supports.

J. Miscellaneous wood nailers, furring, and grounds.

1.02 RELATED REQUIREMENTS

A. Section 07 7200 - Roof Accessories: Prefabricated roof curbs.

1.03 REFERENCE STANDARDS

A. AFPA (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; American Forest and Paper Association; 2012.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

E. AWPA U1 - Use Category System: User Specification for Treated Wood; American Wood Protection Association; 2012.

F. PS 1 - Structural Plywood; 2009.

G. PS 2 - Performance Standard for Wood-Based Structural-Use Panels; National Institute of Standards and Technology, U.S. Department of Commerce; 2010.

H. PS 20 - American Softwood Lumber Standard; National Institute of Standards and Technology, Department of Commerce; 2010.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide technical data on insulated sheathing, wood preservative materials, and application instructions.

C. Structural Composite Lumber: Submit manufacturer's published structural data including span tables, marked to indicate which sizes and grades are being used; if structural composite lumber is being substituted for dimension lumber or timbers, submit grading agency structural tables marked for comparison.

D. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, or installation.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. Species: Southern Pine, unless otherwise indicated.
   2. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
   3. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.
   4. Lumber of other species or grades is acceptable provided structural and appearance characteristics are equivalent to or better than products specified.

B. Lumber fabricated from old growth timber is not permitted.

C. Lumber salvaged from deconstruction or demolition of existing buildings or structures is permitted in lieu of sustainably harvested lumber provided it is clean, denailed, and free of paint and finish materials, and other contamination; identify source.
   1. Where salvaged lumber is used for structural applications, provide lumber re-graded by an inspection service accredited by the American Lumber Standard Committee, Inc; www.alsc.org.

D. Lumber fabricated from recovered timber (abandoned in transit) is permitted in lieu of sustainably harvested lumber, unless otherwise noted, provided it meets the specified requirements for new lumber and is free of contamination; identify source.

2.02 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
   1. Species: Southern Pine.
   2. Grade: Select Structural.

D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 2 or Standard Grade.
   2. Boards: Standard or No. 3.

2.03 STRUCTURAL COMPOSITE LUMBER

A. At Contractor's option, structural composite lumber may be substituted for concealed dimension lumber and timbers.

B. Structural Composite Lumber: Factory fabricated beams, headers, and columns, of sizes and types indicated on drawings; structural capacity as published by manufacturer.
   1. Beams: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber with manufacturer's published E (modulus of elasticity): 2,000,000 psi, minimum.
   2. Headers Not Longer Than 48 inches: Use laminated veneer lumber, laminated strand lumber, or parallel strand lumber.

2.04 CONSTRUCTION PANELS

A. Subflooring: Any PS 2 type, rated Sheathing.
   1. Bond Classification: Exterior.
   2. Span Rating: 48.
   3. Performance Category: 3/4 PERF CAT.

B. Underlayment: APA Underlayment; plywood, Exposure 2, 1/2 inch thick. Fully sanded faces at resilient flooring.

C. Roof Sheathing: Oriented strand board wood structural panel; PS 2.
   1. Grade: Structural 1 Sheathing.
   2. Bond Classification: Exposure 1.
   3. Performance Category: 5/8 PERF CAT.
   4. Span Rating: 40/20.
   5. Edges: Tongue and groove.
   6. Exposure Time: Sheathing will not delaminate or require sanding due to moisture absorption from exposure to weather for up to 500 days.
   7. Warranty: Manufacturer's standard lifetime limited warranty against manufacturing defects and that panels will not delaminate or require sanding due to moisture absorption damage from exposure to weather for up to the stated period.

D. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

E. Other Applications:
   1. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   2. Plywood Exposed to View But Not Exposed to Weather: PS 1, A-D, or better.
   3. Other Locations: PS 1, C-D Plugged or better.

2.05 ACCESSORIES

A. Fasteners and Anchors:
   1. Metal and Finish: Hot-dipped galvanized steel per ASTM A 153/A 153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.

B. Joist Hangers: Hot dipped galvanized steel, sized to suit framing conditions.
   1. For contact with preservative treated wood in exposed locations, provide minimum G185 galvanizing per ASTM A653/A653M.

C. Subfloor Glue: Waterproof, air cure type, cartridge dispensed.

D. Building Paper: Water resistant Kraft paper.

2.06 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
   2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.02 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength .

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Provide bridging at joists in excess of 8 feet span at mid-span. Fit solid blocking at ends of members.

3.03 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

C. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

D. Provide the following specific non-structural framing and blocking:
   1. Cabinets and shelf supports.
   2. Wall brackets.

3. Handrails.
4. Grab bars.
5. Towel and bath accessories.
6. Wall-mounted door stops.
7. Chalkboards and marker boards.
8. Wall paneling and trim.
9. Joints of rigid wall coverings that occur between studs.

3.04 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

B. Provide wood curb at all roof openings except where prefabricated curbs are specified and where specifically indicated otherwise. Form corners by alternating lapping side members.

C. Perimeter wood blocking shall be fastened with approved screw fasteners at 2'-0" on center in staggered rows with an offset of 1'-0".
   1. Provide fasteners at 1'-0" on center in each staggered row for 8'-0" from corners.

3.05 INSTALLATION OF CONSTRUCTION PANELS

A. Subflooring: Glue and nail to framing; staples are not permitted.

B. Underlayment: Secure to subflooring with nails and glue.
   1. At locations where resilient flooring will be installed, fill and sand splits, gaps, and rough areas.
   2. Place building paper between floor underlayment and subflooring.

C. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
   1. At long edges provide solid edge blocking where joints occur between roof framing members.
   2. Nail panels to framing; staples are not permitted.

D. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
   1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
   2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   3. Install adjacent boards without gaps.
   4. Size and Location: As indicated on drawings.

3.06 TOLERANCES

A. Framing Members: 1/4 inch from true position, maximum.

B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.07 CLEANING

A. Waste Disposal: Comply with the requirements of Section 01 7419 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.

3. Do not burn scraps that have been pressure treated.
4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or "waste-to-energy" facilities.

B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 06 2000
FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood casings and moldings.

C. Install doors anf frames.

D. Hardware and attachment accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Support framing, grounds, and concealed blocking.

B. Section 08 1433 - Stile and Rail Wood Doors.

C. Section 08 5200 - Aluminum Clad Wood Windows.

1.03 REFERENCE STANDARDS

A. ANSI A135.4 - American National Standard for Basic Hardboard; 2012.

B. ANSI A208.1 - American National Standard for Particleboard; 2009.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

D. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

E. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; Hardwood Plywood & Veneer Association; 2009.

F. PS 1 - Structural Plywood; 2009.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with plumbing rough-in, electrical rough-in, and installation of associated and adjacent components.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements for submittal procedures.

B. Product Data:

1. Provide data on fire retardant treatment materials and application instructions.

C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.

1. Provide the information required by AWI/AWMAC/WI (AWS).

1.06 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI (AWS) for Premium Grade.

B. Interior Woodwork Items:
   1. Moldings, Bases, Casings, and Miscellaneous Trim: Clear white oak; prepare for stained finish.

2.02 WOOD-BASED COMPONENTS

A. Provide sustainably harvested wood, certified or labeled as specified in Section 01 6000.

B. Wood fabricated from timber recovered from riverbeds or otherwise abandoned is permitted, unless otherwise noted, provided it is clean and free of contamination; identify source; provide lumber re-graded by an inspection service accredited by the American Lumber Standard Committee, Inc.

2.03 LUMBER MATERIALS

A. Softwood Lumber: Southern Yellow Pine species, quarter sawn, maximum moisture content of 6 percent; with vertical grain, of quality suitable for transparent finish.

B. Hardwood Lumber: White Oak species, quarter sawn, maximum moisture content of 6 percent; with flat grain, of quality suitable for transparent finish.

2.04 SALVAGED MATERIAL

A. Remove and salvage existing Chestnut trim for reuse.

B. Coordinate removal and salvage with demolition and new construction scopes.

C. Salvaged trim to be reused in historically significant locations.

2.05 SHEET MATERIALS

A. Softwood Plywood Not Exposed to View: Any face species, veneer core; PS 1 Grade A-B; glue type as recommended for application.

B. Softwood Plywood Exposed to View: Face species as indicated, plain sawn, medium density fiberboard core; PS 1 Grade A-B; glue type as recommended for application.

C. Hardwood Plywood: Face species White Oak, cut as indicated, book matched, medium density fiberboard core; HPVA HP-1, Front Face Grade AA, Back Face Grade 1; glue type as recommended for application.

D. Particleboard: ANSI A208.1; composed of wood chips, sawdust, or flakes of medium density, made with waterproof resin binders; of grade to suit application; sanded faces.

E. Hardboard: ANSI A135.4; Pressed wood fiber with resin binder, Class 1 - Tempered, 1/4 inch thick, smooth one side (S1S).

2.06 FASTENINGS

A. Adhesive for Purposes Other Than Laminate Installation: Suitable for the purpose; not containing formaldehyde or other volatile organic compounds.

2.07 WOOD TREATMENT

A. Fire Retardant Treatment (FR-S Type): Chemically treated and pressure impregnated; capable of providing flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.

B. Provide identification on fire retardant treated material.

C. Redry wood after pressure treatment to maximum 10 percent moisture content.

2.08 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

C. See Section 06 1000 - Rough Carpentry for installation of recessed wood blocking.

3.02 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.

D. Install hardware supplied by Section 08 7100 - Door Hardware in accordance with manufacturer's instructions.

3.03 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

B. Site Finishing: See Section 09 9000 - Painting and Coating.

C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.04 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch.

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION

SECTION 06 4100
ARCHITECTURAL WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Specially fabricated cabinet units.

B. Cabinet hardware.

C. Preparation for site finishing.

1.02 RELATED REQUIREMENTS

A. Section 09 9123 - Interior Painting: Site finishing of cabinet exterior.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.

1. Minimum Scale of Detail Drawings: 1-1/2 inch to 1 foot.
2. Provide the information required by AWI/AWMAC/WI (AWS).

C. Product Data: Provide data for hardware accessories.

D. Samples: Submit actual samples of architectural cabinet construction, minimum 12 inches square, illustrating proposed cabinet, countertop, and shelf unit substrate and finish.

E. Samples: Submit actual sample items of proposed hinges, shelf standards, and push latches, demonstrating hardware design, quality, and finish.

1.06 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.

1.07 MOCK-UP

A. Provide mock-up of typical base cabinet, wall cabinet, and countertop, including hardware and finishes.

B. Locate where directed.

C. Mock-up may remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect units from moisture damage.

1.09 FIELD CONDITIONS

A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 PRODUCTS

2.01 CABINETS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI//AWMAC/WI (AWS) for Premium Grade.

B. Wood Veneer Faced Cabinet:
   1. Exposed Surfaces: HPVA Grade A, White Oak, plain sliced, book-matched.
   2. Semi-Exposed Surfaces: HPVA Grade A, White Oak, plain sliced, pleasing-matched.
   3. Concealed Surfaces: HPVA Grade B, White Oak, plain sliced, random-matched.

C. Cabinets:
   1. Finish - Exposed Exterior Surfaces: Wood.
   2. Finish - Exposed Interior Surfaces: Wood.
   3. Finish - Concealed Surfaces: Wood.
   4. Grained Face Layout for Cabinet and Door Fronts: Style and Rail, all Grades.
      a. Drawer fronts run grain either vertically or horizontally at the manufacturer's option.
      b. Doors: Vertical grain.
   5. Cabinet Design Series: As indicated on drawings.
   6. Adjustable Shelf Loading: 50 lbs. per sq. ft..

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

2.03 ACCESSORIES

A. Adhesive: Type recommended by fabricator to suit application.

B. Fasteners: Size and type to suit application.

C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel or chrome-plated finish in exposed locations.

D. Concealed Joint Fasteners: Threaded steel.

2.04 HARDWARE

A. Catches: Touch type.
   1. Product: Magnetic Latch 20125LP manufactured by Saint Louis Design.

B. Hinges: Butt type, powder coated black.
   1. Products:
      a. Hafele America Co.; Five knuckle hinge, Grade 1.
      b. Substitutions: See Section 01 6000 - Product Requirements.

2.05 SITE FINISHING MATERIALS

A. Stain and Finishing Materials: As required by AWI/AWMAC/WI Architectural Woodwork Standards (AWS).

2.06 FABRICATION

A. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.

B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.

C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.

D. Matching Wood Grain: Comply with requirements of quality standard for specified Grade and as follows:
   1. Provide balance matchedpanels at each elevation.
   2. Provide sequence matching across each elevation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.

B. Use concealed joint fasteners to align and secure adjoining cabinet units.

C. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.

D. Secure cabinets to floor using appropriate angles and anchorages.

E. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.

3.03 ADJUSTING

A. Adjust installed work.

B. Adjust moving or operating parts to function smoothly and correctly.

3.04 CLEANING

A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

SECTION 07 1300
SHEET WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sheet membrane waterproofing at exterior walls and elevator pits.

B. Drainage panels and Protection boards.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete substrate.

B. Section 042000: Masonry substrate.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. Provide an allowance for 100 square feet of sheet membrane waterproofing.
      a. This allowance includes purchase, delivery, and installation of sheet membrane waterproofing, including excavation down to 4 feet below grade, surface preparation, drainage panels and protection boards, and backfilling.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices:
   1. Unit price for providing sheet membrane waterproofing.
      a. Unit of measure: Square foot of sheet membrane waterproofing installed.

1.04 REFERENCE STANDARDS

A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension; 2006a (Reapproved 2013).

B. ASTM D570 - Standard Test Method for Water Absorption of Plastics; 1998 (Reapproved 2010).

C. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting; 2012.

D. ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds; 1998 (Reapproved 2010).

E. ASTM D1876 - Standard Test Method for Peel Resistance of Adhesives (T-Peel Test); 2008,

F. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2013.

G. ASTM D5295/D5295M - Standard Guide for Preparation of Concrete Surfaces for Adhered (Bonded) Membrane Waterproofing Systems; 2014.

H. ASTM D5385/D5385M - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes; 1993 (Reapproved 2014).

I. ASTM D6506 - Standard Specification for Asphalt Based Protection for Below-Grade Waterproofing; 2001 (Reapproved 2009).

J. ASTM E96/E96M - Standard Test Methods For Water Vapor Transmission of Materials; 2014.

K. ASTM E154/E154M - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover; 2008a (Reapproved 2013).

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for membrane, surface conditioner, flexible flashings, joint cover sheet, and joint and crack sealants.

C. Manufacturer's Installation Instructions: Indicate special procedures.

D. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Membrane Manufacturer Qualifications: Company specializing in waterproofing sheet membranes with five years experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years experience.

1.07 FIELD CONDITIONS

A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until liquid or mastic accessories have cured.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Contractor shall correct defective Work within a five year period after Date of Substantial Completion; remove and replace materials concealing waterproofing at no extra cost to Owner.

C. Provide five year manufacturer warranty for waterproofing failing to resist penetration of water , except where such failures are the result of structural failures of building. Hairline cracking of concrete due to temperature change or shrinkage is not considered a structural failure.

PART 2 PRODUCTS

2.01 WATERPROOFING APPLICATIONS

A. Self-Adhered Modified Bituminous Sheet Waterproofing: Use at below-grade side walls of elevator pits.
   1. Cover with protection board.

B. Composite HDPE: Use at blind side applications below elevator pits.
   1. Horizontal Surfaces: Loose-laid.
   2. Cover with protection board.

2.02 MEMBRANE MATERIALS

A. Self-Adhered Modified Bituminous Membrane:
   1. Thickness: 60 mil (0.060 inch).
   2. Tensile Strength:
      a. Film: 5000 pounds per square inch, minimum, measured according to ASTM D882 and at grip-separation rate of 2 inches per minute.
      b. Membrane: 325 pounds per square inch, minimum, measured according to ASTM D412 Method A, using die C and at spindle-separation rate of 2 inches per minute.
   3. Elongation at Break: 300 percent, minimum, measured according to ASTM D412.
   4. Water Vapor Permeance: 0.05 perm, maximum, measured in accordance with ASTM E96/E96M.
   5. Low Temperature Flexibility: Unaffected when tested according to ASTM D1970 at minus 20 degrees F, 180 degree bend on 1 inch mandrel.
   6. Peel Strength: 7 pounds per inch, minimum, when tested according to ASTM D903.

7. Lap Adhesion Strength: 5 pounds per inch, minimum, when tested according to ASTM D1876.
8. Puncture Resistance: 50 pounds, minimum, measured in accordance with ASTM E154/E154M.
9. Water Absorption: 0.1 percent increase in weight, maximum, measured in accordance with ASTM D570, 24 hour immersion.
10. Hydrostatic Resistance: Resists the weight of 200 feet when tested according to ASTM D5385/D5385M.
11. Adhesives, Sealants, Tapes, and Accessories: As recommended by membrane manufacturer.
12. Manufacturers:
    a. Grace Construction Products: www.na.graceconstruction.com.

B. Self-Adhered HDPE Sheet Membrane with Weather-Resistant Coating: Recommended by manufacturer for placement below concrete slabs and on outside face of below grade walls before placement of concrete.
1. Sheet Thickness: 46 mil (0.046 inch), minimum.
2. Low Temperature Flexibility: Unaffected when tested according to ASTM D1970 at minus 20 degrees F, 180 degree bend on 1 inch mandrel.
3. Hydrostatic Resistance: Resists the weight of 231 feet when tested according to ASTM D5385/D5385M.
4. Elongation at Break: 300 percent, minimum, measured according to ASTM D412.
5. Tensile Strength, Film: 3,500 pounds per square inch, minimum, measured according to ASTM D412.
6. Lap Peel Adhesion: 8 pounds per inch, minimum, when tested according to ASTM D1876.
7. Water Vapor Permeance: 0.01 perm, maximum, measured in accordance with ASTM E96/E96M.
8. Bond to Concrete: 5 pounds per inch, minimum, per ASTM D903.
9. Lateral Water Migration Resistance: Resists the weight of 231 feet when tested according to ASTM D5385/D5385M.
10. Adhesives, Sealants, Tapes, and Accessories: As recommended by membrane manufacturer.
11. Manufacturers:
    a. Grace Construction Products; Preprufe 160R Plus: www.na.graceconstruction.com.
    b. Substitutions: See Section 01 6000 - Product Requirements.

2.03 ACCESSORIES

A. Protection Board: Type capable of preventing damage to waterproofing due to backfilling and construction traffic.
1. Use one of the following:
    a. Multi-layer internally-reinforced asphaltic panels, 1/4 inch thick, nominal, complying with ASTM D6506.

B. Flexible Flashings: Type recommended by membrane manufacturer.

C. Waterstop: hydrophilic non-bentonite waterstop
1. Grace Construction Products: AdcorTM ES, or equivalent product by other approved manufacturers.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify substrate surfaces are durable; free of matter detrimental to adhesion or application of waterproofing system.

C. Verify that items that penetrate surfaces to receive waterproofing are securely installed.

3.02 PREPARATION

A. Protect adjacent surfaces not designated to receive waterproofing.

B. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions.

C. Do not apply waterproofing to surfaces unacceptable to membrane manufacturer.

D. Seal cracks and joints with sealant using depth to width ratio as recommended by sealant manufacturer.

E. Surfaces for Adhesive Bonding: Apply surface conditioner at a rate recommended by manufacturer. Protect conditioner from rain or frost until dry.

F. Concrete Surfaces for Adhesive Bonding: Prepare concrete substrate according to ASTM D5295/D5295M.

1. Remove substances that inhibit adhesion including form release agents, curing compounds admixtures, laitance, moisture, dust, dirt, grease and oil.
2. Repair surface defects including honeycombs, fins, tie holes, bug holes, sharp offsets, rutted cracks, ragged corners, deviations in surface plane, spalling and delaminations, as described in the reference standard.
3. Remove and replace areas of defective concrete as specified in Section 03 3000.
4. Prepare concrete for adhesive bonded waterproofing using mechanical or chemical methods described in the referenced standard.
5. Test concrete surfaces as described in the referenced standards. Verify surfaces are ready to receive adhesive bonded waterproofing membrane system.

3.03 INSTALLATION - MEMBRANE

A. Install membrane waterproofing in accordance with manufacturer's instructions.

B. Roll out membrane. Minimize wrinkles and bubbles.

C. Self-Adhering Membrane: Remove release paper layer. Roll out on substrate with a mechanical roller to encourage full contact bond.

D. Overlap edges and ends and seal by method recommended by manufacturer, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.

E. Reinforce membrane with multiple thickness of membrane material over joints, whether joints are static or dynamic.

F. Weather lap joints on sloped substrate in direction of drainage. Seal joints and seams.

G. Install flexible flashings. Seal items penetrating through membrane with flexible flashings. Seal watertight to membrane.

H. Seal membrane and flashings to adjoining surfaces. Install termination bar at all edges. Install counterflashing over all exposed edges.

I. Tape all seams in HDPE membrane at elevator pit.

J. Provide preformed corners.

3.04 INSTALLATION - PROTECTION BOARD

A. Place protection board directly against membrane; butt joints. Scribe and cut boards around projections, penetrations, and interruptions.

B. Adhere protection board to substrate with compatible adhesive.

3.05 PROTECTION

A. Do not permit traffic over unprotected or uncovered membrane.

END OF SECTION

SECTION 07 1800
COLD FLUID-APPLIED WATERPROOFING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Application of fluid-applied waterproofing to masonry surfaces as indicated.

1.02 RELATED WORK

A. Section 04 0126 - Masonry Restoration

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. Provide an allowance for 10 square feet of fluid-applied waterproofing.
      a. This allowance includes purchase, delivery, and installation of the complete fluid-applied waterproofing system, including surface preparation, base and saturation coat, flashing fabric, field fabric, and finish coat in the specified color.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices:
   1. Unit price for providing fluid-applied waterproofing.
      a. Unit of measure: Square foot of fluid-applied waterproofing installed.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's product literature for fluid-applied waterproofing. Manufacturer's product literature shall include standard warranty, instructions for application and use.

B. Manufacturer's color samples for selection by the Architect.
   1. Samples shall include the full range of available colors.
   2. Custom color samples required to match historic material.

1.05 QUALITY ASSURANCE

A. Preinstallation Conference: Conduct conference with the Owner, Contractor, Architect and manufacturer's representative at the project site prior to beginning product application. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and flashings, installation procedures, testing and inspection procedures, and protection and repairs.

1.06 PROJECT CONDITIONS

A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate, when relative humidity exceeds 85 percent, or when temperatures are less than 5 deg F above dew point.

B. Coordinate application of waterproofing with other trades affected by the work of this Section including, but not necessarily limited to, masonry cleaning, masonry restoration and roofing.

C. Access to work areas is from the exterior only. Under no circumstances are materials or equipment to be transported through the building.

D. Coordinate work schedule with the Owner's representative to ensure timely notification of building occupants prior to beginning work.

1.07 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer's standard form in which waterproofing manufacturer and Installer agree to repair or replace waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.

B. Warranty Period: Ten (10) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 FLUID-APPLIED WATERPROOFING

A. The following specification is based on materials manufactured by Sealoflex Inc., Charleston, SC. Equivalent products of the following manufacturers may also be acceptable:
   1. Sika Corporation
   2. AcryMax
   3. Architect-approved equivalent

B. Waterproofing Material: Sealoflex three-stage, fabric reinforced, flexible, acrylic coating; liquid applied in successive stages to form one continuous, seamless watertight membrane; 45 mil minimum cured total system thickness; comprised of the following:
   1. Base and Saturation Coat: Sealoflex Pink, Flexible water based acrylic emulsion coating
   2. Flashing Fabric: 4”, 6”, 12”, 20” Sealoflex Fabric Polyester, non-woven, stitch bonded and heat set fabric
   3. Field Fabric: 40” Sealoflex Fabric Polyester, non-woven, stitch bonded and heat set fabric
   4. Finish Coat: Sealoflex Finish Coat Ultraviolet light resistant blend of highly flexible water based acrylic co-polymer resin coating.
   5. Assume a custom color will be required in lieu of manufacturer’s standard palette.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

A. Complete restoration of masonry components and surfaces to receive waterproofing prior to membrane application.

B. Clean and prepare substrate according to manufacturer's written recommendations. Provide clean, smooth, dust-free, and dry substrate for waterproofing application.

C. Mask off adjoining surfaces not receiving waterproofing to prevent spillage affecting other construction.

D. Remove fins, ridges, and other projections and fill honeycomb, aggregate pockets, and other voids.

3.02 APPLICATION

A. Apply first coat of waterproofing, embed membrane-reinforcing fabric, and apply second coat of waterproofing to completely saturate reinforcing fabric and to obtain a seamless reinforced membrane free of entrapped gases, with an average dry film total thickness of 80 mils.
   1. Neatly miter or otherwise cut fabric at corners and penetrations to prevent bunching or excessive membrane thickness. Fabric should lie flat with no wrinkles. Stop fabric reinforcing approximately 1 inch short of membrane termination.

B. Turn up and extend membrane coating a minimum distance of 3 inches onto perpendicular surfaces adjoining substrate according to ASTM C 898 and manufacturer’s instructions.

C. Turn down and extend membrane coating down the front edge of projecting cornice to shed water away from profiled surface below.

3.03 CURING, PROTECTION, AND CLEANING

A. Cure waterproofing according to manufacturer's written recommendations, taking care to prevent contamination and damage during application stages and curing.

B. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

SECTION 07 2100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation at perimeter foundation wall.

B. Batt insulation for filling perimeter window and door shim spaces, crevices in exterior wall and roof, and acoustical partitions.

1.02 RELATED REQUIREMENTS

A. Section 07 5300 - Elastomeric Membrane Roofing: Insulation specified as part of roofing system.

B. Section 09 2116 - Gypsum Board Assemblies: Acoustic insulation inside walls and partitions.

1.03 REFERENCE STANDARDS

A. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2014.

B. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 APPLICATIONS

A. Insulation at Perimeter of Foundation: Extruded polystyrene board.

2.02 FOAM BOARD INSULATION MATERIALS

A. Insulation Type 1: Extruded Polystyrene Board Insulation: ASTM C578, Type X; Extruded polystyrene board with natural skin surfaces; with the following characteristics:
   1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
   2. Perimeter foundation wall insulation.
   3. Board Size: 24 x 96 inch.
   4. Board Thickness: 2 inches.
   5. Board Edges: Square.
   6. Thermal Conductivity (k factor) at 25 degrees F: 0.18.
   7. Compressive Resistance: 25 psi.
   8. Manufacturers:
      a. Dow Chemical Co: www.dow.com.
      b. Owens Corning Corp: www.owenscorning.com.

2.03 SPRAY POLYURETHANE FOAM

A. Insulation Type 2: See Section 07 2119: Foamed-in-Place Insulation.

2.04 BATT INSULATION MATERIALS

A. Insulation Type 3: Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
   1. Insulation at cold formed metal framing, eaves and soffits.
   2. Thermal Resistance: R of 21.
   3. Thickness: As shown.
   4. Facing: Type 3 - Unfaced.
   5. Manufacturers:
      a. CertainTeed Corporation: www.certainteed.com.
      b. Johns Manville Corporation: www.jm.com.
      c. Owens Corning Corp: www.owenscorning.com.

B. Insulation Type 4: Foil-Faced Glass Fiber Batt Insulation (Not Used)

C. Insulation Type 5: Flexible mineral fiber preformed batt or blanket, complying with ASTM C665; friction fit; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
   1. Acoustical Insulation.
   2. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.
   3. Thickness: As shown.
   4. Manufacturers:
      a. Thermafiber, Inc: www.thermafiber.com.
      b. ROXUL, Inc; ComfortBatt: www.rspec.com.
      c. ROXUL, Inc; Roxul AFB: www.rspec.com.
      d. Substitutions: See Section 01 6000 - Product Requirements.

D. Insulation Type 6: Flexible mineral fiber preformed batt or blanket, complying with ASTM C665; friction fit; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
   1. Fire safing insulation.
   2. Where indicated, provide foil facing on one side; with flame spread index of 25 or less, when tested in accordance with ASTM E84.
   3. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.
   4. Thickness: as shown or 4 inch.

E. Insulation Type 7: See Section 07 53 00: Elastomeric Membrane Roofing: Roof Insulation..

2.05 ACCESSORIES

A. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation and adhesive.

B. Verify substrate surfaces are flat, free of honeycomb, fins, or irregularities.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

A. Install boards horizontally on foundation perimeter.
   1. Install in running bond pattern.

2. Butt edges and ends tightly to adjacent boards and to protrusions.

B. Extend boards over expansion joints, unbonded to foundation on one side of joint.

C. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.03 BATT INSTALLATION

A. Install insulation and vapor retarder in accordance with manufacturer's instructions.

B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. Install with factory applied vapor retarder membrane facing warm side of building spaces. Lap ends and side flanges of membrane over framing members.

F. Tape insulation batts in place.

G. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.

H. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over member face.

I. Tape seal tears or cuts in vapor retarder.

J. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane. Tape seal in place.

3.04 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 2119
FOAMED-IN-PLACE INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Foamed-in-place insulation.
   1. At junctions of dissimilar wall and roof materials.

B. Protective intumescent coating.

1.02 REFERENCE STANDARDS

A. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2010.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2015a.

C. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2004 (Reapproved 2012).

D. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials; 2013.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide product description, insulation properties, overcoat properties, and preparation requirements.

C. Certificates: Certify that products of this section meet or exceed specified requirements.

D. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with not less than three years of documented experience.

B. Applicator Qualifications: Company specializing in performing work of the type specified, with minimum three years documented experience.

1.06 FIELD CONDITIONS

A. Do not install insulation when ambient temperature is lower than 70 degrees F.

B. Do not apply foam when temperature is below that specified by the manufacturer for ambient air and substrate.

C. Do not apply foam when temperature is within 5 degrees F of dew point.

PART 2 PRODUCTS

2.01 MATERIALS

A. Foamed-In-Place Insulation: Low-density, flexible, open celled, water vapor permeable polyurethane foam; foamed on-site, using blowing agent of water or non-ozone-depleting gas.
   1. Aged Thermal Resistance: R-value of 3 (deg F hr sq ft)/Btu, minimum, when tested at 1 inch thickness in accordance with ASTM C518 after aging for 180 days at 41 degrees F.

2. Air Permeance: 0.004 cfm/sq ft, maximum, when tested at intended thickness in accordance with ASTM E2178 or ASTM E283 at 1.5 psf.
3. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/450, maximum, when tested in accordance with ASTM E84.
4. Products:
   a. CertainTeed Corporation: CertaSpray with CertaCoat IC Intumescent Coating.

2.02 ACCESSORIES

A. Primer: As required by insulation manufacturer.

B. Overcoat: Intumescent coating of type recommended by insulation manufacturer and as required to comply with applicable codes.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify work within construction spaces or crevices is complete prior to insulation application.

B. Verify that surfaces are clean, dry, and free of matter that may inhibit insulation or overcoat adhesion.

3.02 PREPARATION

A. Mask and protect adjacent surfaces from over spray or dusting.

B. Apply primer in accordance with manufacturer's instructions.

3.03 APPLICATION

A. Apply insulation in accordance with manufacturer's instructions.

B. Apply insulation by spray method, to a uniform monolithic density without voids.

C. Apply overcoat monolithically, without voids to fully cover foam insulation, to achieve fire rating required.

D. Patch damaged areas.

E. Where applied to voids and gaps assure space for expansion to avoid pressure on adjacent materials that may bind operable parts.

3.04 FIELD QUALITY CONTROL

A. Field inspections and tests will be performed by an independent testing agency under provisions of Section 01 4000 - Quality Requirements.

B. Inspection will include verification of insulation and overcoat thickness and density.

3.05 PROTECTION

A. Do not permit subsequent construction work to disturb applied insulation.

END OF SECTION

SECTION 07 2616
UNDER-SLAB VAPOR BARRIER/RETARDER

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Vapor Barrier, seam tape, mastic, pipe boots, detail strip for installation under concrete slabs.

1.02 RELATED SECTIONS

A. Section 03300 Cast-in-place Structural Concrete

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. Provide an allowance for 200 square feet of under-slab vapor barrier/retarder.
      a. This allowance includes purchase, delivery, and installation of the complete vapor barrier/retarder system, including seam tape, mastic, 2 pipe boots, and detail strips.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices:
   1. Unit price for providing under-slab vapor barrier/retarder.
      a. Unit of measure: Square foot of under-slab vapor barrier/retarder installed.

1.04 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. ASTM E 1745-97(2004) Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs
   2. ASTM E 154-99(2005) Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs
   3. ASTM E 96-05 Standard Test Methods for Water Vapor Transmission of Materials
   4. ASTM E 1643-98(2005) Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs

1.05 SUBMITTALS

A. Quality Control / Assurance
   1. Independent laboratory test results showing compliance with ASTM & ACI Standards.
   2. Manufacturer's samples, literature
   3. Manufacturer's installation instructions for placement, seaming and pipe boot installation

PART 2 - PRODUCTS

2.01 MATERIALS

A. Vapor Barrier
   1. Vapor Barrier must have the following qualities
      a. Perm rating less than or equal to 0.01 perms (grains/(ft2 *hr * in. Hg)) after conditioning as tested by:
         1) ASTM E 96
         2) ASTM E 1745 Class A (Plastics), paragraph 7.1.2-5.

B. Vapor Barrier Products
   1. Stego Wrap (15 mil) Vapor Barrier by STEGO INDUSTRIES LLC, San Clemente, CA (877) 464-7834 www.stegoindustries.com
   2. Griffolyn 15 mil Green Vapor Barrier by Reef Industries, Inc.
   3. VaporBlock 15 by Raven Industries, Inc.

C. ACCESSORIES
   1. Seam Tape
      a. Tape must have the following qualities:
         1) Water Vapor Transmission Rate ASTM E 96: 0.3 perms or lower
   2. Vapor Proofing Mastic
      a. Mastic must have the following qualities:
         1) Water Vapor Transmission Rate ASTM E 96: 0.3 perms or lower
   3. Pipe Boots
      a. Provide manufacturer's supplied pipe boot system or construct pipe boots from vapor barrier material, pressure sensitive tape and/or mastic per manufacturer's instructions.

PART 3 - EXECUTION

3.01 PREPARATION

A. Ensure that subsoil is approved by architect or geotechnical firm
   1. Level and tamp or roll aggregate, sand or tamped earth base.

3.02 INSTALLATION

A. Install Vapor Barrier/Retarder:
   1. Installation shall be in accordance with manufacturer's instructions and ASTM E 1643.
      a. Unroll Vapor Barrier/Retarder with the longest dimension parallel with the direction of the pour.
      b. Lap Vapor Barrier/Retarder over footings and seal to foundation walls.
      c. Overlap joints 6 inches and seal with manufacturer's tape.
      d. Seal all penetrations (including pipes) per manufacturer's instructions.
      e. No penetration of the Vapor Barrier/Retarder is allowed except for reinforcing steel and permanent utilities.
      f. Repair damaged areas by cutting patches of Vapor Barrier/Retarder, overlapping damaged area 6 inches and taping all four sides with tape.

END OF SECTION

SECTION 07 5300
ELASTOMERIC MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Elastomeric roofing membrane, adhered conventional application.

B. Insulation, flat and tapered.

C. Deck sheathing.

D. Cover sheathing.

E. Flashings.

1.02 ALTERNATES

A. Refer to Section 01 2300 - Alternates, for description of work under this Section affected by alternates.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. Provide an allowance for 200 square feet of elastomeric roofing membrane.
      a. Elastomeric roofing membrane adhered conventional application installed over 2 layers of insulation, one flat and one tapered, with accessory materials for perimeter tie-in to field membrane.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices:
   1. Unit price for providing elastomeric roofing membrane.
      a. Unit of measure: Square foot of elastomeric roofing membrane installed.
   2. Unit price for providing Insulation Replacement: By the square foot. Includes removal of moisture-damaged insulation boards and replacement with new material..
   3. Unit price for providing Wood Deck Replacement: By the square foot. Includes removal of deterioated roof deck and replacement with new material matching existing.

1.04 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood nailers and curbs.

B. Section 22 1006 - Plumbing Piping Specialties: Roof drains.

1.05 REFERENCE STANDARDS

A. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.

B. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2013.

C. FM DS 1-28 - Wind Design; Factory Mutual Research Corporation; 2007.

D. NRCA ML104 - The NRCA Roofing and Waterproofing Manual; National Roofing Contractors Association; Fifth Edition, with interim updates.

1.06 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers; review preparation and installation procedures and coordination and scheduling necessary for related work.

1.07 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, and fasteners.

C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, and as a minimum, the following:
   1. Outline of roof and size
   2. Deck type (for multiple deck types).
   3. Location and type of all penetrations.
   4. Perimeter and penetration details.
   5. Key plan (on multiple roof areas) with roof heights indicated.
   6. Sheet width and number of perimeter sheets for Reinforced Mechanically Fastened systems
   7. Fastener type, length and maximum spacing (for membrane securement) for Reinforced Mechanically Fastened systems.

D. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and supplementary instructions given.

G. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

H. Pullout Test Results: Test report confirming the results meet or exceed the requirements of the manufacturer's withdrawal resistance criteria.

1.08 QUALITY ASSURANCE

A. Perform work in accordance with NRCA Roofing and Waterproofing Manual and manufacturer's instructions.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

C. Applicator Qualifications: Company specializing in performing the work of this section with minimum 5 years experience and approved by manufacturer.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.

B. Store products in weather protected environment, clear of ground and moisture.

C. Protect foam insulation from direct exposure to sunlight.

1.10 FIELD CONDITIONS

A. Do not apply roofing membrane during unsuitable weather.

B. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.

C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.

1.11 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a two year period after Date of Substantial Completion.

C. Provide twenty year manufacturer's material and labor warranty to cover failure to prevent penetration of water.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. EPDM Membrane Materials:
   1. Carlisle Roofing Systems, Inc; Sure-Seal EPDM: www.carlisle-syntec.com.
   2. Firestone Building Products, LLC: www.firestonebpco.com.
   3. Substitutions: See Section 01 6000 - Product Requirements.

B. Insulation:
   1. Carlisle SynTec.
   2. Firestone Building Products Co.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 ROOFING

A. Elastomeric Membrane Roofing: One ply membrane, fully adhered, over insulation.

B. Acceptable Insulation Types - Constant Thickness Application: Any of the types specified.
   1. Minimum 2 layers of polyisocyanurate board.
      a. Bottom Layer: 1-1/2 inch thick board with R-value = 8.6
      b. Top Layer: 2 inch thick board with R-value = 11.4

2.03 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

A. Membrane: Ethylene-propylene-diene-terpolymer (EPDM); externally reinforced with fabric; complying with minimum properties of ASTM D4637.
   1. Thickness: 0.090 inch.
   2. Sheet Width: 76 inch, minimum; factory-fabricate into largest sheets possible.
   3. Color: Black.

B. Seaming Materials: Factory installed seam tape on one edge, as manufactured by membrane manufacturer .

C. Flexible Flashing Material: Same material as membrane; conforming to the following:
   1. Tensile Strength: 1,200 psi.
   2. Elasticity: 50 percent with full recovery without set.
   3. Color: Black.

2.04 COVER BOARDS

A. Gypsum-Based Cover Board: Non-combustible, water resistant gypsum core with embedded glass mat facers, complying with ASTM C1177/C1177M, and with the following additional characteristics:
   1. Size: 48 inches by 96 inches, nominal.
   2. Thickness: As indicated elsewhere.
   3. Surface Water Absorption: 2.5 g, maximum, when tested in accordance with ASTM C473.
   4. Surface Burning Characteristics: Flame spread of 0, smoke developed of 0, when tested in accordance with ASTM E84.

5. Combustibility: Non-combustible, when tested in accordance with ASTM E136.
6. UL Classified for use with UL "P" series roofing assemblies.
7. Factory Mutual approved for use with FM 1-90 rated roofing assemblies.
8. Mold Growth Resistance: Zero growth, when tested in accordance with ASTM D3273 for minimum of 4 weeks.
9. Pre-primed for better adhesion.
10. Acceptable Products:
    a. Georgia-Pacific DensDeck Prime Roof Guard.
    b. Securock Gypsum-Fiber Roof Board

2.05 INSULATION

A. Polyisocyanurate Board Insulation: Rigid cellular foam, complying with ASTM C1289, Type II, Class 1, cellulose felt or glass fiber mat both faces; Grade 1 and with the following characteristics:
   1. Compressive Strength: 16 psi
   2. Board Size: 48 by 96 inch.
   3. Flat Board minimum thickness: 1-1/2 inch for bottom layer, 2 inch for top layer, for a total thickness of 3-1/2 inches.
   4. Tapered Board: Slope 1/4 inch per foot as indicated; minimum thickness 1/4 inch at leading edge; fabricate of fewest layers possible.
   5. Thermal Resistance: R-value of 5.7.
   6. Board Edges: Square.
   7. Product: HP-H Polyiso Insulation.
   8. Manufacturers:
      a. Carlisle SynTec.

2.06 ACCESSORIES

A. Stack Boots: Prefabricated flexible boot and collar for pipe stacks through membrane; same material as membrane.

B. Pre-Cut Tapered Insulation:
   1. Manufacturers:
      a. Atlas Roofing Corporation; Gemini Pre-Cut Crickets, Gemini One-Piece Drain Set, Gemini One-Piece Miter, and Gemini Tapered Edge Strip: www.atlasroofing.com.

C. Insulation Joint Tape: Glass fiber reinforced type as recommended by insulation manufacturer, compatible with roofing materials; 6 inches wide; self adhering.

D. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
   1. Length as required for thickness of insulation material and penetration of deck substrate, with metal or polymer fastening plate, as approved by manufacturer.

E. Membrane Adhesive: As recommended by membrane manufacturer.

F. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.

G. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.

H. Sealants: As recommended by membrane manufacturer.

I. Walkway Pads: Suitable for maintenance traffic, visually distinctive from roof membrane.
   1. Composition: Roofing membrane manufacturer's standard.
   2. Size: 18 by 18 inch.
   3. Surface Color: Black.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and site conditions are ready to receive work.

B. Verify surface is supported and secure.

C. Verify surface is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.

D. Verify surface is dry and free of snow or ice.

E. Verify that roof openings, curbs, and penetrations through roof are solidly set, and cant strips are in place.

3.02 WOOD DECK PREPARATION

A. Verify flatness and tightness of joints of wood decking. Fill knot holes with latex filler.

B. Confirm dry deck by moisture meter with 12 percent moisture maximum.

3.03 INSULATION - UNDER MEMBRANE

A. Attachment of Insulation:
   1. Mechanically fasten first layer of insulation to deck in accordance with roofing manufacturer's instructions and Factory Mutual requirements.

B. Lay subsequent layers of insulation with joints staggered minimum 6 inch from joints of preceding layer.

C. Place tapered insulation to the required slope pattern in accordance with manufacturer's instructions.

D. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.

E. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

F. Tape joints of insulation in accordance with roofing and insulation manufacturers' instructions.

G. At roof drains, use factory-tapered boards to slope down to roof drains over a distance of 18 inches.

H. Do not apply more insulation than can be covered with membrane in same day.

3.04 MEMBRANE APPLICATION

A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Fully Adhered Application: Apply adhesive to substrate at rate recommended by the manufacturer. Fully embed membrane in adhesive except in areas directly over or within 3 inches (75 mm) of expansion joints. Fully adhere one roll before proceeding to adjacent rolls.

D. Overlap edges and ends and seal seams by contact adhesive or factory applied seam tape, minimum 3 inches. Seal permanently waterproof. Apply uniform bead of sealant to joint edge.

E. At intersections with vertical surfaces:
   1. Extend membrane over cant strips and up a minimum of 8 inches onto vertical surfaces.
   2. Fully adhere flexible flashing over membrane and up to termination bar.
   3. Fully adhere flexible flashing over membrane and up to nailing strips.
   4. Secure flashing undertermination bar at 12 inches on center, or as recommended by manufacturer.

F. Around roof penetrations, seal flanges and flashings with flexible flashing.

G. Coordinate installation of roof drains and related flashings.

3.05 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field quality control and inspection.

B. Require site attendance of roofing and insulation material manufacturers daily during installation of the Work.

3.06 CLEANING

A. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

B. Repair or replace defaced or damaged finishes caused by work of this section.

3.07 PROTECTION

A. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION

SECTION 07 6200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, downspouts, and other items indicated in Schedule.

B. Combination flashing, mortar deflection, and weep as complete one step system.

C. Sealants for joints within sheet metal fabrications.

D. Reglets and accessories.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood nailers for sheet metal work.

B. Section 075300 - Elastomeric Membrane Roofing.

C. Section 07 7123 - Manufactured Gutters and Downspouts.

D. Section 07 9005 - Joint Sealers.

E. Div 23: Flashing sleeves and collars for mechanical items protruding through roofing membrane.

1.03 REFERENCE STANDARDS

A. ASTM B32 - Standard Specification for Solder Metal; 2008 (Reapproved 2014).

B. ASTM D4479/D4479M - Standard Specification for Asphalt Roof Coatings - Asbestos-Free; 2007 (Reapproved 2012)e1.

C. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012)e1.

D. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2012.

E. Industry standards:
   1. BIA Technical Notes on Brick Construction No. 7, Water Penetration Resistance- Design and Detailing, August 2005.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product data: Indicate material type, composition, thickness, and installation procedures.

C. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

D. Samples: Submit two samples 6 x 6 inch in size illustrating metal finish color.

E. Product Quality & Environmental submittals:
   1. Certificates:
      a. Indicate materials supplied or installed are asbestos free.
      b. Indicate recycled content: a minimum of 60% total recycled material; based on 60% Post Industrial Recycled Content.
   2. Critical Performance Attributes:
      a. Tensile Strength, stainless steel 100,000 psi average
      b. Puncture Resistant, stainless steel 2,500 psi average

c. When tested as manufactured, product resists growth of mold pursuant to test method ASTM D 3273.
d. Fire Rating: flame spread and smoke generation
1) Rated Class A, ASTM E84
e. Certify the use of domestic manufactured stainless steel for flashing.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

B. Maintain one copy of each document on site.

C. Qualifications:
1. Manufacturer: Provide flashing materials by single manufacturer with not less than twenty five years of experience in manufacturing flexible flashing products.

1.06 PRE-INSTALLATION MEETING

A. Convene one week prior to starting the work of this Section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

1.08 WARRANTY

A. Special warranty:
1. Manufacturer: Warrant flexible flashing/drainage system material for life of the wall.
2. Begin warranty at Date of Substantial Completion.

PART 2 PRODUCTS

2.01 FLASHING TYPES

A. Flashing Type 1: 2 piece interlocking type: NOT USED

B. Flashing Type 2: Masonry thru-wall type: NOT USED

C. Flashing Type 3: Membrane roofing base flashing material as specified in Section 075300 Elastomeric Membrane Roofing.

D. Flashing Type 4: Formed metal flashing (other than Type 1): Exposed metal flashing.
1. Terne coated stainless steel; 0.015 inch (0.38 mm) thick; stainless steel complying with ASTM A666, Type 304; coated both sides with terne alloy at 0.092 lb/sq ft (450 g/sq m).

E. Flashing Type 4A: Stainless steel core flexible flashing with drainage fabric:
1. Product standard of quality: York Manufacturing, Inc.; York Flash-Vent SS,
2. Accepted products:
a. York Manufacturing, Inc.; York Flash-Vent SS, (www.yorkmfg.com)
b. STS Coatings, Inc.; Wall Guardian TWF Stainless Steel (www.stscoatings.com)
c. Building Materials West Company, Inc.; Evacu-Flash SS (www.evacu-flash.com)
d. Other flashings that meet the requirements in section 1.04.C
3. Characteristics:
a. Type: Engineered system, with high resistant to damage, composite with a stainless steel with non-asphalt adhesive polymer fabric laminated to one stainless steel and non-woven drainage fabric laminated to opposing face with non-asphalt adhesive.
b. Stainless steel: ASTM A240

c. Fabrics:
   1) Polymer fabric; laminated back face to stainless steel core
   2) Non-woven drainage fabric: Fabric laminated to front face stainless steel core.
d. Recycled content: stainless steel is 60% recycled
   1) Size: Manufacturer's standard width rolls.

2.02 ACCESSORIES

A. Fasteners: Same material and finish as flashing metal .

B. Slip Sheet: Rosin sized building paper.

C. Protective Backing Paint: Asphaltic mastic, ASTM D 4479 Type I.

D. Mastic/sealant: Product standard of quality is York Manufacturing, Inc.; UniverSeal US100.
   1. Characteristics:
      a. Type: One part 100% solids, solvent-free formulated silyl-terminated polyether (STPE), ASTM C920-11, Type S, Grade NS, Class 50.

E. Outside corner and inside corner material; manufacturer’s standard available units using:
   1. Stainless steel: 26 gauge stainless steel.

F. End dam: Product may be folded in line with the flashing material or utilize preformed end dams by manufacturer using:
   1. Stainless steel: 26 gauge stainless steel

G. Splice material: Product standard of quality is York 304 by York Manufacturering, standard self-adhered metal material; material matching system material or use York Manufacturing’s Multi-Flash Stainless Steel lap piece and polyether sealant as a splice.

H. Termination bar: Product standard of quality is York T-96 termination bar.
   1. Manufacturer's standard 1 inch composite material bar.

I. Repair and other materials/accessories: Manufacturer’s standard.

J. Fasteners: Domestic manufactured fastener types and sizes recommended by flashing manufacturer for intended use.

K. Plastic Cement: ASTM D4586, Type I.

L. Solder: ASTM B32; Sn50 (50/50) type.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Fabricate cleats of same material as sheet, interlocking with sheet.

C. Form pieces in longest possible lengths.

D. Hem exposed edges on underside 1/2 inch; miter and seam corners.

E. Form material with flat lock seams, except where otherwise indicated. At moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

F. Tin edges of metal sheet to be soldered. Solder shop formed metal joints. After soldering, remove flux. Wipe and wash solder joints clean. Weather seal joints.

G. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

H. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION

A. Conform to drawing details and to the following:
   1. SMACNA Architectural Sheet Metal Manual,

B. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.

C. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D. Fasten cavity wall flashings to stud back-up with a non-corrosive termination bar and seal the top edge of the flashing with sealant.

E. Solder metal joints for full metal surface contact. After soldering, wash metal clean with neutralizing solution and rinse with water.

F. Concealed Flashing Type 4A:
   1. Install where indicated, specified, or required in accord with flashing manufacturer's written instructions and as follows.
      a. Prohibited practice: Tucking the flashing into the backer wall.
      b. Prohibited practice: Bonding or splicing to non-woven drainage fabric.
   2. Extend flashing 6" minimum, beyond opening, each side without stretching flashing material.
   3. Flashing width: Width required starting 1.5 inches to the exterior of the outside face of exterior wythe, extending through cavity, rising height required to extend above lintel steel at least 2 inches.
      a. After inspection by the Architect, cut flush with the leading edge of the brick.
   4. Splice end joints by butting ends together over 4” wide piece of self-adhering stainless steel flashing.
      a. The self-adhering stainless steel flashing should be sealed metal face down on to the substrate with sealant.
      b. Remove the release linear and butt the two pieces of flashing together and embed them into the splice sealant.
      c. Seal the butt seam with sealant.
   5. Masonry back up:
      a. Surface mount flashing after damp proofing installation specified in Damp Proofing Section in accord with manufacturer’s installation instructions.
      b. Apply flashing with drainage surface to outside.

c. Fasten to masonry back-up surface at top by embedding in layer of sealant and use a termination bar to fasten to the backer wall and seal the top of the termination bar with sealant.

6. Confirm compatibility with manufacturer's mutual letters for components in contact.
7. Lay flashing in continuous bead of sealant on masonry or supporting steel.
8. Fold ends of flashing to form end dam; seal with sealant or utilize preformed end dams from manufacturer.
9. Inside and outside corners: Use preformed corners from manufacturer.
10. Do not cover drainage fabric with air barrier.
11. Protect flashing from damage from trades, the environment and falling debris.

3.04 SCHEDULE

A. Sheet metal Flashing Schedule
1. Type 1: NOT USED
2. Type 2: NOT USED
3. Type 3: Membrane Roof Flashings - Refer to Section 07530 Modified Bituminous Membrane Roofing.
4. Type 4: Terne coated stainless steel formed metal flashing:
   a. Exposed locations where indicated.
5. Type 4A: Stainless steel core flexible flashing with drainage fabric:
   a. Concealed locations and as follows:
      1) Exterior door heads.
      2) Window heads and sills.
      3) Horizontal control joints.
      4) Changes in veneer materials, vertically.
      5) Other wall openings.
      6) Other locations indicated.

END OF SECTION

SECTION 07 7200
ROOF ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured curbs, equipment rails, and pedestals.

1.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store products under cover and elevated above grade.

PART 2 PRODUCTS

2.01 MANUFACTURED CURBS

A. Manufactured Curbs, Equipment Rails, and Other Roof Mounting Assemblies:
Factory-assembled hollow sheet metal construction with fully mitered and welded corners, integral counterflashing, internal reinforcing, and top side and edges formed to shed water.

1. Manufacture curb bottom and mounting flanges for installation directly on roof deck, not on insulation; match slope and configuration of roof deck.
2. Provide the layouts and configurations shown on the drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions, in manner that maintains roofing weather integrity.

3.02 CLEANING

A. Clean installed work to like-new condition.

3.03 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 9200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 08 7110 - Door Hardware: Setting exterior door thresholds in sealant.

B. Section 08 8000 - Glazing: Glazing sealants and accessories.

C. Section 09 2116 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

D. Section 09 3000 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
1. Provide an allowance for 200 linear feet of exterior joint sealant.
   a. This allowance includes purchase, delivery, and installation of Sealant Type 1 installed in a 3/8 inch masonry joint, and includes joint preparation, backer rod, and clean-up.
   b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.
2. Provide an allowance for 50 linear feet of interior joint sealant.
   a. This allowance includes purchase, delivery, and installation of Sealant Type 5 installed in an acoustically rated fire-rated partition, and includes joint preparation, backer rod, and clean-up.
   b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.
3. Provide an allowance for 50 linear feet of exterior joint sealant.
   a. This allowance includes purchase, delivery, and installation of Sealant Type 6 installed in tile or plumbing fixture joints, and includes joint preparation, and clean-up.
   b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices:
1. Unit price for providing exterior joint sealant, Type 1.
   a. Unit of measure: Linear foot of exterior joint sealant installed.
2. Unit price for providing UL listed acoustical joint sealant, Type 5.
   a. Unit of measure: Linear foot of joint sealant installed.
3. Unit price for providing wet location joint sealant, Type 6.
   a. Unit of measure: Linear foot of joint sealant installed.

1.04 REFERENCE STANDARDS

A. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2015.

B. ASTM C834 - Standard Specification for Latex Sealants; 2010.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.

D. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2000 (Reapproved 2011).

E. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

F. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2008 (Reapproved 2012).

G. ASTM C1311 - Standard Specification for Solvent Release Sealants; 2010.

H. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints; 2013.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   4. Substrates the product should not be used on.

C. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

D. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.

E. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

F. Preinstallation Field Adhesion Test Plan: Submit at least two weeks prior to start of installation.

G. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

C. Field Testing Agency Qualifications: Experienced in performing the inspections/testing specified, with qualified technicians on staff.

D. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
   1. Adhesion Testing: In accordance with ASTM C794.
   2. Compatibility Testing: In accordance with ASTM C1087.
   3. Allow sufficient time for testing to avoid delaying the work.
   4. Deliver to manufacturer sufficient samples for testing.

5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
6. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.

E. Preinstallation Field Adhesion Test Plan: Include destructive field adhesion testing of one sample of each combination of sealant type and substrate, except interior acrylic latex sealants, and include the following for each tested sample.
1. Identification of testing agency.
2. Preinstallation Field Adhesion Test Log Form: Include the following data fields, with known information filled out.
a. Test date.
b. Copy of test method documents.
c. Age of sealant upon date of testing.
d. Test results, modeled after the sample form in the test method document.
e. Indicate use of photographic record of test.

F. Field Adhesion Test Procedures:
1. Allow sealants to fully cure as recommended by manufacturer before testing.
2. Have a copy of the test method document available during tests.
3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
4. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
5. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
6. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.

G. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.
1. Sample: At least 18 inch long.
2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch by that percentage; if adhesion failure occurs before the "1 inch mark" is that distance from the substrate, the test has failed.
3. If either adhesive or cohesive failure occurs prior to minimum elongation, take necessary measures to correct conditions and re-test; record each modification to products or installation procedures.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

A. Scope:

1. Exterior Joints: Seal open joints, whether or not the joint is indicated on the drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
    a. Wall expansion and control joints.
    b. Joints between door, window, and other frames and adjacent construction.
    c. Joints between different exposed materials.
    d. Openings below ledge angles in masonry.
    e. Other joints indicated on drawings.
2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
    a. Joints between door, window, and other frames and adjacent construction.
    b. Joints between hollow metal door frames and resilient flooring.
    c. Joints between dissimilar exposed materials, unless otherwise indicated.
    d. Other joints indicated on drawings.
3. Do not seal the following types of joints.
    a. Intentional weepholes in masonry.
    b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.

B. Exterior Joints: Use nonsag non-staining silicone sealant, Type 1, unless otherwise indicated.
    1. Lap Joints in Sheet Metal Fabrications: Butyl rubber, non-curing; Type 1C.

C. Interior Joints: Use nonsag Acrylic emulsion latex sealant, Type 2, unless otherwise indicated.
    1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant; Type 2.
    2. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; ; Type 6.
    3. In Sound-Rated Assemblies: Acrylic emulsion latex sealant; Type 5.

D. Definitions:
    1. Interior Wet Areas: Bathrooms, restrooms, kitchens, food service areas, and food processing areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, and other similar items.
    2. Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".

2.02 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products with levels of volatile organic compound (VOC) content as indicated in Section 01 6116.

B. Sealant Types Summary:
    1. Type 1: Non-Staining Silicone.
    2. Type 2: Acrylic Emulsion Latex
    3. Type 3: Non-Curing Butyl Sealant
    4. Type 4: Semi-Rigid Self-Leveling Polyurea Joint Filler
    5. Type 5: Acrylic Emulsion Latex
    6. Type 6: Mildew-Resistant Silicone Sealant

2.03 NONSAG JOINT SEALANTS

A. Type 1 - Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
    1. Movement Capability: Plus and minus 50 percent, minimum.

2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
4. Color: To be selected by Architect from manufacturer's full range.
5. Cure Type: Single-component, neutral moisture curing.
6. Products:
    a. Dow Corning Corporation; 795 Silicone Building Sealant: www.dowcorning.com/construction.
    b. Pecora Corporation; 890FTS Field Tintable Ultra Low Modulus Architectural Silicone Sealant - Class 100: www.pecora.com.
    c. Pecora Corporation; 890FTS-TXTR Field Tintable Textured Ultra Low Modulus Architectural Silicone Sealant - Class 50: www.pecora.com.
    d. Momentive Performance Materials, Inc (formerly GE Silicones); SilPruf NB SCS9000: www.siliconeforbuilding.com.
    e. Substitutions: See Section 01 6000 - Product Requirements.

B. Type 6 - Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: White or Clear.
2. Products:
    a. Pecora Corporation; 898NST Sanitary Silicone Sealant - Class 50: www.pecora.com.
    b. Sika Corporation; Sikasil GP: www.usa-sika.com.
    c. Substitutions: See Section 01 6000 - Product Requirements.

C. Type 2 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: Standard colors matching finished surfaces, Type OP (opaque).
2. Grade: ASTM C834; Grade - Minus 18 Degrees C.
3. Products:
    a. Hilti, Inc.; CP 506 Smoke and Acoustical Sealant: www.us.hilti.com.
    b. Pecora Corporation; AC-20 + Silicone Acrylic Latex Caulking Compound: www.pecora.com.
    c. Sherwin-Williams Company; White Lightning 3006 Siliconized Acrylic Latex Caulk: www.sherwin-williams.com.
    d. Tremco Global Sealants; Tremfles 834 Siliconized Acrylic Latex Selant: www.tremcosealants.com..
    e. Substitutions: See Section 01 6000 - Product Requirements.

D. Type 5 - Acoustical Sealant; Acrylic Emulsion Latex: Water-based; ASTM C 834, Type OP, Grade NF single component, paintable, UL Listed.
1. Composition: Acrylic latex emulsion sealant.
2. Products:
    a. Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant: www.pecora.com.
    b. Hilti, Inc.; CP 506 Smoke and Acoustical Sealant: www.us.hilti.com.
    c. USG Company; Sheetrock Brand Acoustical Sealant; www.usg.com.
    d. Substitutions: See Section 01 6000 - Product Requirements.

E. Type 3 - Non-Curing Butyl Sealant: Solvent-based; ASTM C919; single component, nonsag, non-skinning, non-hardening, non-bleeding; vapor-impermeable; intended for fully concealed applications.
   1. Products:
      a. Pecora Corporation; BA-98: www.pecora.com.
      b. Substitutions: See Section 01 6000 - Product Requirements.

2.04 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

D. Preinstallation Adhesion Testing: Install a sample for each test location shown in the test plan.
   1. Test each sample as specified in PART 1 under QUALITY ASSURANCE article.
   2. Notify Architect of date and time that tests will be performed, at least 7 days in advance.
   3. Record each test on Preinstallation Adhesion Test Log as indicated.
   4. If any sample fails, review products and installation procedures, consult manufacturer, or take whatever other measures are necessary to ensure adhesion; re-test in a different location; if unable to obtain satisfactory adhesion, report to Architect.
   5. After completion of tests, remove remaining sample material and prepare joint for new sealant installation.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work.

E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in inconspicuous area to verify that it does not stain or discolor slab.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Acoustical sealant installation: See Section 09 2116.

D. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
   1. Width/depth ratio of 2:1.
      a. Minumim joint depth: 1/4 inch; Maximum joint depth: 1/2 inch, unless otherwise required by manufacturer.
   2. Neck dimension no greater than 1/3 of the joint width.
   3. Surface bond area on each side not less than 75 percent of joint width.

E. Install backer rod using blunt or rounded tool to a uniform (+/- 1/8 inch) depth without puncturing the material.

F. Install bond breaker backing tape where backer rod cannot be used.

G. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

H. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

I. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 FIELD QUALITY CONTROL

A. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

B. Destructive Adhesion Testing: If there are any failures in first 1000 linear feet, notify Architect immediately.

C. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

D. Repair destructive test location damage immediately after evaluation and recording of results.

END OF SECTION

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

B. Hollow metal frames for wood doors.

C. Fire-rated hollow metal frames.

D. Thermally insulated hollow metal doors with frames.

E. Hollow metal borrowed lites glazing frames.

1.02 RELATED REQUIREMENTS

A. Section 08 7110 - Door Hardware.

B. Section 08 8000 - Glazing: Glass for doors and borrowed lites.

C. Section 09 9113 - Exterior Painting: Field painting.

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.

C. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2011.

D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.

E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.

F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2015.

H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.

I. ICC A117.1 - Accessible and Usable Buildings and Facilities; International Code Council; 2009 (ANSI).

J. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.

K. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; 2007.

L. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2013.

M. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2012.

N. UL (BMD) - Building Materials Directory; current edition.

O. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

D. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Copies of Documents at Project Site: Maintain at the project site a copy of each referenced document that prescribes installation requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
   1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com.
   2. De La Fontaine Inc: www.delafontaine.com.
   3. Phillips Manufacturing Company.
   4. Pioneer Industries.
   5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DESIGN CRITERIA

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel used for fabrication of doors and frames shall comply with one or more of the following requirements; Galvannealed steel conforming to ASTM A653/A653M, cold-rolled steel conforming to ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel conforming to ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.
   3. Door Top and Bottom Closures: Min. 16 gage flush with top of faces and edges.
   4. Finish: Factory primed, for field finishing.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

A. Exterior Doors: Thermally insulated.

1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
   a. Level 3 - Extra Heavy-duty.
   b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
   c. Model 2 - Seamless.
   d. Door Face Metal Thickness: 16 gage, 0.053 inch, minimum.
2. Core Material: Manufacturers standard core material/construction and in compliance with requirements.
3. Door Thickness: 1-3/4 inch, nominal.
4. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A60/ZF180 coating.

B. Interior, Fire-Rated Doors:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
   a. Level 3 - Extra Heavy-duty.
   b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
   c. Model 2 - Seamless.
   d. Door Face Metal Thickness: 16 gage, 0.053 inch, minimum.
2. Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
   a. Temperature-Rise Rating (TRR) Across Door Thickness: In accordance with local building code and authorities having jurisdiction (AHJ).
   b. Provide units listed and labeled by UL (Underwriters Laboratories) - UL (BMD) or WH (Warnock Hersey) - ITS (DIR).
   c. Attach fire rating label to each fire rated unit.
3. Door Thickness: 1-3/4 inch, nominal.
4. Door Face Sheets: Flush.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. General:
1. Comply with the requirements of grade specified for corresponding door.
   a. ANSI/SDI A250.8 (SDI-100), Level 3, Interior Door Frames: 16 gage, 0.053 inch, minimum thickness.
   b. ANSI/SDI A250.8 (SDI-100), Level 4, Exterior Door Frames: 14 gage, 0.067 inch, minimum thickness.
   c. Frames for Wood Doors: Comply with frame requirements in accordance with ANSI/SDI A250.8 (SDI-100), Level 2, 16 gage, 0.053 inch, minimum thickness.
2. Provide 22 gage min. mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
3. Frames in Masonry Walls: Size to suit masonry coursing with head member to fill opening without cutting masonry units.
4. Frames Wider than 48 Inches: Reinforce with steel channel fitted tightly into frame head, flush with top.
5. Provide kerfed stops for inserted weatherstripping.
6. Hardware Reinforcement:

a. Frames: mortised, reinforced, drilled and tapped at the factory for fully templated mortised hardware only, in accord with approved hardware schedule and templates. When applying surface-mounted hardware frames shall have reinforcing plates only. Drilling and tapping will be preformed under Section 06 2000.
b. Minimum thickness reinforcement plates:
1) Hinge and pivot reinforcement: 7 gage, 1-1/4 inch x 10 inch min. size.
2) Strike reinforcement: 12 gage.
3) Flush bolt reinforcement: 12 gage.
4) Closer reinforcement: 12 gage.
5) Surface mounted hardware: 12 gage.

C. Exterior Door Frames: Knock-down type.
1. Weatherstripping: Integral, recessed into door edge or frame.

D. Interior Door Frames, Fire-Rated: Knock-down type.
1. Fire Rating: Same as door, labeled.

E. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.

F. Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings.

G. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

2.05 ACCESSORIES

A. Glazing: As specified in Section 08 8000, factory installed.

B. Removable Stops: 20 gage hollow metal stops, 5/8 inch deep with butted corners prepared for countersunk, flat head cadimum or zinc plated screws.

C. Floor Anchors: Min. 14 gage, welded in place.

D. Jamb Anchors:
1. Masonry Wall Installation: Adjustable 16 gage T-strap anchors.
a. Provide 3 anchors per jamb for frames up to 7 foot 6 inches in height.
b. Provide 4 anchors per jamb for frames from 7 foot 6 inches to 8 feet in height.
c. Provide 1 anchor per jamb for every 2 feet in height or fraction thereof for frames over 8 feet.
2. Stud Wall Installation: 18 gage welded anchors.
a. Provide 4 anchors per jamb for frames up to 7 foot 6 inches in height.
b. Provide 5 anchors per jamb for frames from 7 foot 6 inches to 8 feet in height.
c. Provide 5 anchors plus 1 additional anchor per jamb for every 2 feet in height or fraction thereof for frames over 8 feet.
d. Provide Frames over 5 feet wide with welded anchors 8 inches from each corner and 24 inches on center across the head.
3. After-set Frames:
a. Provide 4 anchors per jamb, punched and dimpled, for frames up to 7 foot in height.
b. Provide pipe spacers, 3/8 inch steel bars and 12 gage plates at 24 inches on center, each jamb, with expansion bolts.
c. Fill and grind flush for finish.

E. Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.

F. Kerf Gaskets: Cellular modified foam core clad in an embossed, non-vinyl, UV stabilized, paint-resistant liner.

2.06 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Coordinate installation of hardware.

F. Coordinate installation of glazing.

G. Coordinate installation of electrical connections to electrical hardware items.

3.04 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified door and frame standards or custom guidelines indicated.

B. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

END OF SECTION

SECTION 08 1423
CLAD COMMERCIAL DOOR

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum Clad Wood Commercial Door, complete with, glazing, weather strip, simulated divided lite, and specified anchors, trim and attachments.

1.02 RELATED SECTIONS

A. Section 07 9200 - Joint Sealants: Sill sealant and perimeter caulking

B. Section 08 7100 - Door Hardware: Hardware other than furnished by door and frame manufacturer

C. Section 09 9000 - Paints and Coatings: Paint or stain other than factory applied finish

1.03 REFERENCES

A. WDMA I.S.4: Industry Standard for Water Repellent Preservative Treatment Millwork

B. Sealed Insulating Glass Manufactures Association / Insulating Glass Certification Council
   1. (SIGMA/IGCC)

C. American Architectural Manufacturers Association (AAMA): 2605: Voluntary Specification for
   1. High Performance Organic Coatings on Architectural Extrusions and Panels.

D. American Society for Testing and Materials (ASTM): E330: Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

1.04 SYSTEM DESCRIPTION

A. Design and Performance Requirement. Design Pressure is applicable to individual units and may vary with unit size.
   1. Units shall be designed to comply with ASTM E330 for structural performance SHED DP +25/-25 psf (with removable mullion and rim device)

1.05 SUBMITTALS

A. Shop Drawings: Submit shop drawings.

B. Product Data: Submit catalog data.

C. Samples:
   1. Submit corner section.
   2. Include glazing system, quality of construction and specified finish.

D. Quality Control Submittals: Certificates: submit manufacture's certification indicating compliance with specified performance and design requirement.

1.06 QUALITY ASSURANCE

A. Requirements: consult local code for IBC (International Building Code) adoption year and pertinent revisions.

1.07 DELIVERY

A. Deliver in original and protect from weather.

1.08 STORAGE AND HANDLING

A. Prime and seal wood surfaces, including to be concealed by wall construction, if more than thirty (30) days will expire between delivery and installation.

B. Store door panels flat on a level surface in a clean and dry storage area above ground to protect from weather.

C. Condition doors to local average humidity before hanging.

1.09 WARRANTY

A. Clear insulating glass with stainless steel spacers is warranted against seal failure caused by manufacturing defects and resulting in visible obstruction through the glass for twenty (20) years from the original date of purchase. Glass is warranted against stress cracks caused by manufacturing defects from (10) years from the original date of purchase.

B. Standard exterior aluminum cladding finish is warranted against manufacturing defects resulting in chalk, fade and loss of adhesion (peel) per the American Manufacture's Association's (AAMA) Specification 2605-11 Section 8.4 and 8.9 for twenty (20) years from the original date of purchase.

C. Factory applied interior finish is warranted to be free from the Finish Defects for a period of five (5) years from the original date of purchase.

D. Hardware and other non-glass components are warranted to be free from manufacturing defects for ten (10) years from the original date of purchase.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

A. Basis of Design: Aluminum Clad Commercial Door, as manufactured by Marvin Windows and Doors, Ripley, Tennessee.

2.02 FRAME DESCRIPTION

A. Finger-Jointed, edge-glued White Oak core with non finger-jointed White Oak veneer;
   1. Kiln dried to moisture content no greater than twelve (12) percent at the time of fabrication
   2. Water repellent, preservative treated in accordance with WDMA I.S.4. Frame width: 4 9/16" (116mm)

B. Frame thickness: 1 1/16" (27mm)

C. Exterior extruded aluminum clad 0.050" (1.3mm) thick

D. Standard factory installed thermal barrier saddle low profile .500" (13mm) by 7.125" (181mm) sill.

2.03 PANEL DESCRIPTION

A. 2 ¼" Doors: Stiles and top rail contain laminated veneer lumber (LVL) core with non finger-jointed White Oak veneer. Solid wood bottom and intermediate rails.

B. Composite panel thickness: 2 ¼" (57mm)

C. Exterior extruded aluminum clad 0.055" (1.4mm) thick

D. Top rail width: 8 1/8" (206mm)

E. Stile width: 6" (152mm)

F. Bottom rail height: 11 3/8" (289mm)

G. Panel corners glued and fastened with 5/8" x 4" (16mm x 102mm) fluted hardwood dowels.

H. Removable interior vinyl glazing stops with non finger-jointed wood covers. 2 ¼" panel: visible nail fastener on glazing stop.

2.04 CUSTOM DOOR FRAME AND SURROUND

A. Replica existing historic door frame and surround to be fabricated.

B. Existing door frame and surround to be removed intact, shipped to fabrication plant.
   1. Sizes and details to be copied from original and reproduced in aluminum clad wood frame materials.
   2. Exterior details not capable of being produced with cladding to be reproduced in milled aluminum.

C. Frame to be detailed to receive new door scheduled.

D. Deliver to the site in one piece, prepared to be installed in original opening.

2.05 GLAZING

A. Select quality complying with ASTM C1036. Comply with 16 CFR 1201 Safety Standard for Architectural Glazing Materials.Insulating glass IGMA/IGCC certified to performance level CBA when tested in accordance with ASTM E774.

B. Glazing: Double glazed, clear, Low-E coated, argon filled, with glass thicknesses as recommended by manufacturer for specified wind conditions.
   1. Cardinal Glass: Lo-E 366.
   2. Spacer bar: Black stainless steel with bent corners, desicant filled.

C. Glazing Seal: Silicone bedding, exterior

2.06 FINISH

A. Exterior: Aluminum clad. Fluoropolymer modified acrylic topcoat applied over primer. Meets
   1. AAMA 2605 requirements.
   2. Custom Colors

B. Interior Finish Options:
   1. Factory applied water borne stain. Stain applied over a wood (stain) conditioner. A water-borne acrylic enamel clear coat applied in two separate coats, with light sanding between coats, applied over the stain.
   2. Color: Wheat, Honey, Hazelnut, Leather, Cabernet, or Espresso.

2.07 HARDWARE

A. Refer to Section 08 7110 - Door Hardware and Section 08 7111 - Hardware Sets.

2.08 WEATHER STRIP

A. Head jamb and hinge jamb: bulb type weather strip.
   1. Color: Beige or optional black

B. Locking jamb: Gray pile weather strip

C. Surface mounted aluminum panel drip mounted at bottom of panel (shipped loose for field application)
   1. Custom colors: Matches panel finish with stainless steel screws

2.09 JAMB EXTENSION

A. Factory installed, for wall thickness indicated or required.

B. Finish: Match interior frame wood species and finish.

2.10 RAISED PANELS

A. Stamped Raised Panel
   1. 6” (152mm) intermediate rail constructed of 0.080” aluminum to the exterior with foam backing. Available in all aluminum clad colors. Aluminum clad colors meeting AAMA 2605 requirements.
   2. Core is medium density fiberboard (MDF) with non finger-jointed wood laminate to the interior.

B. Placement option
   1. High Placement: 40 5/16” (1024mm) on center (OC) of 6” (152mm) intermediate rail from bottom sill for a 25 1/8” (638mm) visible panel height.

2.11 SIMULATED DIVIDED LITES (SDL)

A. 7/8” (22mm) with internal spacer bar.
   1. Exterior muntins: Extruded aluminum 0.055” (1.4mm) thick. Color matched panel aluminum cladding color.
   2. Interior muntins: Wood and finish interior of door
   3. Pattern: Rectangular. Custom lite layout
   4. Standard interior sticking: Ogee

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Condition: Before installation, verify openings are plumb, square and of proper dimensions as required. Report frame defects or unsuitable conditions to the General contractor before proceeding.

B. Acceptance of Condition: Beginning on installation confirms acceptance of existing conditions.

3.02 INSTALLATION

A. Install door unit(s) according to manufacturer’s instruction and reviewed shop drawing.

B. Install sealant and related backing materials at perimeter of unit or assembly in accordance with Section 07 9200 Joint Sealants. Do not use expansive foam sealant.

C. Use finish nails to apply wood trim and mouldings.

3.03 CLEANING

A. Remove visible labels and adhesive residue according to manufacturer’s instruction.

B. Leave windows and glass in a clean condition. Final cleaning as required in Section 01 74 00.

3.04 PROTECTING INSTALLED CONSTRUCTION

A. Protect doors from damage by chemicals, solvents, paint or other construction operations that may cause damage.

END OF SECTION

SECTION 08 1433
STILE AND RAIL WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood doors and frames, stile and rail design; fire rated and non-fire rated.

B. Panels of wood and glass.

1.02 RELATED REQUIREMENTS

A. Section 06 2000 - Finish Carpentry: Wood door installation.

B. Section 08 1113 - Hollow Metal Doors and Frames.

C. Section 08 7110 - Door Hardware.

D. Section 08 8000 - Glazing.

1.03 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.

B. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.

C. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2014.

D. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

E. ITS (DIR) - Directory of Listed Products; current edition.

F. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2013.

G. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association; 2012.

H. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

I. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

J. WDMA I.S. 6A - Interior Architectural Wood Stile and Rail Doors; Window & Door Manufacturers Association; 2013. (ANSI/WDMA I.S. 6A)

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Indicate stile and rail core materials and construction; veneer species, type and characteristics.

C. Specimen warranty.

D. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for glazing.

E. Samples: Submit two samples of door construction, 12 x 12 inch in size cut from top corner of door.

F. Samples: Submit two samples of door veneer, 12 x 12 inch in size illustrating wood grain, stain color, and sheen.

G. Manufacturer's Installation Instructions: Indicate special installation instructions.

H. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years of documented experience.
   1. Company with at least one project in the past 5 years with value of woodwork within 20 percent of cost of woodwork for this Project.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver, and store doors in accordance with quality standard specified.

B. Protect doors with resilient packaging . Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

1.07 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Interior Doors: Provide manufacturer's warranty for the life of the installation.

C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Stile and Rail Wood Doors:
   1. Eggers Industries: www.eggersindustries.com.
   2. Harring Doors.
   3. Maiman Company: www.maiman.com.
   4. Marshfield DoorSystems, Inc: www.marshfielddoors.com.
   5. Woodtech Architectural Stile and Rail Doors: www.woodtechdoor.com

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

2.03 DOORS

A. Quality Level: Custom Grade, Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS).

B. Interior Doors: 1-3/4 inches thick ; veneer and lumber stile and rail construction; mortise and tenon joints. Opaque finish where indicated on drawings.

C. Wood veneer facing with factory opaque finish where indicated on drawings.

2.04 DOOR AND PANEL FACINGS

A. Veneer Facing for Transparent Finish: White Oak, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
   1. Pairs: Pair match each pair; set match pairs within 10 feet of each other when doors are closed.

B. Adhesive: Type I - Waterproof.

2.05 FRAMES

A. Refer to Section 08 1113 - Hollow Metal Doors and Frames.

2.06 ACCESSORIES

A. Glazed Openings:

B. Glazing: As specified in Section 08 8000.

C. Panel or Glass Retention Molding: Wood of same species as door facing, molded stop applied one-side, mitered corners; prepared for set fasteners.

2.07 DOOR CONSTRUCTION

A. Vertical Exposed Edge of Stiles: Hardwood for paint finish.

B. Panels: Raised, 3-ply solid wood.

C. Factory machine doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware.

D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

E. Factory install glazing in doors in compliance with quality standards specified, using manufacturer's standard elastomeric glazing sealant.

F. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with NFPA 252 or UL 10B - Negative (Neutral) Pressure; listed in UL (DIR) or ITS (DIR) and without any visible seals when door is open.

2.08 FACTORY FINISHING

A. Finish work in accordance with AWI/AWMAC/WI (AWS), Section 5 - Finishing for grade specified and as follows:
   1. Transparent:
      a. System - 5, Varnish, Conversion.
      b. Stain: As selected by Architect.
      c. Sheen: Satin.

B. Factory finish doors in accordance with approved sample.

C. Seal door top and bottom edge with color sealer to match door facing.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.

3.02 INSTALLATION

A. Install frames in accordance with manufacturer's instructions and specified quality standards.
   1. Install fire-rated frames in accordance with NFPA 80 requirements.

B. Install doors in accordance with manufacturer's instructions and specified quality standards.
   1. Install fire-rated doors in accordance with NFPA 80 requirements.

C. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

D. Machine cut for hardware.

E. Coordinate installation of doors with installation of frames and hardware.

F. Coordinate installation of glazing.

3.03 TOLERANCES

A. Conform to specified quality standard for fit, clearance, and joinery tolerances.

B. Maximum Width Distortion (Cup): 1/8 inch measured with straight edge or taut string, edge to edge, over an imaginary 36 x 84 inch surface area.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

3.05 SCHEDULE - SEE DRAWINGS

END OF SECTION

SECTION 08 3100
ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall access door and frame units.

B. Ceiling access door and frame units.

PART 2 PRODUCTS

2.01 ACCESS DOOR AND PANEL APPLICATIONS

A. Walls, Unless Otherwise Indicated:
   1. Size: 12 by 12 inch, unless otherwise indicated.
   2. Standard duty, hinged door.
   3. Tool-operated spring or cam lock; no handle.
   4. In All Wall Types: Surface mounted face frame and door surface flush with frame surface.

B. Walls in Wet Areas:
   1. Material: Steel, hot-dipped zinc or zinc-aluminum-alloy coated.
   2. Size: 12 by 12 inch, unless otherwise indicated.
   3. Standard duty, hinged door.
   4. Tool-operated spring or cam lock; no handle.
   5. In All Wall Types: Surface mounted face frame and door surface flush with frame surface.

C. Fire Rated Walls: See drawings for wall fire ratings.
   1. Material: Steel.
   2. Size: 12 by 12 inch, unless otherwise indicated.
   3. Insulated, double skin door panel.
   4. Tool-operated spring or cam lock; no handle.

D. Ceilings, Unless Otherwise Indicated: Same type as for walls.
   1. Size in Lay-in Grid Ceilings: To match grid module.
   2. Size in Other Ceilings: 12 by 12 inch, unless otherwise indicated.
   3. Standard duty, hinged door.
   4. Tool-operated spring or cam lock; no handle.

2.02 WALL AND CEILING UNITS

A. Access Doors: Factory fabricated door and frame units, fully assembled units with corner joints welded, filled, and ground flush; square and without rack or warp; coordinate requirements with assemblies that units are to be installed in.
   1. Door Style: Single thickness with rolled or turned in edges.
   2. Double-Skinned Hollow Steel Door Panels: 16 gage, 0.059 inch, minimum, on both sides and each edge.
   3. Units in Fire Rated Assemblies: Fire rating as required by applicable code for the fire rated assembly that access doors are being installed.
   4. Steel Finish: Primed.
   5. Primed and Factory Finish: Polyester powder coat; color as scheduled.
   6. Hardware:
      a. Hardware for Fire Rated Units: As required for listing.
      b. Hinges for Non-Fire-Rated Units: Concealed, constant force closure spring type.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install frames plumb and level in openings. Secure rigidly in place.

C. Position units to provide convenient access to the concealed work requiring access.

END OF SECTION

SECTION 08 5114
ALUMINUM WINDOWS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Fixed and Operable Architectural Window Grade aluminum windows.

1.02 RELATED SECTIONS

A. Sealants and caulking - Section 07 9005

1.03 REFERENCES

A. American Architectural Manufacturers Association (AAMA).

B. American Society for Testing Materials (ASTM).

C. American National Standards Institute (ANSI)

1.04 TEST AND PERFORMANCE REQUIREMENTS

A. Provide aluminum window system designed to accommodate expansion and contraction due to normal thermal movement and wind loading per manufacturer's window test reports. Establish basic dimension of units, sight lines, and profiles of members according to the performance requirements.

B. Test Criteria: Testing shall be performed by an AAMA qualified independent testing agency and be based on the following criteria:
   1. Current test reports must be submitted and be AAMA certified to be accepted.

C. Performance Requirements: Test reports must show compliance with AAMA/WDMA/CSA 101/I.S.2/A440-08 for AW-PG100.
   1. Air-Infiltration: Shall not exceed 0.01 cfm/ft of sash crack per ASTM E283 at a differential static pressure of 6.2 psf.
   2. Water Infiltration: No uncontrolled leakage per ASTM E331 at a test pressure of 15.00 psf for AW-PG100.
   3. Structural Requirements: Maximum permanent deformation of any component shall not exceed 0.4 percent at a test pressure of 150.00 psf as defined per ASTM E330.
   4. Forced-Entry Resistance: Comply with Performance Level 10 requirements when tested according to ASTM F588.

1.05 SUBMITTALS

A. General: Submit in accordance with Division 1.

B. Product Data: Submit for windows
   1. Include information for factory finishes, glass, glazing components, accessories, and other required components.
   2. Submit certified test reports from AAMA accredited laboratories verifying all performance requirements specified herein.

C. Shop Drawings: Indicate elevations, detailed design, dimensions, member profiles, joint locations, arrangement of units, and member connections.
   1. Anchorage system.
   2. Interfacing with building constructions.
   3. Full-size details of special and typical shapes.
   4. Indicate glazing details and sealant requirements.
   5. Show finishes indicating compliance with the specifications.

6. Indicate recorded field measurements on final drawings as available.

D. Samples: Indicate quality of finish on alloys used, 12 inches long for extrusions and 6 inches square for sheet materials.
   1. Where normal texture or color variations are expected, include additional samples illustrating range of variation.

E. Samples of Verification: Submit samples of anchors, fasteners, hardware, assembled corner sections, and other materials and components if requested by the architect.

1.06 QUALITY ASSURANCE

A. Installer Qualifications:Certified in writing that installer has experience on at least five projects of similar nature in past five years. The installer shall warrant the satisfactory performance of the window installation which includes, but is not limited to, installation accessories (glazing, perimeter sealing), and anchorage as called for by the specifications and approved shop drawings

B. Single Source Responsibility: Provide window units manufactured by one manufacturer
   1. Glass and glazing for window units are required as work of this section for single source responsibility. Factory glaze units.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver units pre-glazed with manufacturer's labels intact on interior side of glass.

B. Protect glass and glazing to prevent chipping, cracking, and other similar damages.

C. Store windows in upright position, off ground.

D. Protect finished surfaces to prevent damage.

E. Do not use adhesive papers or sprayed coatings which become firmly bonded when exposed to sun.

F. Do not leave coating residue on surfaces.

G. Protect the window units from lime, mortar, runoff from concrete and copper, careless handling of tools, weld platter, acids, roofing tar, solvents, abrasive cleaners, and other items that could damage the window units.

1.08 WARRANTY

A. Warranty: The window manufacturer shall provide a written warranty that window units are free from defective materials or workmanship within a specified period. Failures include the following:
   1. Materials defect in manufacture.
   2. Faulty operation of sash and hardware.

B. Warranty Period: 2-year after delivery of product

C. Warranty Period for Glass: 5-years after delivery of product

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Boyd Aluminum Manufacturer Co. Inc., Springfield, MO (800) 737-2800.
   1. Series 6200 Fixed and Operable Window

B. Subject to compliance with Section 1.4 manufacturers offering equal products may be incorporated in the work.

2.02 MATERIALS

A. Aluminum extrusions shall comply with ASTM B 221 and tolerances shall be in accordance with the Aluminum Association's "Drafting Standards for Aluminum Extruded and Tubular Products". Extrusions shall not be less than a nominal .080 inch thick at any location for main frame and glazing stops. Sheet shall comply with ASTM B 209, alloy and temper recommended by manufacturer appropriate for specified finish.

B. Fasteners: Provide stainless steel fasteners, corrosion resistant and compatible with aluminum.
   1. Reinforcement: When fasteners screw into aluminum less than a nominal .062 inch thick, utilize nuts or washers of design having means to reinforce interior aluminum surfaces and prevent disengagement.
   2. Exposed Fasteners: Provide concealed fasteners wherever possible.

C. Shims:Non-staining and non-ferrous type.

D. Glazing tape: Blend of polyisobutylene and butylpolymer complying with AAMA 807.3-92

E. Sealants:The color of the sealant exposed shall be chosen from the manufacturer's standards. If unspecified, the sealant color shall be compatible with the window framing materials.
   1. Non-working joints: Sealant shall comply with AAMA 800.
   2. Window Components: Sealant shall be suitable for application specified and approved by the window manufacturer.
   3. Perimeter: Sealant shall comply with AAMA 800 and Section 0900.

F. Compression Type Gaskets: Provide compressible TPE stripping for glazing and weather stripping complying with ASTM D 1921, ASTM D 792, ASTM D 2240, ASTM D 412, ASTM D 590, and ASTM D 3835 molded TPE gaskets.

2.03 ACCESSORIES

A. Muntins: Provide muntins in each designated sash to replicate the desired divided lite configuration. Muntins shall be of extruded aluminum. Muntins shall be rectangular.
   1. True divided lite muntins: Provide an extruded aluminum muntin with a minimum nominal wall thickness of .080 inch. Finish to match windows.

B. Leg Extender: Leg extenders shall snap into main frame, be of extruded aluminum with a minimum wall thickness of .062 inch, and be continuous with hair line joints at corners. Leg extenders shall allow the interior leg and/or exterior leg of main frame to lengthen by a dimension up to 2 1/2 inch. Leg extenders shall be finished to match windows. Attachment by means of fasteners or welding is not acceptable.

C. Mullions: Provide extruded aluminum mullions with a minimum nominal wall thickness of .062 inch and cover plates, where required, to complete window to window connections.

D. Receptors: Provide two piece extruded aluminum receptors for the head and/or jambs of the window openings with a minimum nominal wall thickness of .062 inch. Provide one row of TPE gasket placed into extruded grooves in each receptor piece to ensure no window unit to receptor metal contact. Provide receptors with integral nailing fin, if required by the architect. Finish receptors to match windows.

E. Subsills: Provide subsills with a minimum nominal wall thickness of .062 inch. Provide subsills with means to weep water to the exterior. Finish subsills to match windows.

F. Panning: Provide extruded aluminum panning of the type and configuration required by the architect with a minimum nominal wall thickness of .062 inches. Provide one row of vinyl gasket placed into extruded grooves in each panning member to ensure no window unit to

panning members. Clips shall be attached with stainless steel fasteners. Space stainless steel clips appropriately to allow the window units to secure themselves tightly to the panning. Window units shall lip over the panning sill member allowing water to weep to the exterior. Finish panning to match window units.

G. Trims: Provide extruded aluminum trim of the type and configuration required by the architect with a minimum nominal wall thickness of .050 inches. Provide extruded aluminum trim clips, with a minimum nominal wall thickness of .050 inch, to allow attachment of the trim to the window units and/or openings. Finish trim to match window units.

2.04 FIXED WINDOWS

A. Window Grade and Class: Comply with requirements of AAMA Grade and Performance for AW-PG100.
   1. Provide window units with a 4" minimum main frame depth.
   2. Provide 1" maximum overall glazing thickness. See Section 088000 glass and glazing.

B. Glazing Gaskets: Provide sliding-type gaskets.
   1. Provide TPE gaskets placed into extruded grooves in glazing stop.
      a. Provide one row of TPE gasket at all glazing stops.

C. Glazing: To be glazed to main frame with perimeter polyisobutylene and butylpolymer blend glazing tape. Foam tapes are not acceptable.

2.05 FABRICATION

A. Fabricate components in accordance with manufacturer's tested assemblies. Remove burrs and ease edges. Shop fabricate to greatest extent practicable to minimum field assembly. Disassemble only to the extent necessary for shipping and handling limitations.

B. Thermal Break: Manufacturer's standard integral urethane thermal barrier, located between exterior and interior members to provide thermal separation. Provide thermal break that has been tested for thermal conductance and has been in use a minimum of 5 years.

2.06 FINISHES

A. Fluorocarbon, High Performance Paint Coating: Color as selected from manufacturer's full range of colors by architect. Fluorocarbon spray coating shall be applied by a licensed applicator and shall meet AAMA 2605-98 specifications.
   1. Fluorocarbon 2-Coat System: Inhibitive primer and fluoropolymer color top coating of not less than 70 percent polyvinylidene fluoride complying with AAMA 2605-98. Prepare and pre-treat metal surfaces to comply with paint manufacturer's instructions.
   2. Fluorocarbon 3-coat System: Inhibitive primer, fluoropolymer color coating, and clear fluoropolymer top coating complying with AAMA 2605-98. Fluoropolymer color and clear coats shall not have less than 70 percent polyvinylidene fluoride. Prepare and pre-treat metal surfaces to comply with paint manufacturer's instructions.

PART 3 - EXECUTION

3.01 INSPECTION

A. Remove and properly dispose of existing windows in accordance with Section 02 4100. Verify that openings are dimensionally within allowable tolerances, plumb, level, and clean. Provide solid anchoring surfaces that are in accordance with approved shop drawings

B. Verify that the opening into which the windows will be installed is the correct size to permit installation of the new windows according to the manufacturer's installation instructions.

C. Do not install windows until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Install windows with skilled tradesperson in exact accordance with approved shop drawings.

B. Aluminum that is not organically coated shall be insulated from direct contact with steel, masonry concrete or noncompatible materials by bituminous paint, zinc chromate primer, or other suitable insulating material.

C. Plumb and align window faces in a single plane for each wall plane. Erect square and true. Anchor to maintain position when subjected to normal thermal and building movement (seismic forces), and specified wind loads.

D. Install glass and glazing in accordance with approved shop drawings to provide satisfactory, leak-free installation.

E. Perimeter Sealing: Seal joints at the perimeters in accordance with approved shop drawings to provide watertight installation.

1. Joints and surfaces to receive sealants shall be clean, free from loose material, free of effervescence or mortar leaking, and dry. Sealants shall not be applied when the temperature is below the sealant manufacturer's instructions.
2. Clean the joints and surfaces before sealing or priming. Then prime the joints in accordance with the sealant manufacturer's instructions.
3. Provide joint backing in all joints where a suitable backer to receive sealant is otherwise not available. Joint depth shall be equal to ½ of the width.
4. Caulk joint width shall not be less than ¼ inch not more than ½ inches unless otherwise recommended by the sealant manufacturer. Wipe off the excess material and leave the exposed surfaces and joints clean and smooth.

3.03 ADJUSTING

A. After installation, windows and glazing shall be inspected and adjusted to provide smooth operation and a weathertight window system.

3.04 CLEANING

A. After installation, leave windows clean and free of temporary labels and dirt. Protect finished installation against damage.

B. Final cleaning of the painted finish shall be in accordance with AAMA 610.1.

END OF SECTION

SECTION 08 5200
ALUMINUM CLAD WOOD WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Factory fabricated aluminum clad wood windows.

B. Glazing.

C. Operating hardware.

D. Custon extruded aluminum casing trim for exterior finishing.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Rough opening framing.

B. Section 07 9200 - Joint Sealants: Sealing joints between frames and adjacent construction.

C. Section 09 9123 - Interior Painting: Site finishing wood surfaces.

1.03 REFERENCE STANDARDS

A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for windows, doors, and skylights; American Architectural Manufacturers Association/Window and Door Manufacturers Association/Canadian Standards Association; 2011.

B. AAMA 502 - Voluntary Specification for Field Testing of Windows and Sliding Glass Doors

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Show component dimensions, anchorage and fasteners, and glass.

C. Shop Drawings: Indicate opening dimensions, framed opening tolerances, affected related work, and installation requirements.

D. Submit two samples 12 x 12 inches in size illustrating window frame section.

E. Manufacturer's Certificate: Certify that products furnished meet or exceed specified requirements.

F. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
   1. Evidence of AAMA Certification; label or other documentation.
   2. Evidence of WDMA Certification.
   3. Evidence of CSA Certification.
   4. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.

G. Test Reports: Prior to submitting shop drawings or starting fabrication, submit test report(s) by independent testing agency showing compliance with performance requirements in excess of those prescribed by specified grade .

1.05 QUALITY ASSURANCE

A. Manufacturer and Installer Qualifications: Company specializing in manufacturing commercial wood windows with minimum ten years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect factory finished surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond when exposed to sunlight or weather.

1.07 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F.

B. Maintain this minimum temperature during and after installation of sealants.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Provide ten year manufacturer warranty for insulated glass units from seal failure, interpane dusting or misting, and replacement of same.

D. Warranty: Include coverage for the following:
   1. Degradation of color finish.
   2. Delamination or separation of finish cladding from window member.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Single Hung: Marvin Window and Doors, Clad Ultimate Single Hung - New Generation.

B. Basis of Design:Fixed and Project-out: Marvin Window and Doors, Clad Ultimate - New Generation.

C. Aluminum Clad Wood Windows:
   1. LePage Millwork, Quebec, Canada.
   2. Boyd Aluminum Manufacturer Co. Inc., Springfield, MO.
   3. Substitutions: See Section 01 6000 - Product Requirements.

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

B. Provide sustainably harvested wood, certified or labeled as specified in Section 01 6000.

2.03 ALUMINUM CLAD WOOD WINDOWS

A. Aluminum Clad Wood Windows: Wood frame and sash, factory fabricated and assembled.
   1. Exterior Finish: Aluminum frame and sash components, and PDL bars:70% fluoropolymer based coating in compliance with AAMA 2605-05.
   2. Interior Finish: Interior wood is to bare for field finishing.
   3. Color: Custom color.
   4. Configuration: As indicated on drawings.
   5. Window Product Type: H (VS) - Hung window (Vertical sliding window) and with double hung appearance, offset sashes, in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
   6. Factory glazed; wet-dry glazing method.
   7. Glazing Methods:
      a. Standard fixed units have 3/16 inch (5mm) wide glazing tape and primary silicone on #1 surface along sight line paired with latex sealant on #4 surface at bottom wood glazing bead.

b. High Performance fixed units have silicone-glaze structural silicone bedding sealant on #1 surface with a 0.5 inch (13 mm) bite, and supplemental siliconized latex sealant on #4 surface at bottom wood glazing bead.
c. Impact Glazing for IG units utilizes a reinforcing vinyl bracket installed into a kerf in the sash and siliconed.

8. Wood Species: Clear pine, preservative treated using treatment type suitable for required finish.
9. Fasteners: Concealed from view.

2.04 COMPONENTS

A. Glazing: Double glazed, clear, Low-E coated, argon filled, with glass thicknesses as recommended by manufacturer for specified wind conditions.
   1. Cardinal Glass: Lo-E 366.
   2. Spacer bar: Black stainless steel with bent corners, desicant filled.

B. Sills: 0.125 nominal thickness, extruded aluminum; sloped for positive wash; fit under sash to project beyond wall face; one piece full width of opening.

C. Stools: Refer to Section 06 2000 - Finish Carpentry for interior wood stools.

D. Simulated Divided Lites:
   1. 7/8” (22mm) wide, with black internal spacer bar.
   2. Exterior muntins: 0.050” (1.3mm) thick extruded aluminum.
   3. Interior muntins: Pine.
   4. Muntins adhere to glass with closed-cell copolymer acrylic foam tape.
   5. Exterior sticking: Putty
   6. Interior Sticking: Ogee
   7. Patterns: As shown
   8. Finish - exterior matches custom exterior aluminum clad color, interior matches interior wood species and color.

E. Fasteners: Stainless steel.

F. Sealant and Backing Materials: As specified in Section 07 9200 of types as indicated.

G. Wood for Interior Casing and Trim: Refer to Section 06 2000 - Finish Carpentry.

H. Accessories: Provide related flashings, and anchorage and attachment devices.

I. Sealant for Setting Sills, Stools, Aprons, and Sill Flashing: Non-curing butyl type.

2.05 PERFORMANCE REQUIREMENTS

A. Comply with AAMA/WDMA/CSA 101/I.S.2/A440 requirements for the specific window type in accordance with the following:
   1. Performance Class (PC): CW.
   2. Performance Grade (PG): 50, with minimum design pressure (DP) of 50.13 psf.

B. Overall U-value, Including Glazing: 0.35, maximum, measured on the window size required for this project.

2.06 ACCESSORIES

A. Installation Accessories:
   1. Installation brackets: 6 3/8” (162mm).

B. Aluminum Extrusions:
   1. Casing Profile: Custom exterior casing per details.
   2. Aluminum clad Extrusion:Mullion Cover, Subsill

3. Finish: Fluoropolymer modified acrylic topcoat applied over primer. Meets AAMA 2605 requirements
4. Color: Custom.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this section.

3.02 INSTALLATION

A. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.

B. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

C. Install sills, stools, and casings.

D. Set sill members and sill flashing in continuous bead of sealant.

E. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

3.03 TOLERANCES

A. Maximum Variation from Level or Plumb: 1/16 inch per 3 ft non-cumulative or 1/8 inch per 10 ft, whichever is less.

3.04 FIELD QUALITY CONTROL

A. Test installed units in conformance with AAMA 502-90 for air and water infiltration with the window manufacturer, contractor, and owner present.
   1. Mnimum three tests per unit type.

B. Select test units as directed by the owner's representative and use an AAMA-accredited laboratory provided by the contractor.

C. Repair and make adjustments to window unit until test performance is achieved. Make similar repairs and adjustments to all window units.
   1. Repeat test until windows pass performance test.

3.05 ADJUSTING

A. Adjust hardware for smooth operation and secure weathertight closure.

3.06 CLEANING

A. Remove protective material from factory finished surfaces.

B. Wash surfaces by method recommended and acceptable to window manufacturer; rinse and wipe surfaces clean.

C. Remove excess glazing sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

D. Refer to Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.

END OF SECTION

SECTION 08 7110
DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes: Finish Hardware for door openings, except as otherwise specified herein.
   1. Door hardware for steel (hollow metal) doors.
   2. Door hardware for aluminum doors.
   3. Door hardware for wood doors.
   4. Door hardware for other doors indicated.
   5. Keyed cylinders as indicated.

B. Related Sections:
   1. Division 6: Rough Carpentry.
   2. Division 8: Aluminum Doors and Frames
   3. Division 8: Hollow Metal Doors and Frames.
   4. Division 8: Wood Doors.
   5. Division 26 Electrical
   6. Division 28: Electronic Security

C. References: Comply with applicable requirements of the following standards. Where these standards conflict with other specific requirements, the most restrictive shall govern.
   1. Builders Hardware Manufacturing Association (BHMA)
   2. NFPA 101 Life Safety Code
   3. NFPA 80 -Fire Doors and Windows
   4. ANSI-A156.xx- Various Performance Standards for Finish Hardware
   5. UL10C - Positive Pressure Fire Test of Door Assemblies
   6. ANSI-A117.1 - Accessible and Usable Buildings and Facilities
   7. DHI /ANSI A115.IG - Installation Guide for Doors and Hardware
   8. ICC - International Building Code

D. Intent of Hardware Groups
   1. Should items of hardware not definitely specified be required for completion of the Work, furnish such items of type and quality comparable to adjacent hardware and appropriate for service required.
   2. Where items of hardware aren't definitely or correctly specified, are required for completion of the Work, a written statement of such omission, error, or other discrepancy to be submitted to Architect, prior to date specified for receipt of bids for clarification by addendum; or, furnish such items in the type and quality established by this specification, and appropriate to the service intended.

E. Allowances
   1. Refer to Division 1 for allowance amount and procedures.

F. Alternates
   1. Refer to Division 1 for Alternates and procedures.

1.02 SUBSTITUTIONS:

A. Comply with Division 1.

1.03 SUBMITTALS:

A. Comply with Division 1.

B. Special Submittal Requirements: Combine submittals of this Section with Sections listed below to ensure the "design intent" of the system/assembly is understood and can be reviewed together.

C. Product Data: Manufacturer's specifications and technical data including the following:
   1. Detailed specification of construction and fabrication.
   2. Manufacturer's installation instructions.
   3. Wiring diagrams for each electric product specified. Coordinate voltage with electrical before submitting.
   4. Submit 6 copies of catalog cuts with hardware schedule.
   5. Provide ISO 9001-Quality Management and ISO 14001-Environmental Management for products listed in Materials Section 2.2

D. Shop Drawings - Hardware Schedule: Submit complete reproducible copy of detailed hardware schedule in a vertical format.
   1. List groups and suffixes in proper sequence.
   2. Completely describe door and list architectural door number.
   3. Manufacturer, product name, and catalog number.
   4. Function, type, and style.
   5. Size and finish of each item.
   6. Mounting heights.
   7. Explanation of abbreviations and symbols used within schedule.
   8. Detailed wiring diagrams, specially developed for each opening, indicating all electric hardware, security equipment and access control equipment, and door and frame rough-ins required for specific opening.

E. Templates: Submit templates and "reviewed Hardware Schedule" to door and frame supplier and others as applicable to enable proper and accurate sizing and locations of cutouts and reinforcing.
   1. Templates, wiring diagrams and "reviewed Hardware Schedule" of electrical terms to electrical for coordination and verification of voltages and locations.

F. Samples:
   1. 1 sample of Lever and Rose/Escutcheon design, (pair).
   2. 3 samples of metal finishes

G. Contract Closeout Submittals: Comply with Division 1 including specific requirements indicated.
   1. Operating and maintenance manuals: Submit 3 sets containing the following.
      a. Complete information in care, maintenance, and adjustment, and data on repair and replacement parts, and information on preservation of finishes.
      b. Catalog pages for each product.
      c. Name, address, and phone number of local representative for each manufacturer.
      d. Parts list for each product.
   2. Copy of final hardware schedule, edited to reflect, "As installed".
   3. Copy of final keying schedule
   4. As installed “Wiring Diagrams” for each piece of hardware connected to power, both low voltage and 110 volts.
   5. One set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

1.04 QUALITY ASSURANCE

A. Comply with Division 1.
   1. Statement of qualification for distributor and installers.
   2. Statement of compliance with regulatory requirements and single source responsibility.
   3. Distributor's Qualifications: Firm with 3 years' experience in the distribution of commercial hardware.
      a. Distributor to employ full time Architectural Hardware Consultants (AHC) for the purpose of scheduling and coordinating hardware and establishing keying schedule.
      b. Hardware Schedule shall be prepared and signed by an AHC.
   4. Installer's Qualifications: Firm with 3 years experienced in installation of similar hardware to that required for this Project, including specific requirements indicated.
   5. Regulatory Label Requirements: Provide testing agency label or stamp on hardware for labeled openings.
      a. Provide UL listed hardware for labeled and 20 minute openings in conformance with requirements for class of opening scheduled.
      b. Underwriters Laboratories requirements have precedence over this specification where conflict exists.
   6. Single Source Responsibility: Except where specified in hardware schedule, furnish products of only one manufacturer for each type of hardware.

B. Review Project for extent of finish hardware required to complete the Work. Where there is a conflict between these Specifications and the existing hardware, notify the Architect in writing and furnish hardware in compliance with the Specification unless otherwise directed in writing by the Architect.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Packing and Shipping: Comply with Division 1.
   1. Deliver products in original unopened packaging with legible manufacturer's identification.
   2. Package hardware to prevent damage during transit and storage.
   3. Mark hardware to correspond with "reviewed hardware schedule".
   4. Deliver hardware to door and frame manufacturer upon request.

B. Storage and Protection: Comply with manufacturer's recommendations.

1.06 PROJECT CONDITIONS:

A. Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for the proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents.

B. Review Shop Drawings for doors and entrances to confirm that adequate provisions will be made for the proper installation of hardware.

1.07 WARRANTY:

A. Refer to Conditions of the Contract

B. Manufacturer's Warranty:
   1. Closers: Ten years
   2. Exit Devices: Five Years
   3. Locksets Limited Lifetime
   4. Cylinders: Three years

5. All other Hardware: Two years.

1.08 OWNER'S INSTRUCTION:

A. Instruct Owner's personnel in operation and maintenance of hardware units.

1.09 MAINTENANCE:

A. Extra Service Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals Section.
   1. Special Tools: Provide special wrenches and tools applicable to each different or special hardware component.
   2. Maintenance Tools: Provide maintenance tools and accessories supplied by hardware component manufacturer.
   3. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra service materials.

B. Maintenance Service: Submit for Owner's consideration maintenance service agreement for electronic products installed.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

A. The following manufacturers are approved subject to compliance with requirements of the Contract Documents. Approval of manufacturers other than those listed shall be in accordance with Division 1.

		Manufacturer:	Approved:
1.	Hinges	Stanley	Bommer, Hager
2.	Continuous Hinges	Stanley	ABH, Bommer
3.	Locksets	Best	Schlage L series, Sargent 8200 series
4.	Cylinders	Best	
5.	Exit Devices	Precision	Von Duprin, Detex
6.	Closers	Stanley D-4550	LCN 4040, Norton 7500
7.	Automatic Operators	Stanley D-4990	LCN 4640, Norton 6000
8.	Push/Pull Plates	Trimco	Burns, Hiawatha, ABH
9.	Protection Plates	Trimco	Burns, Hiawatha, ABH
10.	Overhead Stops	ABH	Trimco, Dorma
11.	Door Stops	Trimco	Burns, Hiawatha, ABH
12.	Flush Bolts	Trimco	Burns, Hiawatha, ABH, DCI
13.	Threshold & Gasketing	National Guard	Reese, DHSI

2.02 MATERIALS:

A. Hinges:
   1. Template screw hole locations
   2. Minimum of 2 permanently lubricated non-detachable bearings
   3. Equip with easily seated, non-rising pins
   4. Sufficient size to allow 180-degree swing of door
   5. Furnish hinges with five knuckles and concealed bearings
   6. Provide hinge type as listed in schedule.
   7. Furnish 3 hinges per leaf to 7 foot 6 inch height. Add one for each additional 30 inches in height or fraction thereof.

8. Tested and approved by BHMA for all applicable ANSI Standards for type, size, function and finish
9. UL10C listed for Fire rated doors.

B. Geared Continuous Hinges:
1. Tested and approved by BHMA for ANSI A156.26-1996 Grade 1
2. Anti-spinning through fastener
3. UL10C listed for 3 hour Fire rating
4. Non-handed
5. Lifetime warranty
6. Provide Fire Pins for 3-hour fire ratings
7. Sufficient size to permit door to swing 180 degrees

C. Mortise Type Locks and Latches:
1. Tested and approved by BHMA for ANSI A156.13, Series 1000, Operational Grade 1, Extra-Heavy Duty, Security Grade 2 and be UL10C.
2. Furnish UL or recognized independent laboratory certified mechanical operational testing to 4 million cycles minimum.
3. Provide 9001-Quality Management and 14001-Environmental Management.
4. Fit ANSI A115.1 door preparation
5. Functions and design as indicated in the hardware groups
6. Solid, one-piece, 3/4-inch (19mm) throw, anti-friction latchbolt made of self-lubricating stainless steel
7. Deadbolt functions shall have 1 inch (25mm) throw bolt made of hardened stainless steel
8. Latchbolt and Deadbolt are to extend into the case a minimum of 3/8 inch (9.5mm) when fully extended
9. Auxiliary deadlatch to be made of one piece stainless steel, permanently lubricated
10. Provide sufficient curved strike lip to protect door trim
11. Lever handles must be of forged or cast brass, bronze or stainless steel construction and conform to ANSI A117.1. Levers that contain a hollow cavity are not acceptable
12. Lock shall have self-aligning, thru-bolted trim
13. Levers to operate a roller bearing spindle hub mechanism
14. Mortise cylinders of lock shall have a concealed internal setscrew for securing the cylinder to the lockset. The internal setscrew will be accessible only by removing the core, with the control key, from the cylinder body.
15. Spindle to be designed to prevent forced entry from attacking of lever
16. Provide locksets with 7-pin removable and interchangeable core cylinders
17. Each lever to have independent spring mechanism controlling it
18. Core face must be the same finish as the lockset.

D. EL Series Electronic Locks:
1. Mechanical Lock Specification
   a. Tested and approved by BHMA for ANSI A156.2, Series 4000, Grade 2, UL10C-90 Minutes, ADA
   b. Fits ANSI A115.2 (160 &161) door preparation.
   c. Locksets and cores to be of the same manufacturer to maintain complete lockset warranty
   d. 2-3/4 inch (70 mm) backset
   e. 1/2 inch (13 mm) throw latch bolt
   f. Mechanical Warranty 2 years.

g. Keyed lever removable only after core is removed, by authorized control key
h. Provide locksets with 7-pin removable "SFIC" interchangeable cores.
i. Case Material combination of zinc alloy and fire retardant ABS.
j. Classroom/Storeroom function -71 and "M" Summit design.

2. Electronic Lock Specification
   a. Users Up to 1000, for standalone recommend = 200 users.
   b. Stand alone keyless entry upgradeable to wireless option.
   c. Wireless entry, Industry standard 128-bit-based Security encryption
   d. Audit Trail 500 Events for wireless communication only stored Locally
   e. Credential Verification Time one second or less
   f. Visual/Audible Interface Tri-Colored LED with field configurable Audible Indicator.
   g. System Interface Stanley Wireless Gateway (Wireless Only)
   h. Power supply 4 AA Batteries, Battery life up to 2 Years, depending on usage.
   i. Certifications/Compliance FCC Part 15 B&C, RoHS
   j. Reader Technology Proximity, 125 kHz.
   k. 125 kHz Credential Compatibility Wiegand Proximity Cards
   l. Wireless Communication Interface IEEE802.15.4 (2.4 GHz)
   m. Communication Security AES 128-bit Encryption
   n. Wireless Communication Protocol, Stanley Proprietary
   o. Electronic warranty 1 year

E. Exit Devices:
1. Exit devices to meet or exceed BHMA for ANSI 156.3, Grade 1.
2. Exit devices to be tested and certified by UL or by a recognized independent laboratory for mechanical operational testing to 10 million cycles minimum with inspection confirming Grade 1 Loaded Forces have been maintained.
3. Exit devices chassis to be investment cast steel, zinc dichromate.
4. Exit devices to have stainless steel deadlocking ¾" through latch bolt.
5. Exit devices to be equipped with sound dampening on touchbar.
6. Non-fire rated exit devices to have cylinder dogging.
7. Non-fire rated exit devices to have ¼" minimum turn hex key dogging.
8. Touchpad to be "T" style constructed of architectural metal with matching metal end caps.
9. Touchbar assembly on wide style exit devices to have a ¼" clearance to allow for vision frames.
10. All exposed exit device components to be of architectural metals and "true" architectural finishes.
11. Provide strikes as required by application.
12. Fire exit hardware to conform to UL10C and UBC 7-2. UL tested for Accident Hazard.
13. Exit device to be heavy investment cast stainless steel. The strike is to be black powder coated finish.
14. Exit devices to have field reversible handing.
15. Provide heavy duty vandal resistant lever trim with heavy duty investment cast stainless steel components and extra strength shock absorbing overload springs. Lever shall not require resetting. Lever design to match locksets and latchsets.
16. Provide 9001-Quality Management and 14001-Environmental Management.
17. Vertical Latch Assemblies to have gravity operation, no springs.
18. Approved Manufacturers

a. The following manufacturers will be approved contingent on meeting or exceeding the above performance criteria:
   1) Precision, Manufactured by Stanley Security Solutions

F. Cylinders:
1. Provide the necessary cylinder housings, collars, rings & springs as recommended by the manufacturer for proper installation.
2. Provide the proper cylinder cams or tail piece as required to operate all locksets and other keyed hardware items listed in the hardware sets.
3. Coordinate and provide as required for related sections.

G. Door Closers shall:
1. Tested and approved by BHMA for ANSI 156.4, Grade 1
2. UL10C certified
3. Provide 9001-Quality Management and 14001-Environmental Management.
4. Closer shall have extra-duty arms and knuckles
5. Conform to ANSI 117.1
6. Maximum 2 7/16 inch case projection with non-ferrous cover
7. Separate adjusting valves for closing and latching speed, and backcheck
8. Provide adapter plates, shim spacers and blade stop spacers as required by frame and door conditions
9. Full rack and pinion type closer with 1½“ minimum bore
10. Mount closers on non-public side of door, unless otherwise noted in specification
11. Closers shall be non-handed, non-sized and multi-sized.

H. Low Energy Operators shall:
1. Conform to ANSI/BHMA A156.19 as a low energy power opening device.
2. Be listed under UL228, UL325, UL10B, UL10C, UBC 7.2 and FCC listed.
3. Shall be non-handed.
4. Be rated for door panels weighing up to 350 lbs (160 kg).
5. The manual door closer within the Low Energy Operator shall be adjusted to meet Americans with Disabilities Act (ADA) 5 lbs opening force.
6. Operator shall be isolated from mounting plate with rubber mounts to mitigate the transmission of forces between the door and the operator.
7. Shall have a position encoder to communicate with microprocessor.
8. Incorporate a resetable powered operation counter that tracts both powered and non-powered cycling of the Operator.
9. Incorporate the following adjustable settings:
   a. Hold Open Timer, to 28 seconds
   b. Open Speed
   c. Backcheck Speed
   d. Vestibule Sequence Timer
10. Include DIP switch controls for:
   a. On board diagnostics
   b. Power close
   c. Push and Go operation
   d. Time delay logic for electrified hardware components
11. Include terminals for auxiliary controls including:
   a. Activation devices; provide two discrete inputs
   b. Vestibule sequencing

12. Control switches including:
    a. Day/Night open (illuminated)
    b. Power On-Off
13. Includes adhesive Low Energy Operator mounting templates.
14. R-14 Aluminum Allow Materials
15. For non-powered operation, the unit shall function as a standard door closer with adjustable spring force size 1 thru 6.

I. Door Stops: Provide a dome floor or wall stop for every opening as listed in the hardware sets.
1. Wall stop and floor stop shall be wrought bronze, brass or stainless steel.
2. Provide fastener suitable for wall construction.
3. Coordinate reinforcement of walls where wall stop is specified.
4. Provide dome stops where wall stops are not practical. Provide spacers or carpet riser for floor conditions encountered

J. Over Head Stops: Provide a Surface mounted or concealed overhead when a floor or wall stop cannot be used or when listed in the hardware set.
1. Concealed overhead stops shall be heavy duty stainless steel.
2. Surface overhead stops shall be heavy duty stainless steel.

K. Push Plates: Provide with four beveled edges ANSI J301, .050 thickness, size as indicated in hardware set. Furnish oval-head countersunk screws to match finish.

L. Pulls with plates: Provide with four beveled edges ANSI J301, .050 thickness Plates with ANSI J401 Pull as listed in hardware set. Provide proper fasteners for door construction.

M. Kickplates: Provide with four beveled edges ANSI J102, 6 inches high by width less 2 inches on single doors and 1 inch on pairs of doors. Furnish oval-head countersunk screws to match finish.

N. Mop plates: Provide with four beveled edges ANSI J103, 6 inches high by width less 1 inch on single doors and 1 inch on pairs of doors. Furnish oval-head countersunk screws to match finish.

O. Door Bolts: Flush bolts for wood or metal doors.
1. Provide a set of Automatic bolts, Certified ANSI/BHMA 156.3 Type 25 for hollow metal label doors.
2. Provide a set of Automatic bolts, Certified ANSI/BHMA 156.3 Type 27 at wood label doors.
3. Manual flush bolts, Certified ANSI/BHMA 156.16 at openings where allowed local authority.
4. Provide Dust Proof Strike, Certified ANSI/BHMA 156.16 at doors with flush bolts without thresholds.
5. Box shall include a key lock.

P. Power Transfer: Power transfer device shall be a steel housing and flexible tube. Secure and inconspicuous channel is to bring power from the frame to the door.
1. Precision EPT-12C
2. Tube shall contain 12 Wire bundle with Stanley Quick Connect Connectors one 4 wire connector consisting of two 18AWG wires and 2 24AWG wires and one 8 wire connector with 8 24AWG wires.

Q. Electric Door Strike: Certified by ANSI/BHMA 156.31, Grade 1. and listed for Burglary Protection ANSI/ UL1034 Grade 1.
1. For General use provide fail-secure electric strike and with fire-rated device.

2. Listed UL10C for Fire Door assemblies
3. Latchbolt monitor switch option when specified in hardware sets.
4. Provide the electric strike in the appropriate model that will accept a 5/8” or 3/4" latchbolt.

R. Door Position Switch: Provide door position switch for door status monitoring as indicated in hardware sets.
1. At all fired rated doors the door and frames, position switch preparation will be provided by the door and frame manufacturer or by an authorized label service agent.

S. Magnetic Door Holders: Provide magnetic door holders with Tri-Voltage that can be wired 12VDC, 24V AC/DC or 120V AC
1. Wall magnetic door holders shall be Surface mounted.
2. Armature shall be thru-bolted and can be provided with any projection required.
3. Models will be available in US28, sprayed finishes and US32D.
4. Floor mounted shall be provided for a single door or double door hold open application.

T. Seals: All seals shall be finished to match adjacent frame color. Seals shall be furnished as listed in schedule. Material shall be UL listed for labeled openings.

U. Weatherstripping: Provide at head and jambs only those units where resilient or flexible seal strip is easily replaceable. Where bar-type weatherstrip is used with parallel arm mounted closers install weatherstrip first.
1. Weatherstrip shall be resilient seal of (Neoprene, Polyurethane, Silicone)
2. UL10C Positive Pressure rated seal set when required.

V. Door Bottoms/Sweeps: Surface mounted or concealed door bottom where listed in the hardware sets.
1. Door seal shall be resilient seal of (Neoprene, Polyurethane, Silicone)
2. UL10C Positive Pressure rated seal set when required.

W. Thresholds: Thresholds shall be aluminum beveled type with maximum height of ½” for conformance with ADA requirements. Furnish as specified and per details. Provide fasteners and screws suitable for floor conditions.

X. Provide one wall mounted Telkee, Lund or MMF series key cabinet complete with hooks, index and tags to accommodate 50% expansion. Must have a Best lock with removable core PATD. Coordinate mounting location with architect.

Y. Silencers: Furnish silencers on all interior frames, 3 for single doors, 2 for pairs. Omit where any type of seals occur.

2.03 FINISH:

A. Designations used in Schedule of Finish Hardware - 3.05, and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 including coordination with traditional U.S. finishes shown by certain manufacturers for their products

B. Powder coat door closers to match other hardware, unless otherwise noted.

C. Aluminum items shall be finished to match predominant adjacent material. Seals to coordinate with frame color.

2.04 KEYS AND KEYING:

A. Provide keyed brass construction cores and keys during the construction period. Construction control and operating keys and core shall not be part of the Owner's permanent keying system or furnished in the same keyway (or key section) as the Owner's permanent keying system.

Permanent cores and keys (prepared according to the accepted keying schedule) will be furnished to the Owner.

B. Cylinders, removable and interchangeable core system: Best CORMAX™ Patented 7-pin.

C. Permanent keys and cores: Stamped with the applicable key mark for identification. These visual key control marks or codes will not include the actual key cuts. Permanent keys will also be stamped "Do Not Duplicate."

D. Transmit Grand Masterkeys, Masterkeys and other Security keys to Owner by Registered Mail, return receipt requested.

E. Furnish keys in the following quantities:
   1. 1 each Grand Masterkeys
   2. 4 each Masterkeys
   3. 2 each Change keys each keyed core
   4. 15 each Construction masterkeys
   5. 2 each Control keys

F. The Owner, or the Owner's agent, will install permanent cores and return the construction cores to the Hardware Supplier. Construction cores and keys remain the property of the Hardware Supplier.

G. Keying Schedule: Arrange for a keying meeting, and programming meeting with Architect Owner and hardware supplier, and other involved parties to ensure locksets and locking hardware, are functionally correct and keying and programming complies with project requirements. Furnish 3 typed copies of keying and programming schedule to Architect.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of conditions: Examine doors, frames, related items and conditions under which Work is to be performed and identify conditions detrimental to proper and or timely completion.
   1. Do not proceed until unsatisfactory conditions have been corrected.

3.02 HARDWARE LOCATIONS:

A. Mount hardware units at heights indicated in the following publications except as specifically indicated or required to comply with the governing regulations.
   1. Recommended Locations for Builder’s Hardware for Standard Steel Doors and Frames, by the Door and Hardware Institute (DHI).
   2. Recommended locations for Architectural Hardware for flush wood doors (DHI).
   3. WDMA Industry Standard I.S.-1A-04, Industry Standard for Architectural wood flush doors.

3.03 INSTALLATION:

A. Install each hardware item per manufacturer's instructions and recommendations. Do not install surface mounted items until finishes have been completed on the substrate. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

B. Conform to local governing agency security ordinance.

C. Install Conforming to ICC/ANSI A117.1 Accessible and Usable Building and Facilities.

1. Adjust door closer sweep periods so that from the open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the landing side of the door.

D. Installed hardware using the manufacturers fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use “Riv-Nuts” or similar products.

3.04 FIELD QUALITY CONTROL AND FINAL ADJUSTMENT

A. Contractor/Installers, Field Services: After installation is complete, contractor shall inspect the completed door openings on site to verify installation of hardware is complete and properly adjusted, in accordance with both the Contract Documents and final shop drawings.
   1. Check and adjust closers to ensure proper operation.
   2. Check latchset, lockset, and exit devices are properly installed and adjusted to ensure proper operation.
      a. Verify levers are free from binding.
      b. Ensure latchbolts and dead bolts are engaged into strike and hardware is functioning.
   3. Report findings, in writing, to architect indicating that all hardware is installed and functioning properly. Include recommendations outlining corrective actions for improperly functioning hardware if required.

3.05 SCHEDULE OF FINISH HARDWARE:

Manufacturer List

Code	Name
AB	ABH Manufacturing Inc.
BE	Best Access Systems
BY	By Others
NG	National Guard
PR	Precision
SD	Stanley Door Closers
SE	Security Door Controls
SR	Stanley
TR	Trimco

Option List

Code	Description
N	S/Steel Components (1000/7000//9000)
22	LENGTH CODE-1 3/8"
BT	BALL TIP HINGES
C4	CAM-STANDARD CAM
CD	CYLINDER DOGGING
FL	Fire Exit Hardware
M5	GALVANIZED STEEL CHAIN
3RO	Prefix option for 2000 Apex Series
B4E	BEVELED 4 EDGES - KICK PLATES
CSK	COUNTER SINKING
LBR	LESS BOTTOM ROD
MLR	MOTORIZED LATCH RETRACTION
VIN	Visual Indicator
VIT	Visual Indictor Thumb-Turn
R705	STRAIGHT CYLINDER RING - 5/16"

R706	STRAIGHT CYLINDER RING - 3/8"
7/8"LTC	7/8" Lip-To-Center Strike
1/4-20-2" COMBO	1/4-20 X COMBO MS/ANCHOR (SS)

Finish List

Code	Description
313	Dark Bronze Duranodic
600	Primed for Painting
612	Satin Bronze, Clear Coated
613	Oxidized Satin Bronze, Oil Rubbed
626	Satin Chromium Plated
630	Satin Stainless Steel
691	Light Bronze Painted
US10	Dull Bronze
US10	Dull Bronze, Oxidized and Oil Rubbed
US32D	Stainless Steel, Dull

END OF SECTION

SECTION 08 7111
HARDWARE SETS

SET #1

DOORS: CA001B

6	Hinges	BT CB199 6 x 6 NRP	US10	ST
2	Power Transfer	EPT 12C		PR
1	Removable Mullion	KR822	600	PR
1	Rim Cylinder (Mullion)	12E-72 PATD R706	612	BE
1	Exit Device	3RO C MLR TDS 2103	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE
1	Mortise Cylinder (Dogging)	1E-74 PATD C4 R705	612	BE
2	Classic Pull Plate	51	612	TR
2	Door Closer	CLD-4550 HCS	691	SD
2	Kick Plate	KO050 6" X 1" LDW B4E CSK	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Exit Device	3RO TDS 2101 CD	612	PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Set Weatherseals	By Door Manufacturer		BY
1	Mullion Seal	5100 S		NA
1	Door Sweep	By Door Manufacturer		BY
1	Threshold	By Door Manufacturer		BY

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device.

SET #2

Doors: CA001A

6	Hinges	BT CB199 6 x 6 NRP	US10	ST
2	Power Transfer	EPT-12C		PR
1	Removable Mullion	KR822	600	PR
1	Rim Cylinder (Mullion)	12E-72 PATD R706	612	BE
1	Exit Device	3RO TDS 2101 CD	612	PR
1	Exit Device	3RO C MLR TDS 2103	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE
2	Classic Pull Plate	51	612	TR
1	Low Energy Operator	CLD-4990 X PS490	313	SD
1	Actuator/Transmitter Package	CL4976		SD

2	Surface Mounting Box	CL4638		SD
1	Door Closer	CLD-4550 HCS	691	SD
2	Kick Plate	KO050 6" X 1" LDW B4E CSK	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Mullion Seal	5100 S		NA
1	Set Weatherseals	By Door Manufacturer		BY
1	Door Sweep	By Door Manufacturer		BY
1	Threshold	By Door Manufacturer		BY

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device. Push button switches are activated by card reader . Card reader is used to activate/deactivate auto operator.

SET #3

Doors: CA004

3	Hinges	BT CB199 6 x 6 NRP	US10	ST
1	Power Transfer	EPT-12C		PR
1	Exit Device	3RO C MLR TDS 2103	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE
1	Classic Pull Plate	51	612	TR
1	Low Energy Operator	CLD-4990 X PS490	313	SD
1	Actuator/Transmitter Package	CL4976		SD
2	Surface Mounting Box	CL4638		SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Set Weatherseals	By Door Manufacturer		BY
1	Door Sweep	By Door Manufacturer		BY
1	Threshold	By Door Manufacturer		BY

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device. Push button switches are activated by card reader . Card reader is used to activate/deactivate auto operator.

SET #4

Doors: A007B, A009B, A010B, STA003B

3	Hinges	BT CB199 6 x 6 NRP	US10	ST
1	Power Transfer	EPT-12C		PR
1	Exit Device	3RO C MLR TDS 2103	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE
1	Classic Pull Plate	51	612	TR
1	Door Closer	CLD-4550 CS	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Set Weatherseals	By Door Manufacturer		BY
1	Door Sweep	By Door Manufacturer		BY
1	Threshold	By Door Manufacturer		BY

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device.

SET #5

Doors: CA003

6	Hinges	BT CB199 6 x 6 NRP	US10	ST
1	Power Transfer	EPT-12C		PR
2	Flush Bolt	3917-12	612	TR
1	Dustproof Strike	3911	612	TR
1	Electro-mech Lock	45HW-7WEU14H PATD 7/8"LTC C	612	BE
1	Overhead Holder	N 1010 A Series	US10	AB
1	Door Closer	CLD-4550 CS	691	SD
2	Kick Plate	KO050 6" X 1" LDW B4E CSK	612	TR
2	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Set Weatherseals	By Door Manufacturer		BY
2	Door Sweep	By Door Manufacturer		BY
1	Threshold	By Door Manufacturer		BY

NOTE: Card Reader both inside and outside.

SET #6

Doors: STA002A

6	Hinges	BT CB168 4 1/2 X 4 1/2 NRP	US10	ST
2	Power Transfer	EPT-12C		PR
1	Exit Device	3RO FL TDS 2202 X 4902D LBR	612	PR
1	Exit Device	3RO FL C MLR TDS 2203 X 4903D LBR	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE
2	Door Closer	CLD-4550 EDA	691	SD
2	Kick Plate	KO050 6" X 1" LDW B4E CSK	613	TR
2	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Astragal Set	9675 DKB @ FACE OF EACH LEAF		NA
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device.

SET #7

Doors: STA002B

3	Hinges	BT CB168 4 1/2 X 4 1/2	US10
ST			
1	Exit Device	3RO FL 2114 X 4914D	612
PR			
1	Door Closer	CLD-4550 EDA	691
SD			
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612
TR			
1	Wall Bumper	1270CX / 1211 AS REQ'D	612
TR			
1	Smoke Seal	5020C @ HEAD & JAMBS	
NA			

SET #8

Doors: STA003A, STA102, STA103, STA203

3	Hinges	BT CB168 4 1/2 X 4 1/2 NRP		
US10		ST		
1	Power Transfer			
EPT-12C				
		PR		
1	Exit Device	3RO C FL MLR TDS 2103 X 4903D	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE

1	Door Closer	CLD-4550 EDA	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device.

SET #9

Doors: A103C

3	Hinges	BT CB168 5 X 4 1/2 NRP	US10	ST
1	Power Transfer	EPT-12C		PR
1	Exit Device	3RO C FL MLR TDS 2103 X 4903D	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE
1	Door Closer	CLD-4550 EDA	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device.

SET #10

Doors: A012, A021, A104, A011

3	Hinges	BT CB179 4 1/2 X 4 1/2 NRP	US10	ST
1	Wireless Lockset	By Security Contractor		BY
1	Cylinder	12E-72 PATD /1E-74 PATD as req'd	612	BE
1	Door Closer	CLD-4550 EDA	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
1	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Card Reader	By Security Contractor		BY
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via lockset.

SET #11

Doors: A023, A027, A029, A031A, A106, A110

3	Hinges	BT CB179 4 1/2 X 4 1/2 NRP	US10	ST
1	Wireless Lockset	By Security Contractor		BY
1	Door Closer	CLD-4550 EDA	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
1	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via lockset.

SET #12

Doors: A007C, A009C, A010C

1	Cylinder	12E-72 PATD/1E-74 PATD as req'd	612	BE
1	Padlock	21B-722L PATD M5	626	BE

NOTE: Balance of hardware by door supplier.

SET #13

Doors: A014, A016, M036B

NOTE: Cased opening no hardware required.

SET #14

Doors: A112, A114

3	Hinges	BT CB179 4 1/2 X 4 1/2 NRP	US10	ST
1	Wireless Lockset	By Security Contractor		BY
1	Door Closer	CLD-4550 EDA	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
1	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via lockset.

SET #15

Doors: A116

3	Hinges	BT CB179 4 1/2 X 4 1/2	US10	ST
1	Wireless Lockset	By Security Contractor		BY
1	Door Closer	CLD-4550 EDA	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
1	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via lockset.

SET #16

Doors: A001, A107

6	Hinges	BT CB179 4 1/2 X 4 1/2 NRP	US10	ST
2	Flush Bolt	3917-12	612	TR
1	Dustproof Strike	3911	612	TR
1	Wireless Lockset	By Security Contractor		BY
1	Door Closer	CLD-4550 EDA	691	SD
2	Kick Plate	KO050 6" X 1" LDW B4E CSK	612	TR
2	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
2	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Smoke Seal	5020C @ HEAD & JAMBS		NA
1	Astragal	139 SP X 2525 C		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via lockset.

SET #17

Doors: A003

3	Hinges	BT CB179 4 1/2 X 4 1/2 NRP	US10	ST
1	Wireless Lockset	By Security Contractor		BY
1	Door Closer	CLD-4550 CS	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via lockset.

SET #18

Doors: A005

6	Hinges	BT CB168 4 1/2 X 4 1/2 NRP	US10	ST
2	Power Transfer	EPT-12C		PR
1	Exit Device	3RO C MLR TDS 2203 X 4903D LBR	612	PR
1	Exit Device	3RO TDS 2201 X 4901 LBR	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE
2	Door Closer	CLD-4550 EDA	691	SD
2	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
2	Wall Bumper		1270CX / 1211 AS REQ'D	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P ST		
1	Wire Harness	WH-XXP Length as req'd		ST

1	Smoke Seal	5020C @ HEAD & JAMBS	NA
1	Astragal Set	9675 DKB @ FACE OF EACH LEAF	NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device.

SET #19

Doors: A007A, A009A, A010A, A101A

6	Hinges	BT CB168 4 1/2 X 4 1/2 NRP	US10	ST
2	Flush Bolt	3917-12	612	TR
1	Dustproof Strike	3911	612	TR
1	Wireless Lockset	By Security Contractor		BY
2	Kick Plate	KO050 6" X 1" LDW B4E CSK	612	TR
2	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
2	Overhead Holder	N 1010 A Series	US10	AB
1	Smoke Seal	5020C @ HEAD & JAMBS		NA
1	Astragal Set	9675 DKB @ FACE OF EACH LEAF		NA

SET #20

Doors: A018, A020

3	Hinges	BT CB168 4 1/2 X 4 1/2	US10	ST
1	Wireless Lockset	By Security Contractor		BY
1	Electric Strike	ES5 B LBM/LCM	612	BE
1	Low Energy Operator	CLD-4990 X PS490	313	SD
1	Actuator/Transmitter Package	CL4976		SD
2	Surface Mounting Box	CL4638		SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
1	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Card Reader	By Security Contractor		BY
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Operational description: Wireless lockset is locked/unlocked via card or key. Card reader activates auto operator and HC push switches both inside and outside of classroom. When auto operator is activated, HC push switches will release electric strike-slight delay-activate auto operator.

SET #21

Doors: A019A, A019B, A025A, A025B, A102A, A102B, A108A, A108B

3	Hinges	BT CB168 4 1/2 X 4 1/2	US10	ST
1	Wireless Lockset	By Security Contractor		BY
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
1	Overhead Holder	N 1010 A Series	US10	AB
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

SET #22

Doors: STA001B

3	Hinges	BT CB199 5 X 4 1/2 NRP	US10	ST
1	Power Transfer	EPT-12C		PR
1	Exit Device	3RO C MLR TDS 2103	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE
1	Classic Pull Plate	51	612	TR
1	Door Closer	CLD-4550 CS	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Saddle Threshold	425 DKB 1/4-20-2" COMBO	AL	NA
1	Weatherstrip	700 ESDKB @ HEAD & JAMBS		NA
1	Door Sweep	200 NDDKB		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device.

SET #23

Doors: STA001A

6	Hinges	BT CB168 4 1/2 X 4 1/2	US10	ST
1	Exit Device	3RO FL 2214 X 4914D LBR	612	PR
1	Exit Device	3RO FL 2201 X 4901 LBR	612	PR
2	Door Closer	CLD-4550 EDA	691	SD
2	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
2	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
2	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Smoke Seal	5020C @ HEAD & JAMBS		NA
1	Astragal Set	9675 DKB @ FACE OF EACH LEAF		NA

SET #24

Doors: STA101

6 Hinges	BT CB168 4 1/2 X 4 1/2 NRP	US10	ST
2 Power Transfer	EPT-12C		PR
1 Exit Device	3RO FL TDS 2202 X 4902D LBR	612	PR
1 Exit Device	3RO C FL MLR TDS 2203 X 4903D LBR	612	PR
1 Rim Cylinder	12E-72 PATD	612	BE
1 Door Closer	CLD-4550 CS	691	SD
1 Door Closer	CLD-4550 EDA	691	SD
2 Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
2 Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1 Power Supply	RPSMLR2		PR
1 Card Reader	By Security Contractor		BY
1 Wire Harness	WH-6E		ST
1 Wire Harness	WH-192P		ST
1 Wire Harness	WH-XXP Length as req'd		ST
1 Astragal Set	9675 DKB @ FACE OF EACH LEAF		NA
1 Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device.

SET #25

Doors: A101B

6 Hinges	BT CB199 4 1/2 X 4 1/2 NRP	US10	ST
1 Power Transfer	EPT-12C		PR
1 Dustproof Strike	3911	612	TR
2 Flush Bolt	3917-12	612	TR
1 Electro-mech Lock	45HW-7WEU14H PATD 7/8"LTC C	612	BE
1 Door Closer	CLD-4550 CS	691	SD
2 Kick Plate	KO050 6" X 1" LDW B4E CSK	612	TR
1 Overhead Holder	N 1010 A Series	US10	AB
1 Card Reader	By Security Contractor		BY

1	Power Supply	RPSMLR2		
	PR			
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Saddle Threshold	425 DKB 1/4-20-2" COMBO	AL	NA
1	Weatherstrip	700 ESDKB @ HEAD & JAMBS		NA
1	Door Sweep	200 NDDKB		NA
1	Astragal	148 NDKB		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via lockset.

SET #26

Doors: A103A, A103B

3	Hinges	BT CB168 4 1/2 X 4 1/2 NRP	US10	ST
1	Wireless Lockset	By Security Contractor		BY
1	Overhead Holder	N 1010 A Series	US10	AB
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Mop Plate	KM050 6" X 1" LDW B4E CSK	612	TR
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

SET #27

Doors: A201

6	Hinges	BT CB199 4 1/2 X 4 1/2 NRP	US10	ST
1	Power Transfer	EPT-12C		PR
2	Flush Bolt	3917-12	612	TR
1	Dustproof Strike	3911	612	TR
1	Electro-mech Lock	45HW-7WEU14H PATD 7/8"LTC C	612	BE
1	Door Closer	CLD-4550 CS	691	SD
1	Overhead Stop	N 1020 Series	US10	AB
2	Kick Plate	KO050 6" X 1" LDW B4E CSK	612	TR
2	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Saddle Threshold	425 DKB 1/4-20-2" COMBO	AL	NA
1	Weatherstrip	700 ESDKB @ HEAD & JAMBS	NA	
2	Door Sweep	200 NDDKB		NA
1	Astragal	139 SP X 2525 C		NA

NOTE: Card Reader both inside and outside.

SET #28

Doors: 034A, 036A

3	Hinges	BT CB179 4 1/2 X 4 1/2	US10	ST
1	Wireless Lockset	By Security Contractor		BY
1	Door Closer	CLD-4551 REG	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

SET #29

Doors: 045

3	Hinges	BT CB168 4 1/2 X 4 1/2 NRP	US10	ST
1	Power Transfer	EPT-12C		PR
1	Exit Device	3RO C FL MLR TDS 2103 X 4903D	612	PR
1	Rim Cylinder	12E-72 PATD	612	BE
1	Door Closer	CLD-4550 EDA	691	SD
1	Kick Plate	KO050 6" X 2" LDW B4E CSK	612	TR
1	Wall Bumper	1270CX / 1211 AS REQ'D	612	TR
1	Card Reader	By Security Contractor		BY
1	Power Supply	RPSMLR2		PR
1	Wire Harness	WH-6E		ST
1	Wire Harness	WH-192P		ST
1	Wire Harness	WH-XXP Length as req'd		ST
1	Smoke Seal	5020C @ HEAD & JAMBS		NA

NOTE: Access via Card Reader or mechcanical key. Egress at all times via bar of exit device.

OPENING LIST

Opening	Hdw Set
M045	29
M034A	28
M036A	28
A001	16
A003	17
A005	18
A012	10
A014	13
A016	13
A018	20
A020	20

A021	10
A023	11
A027	11
A029	11
A104	10
A106	11
A017	16
A110	11
A112	14
A114	14
A116	15
A201	27
A007A	19
A007B	4
A007C	12
A009A	19
A009B	4
A009C	12
A010A	19
A010B	4
A010C	12
A019A	21
A019B	21
A025A	21
A025B	21
A031A	11
A101A	19
A101B	25
A102A	21
A102B	21
A103A	26
A103B	26
A103C	9
A108A	21
A108B	21
CA003	5
CA004	3
CA001A	2

CA001B	1
STA101	24
STA102	8
STA103	8
STA203	8
STA001A	23
STA001B	22
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END OF SECTION

SECTION 08 8000
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Glass.

B. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 9005 - Joint Sealers: Sealant and back-up material.

B. Section 081114 - Hollow Metal Doors and Frames: Glazed doors, and borrowed lites.

C. Section 08 1416 - Flush Wood Doors: Glazed lites in doors.

D. Section 08 5113 - Aluminum Windows: Factory glazed windows.

E. Section 08 5200 - Aluminum Clad Wood Windows: Glazing furnished by window manufacturer.

1.03 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; current edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test; 2010.

C. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2011.

D. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2011).

E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2011.

F. ASTM C1036 - Standard Specification for Flat Glass; 2011e1.

G. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.

H. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2009e1.

I. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

J. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2012a.

K. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2010.

L. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2009.

M. GANA (SM) - GANA Sealant Manual; Glass Association of North America; 2008.

N. ICC (IBC) - International Building Code; 2012.

O. SIGMA TM-3000 - Glazing Guidelines for Sealed Insulating Glass Units; Sealed Insulating Glass Manufacturers Association; 2004.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.

C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

D. Samples: Submit two samples 12 x 12 inch in size of insulated glass units.

E. Certificates: Certify that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with GANA Glazing Manual and GANA Sealant Manual for glazing installation methods.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.

1.06 MOCK-UP

A. See Sections 084413 and 085113 for mock-up requirements.

1.07 FIELD CONDITIONS

A. Do not install glazing when ambient temperature is less than 50 degrees F.

B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Sealed Insulating Glass Units: Provide a ten (10) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.

C. Laminated Glass: Provide a ten (10) year warranty to include coverage for delamination, including replacement of failed units.

PART 2 PRODUCTS

2.01 GLAZING TYPES

A. Type 1 - Sealed Insulating Glass Units: Vision glazing, low-E.
   1. Application(s): Glazed lites in exterior doors..
   2. Refer to Section 08 1423 - Clad Commercial Door.
      a. Glazing supplied and installed by manufacturer.

B. Type 1A - Sealed Insulating Glass Units: Safety glazing:
   1. Applications: Provide this type of glazing in the following locations:
      a. Glazed sidelights and panels next to doors.
      b. Windows that extend to below 18" above finished floor.
      c. Other locations required by applicable federal, state, and local codes and regulations.
      d. Other locations indicated on the drawings.
   2. Glazing: Double glazed, clear, Low-E coated, argon filled.
      a. Cardinal Glass: Lo-E 366.
      b. Spacer bar: Black stainless steel with bent corners, desicant filled.
   3. Type: Use1/8 inch fully tempered float glass for both outboard and inboard lites.
   4. Tint: Clear.
   5. Total Thickness: 3/4 inch.

C. Type 2 - Single Safety Glazing: Non-fire-rated.
   1. Applications: Provide this type of glazing in the following locations:
      a. Glazed lites in doors, except fire doors.

b. Glazed sidelights to doors, except in fire-rated walls and partitions.
c. Other locations required by applicable federal, state, and local codes and regulations.
d. Other locations indicated on the drawings.

2. Type: Laminated safety glass as specified.
3. Tint: Clear
4. Thickness: 1/4 inch (6mm).

D. Type 2A - Single Safety Glazing: Non-fire-rated.
1. Applications: Provide this type of glazing in the following locations:
a. Glazed lites in doors, except fire doors.
b. Glazed sidelights to doors, except in fire-rated walls and partitions.
c. Other locations required by applicable federal, state, and local codes and regulations.
d. Other locations indicated on the drawings.
2. Type: Laminated safety glass as specified.
3. Tint: Obscure Pattern 62.
4. Thickness: 1/4 inch.

E. Type 3 - NOT USED.

F. Type 4 - NOT USED.

G. Type 5 - NOT USED.

H. Type 6 - Fire-Rated Safety Glazing - up to 60 minutes:
1. Applications: Provide this type of glazing in the following locations:
a. Glazed lites in fire doors with fire ratings higher than 45 minutes.
2. Manufacturer and Product: SAFTIFIRST; Superlite II-XL 60
a. Other Approved Manufacturers: Technical Glass Products; Pilkington Pyrostop 60
b. Substitutions: See Section 01 6000.
3. Fire Rating: up to 60 minutes; with hose stream test and resistance to radiant heat transfer.
a. IBC fire resistance rating: D-H-T-60 for glazing in doors.
4. Type: high visible light transmission glass laminated with an intumescent interlayer..
5. Thickness: 7/8 inch
6. Impact safety rating: ANSI Z97.1 and CPSC 16CFR1201 (Cat I and II)
7. Light Transmittance: 86 percent, nominal.
8. Glazing Method: As required for fire rating. Provide 5/8" glazing stops.

2.02 EXTERIOR GLAZING ASSEMBLIES

A. Structural Design Criteria: Select type and thickness to withstand dead loads and wind loads acting normal to plane of glass at design pressures calculated in accordance with ASCE 7.
1. Use the procedure specified in ASTM E1300 to determine glass type and thickness.
2. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.
3. Thicknesses listed are minimum.

B. Air and Vapor Seals: Provide completed assemblies that maintain continuity of building enclosure vapor retarder and air barrier:
1. In conjunction with vapor retarder and joint sealer materials described in other sections.
2. To maintain a continuous air barrier and vapor retarder throughout the glazed assembly from glass pane to heel bead of glazing sealant.

2.03 GLASS MATERIALS

A. Float Glass Manufacturers:
   1. AGC Flat Glass North America, Inc: www.na.agc-flatglass.com.
   2. Guardian Industries Corp: www.sunguardglass.com.
   3. Pilkington North America Inc: www.pilkington.com/na.
   4. PPG Industries, Inc: www.ppgideascapes.com.
   5. Substitutions: Refer to Section 01 6000 - Product Requirements.

B. Float Glass: All glazing is to be float glass unless otherwise indicated.
   1. Annealed Type: ASTM C1036, Type I, transparent flat, Class 1 clear, Quality Q3 (glazing select).
   2. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
   3. Tinted Types: Color and performance characteristics as indicated.
   4. Thicknesses: As indicated; for exterior glazing comply with specified requirements for wind load design regardless of specified thickness.

C. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
   1. Laminated Safety Glass: Comply with 16 CFR 1201 test requirements for Category II.
   2. Plastic Interlayer: 0.060 inch thick, minimum.
   3. Where fully tempered is specified or required, provide glass that has been tempered by the tong-less horizontal method.
   4. Manufacturers:
      a. AGC Flat Glass North America, Inc: www.na.agc-flatglass.com.
      b. Cardinal Glass Industries: www.cardinalcorp.com.
      c. Viracon, Apogee Enterprises, Inc: www.viracon.com.
      d. Substitutions: Refer to Section 01 6000 - Product Requirements.

D. Fire-Resistance-Rated Glazing: Type, thickness, and configuration as required to achieve indicated ratings.
   1. IBC Fire Resistance Rating: As specified for glazing type.
   2. Provide products listed by Underwriters Laboratories or Intertek Warnock Hersey.
   3. Safety Certification: 16 CFR 1201 Category II.
   4. Products:
      a. Technical Glass Products; Pilkington Pyrostop: www.fireglass.com.
      b. SAFTI FIRST, a division of O'Keeffe's Inc; SuperLite II-XL: www.safti.com.
      c. Substitutions: Refer to Section 01 6000 - Product Requirements.

2.04 SEALED INSULATING GLASS UNITS

A. Manufacturers:
   1. Any fabricator certified by glass manufacturer for type of glass, coating, and treatment involved and capable of providing specified warranty, if any.
   2. Substitutions: Refer to Section 01 6000 - Product Requirements.

B. Sealed Insulating Glass Units: Types as indicated.
   1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
   2. Edge Spacers: Stainless steel, bent and soldered corners.
   3. Edge Seal: Glass to elastomer with supplementary silicone sealant.
   4. Purge interpane space with dry hermetic air.

2.05 GLAZING COMPOUNDS

A. Glazing Putty : Polymer modified latex , knife grade consistency; grey color.

B. Polysulfide Sealant : Two component; chemical curing, non-sagging type; ASTM C 920, Type M, Grade NS, Class 25, Uses M, A, and G; cured Shore A hardness of 15 to 25; color as selected.

C. Silicone Sealant : Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C 920, Type S, Grade NS, Class 25, Uses M, A, and G; cured Shore A hardness of 15 to 25; color as selected.

2.06 GLAZING ACCESSORIES

A. Setting Blocks: Neoprene, EPDM, or Silicone, 80 to 90 Shore A durometer hardness, ASTM C864 Option I. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.

B. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness, ASTM C 864 Option I. Minimum 3 inch long x one half the height of the glazing stop x thickness to suit application, self adhesive on one face.

C. Glazing Tape: Preformed butyl compound with integral resilient tube spacing device; 10 to 15 Shore A durometer hardness; coiled on release paper; black color.

D. Glazing Splines: Resilient polyvinyl chloride extruded shape to suit glazing channel retaining slot; ASTM C864 Option I; color to match framing.

E. Glazing Clips: Manufacturer's standard type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that openings for glazing are correctly sized and within tolerance.

B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.02 PREPARATION

A. Prime surfaces scheduled to receive sealant.

B. Install sealants in accordance with ASTM C1193 and GANA Sealant Manual.

C. Install sealant in accordance with manufacturer's instructions.

3.03 GENERAL

A. Manufacturer's Instructions: Follow in executing all glazing work.

B. Sizing: Obtain final sizes for all glass by job measurement.

C. Preparation: Check all openings prior to glazing to ascertain that opening is square, plumb and secure. Clean all surfaces that will receive glazing materials with cleaner as recommended by manufacturer; wipe dry.

D. Windows: Install spacers, shims and setting blocks as recommended by glass manufacturer. Install sealants, glazing tape, vision strips, etc., as recommended by glass manufacturer.

3.04 INSTALLATION

A. Comply with referenced FGMA standards and instructions of manufacturers of glass, glazing sealants, and glazing compounds.

B. Protect glass from edge damage during handling and installation. Inspect glass during installation and discard pieces with edge damage that could affect glass performance.

C. Set units of glass in each series with uniformity of pattern, draw, bow, and similar characteristics.
   1. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
   2. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

D. Cut glazing tape to length and set against permanent stops, flush with sight lines to fit openings exactly, with stretch allowance during installation.

E. Place setting blocks located at quarter points of glass with edge block no more than 6 inches from corners.

F. Glaze vertically into labeled fire-rated metal frames or partition walls with same fire rating as glass and push against tape for full contact at perimeter of pane or unit.

G. Place glazing tape on free perimeter of glazing in same manner described above.

H. Install removable stop and secure without displacement of tape.

I. Use specified glazing compound, without adulteration; bed glazing material in glazing compound; entirely fill all recess and spaces. Provide visible glazing compound with smooth and straight edges.

J. Install in vision panels in fire-rated doors to requirements of NFPA 80.

K. Install so that appropriate markings remain permanently visible.

L. Follow glazing size limits, stop size per manufacturer recommendations.

3.05 INSTALLATION

A. Comply with referenced FGMA standards and instructions of manufacturers of glass, glazing sealants, and glazing compounds.

B. Protect glass from edge damage during handling and installation. Inspect glass during installation and discard pieces with edge damage that could affect glass performance.

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G. Place glazing tape on free perimeter of glazing in same manner described above.

H. Install removable stop and secure without displacement of tape.

I. Use specified glazing compound, without adulteration; bed glazing material in glazing compound; entirely fill all recess and spaces. Provide visible glazing compound with smooth and straight edges.

J. Install in vision panels in fire-rated doors to requirements of NFPA 80.

K. Install so that appropriate markings remain permanently visible.

L. Follow glazing size limits, stop size per manufacturer's recommendations.

3.06 MANUFACTURER'S FIELD SERVICES

A. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.

B. Monitor and report installation procedures and unacceptable conditions.

3.07 LABELING

A. Each piece of fire-rated glazing shall be permanently labeled with the appropriate manufacturer's logo, UL logo and fire rating.

B. Each piece of safety-rated glazing shall be permanently labeled with the appropriate manufacturer's logo and safety rating.

3.08 CLEANING

A. Remove glazing materials from finish surfaces.

B. Remove labels after Work is complete.

C. Clean glass and adjacent surfaces.

END OF SECTION

SECTION 08 9100
LOUVERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Louvers, frames, and accessories.

1.02 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2013.

B. AMCA 500-L - Laboratory Methods of Testing Louvers for Rating; Air Movement and Control Association International, Inc.; 2012.

C. AMCA 511 - Certified Ratings Program Product Rating Manual for Air Control Devices; 2013.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data describing design characteristics, maximum recommended air velocity, design free area, materials and finishes.

C. Shop Drawings: Indicate louver layout plan and elevations, opening and clearance dimensions, tolerances; head, jamb and sill details; blade configuration, screens, blankout areas required, and frames.

D. Samples: Submit two samples 2 by 2 inches in size illustrating finish and color of exterior and interior surfaces.

E. Test Reports: Independent agency reports showing compliance with specified performance criteria.

PART 2 PRODUCTS

2.01 LOUVERS

A. Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified in accordance with AMCA 511.
   1. Wind Load Resistance: Design to resist positive and negative wind load of 25 psf without damage or permanent deformation.
   2. Intake Louvers: Design to allow maximum of 0.01 oz/sq ft water penetration at calculated intake design velocity based on design air flow and actual free area, when tested in accordance with AMCA 500-L.
   3. Drainable Blades: Continuous rain stop at front or rear of blade aligned with vertical gutter recessed into both jambs of frame.
   4. Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.

B. Stationary Louvers: Horizontal blade, extruded aluminum construction, with intermediate mullions matching frame.
   1. Free Area: 50 percent, minimum.
   2. Blades: Straight.
   3. Frame: 4 inches deep, channel profile; corner joints mitered and, with continuous recessed caulking channel each side.
   4. Aluminum Thickness: Frame 12 gage, 0.0808 inch minimum; blades 12 gage, 0.0808 inch minimum.
   5. Aluminum Finish: Class II natural anodized; finish welded units after fabrication.

2.02 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

2.03 FINISHES

A. Superior Performing Organic Coatings: AAMA 2605 multiple coat, thermally cured polyvinylidene fluoride system.
   1. Polyvinylidene fluoride (PVDF) multi-coat thermoplastic fluoropolymer coating system, including minimum 70 percent PVDF color topcoat and minimum total dry film thickness of 0.9 mil; color and gloss as indicated on drawings.

2.04 ACCESSORIES

A. Screens: Frame of same material as louver, with reinforced corners; removable, screw attached; installed on inside face of louver frame.

B. Bird Screen: Interwoven wire mesh of steel, 14 gage, 0.0641 inch diameter wire, 1/2 inch open weave, diagonal design.

C. Insect Screen: 18 x 16 size aluminum mesh.

D. Flashings: Of same material as louver frame, formed to required shape, single length in one piece per location.

E. Sealant for Setting Sills and Sill Flashing: Non-curing butyl type.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install louver assembly in accordance with manufacturer's instructions.

B. Install louvers level and plumb.

C. Install flashings and align louver assembly to ensure moisture shed from flashings and diversion of moisture to exterior.

D. Secure louver frames in openings with concealed fasteners.

END OF SECTION

SECTION 09 0561
COMMON WORK RESULTS FOR FLOORING PREPARATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section applies to all floors identified in the contract documents as to receive the following types of floor coverings:
   1. Resilient tile.
   2. Broadloom carpet.
   3. Carpet tile.

B. Removal of some existing floor coverings.

C. Preparation of existing concrete floor slabs for installation of floor coverings.

D. Testing of existing concrete floor slabs for moisture and alkalinity (pH) has already been conducted; test report is attached.

E. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
   1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.

1.02 RELATED REQUIREMENTS

A. Section 03 5400 - Cast Underlayment: Self-leveling underlayment applied as remediation treatment.

1.03 REFERENCES

A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2013.

B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 1999 (Reapproved 2014).

C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.

D. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2011.

E. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; Resilient Floor Covering Institute; October 2011.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

1.05 SUBMITTALS

A. Visual Observation Report: For existing floor coverings to be removed.

B. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
   1. Moisture and alkalinity (pH) limits and test methods.
   2. Manufacturer's required bond/compatibility test procedure.

C. Testing Agency's Report:
   1. Description of areas tested; include floor plans and photographs if helpful.
   2. Summary of conditions encountered.
   3. Moisture and alkalinity (pH) test reports.
   4. Copies of specified test methods.
   5. Recommendations for remediation of unsatisfactory surfaces.
   6. Submit report directly to Owner.
   7. Submit report not more than two business days after conclusion of testing.

D. Adhesive Bond and Compatibility Test Report.

E. Copy of RFCI (RWP).

F. Remedial Materials Product Data: Manufacturer's published data on each product to be used for remediation.
   1. Manufacturer's installation instructions.
   2. Specimen Warranty: Copy of warranty to be issued by coating manufacturer and certificate of underwriter's coverage of warranty.

1.06 QUALITY ASSURANCE

A. Moisture and alkalinity (pH) testing will be performed by an independent testing agency employed and paid by Owner.

B. Contractor may perform adhesive and bond test with his own personnel or hire a testing agency.

C. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.
   1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.

D. Contractor's Responsibility Relating to Independent Agency Testing:
   1. Provide access for and cooperate with testing agency.
   2. Confirm date of start of testing at least 10 days prior to actual start.
   3. Allow at least 4 business days on site for testing agency activities.
   4. Achieve and maintain specified ambient conditions.
   5. Notify Owner when specified ambient conditions have been achieved and when testing will start.

E. Remedial Coating Installer Qualifications: Company specializing in performing work of the type specified in this section, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years' experience installing moisture emission coatings.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, handle, and protect products in accordance with manufacturer’s instructions and recommendations.

B. Deliver materials in manufacturer’s packaging; include installation instructions.

C. Keep materials from freezing.

1.08 FIELD CONDITIONS

A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F or more than 85 degrees F.

B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

PART 2 PRODUCTS

2.01 MATERIALS

A. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
   1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
   2. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.

B. Alternate Flooring Adhesive: Floor covering manufacturer's recommended product, suitable for the moisture and pH conditions present; low-VOC. In the absence of any recommendation from flooring manufacturer, provide a product recommended by adhesive manufacturer as suitable for substrate and floor covering and for conditions present.

C. Remedial Floor Coating: Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.
   1. If testing agency recommends any particular products, use one of those.
   2. Products:
      a. Refer to Section 03 5400 - Cast Underlayment

PART 3 EXECUTION

3.01 CONCRETE SLAB PREPARATION

A. Perform following operations in the order indicated:
   1. Existing concrete slabs (on-grade and elevated) with existing floor coverings:
      a. Visual observation of existing floor covering, for adhesion, water damage, alkaline deposits, and other defects.
      b. Removal of existing floor covering.
   2. Preliminary cleaning.
   3. Moisture vapor emission tests; 3 tests in the first 1000 square feet and one test in each additional 1000 square feet, unless otherwise indicated or required by flooring manufacturer.
   4. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
   5. Specified remediation, if required.
   6. Patching, smoothing, and leveling, as required.
   7. Other preparation specified.
   8. Adhesive bond and compatibility test.
   9. Protection.

B. Remediations:
   1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.

2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating over entire suspect floor area.
3. Excessive Alkalinity (pH): If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

3.02 REMOVAL OF EXISTING FLOOR COVERINGS

A. Comply with local, State, and federal regulations and recommendations of RFCI Recommended Work Practices for Removal of Resilient Floor Coverings, as applicable to floor covering being removed.

B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

3.03 PRELIMINARY CLEANING

A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.

B. Do not use solvents or other chemicals for cleaning.

3.04 MOISTURE VAPOR EMISSION TESTING

A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.

B. Where this specification conflicts with the referenced test method, comply with the requirements of this section.

C. Test in accordance with ASTM F1869 and as follows.

D. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.

E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet per 24 hours.

F. Report: Report the information required by the test method.

3.05 ALKALINITY TESTING

A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.

B. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.

C. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.

D. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.

E. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

3.06 PREPARATION

A. See individual floor covering section(s) for additional requirements.

B. Comply with requirements and recommendations of floor covering manufacturer.

C. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.

D. Do not fill expansion joints, isolation joints, or other moving joints.

3.07 ADHESIVE BOND AND COMPATIBILITY TESTING

A. Comply with requirements and recommendations of floor covering manufacturer.

3.08 APPLICATION OF REMEDIAL FLOOR COATING

A. Comply with requirements and recommendations of coating manufacturer.

3.09 PROTECTION

A. Cover prepared floors with building paper or other durable covering.

END OF SECTION

SECTION 09 2116
GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Metal stud wall framing.

C. Metal channel ceiling framing.

D. Gypsum wallboard.

E. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 2100 - Thermal Insulation: Acoustic insulation.

B. Section 07 9005 - Joint Sealers: Acoustic sealant.

1.03 REFERENCE STANDARDS

A. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2012.

B. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2014.

C. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2015.

D. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2013.

E. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2011.

F. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2014.

G. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2014a.

H. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

I. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.

J. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

K. ASTM E413 - Classification for Rating Sound Insulation; 2010.

L. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2013.

M. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on metal framing, gypsum board, accessories, and joint finishing system.

C. Product Data: Provide manufacturer's data on partition head to structure connectors, showing compliance with requirements.

D. Test Reports: For stud framing products that do not comply with ASTM C645 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

E. LEED Submittals:
   1. For gypsum wallboard, submit documentation of recycled content and location of manufacture.
   2. For steel products, submit documentation of steel mill process, location of mill, and location of manufacture.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing gypsum board application and finishing.

B. Copies of Documents at Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.
   1. See PART 3 for finishing requirements.

B. Interior Partitions, Indicated as Acoustic: Provide completed assemblies with the following characteristics:
   1. Acoustic Attenuation: STC as indicated calculated in accordance with ASTM E413, based on tests conducted in accordance with ASTM E90.

C. Fire Rated Assemblies: Provide completed assemblies with the following characteristics:
   1. UL Assembly Numbers: Provide construction equivalent to that listed for the particular assembly in the current UL Fire Resistance Directory. Refer to Drawings for UL Assembly Reference Numbers.

2.02 METAL FRAMING MATERIALS

A. Manufacturers - Metal Framing, Connectors, and Accessories:
   1. Clarkwestern Dietrich Building Systems LLC: www.clarkdietrich.com.
   2. Marino: www.marinoware.com.
   3. Phillips Manufacturing Company: www.phillipsmfg.com.

B. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
   1. Exception: The minimum metal thickness and section properties requirements of ASTM C 645 are waived provided steel of 40 ksi minimum yield strength is used, the metal is continuously dimpled, the effective thickness is at least twice the base metal thickness, and maximum stud heights are determined by testing in accordance with ASTM E 72 using assemblies specified by ASTM C 754.
   2. Studs: "C" shaped with flat or formed webs with knurled faces.
   3. Runners: U shaped, sized to match studs.
   4. Ceiling Channels: C-shaped.
   5. Furring: Hat-shaped sections, minimum depth of 7/8 inch.

C. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.

D. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.

2.03 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. CertainTeed Corporation: www.certainteed.com.
   2. Georgia-Pacific Gypsum: www.gpgypsum.com.
   3. Lafarge North America Inc: www.lafargenorthamerica.com.
   4. National Gypsum Company: www.nationalgypsum.com.
   5. USG Corporation: www.usg.com.
   6. Substitutions: See Section 01 6000 - Product Requirements.

B. Gypsum Wallboard: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
      a. Mold resistant board is required at all locations.
   3. At Assemblies Indicated with Fire-Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
   4. Thickness:
      a. Vertical Surfaces: 5/8 inch.
      b. Ceilings: 1/2 inch.
      c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
   5. Mold Resistant Paper Faced Products:
      a. Georgia-Pacific Gypsum; ToughRock Fireguard X Mold-Guard.
      b. Lafarge North America Inc; Mold Defense Drywall.
      c. National Gypsum Company; Gold Bond Brand XP Gypsum Board.
      d. USG Corporation; Sheetrock Brand Mold Tough Gypsum Panels.

C. Abuse Resistant Wallboard:
   1. Application: High-traffic areas indicated.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
   3. Type: Fire resistance rated Type X, UL or WH listed.
   4. Thickness: 5/8 inch.
   5. Edges: Tapered.

D. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Ceilings, unless otherwise indicated.
   2. Thickness: 1/2 inch.
   3. Edges: Tapered.

2.04 ACCESSORIES

A. Acoustic Insulation: As specified in Section 07 2100.

B. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.

C. Acoustic Sealant: As specified in Section 07 9005.

D. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless noted otherwise.
   1. Types: As detailed or required for finished appearance.

2. Special Shapes: In addition to conventional corner bead and control joints, provide U-bead at exposed panel edges.

E. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer for project conditions.
1. Tape: 2 inch wide, coated glass fiber tape for joints and cornersin wet areas.
2. Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
3. Chemical hardening type compound.

F. High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

G. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inch in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion resistant.

H. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch in Thickness: ASTM C954; steel drill screws, corrosion resistant.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members as indicated.
1. Level ceiling system to a tolerance of 1/1200.
2. Laterally brace entire suspension system.
3. Install bracing as required at exterior locations to resist wind uplift.

C. Studs: Space studs at 16 inches on center.
1. Extend partition framing to structure in typical conditions, 6 inches above ceiling at perimeter wall conditions and as indicated.
2. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous bridging.

D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.04 BOARD INSTALLATION

A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.06 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   2. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
   3. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch.

C. Where Level 5 finish is indicated, spray apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

END OF SECTION

SECTION 09 2236.23
METAL LATH

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal lath for gypsum plaster.

B. Furring for metal lath.

C. Metal ceiling framing.

1.02 RELATED REQUIREMENTS

A. Section 09 2300 - GYPSUM PLASTERING.

1.03 REFERENCE STANDARDS

A. ASTM C841 - Standard Specification for Installation of Interior Lathing and Furring; 2003 (Reapproved 2013).

B. ASTM C847 - Standard Specification for Metal Lath; 2014a.

C. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2014.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on furring and lathing components, structural characteristics, material limitations, and finish.

C. Samples:

1. Submit two samples, 2 by 6 inch in size illustrating linear materials and finish.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section a minimum five years documented experience.

PART 2 PRODUCTS

2.01 FRAMING MATERIALS

A. Furring Channels: Formed steel, minimum 0.020 inch thick, 3/8 inch deep by 7/8 inch high, splicing permitted; galvanized.

B. Main Ceiling Channels: Formed steel, minimum 0.05 inch thick, 3/4 inch deep by 1-1/2 inch high, single piece, no splicing; galvanized.

C. Hangers: Steel wire, of size and type to suit application, to support ceiling components in place to deflection limits as indicated.

D. Ceiling Hangers: Rolled steel sections, of size and type to suit application, to rigidly support ceiling components in place to deflection limits as indicated; galvanized.

E. Lateral Bracing: Formed steel, minimum 0.060 inch thick, size and length as required; galvanized.

2.02 LATH

A. Ribbed Metal Lath: ASTM C847, galvanized; 3/8 inch thick.

1. Weight: To suit application, comply with deflection criteria, and as specified in ASTM C841 for framing spacing.

B. Corner Mesh: Formed sheet steel, minimum 0.018 inch thick, perforated flanges shaped to permit complete embedding in plaster, minimum 2 inch size; same finish as lath.

C. Strip Mesh: Expanded metal lath, same weight as lath, 2 inch wide by 24 inch long; same finish as lath.

D. Beads, Screeds, Joint Accessories, and Other Trim: Depth governed by plaster thickness, maximum possible lengths.
   1. Material: Formed zinc, expanded metal flanges.
   2. Casing Beads: Square edges.
   3. Corner Beads: Radiused corners.
   4. Base Screeds: Bevelled edges.
   5. Expansion Joints: Accordion profile with factory-installed protective tape, 2 inch wide flanges.

2.03 ACCESSORIES

A. Anchorage: Tie wire, nails, and other metal supports, of type and size to suit application; to rigidly secure materials in place, galvanized.

B. Fasteners: Self-piercing tapping screws; ASTM C1002.

C. Tie Wire: Annealed galvanized steel.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that substrates are ready to receive work and conditions are suitable for application.

C. Do not begin until unacceptable conditions have been corrected.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 INSTALLATION - GENERAL

A. Install interior lath and furring in accordance with ASTM C841.

3.03 WALL FURRING

A. Install furring channels horizontally; secure with fasteners on alternate channel flanges at maximum 24 inches on center.

B. Space furring channels maximum 16 inches on center, and not more than 4 inches away from floor and ceiling lines.

3.04 CEILING AND SOFFIT FRAMING

A. Install furring after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.

B. Install furring independent of walls, columns, and above-ceiling work.

C. Securely anchor hangers to structural members or embed in structural slab. Space hangers as required to limit deflection to criteria indicated. Use rigid hangers at exterior soffits.

D. Space main carrying channels at maximum 72 inch on center, and not more than 6 inches from wall surfaces. Lap splice securely.

E. Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.

F. Place furring channels perpendicular to carrying channels, not more than 2 inches from perimeter walls, and rigidly secure. Lap splices securely.

G. Reinforce openings in suspension system that interrupt main carrying channels or furring channels with lateral channel bracing. Extend bracing minimum 24 inches past each opening.

H. Laterally brace suspension system.

3.05 LATH INSTALLATION

A. Apply metal lath taut, with long dimension perpendicular to supports.

B. Lap ends minimum 1 inch. Secure end laps with tie wire where they occur between supports.

C. Continuously reinforce internal angles with corner mesh, except where the metal lath returns 3 inches from corner to form the angle reinforcement; fasten at perimeter edges only.

D. Place corner bead at external wall corners; fasten at outer edges of lath only.

E. Place base screeds at termination of plaster areas; secure rigidly in place.

F. Place 4 inch wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.

G. Place lath vertically above each top corner and each side of door frames to 6 inches above ceiling line.

H. Place casing beads at terminations of plaster finish. Butt and align ends. Secure rigidly in place.

I. Place additional strip mesh diagonally at corners of lathed openings. Secure rigidly in place.

3.06 TOLERANCES

A. Maximum Variation from True Lines and Levels: 1/8 inch in 10 feet.

B. Maximum Variation from True Position: 1/8 inch.

END OF SECTION

SECTION 09 2300
GYPSUM PLASTERING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Gypsum plaster over metal lath, masonry, and other solid surfaces.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

B. Section 09 2116 - Gypsum Board Assemblies: Metal stud framing and furring for plaster.

C. Section 09 2236.23 - Metal Lath: Metal lath, furring, and accessories for plaster base.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
1. Provide an allowance for 100 square feet of gypsum plaster patching.
a. This allowance includes purchase, delivery, and installation of gypsum plaster, including brown and scratch coats, gypsum plaster finishcoat, texture and finish approved by the Architect.
b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices:
1. Unit price for gypsum plaster patching.
a. Unit of measure: Square foot of gypsum plaster patching.

1.04 REFERENCE STANDARDS

A. ASTM C28/C28M - Standard Specification for Gypsum Plasters; 2010.

B. ASTM C842 - Standard Specification for Application of Interior Gypsum Plaster; 2005 (Reapproved 2010)e1.

1.05 MOCK-UP

A. Construct mock-up of interior wall, 10 feet long by 10 feet wide, illustrating surface finish.

B. Locate where directed.

PART 2 PRODUCTS

2.01 PLASTER MATERIALS

A. Ready-Mixed Gypsum Plaster: ASTM C28/C28M; mill-mixed type, requiring only the addition of water.

B. Ready-Mixed Finishing Plaster: Gypsum/Lime putty type, ASTM C28/C28M; mixture of gauging plaster and lime.

C. Water: Clean, fresh, potable and free of mineral or organic matter that could adversely affect plaster.

2.02 METAL LATH

A. Metal Lath and Accessories: As specified in Section 09 2236.23.

B. Beads, Screeds, and Joint Accessories: Zinc, as specified in Section 09 2236.23.

2.03 PLASTER MIXES

A. Over Metal Lath: Three-coat application, ready-mixed plaster, mixed and proportioned in accordance with ASTM C842 and manufacturer's instructions.

B. Ready-Mixed Plaster Materials: Mix in accordance with manufacturer's instructions.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing conditions are satisfactory before starting work.

B. Masonry: Verify joints are cut flush and surface is ready to receive work of this section. Verify no bituminous or water repellent coatings exist on masonry surface.

C. Grounds and Blocking: Verify items within walls for other sections of work have been installed.

D. Metal Lath and Accessories: Verify lath is flat, secured to substrate, and joint and surface perimeter accessories are in place.

3.02 PREPARATION

A. Dampen masonry surfaces to reduce excessive suction.

B. Clean concrete surfaces of foreign matter. Thoroughly dampen surfaces before using acid solutions, solvent, or detergents to perform cleaning. Wash surface with clean water.

C. Roughen smooth concrete surfaces and smooth faced masonry.

D. Apply bonding agent in accordance with manufacturer's instructions.

3.03 PLASTERING

A. Apply gypsum plaster in accordance with ASTM C842 and manufacturer's instructions.

B. Thickness of Plaster including Finish Coat:
   1. Over metal lath: 5/8 inch.
   2. Direct to unit masonry: 5/8 inch.

3.04 TOLERANCES

A. Maximum Variation from True Flatness: 1/8 inch in 10 feet.

END OF SECTION

SECTION 09 2613
GYPSUM VENEER PLASTERING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Gypsum veneer plaster on gypsum veneer base, existing plaster, and other substrates.

B. Gypsum veneer base and accessories.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

B. Section 09 2116 - Gypsum Board Assemblies: Metal stud framing and furring for plaster.

C. Section 09 2300 - GYPSUM PLASTERING.

1.03 PRICE AND PAYMENT PROCEDURES

A. Allowances:
   1. Provide an allowance for 10 square feet of veneer plaster.
      a. This allowance includes purchase, delivery, and installation of veneer plaster, including metal studs, veneer plaster base, taped and spackeled, veneer plaster, texture and finish approved by the Architect.
      b. This allowance shall be included in the Base Bid and adjusted by a Unit Price.

B. Unit Prices
   1. Unit price for veneer plaster wall.
      a. Unit of measure: Square foot of veneer plaster wall.

1.04 REFERENCE STANDARDS

A. ASTM C587 - Standard Specification for Gypsum Veneer Plaster; 2004 (Reapproved 2009).

B. ASTM C843 - Standard Specification for Application of Gypsum Veneer Plaster; 1999 (Reapproved 2012).

C. ASTM C844 - Standard Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster; 2015.

D. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2014a.

E. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

F. GA-216 - Application and Finishing of Gypsum Board; 2013.

G. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2012.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittals procedures.

B. Product Data: Provide data on veneer plaster products.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum five years of experience.

1.07 FIELD CONDITIONS

A. Do not apply veneer plaster when substrate or ambient air temperature is less than 50 degrees F nor more than 80 degrees F; for 24 hours prior to, during operations and after, until building heating system can maintain the above minimum temperature.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Gypsum Veneer Plaster:
   1. Georgia-Pacific Gypsum LLC: www.gp.com/gypsum.
   2. National Gypsum Company: www.nationalgypsum.com.
   3. USG: www.usg.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

A. Gypsum Veneer Plaster: ASTM C587, mixed in accordance with manufacturer's instructions.

B. Standard Gypsum Veneer Base: ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Thickness: 1/2 inch.
   2. Edges: Tapered.

C. Gypsum Veneer Base Trim Accessories: Zinc-coated steel or plastic, complying with ASTM C1047.

D. Gypsum Board Accessories: Complying with ASTM C1047, GA-216, and GA-600.

E. Joint Reinforcing for Gypsum Veneer Base: As specified in ASTM C587.

F. Fasteners: As specified in ASTM C844.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrates are ready to receive work.

B. Verify gypsum plaster base is flat, smooth and surface is ready to receive work. Verify joint and surface perimeter accessories are in place.

3.02 PREPARATION

A. Clean surfaces of dust or loose matter.

B. Remove projections greater than 1/8 inch and fill depressions greater than 1/4 inch with latex filler.

3.03 INSTALLATION - GYPSUM PLASTER BASE

A. Install gypsum base in accordance with ASTM C844.

B. Use drywall screws to fasten gypsum base to framing substrate.

C. Install accessories.

D. Tape, fill, and sand filled joints, edges, corners, openings, and trim to produce surface ready to receive veneer finish.

E. Feather coats onto adjoining surfaces so that joint camber is maximum 1/32 inch.

3.04 INSTALLATION - VENEER PLASTER

A. Install gypsum veneer plaster in accordance with ASTM C843 and manufacturer's instructions.

B. At All Locations: Two Coat Applications.

1. Apply base coat to a thickness of 1/8 inches
2. Apply final coat over slightly green, almost dry base coat, to a thickness of 1/16 inch.
3. Total Thickness: 3/16 inch.

C. Finish surface to flat, smooth, hard trowel finish.

3.05 TOLERANCES

A. Maximum Variation From Specified Thickness: Plus or minus 1/64 inch.

3.06 PROTECTION

A. Do not permit traffic near unprotected finished surfaces.

END OF SECTION

SECTION 09 3000
TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Tile for floor applications.

B. Tile for wall applications.

C. Cementitious backer board as tile substrate.

D. Stone thresholds.

E. Trim.

1.02 RELATED REQUIREMENTS

A. Section 07 9005 - Joint Sealers.

B. Section 09 05 61 - Common Work Results for Flooring Preparation

C. Section 09 2116 - Gypsum Board Assemblies: Installation of tile backer board.

1.03 REFERENCE STANDARDS

A. ANSI A108/A118/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile - Version; 2014.

B. ANSI A108.1A - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2014.

C. ANSI A108.1B - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).

D. ANSI A108.1C - Specifications for Contractors Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Bed with Dry-Set or Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).

E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive; 2009 (Revised).

F. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).

G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy; 1999 (Reaffirmed 2010).

H. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2010).

I. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 1999 (Reapproved 2010).

J. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 1999 (Reapproved 2010).

K. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2010 (Revised).

L. ANSI A108.12 - American National Standard Specifications for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar; 1999 (Reaffirmed 2010).

M. ANSI A108.13 - American National Standard Specifications for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2010).

N. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2012 (Revised).

O. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation; 2010 (Revised).

P. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 1999 (Reaffirmed 2010).

Q. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar; 2012.

R. ANSI A137.1 - American National Standard Specifications for Ceramic Tile - Version; 2013.1.

S. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2015.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

C. Samples: Mount tile and apply grout on two plywood panels, minimum 18 by 18 inches in size illustrating pattern, color variations, and grout joint size variations.

D. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.05 QUALITY ASSURANCE

A. Maintain one copy of and ANSI A108/A118/A136.1 and TCNA (HB) on site.

B. Installer Qualifications: Company specializing in performing tile installation, with minimum of 5 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not install solvent-based products in an unventilated environment.

B. Maintain ambient and substrate temperature of 50 degrees F during installation of mortar materials.

PART 2 PRODUCTS

2.01 TILE

A. Manufacturers: All products by the same manufacturer.
   1. Basis of Design: Garden State Tile..

B. Paver and Wall Tile : ANSI A137.1, and as follows:
   1. Flow distributed by Garden State Tile .
      a. Colorbody glazed porcelain tile with conic reversed edges, rectified.
   2. Size and Shape: as follows:
      a. PFT-1: 12 x 24 inch for floor installation.

b. PWT-1: 12 x 24 inch for wall installation.
c. PWT-2: 3 x 12 inch trim.
d. PWT-3: 6 x 24 inch for wall installation.
e. PWT-4: 3 x 24 inch trim.
3. Thickness: 3/8 inch
4. Surface Finish: Natural.
5. Color: Silver.
6. Trim Units: Matching cove base shapes in sizes coordinated with field tile.

2.02 TRIM AND ACCESSORIES

A. Ceramic Trim: Matching bullnose ceramic shapes in sizes coordinated with field tile.
1. Applications:
a. Open Edges: Bullnose.
b. Inside Corners: Jointed.
2. Manufacturers: Same as for tile.

B. Non-Ceramic Trim: Brushed stainless steel, style and dimensions to suit application, for setting using tile mortar or adhesive.
1. Applications:
a. Floor to wall joints: Cove base.
2. Manufacturer:
a. Schluter-Systems: www.schluter.com.

C. Thresholds: Marble, white or gray, honed finish; 2 inches wide by full width of wall or frame opening; 1/2 inch thick; beveled one long edge with radiused corners on top side; without holes, cracks, or open seams.

2.03 SETTING MATERIALS

A. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4 or ANSI A118.15.
1. Applications: Use this type of bond coat where indicated and where no other type of bond coat is indicated.
2. Products:
a. Custom Building Products; Complete Contact-LFT Premium Rapid Setting Large Format Tile Mortar, with Multi-Surface Bonding Primer: www.custombuildingproducts.com.
b. ProSpec, an Oldcastle brand; Medium Bed PermaFlex 550: www.prospec.com.
c. MAPEI "Ultraflex RS" Bond Coat.
d. Substitutions: See Section 01 6000 - Product Requirements.

2.04 MORTAR MATERIALS

A. Mortar Bed Materials: Portland cement, sand, latex additive, _____ and water.

B. Premium non-sag, medium-bed and thin-set mortar: Polymer-modified single-component mortar for large format tile ", complying with ANSI A118.4, A118.11 and ISO 13007 C2TES1P1;
1. MAPEI, "Ultraflex LFT".

2.05 GROUTS

A. Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.

2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
3. Color(s): As selected by Architect from manufacturer's full line.

B. Grout Sealant: Manufacturer's standard product for sealing grout joints that does not change color or appearance of grout.
1. Products:
a. Bonsal, W. R., Company; Grout Sealer.
b. Bostik; CeramaSeal Grout Sealer.
c. C-Cure; Penetrating Sealer 978.
d. MAPEI Corporation; KER 003, Silicone Spray Sealer for Cementitious Tile Grout.
e. Summitville Tiles, Inc.; SL-15, Invisible Seal Penetrating Grout and Tile Sealer.
f. TEC Specialty Products Inc.; TA-256 Penetrating Silicone Grout Sealer."

2.06 ACCESSORY MATERIALS

A. Premium Latex Based Waterproofing and Crack Isolation Membrane; fast setting, flexible, thin, load-bearing, waterproofing membrane system consisting of a premixed, quick-drying liquid latex, complying with ANSI A118.10 and ANSI A118.12; and having IAMPO certification as a shower pan liner.
1. Products:
a. MAPEI, "AquaDefense".

B. Premixed, liquid-rubber, quick-drying crack-isolation membrane for installation under ceramic tile or stone complying with ANSI A118.12;
1. Products:
a. MAPEI, "Mapelastic CI".

C. Backer Board: Cementitious type complying with ANSI A118.9; high density, glass fiber reinforced, 1/2 inch thick; 2 inch wide coated glass fiber tape for joints and corners.
1. Refer to Section 09 21 16.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of setting materials to sub-floor surfaces.

D. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.

E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler.

D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

E. Install cementitious backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of dry-set mortar to a feather edge.

3.03 INSTALLATION - GENERAL

A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1A thru A108.13, manufacturer's instructions, and TCNA (HB) recommendations.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

E. Form internal angles square and external angles bullnosed.

F. Install non-ceramic trim in accordance with manufacturer's instructions.

G. Install thresholds where indicated.

H. Sound tile after setting. Replace hollow sounding units.

I. Keep control and expansion joints free of mortar, grout, and adhesive.

J. Keep expansion joints free of adhesive or grout. Apply sealant to joints.

K. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

L. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.

M. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

N. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with The Tile Council of North America Handbook Method F125-Full, with Latex/Polymer Modified Portland Cement Mortar and Polymer Modified Tile grout, unless otherwise indicated.
   1. Use uncoupling membrane under all tile unless other underlayment is indicated.
   2. Where waterproofing membrane is indicated, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout.
      a. Locations: Showers, tiled custodial closets and toilet rooms with floor drains

3.05 INSTALLATION - FLOORS - MORTAR BED METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F205A, unless otherwise indicated.

B. Waterproofing Membrane: Install as recommended by manufacturer and as specified in the section in which the product is specified.

C. Mortar Bed Thickness: 5/8 inch, unless otherwise indicated.

3.06 INSTALLATION - WALL TILE

A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244, using membrane at toilet rooms.

B. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

3.07 GROUTING

A. Follow grout manufacturer's recommendations as to grouting procedures and precautions.

B. Remove all grout haze, observing both tile and grout manufacturer's recommendations as to use of acid and chemical cleaners.

C. Rinse tile work thoroughly with clean water before and after chemical cleaners.

D. Polish surface of tile work with soft cloth.

3.08 PROTECTION, CLEANING AND GROUT SEALING

A. Do not permit traffic over finished floor surface for 4 days after installation.

B. Apply to clean, completed tile walls and floors a protective coat of neutral cleaner solution, 1 part cleaner to 1 part water.

C. Cover tile floors with heavy-duty, non-staining construction paper, masked in place.

D. Prior to final acceptance of tile work, remove paper and rinse protective coat of neutral cleaner from all the surfaces.

E. Clean tile and grout surfaces.

F. Apply grout sealant according to manufacturer's directions.

END OF SECTION

SECTION 09 5100
SUSPENDED ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.02 REFERENCE STANDARDS

A. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2013a.

B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 2013.

C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2014.

D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2014.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on suspension system components and acoustical units.

C. Samples: Submit two samples 6 by 6 inch in size illustrating material and finish of acoustical units.

D. Samples: Submit two samples each, 6 inches long, of suspension system main runner, cross runner, and perimeter molding.

E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years experience.

B. Acoustical Unit Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years experience.

1.06 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 ACOUSTICAL UNITS

A. Manufacturers:

1. Basis of Design: Armstrong World Industries, Inc: www.armstrong.com.
2. CertainTeed Corporation: www.certainteed.com.

3. USG: www.usg.com.
4. Substitutions: See Section 01 6000 - Product Requirements.

B. Acoustical Units - General: ASTM E1264, Class A.

C. Acoustical Panels Type 1: Acoustically-transparent-membrane faced mineral fiberASTM E1264 Type IV, with the following characteristics:
1. Size: 24 x 24 inches.
2. Thickness: 1.0 inches.
3. Composition: Wet felted.
4. NRC Range: 0.85, determined in accordance with ASTM E1264.
5. Ceiling Attenuation Class (CAC): 30, determined in accordance with ASTM E1264.
6. Edge: Reveal edge.
7. Surface Color: White.
8. Surface Pattern: Lightly Textured.
9. Suspension System: Exposed grid Type 1.
10. Products:
a. Calla Square Tegular, No. 2824 Manufactured by Armstrong.

2.02 SUSPENSION SYSTEM(S)

A. Manufacturers:
1. Armstrong World Industries, Inc: www.armstrong.com.
2. USG: www.usg.com.
3. Substitutions: See Section 01 6000 - Product Requirements.

B. Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.

C. Exposed Steel Suspension System Type 1: Formed G90 hot-dipped galvanized steel, commercial quality cold rolled; intermediate-duty.
1. Profile: Tee; 9/16 inch wide face.
2. Construction: Double web.
3. Finish: Textured white painted.
4. Product: Blizzard by Armstrong.

2.03 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Perimeter Moldings: Same material and finish as grid.
1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.

C. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.

D. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

H. Do not eccentrically load system or induce rotation of runners.

I. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Overlap and rivet corners.

3.02 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install units after above-ceiling work is complete.

E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

F. Cutting Acoustical Units:
   1. Make field cut edges of same profile as factory edges.

G. Install hold-down clips on panels within 20 ft of an exterior door.

3.03 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 09 6429
WOOD STRIP FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wood strip flooring, nailed.

B. Secondary subflooring.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood overlay subfloor surface.

1.03 REFERENCE STANDARDS

A. NWFA (IG) - Installation Guidelines; National Wood Flooring Association; current edition located at www.nwfa.org.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for flooring.

C. Shop Drawings: Indicate floor joint pattern and termination details.
   1. Indicate provisions for expansion and contraction.

D. Samples: Submit two samples 2 1/4 by 12 inch in size illustrating floor finish, color, and sheen.

E. Installation Instructions: Indicate standard and special installation procedures.

F. Maintenance Data: Include maintenance procedures.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 6000 - Product Requirements, for additional provisions.
   2. Extra Flooring Material: 10 square yards matching installed flooring.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing work of this section with minimum five years experience.

1.06 FIELD CONDITIONS

A. Do not install wood flooring until wet construction work is complete and ambient air at installation space has moisture content stabilized at maximum moisture content of 40 percent.

PART 2 PRODUCTS

2.01 MATERIALS

A. Wood Strip Flooring - Type Historic:
   1. Species: Southern Yellow Pine.
   2. Grade: Second and better.
   3. Cut: Quarter cut grain.
   4. Moisture Content: 7 to 9 percent.
   5. Actual Thickness: 3/4 inch.
   6. Actual Width: 2-1/4 inches.
   7. Edge: Tongue and Groove.

8. End: Square.
9. Material Source: Longleaf Lumber Inc., 115 Fawcett Street, Cambridge, MA 02138.

B. Wood Strip Flooring - Type General:
1. Species: White oak.
2. Grade: Clear.
3. Cut: Edge grain.
4. Actual Thickness: 3/4 inch.
5. Actual Width: 2-1/4 inches.
6. Edge: Tongue and Groove.
7. End: Square.

C. Flooring Nails: Type recommended by flooring manufacturer.

D. Sleepers and Shims: Softwood lumber, pressure treated for moisture protection, 2 by 4 inch size.

E. Secondary Subflooring: 3/4 inch thick plywood, with tongue and groove edges; Exposure 1, sanded, preservative treated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that concrete subfloor surface is smooth and flat to plus or minus 1/4 inch in 10 feet.

C. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Sleepers and Shims:
1. Place sleepers over subfloor; space sleepers at 12 inches on center.
2. Shim underside of sleepers to achieve level line of plus or minus 1/4 inch in 10 feet.
3. Anchor sleepers to wood substrate with cement-coated nails; place nails at 16 inches on center.

B. Secondary Subflooring: Place one layer plywood subflooring over sleepers.
1. Lay perpendicular to the sleepers, with end joints over sleepers, and nail at 12 inches on center.

C. Prepare substrate to receive wood flooring in accordance with manufacturer's and NWFA instructions.

D. Broom clean substrate.

3.03 INSTALLATION

A. Sheathing Paper: Place over wood subfloor; lap edges and ends 2 inches, staple in place.

B. Wood Flooring:
1. Install in accordance with manufacturer's and NWFA instructions; blind nail to wood sub-floor.
2. Lay flooring in patterns indicated on drawings. Verify alignment as work progresses.
3. Arrange flooring with square ends set flush and tight.
4. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar; provide divider strips and transition strips in accordance with flooring manufacturer's recommendations and as indicated.
5. Install edge strips at unprotected or exposed edges, and where flooring terminates.
6. Secure edge strips before installation of flooring with stainless steel screws.

7. Install flooring tight to floor access covers.
8. Provide 1/2 inch expansion space at fixed walls and other interruptions.

3.04 CLEANING

A. Clean and polish floor surfaces in accordance with floor finish manufacturer's instructions.

END OF SECTION

SECTION 09 6500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Resilient stair accessories.

D. Installation accessories.

1.02 RELATED REQUIREMENTS

A. Section 09 0561 - Common Work Results for Flooring Preparation: Independent agency testing of concrete slabs, cleaning, and preparation.

1.03 ALTERNATES

A. Refer to Section 01 23 00 - Alternates, for description of work under this Section affected by alternates.

1.04 REFERENCE STANDARDS

A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2014c.

B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2011.

C. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2010)e1.

D. ASTM F1344 - Standard Specification for Rubber Floor Tile; 2015.

E. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile; 2013a.

F. ASTM F1861 - Standard Specification for Resilient Wall Base; 2008 (Reapproved 2012)e1.

G. ASTM F2034 - Standard Specification for Sheet Linoleum Floor Covering; 2008 (Reapproved 2013).

H. BAAQMD 8-51 - Bay Area Air Quality Management District Regulation 8, Rule 51, Adhesive and Sealant Products; www.baaqmd.gov; 2002.

I. FS RR-T-650 - Treads, Metallic and Nonmetallic, Skid Resistant; Federal Specifications and Standards; Revision E, 1994.

J. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

K. SCS (CPD) - SCS Certified Products; Scientific Certification Systems; current listings at www.scscertified.com.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.

D. Verification Samples: Submit two samples, 12 by 12 inch in size illustrating color and pattern for each resilient flooring product specified.

E. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of sub-floor is acceptable.

F. LEED Report: Report recycled content and VOC emission of flooring; VOC content of adhesives.
   1. For linoleum flooring, report rapidly-renewable content and urea-formaldehyde content.

G. LEED Submittal: Documentation of recycled content and location of manufacture.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect roll materials from damage by storing on end.

1.07 FIELD CONDITIONS

A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

B. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

PART 2 PRODUCTS

2.01 SHEET FLOORING

A. Linoleum Sheet Flooring: Homogeneous wear layer bonded to backing, with color and pattern through wear layer thickness:
   1. Minimum Requirements: Comply with ASTM F2034, Type 1.
   2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648.
   3. VOC Content: Certified as Low Emission by one of the following :
      a. SCS Floorscore; www.scscertified.com.
   4. Backing: Jute fabric.
   5. Gauge: 0.100 inch, including backing.
   6. Pattern: Marbleized.
   7. Seams: Heat welded.
   8. Manufacturers:
      a. Armstrong World Industries, Inc: www.armstrong.com.

2.02 TILE FLOORING

A. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness.
   1. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
   2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648.
   3. Size: 12 by 12 inch.
   4. VOC Content: Certified as Low Emission by one of the following :
      a. SCS Floorscore; www.scscertified.com.
   5. Thickness: 0.125 inch.
   6. Pattern: Mottled.
   7. Manufacturers:
      a. Armstrong World Industries, Inc: www.armstrong.com.
      b. Mannington Mills, Inc: www.mannington.com.

B. Vinyl Tile: Solid vinyl with color and pattern throughout thickness.
   1. Minimum Requirements: Comply with ASTM F1700, of Class corresponding to type specified.
   2. Total Thickness: 0.100 inch.
   3. Pattern: Solid color.

C. Rubber Tile: Homogeneous color and pattern throughout thickness.
   1. Minimum Requirements: Comply with ASTM F1344, of Class corresponding to type specified.
   2. Design: Smooth.
   3. Size: 12 by 12 inch.
   4. Overall Thickness: 0.125 inch.
   5. Pattern: Solid color.

2.03 STAIR COVERING

A. Stair Treads: Rubber; full width and depth of stair tread in one piece; tapered thickness; nosing not less than 1-5/8 inch deep.
   1. Minimum Requirements: Comply with FS RR-T-650 requirements corresponding to type specified.
   2. Nominal Thickness: 0.1875 inch.
   3. Nosing: ADA compliant.
   4. Style: Hammered texture with contrasting color abrasive grit strips full width.
   5. Color: Solid.
   6. Manufacturers:
      a. Burke Flooring: www.burkemercer.com.
      b. Johnsonite, a Tarkett Company: www.johnsonite.com.
      c. Roppe Corp: www.roppe.com.

B. Stair Risers: Full height and width of tread in one piece, matching treads in material and color.
   1. Thickness: 0.080 inch.
   2. Manufacturers:
      a. Burke Flooring: www.burkemercer.com.
      b. Johnsonite, a Tarkett Company: www.johnsonite.com.
      c. Roppe Corp: www.roppe.com.

2.04 RESILIENT BASE

A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove.
   1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648.
   2. Height: 4 inch.
   3. Thickness: 0.125 inch thick.
   4. Finish: Satin.
   5. Color: Color as selected from manufacturer's standards.
   6. Manufacturers:
      a. Johnsonite, a Tarkett Company: www.johnsonite.com.

2.05 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.

1. Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168 and the Bay Area Air Quality Management District Regulation 8, Rule 51.

C. Sealer and Wax: Types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.

B. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for resilient flooring installation by testing for moisture and pH.

1. Test in accordance with Section 09 0561.
2. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

3.02 PREPARATION

A. Prepare floor substrates for installation of flooring in accordance with Section 09 0561.

3.03 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install in accordance with manufacturer's instructions.

C. Spread only enough adhesive to permit installation of materials before initial set.

D. Fit joints tightly.

E. Set flooring in place, press with heavy roller to attain full adhesion.

F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.

H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 SHEET FLOORING

A. Lay flooring with joints and seams parallel to longer room dimensions, to produce minimum number of seams. Lay out seams to avoid widths less than 1/3 of roll width; match patterns carefully at seams.

B. Double cut sheet at seams.

3.05 TILE FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.

B. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

C. Install tile to monolithic pattern. Allow minimum 1/2 full size tile width at room or area perimeter.

3.06 RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. Miter internal corners. At external corners, 'V' cut back of base strip to 2/3 of its thickness and fold.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other interruptions.

3.07 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean and wax in accordance with manufacturer's instructions.

3.08 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

SECTION 09 6623
RESINOUS MATRIX TERRAZZO FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Epoxy matrix terrazzo with ground finish.

B. Divider strips.

1.02 RELATED REQUIREMENTS

A. Section 07 9200 - Joint Sealants: Sealing joints between terrazzo work and adjacent construction and fixtures.

B. Section 09 6613 - Portland Cement Terrazzo Flooring.

1.03 REFERENCE STANDARDS

A. NTMA (GRAD) - Aggregate Gradation Standards; The National Terrazzo and Mosaic Association, Inc.; current edition.

B. NTMA (EPOXY) - Epoxy Terrazzo Recommendations; The National Terrazzo and Mosaic Association, Inc.; current edition located at www.ntma.com/epoxy-terrazzo/.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for divider strips, control joint strips, expansion joints, and sealer; include printed copy of current NTMA recommendations for type of terrazzo involved.

C. Shop Drawings: Indicate divider strip and control joint layout, and details of adjacent components.

D. Samples: Submit two samples, 6 x 6 inch in size illustrating color, chip size and variation, chip gradation, matrix color and typical divider strip.

E. Cleaning and Maintenance Data: Include procedures for stain removal, stripping, and sealing.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with NTMA recommendations as posted at their web site at www.ntma.com.

B. Installer Qualifications: Company specializing in performing the type of work specified in this section.

1. Minimum two years of documented experience.
2. Approved by matrix manufacturer.

1.06 MOCK-UP

A. Construct mock-up of terrazzo illustrating appearance of finished work in each configuration required. Size mock-up to be not less than 3 by 3 feet.

B. Locate where directed.

C. Mock-up may remain as part of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Store resin materials in a dry, secure area.

B. Maintain minimum temperature of 55 degrees F.

C. Keep products away from fire or open flame.

1.08 FIELD CONDITIONS

A. Do not install terrazzo when temperature is below 50 degrees F or above 90 degrees F.

B. Maintain temperature within specified range 24 hours before, during, and 72 hours after installation of flooring.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Epoxy Matrix Terrazzo:
   1. Dexotex: www.dexotex.com.
   2. Sherwin-Williams Company: General Polymers Brand: www.generalpolymers.com.
   3. Sika Corporation; Sikafloor Terrazzo: www.sikafloorusa.com.

2.02 EPOXY MATRIX TERRAZZO APPLICATIONS

A. Floors:
   1. Thickness: 3/8 inch, nominal.
   2. Color(s): To be selected by Architect.
   3. Aggregate Type: Marble chips.
   4. Aggregate Size: No. 2.

2.03 MATERIALS

A. Epoxy Matrix Terrazzo Topping: Aggregate and matrix mix applied to substrate, leveled, and ground smooth.

B. Epoxy Matrix: Two component resin and epoxy hardener with mineral filler and color pigment, non-volatile, thermo-setting.

C. Aggregate: Type as indicated; sized in accordance with NTMA Aggregate Gradation Standards; color(s) as indicated, uniform in color.

2.04 ACCESSORIES

A. Divider Strips: 1/8 inch thick zinc exposed top strip, zinc coated steel concealed bottom strip, with anchoring features.

B. Divider and Control Joint Strip Height: To suit thickness of terrazzo topping, with allowance for grinding.

C. Sealer: Colorless, non-yellowing, penetrating liquid type to completely seal matrix surface; not detrimental to terrazzo components.

D. Subfloor Filler: Latex type.

E. Primer: Manufacturer recommended type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive terrazzo.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive terrazzo.

C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of materials to sub-floor surfaces.

D. Verify that concrete sub-floor surfaces are ready for terrazzo installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by terrazzo materials manufacturer.

E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Clean substrate of foreign matter.

B. Prepare wood subfloor, tape joints, and apply subfloor joint filler.

C. Apply primer in accordance with manufacturer's instructions.

3.03 INSTALLATION

A. Saw cut substrate to install divider and control joint strips.

B. Install divider and control joint strips straight and level to locations indicated.

C. Place terrazzo mix over substrate to thickness indicated.

3.04 FINISHING

A. Finish terrazzo to NTMA requirements.

B. Grind terrazzo surfaces with power disc machine; sequence with coarse to fine grit abrasive, using a wet method.

C. Apply patch mix to match mortar over ground surface to fill honeycomb exposed during grinding.

D. Remove patch coat by grinding, using a fine grit abrasive.

3.05 TOLERANCES

A. Maximum Variation from Flat Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Level (Except Surfaces Sloping to Drain): 1/8 inch.

3.06 CLEANING

A. Immediately after terrazzo has dried, apply sealer in accordance with manufacturer's instructions.

B. vSeal and polish surfaces, in accordance with manufacturer's instructions.

3.07 PROTECTION

A. Do not permit construction traffic over finished terrazzo surfaces.

END OF SECTION

SECTION 09 6800
CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Carpet, stretched-in with cushion underlay, direct-glued, and _____.

1.02 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet with minimum three years documented experience.

B. Installer Qualifications: Company specializing in installing carpet with minimum three years documented experience.

1.05 FIELD CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours prior to installation.

B. Ventilate installation area during installation and for 72 hours after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Carpet:
1. Milliken & Company; _____: www.milliken.com.

2.02 CARPET

A. Carpet:
1. Product: _____ manufactured by _____.
2. Roll Width: 12 ft.
3. Critical Radiant Flux: Minimum of 0.22 watts/sq cm, when tested in accordance with ASTM E648 or NFPA 253.
4. VOC Content: Comply with Section 01 6116.

2.03 ACCESSORIES

A. Sub-Floor Filler: Type recommended by carpet manufacturer.

B. Tackless Strip: Carpet gripper, of type recommended by carpet manufacturer to suit application, with attachment devices.

C. Moldings and Edge Strips: Rubber, color as selected.

D. Adhesives - General: Compatible with materials being adhered; maximum VOC content as specified in Section 01 6116.

E. Seam Adhesive: Recommended by manufacturer.

F. Contact Adhesive: Compatible with carpet material; releasable type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive carpet.

B. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and alkalinity (pH).
   1. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

3.02 PREPARATION

A. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

B. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler.

C. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Prohibit traffic until filler is cured.

D. Clean substrate.

3.03 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install carpet and cushion in accordance with manufacturer's instructions.

C. Verify carpet match before cutting to ensure minimal variation between dye lots.

D. Lay out carpet and locate seams in accordance with shop drawings.
   1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic.
   2. Do not locate seams perpendicular through door openings.
   3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
   4. Locate change of color or pattern between rooms under door centerline.
   5. Provide monolithic color, pattern, and texture match within any one area.

E. Install carpet tight and flat on subfloor, well fastened at edges, with a uniform appearance.

3.04 STRETCHED-IN CARPET

A. Install tackless strips with pins facing the wall around entire perimeter, except across door openings. Use edge strip where carpet terminates at other floor coverings.

B. Space tackless strips slightly less than carpet thickness away from vertical surfaces, but not more than 3/8 inch.

C. Install cushion in maximum size pieces using spot adhesive to adhere to sub-floor.

D. Lay out cushion so that seams will be perpendicular to, or offset from, minimum 6 inches from carpet seams.

E. Butt cushion edges together and tape seams.

F. Trim cushion tight to edge of tackless strip and around projections and contours.

G. Double cut carpet seams, with accurate pattern match. Make cuts straight, true, and unfrayed. Apply seam adhesive to all cut edges immediately.

H. Join seams by hand sewing. Form seams straight, not overlapped or peaked, and free of gaps.

I. Following seaming, hook carpet onto tackless strip at one edge, power stretch, and hook firmly at other edges. Follow manufacturer's recommendations for method and amount of stretch.

J. Trim carpet neatly at walls and around interruptions. Tuck edges into space between tackless strip and wall.

3.05 DIRECT-GLUED CARPET

A. Double cut carpet seams, with accurate pattern match. Make cuts straight, true, and unfrayed. Apply seam adhesive to cut edges of woven carpet immediately.

B. Apply contact adhesive to floor uniformly at rate recommended by manufacturer. After sufficient open time, press carpet into adhesive.

C. Apply seam adhesive to the base of the edge glued down. Lay adjoining piece with seam straight, not overlapped or peaked, and free of gaps.

D. Roll with appropriate roller for complete contact of adhesive to carpet backing.

E. Trim carpet neatly at walls and around interruptions.

F. Complete installation of edge strips, concealing exposed edges. Bind cut edges where not concealed by edge strips.

3.06 CLEANING

A. Remove excess adhesive from floor and wall surfaces without damage.

B. Clean and vacuum carpet surfaces.

END OF SECTION

SECTION 09 6813
TILE CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Carpet tile, fully adhered.

1.02 RELATED REQUIREMENTS

A. Section 09 0561 - Common Work Results for Flooring Preparation: Independent agency testing of concrete slabs, cleaning, and preparation.

1.03 REFERENCE STANDARDS

A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2014c.

B. CRI (CIS) - Carpet Installation Standard; Carpet and Rug Institute; 2011.

C. CRI (GLA) - Green Label Testing Program - Approved Adhesive Products; Carpet and Rug Institute; Current Edition.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

C. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.

D. Manufacturer's Installation Instructions: Indicate special procedures.

E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum three years documented experience.

B. Installer Qualifications: Company specializing in installing carpet tile with minimum three years documented experience and approved by carpet tile manufacturer.

1.06 FIELD CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours prior to installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Carpet Tile : Tufted, manufactured in one color dye lot.
   1. Tile Size: 18 by 18 inch, nominal.
   2. Color: Custom.
   3. Approved Substitution:
      a. Product: Vibrant Tile, Light Series Collection manufactured by Shaw Contract Group.
      b. Provide custom color.

B. Carpet Tile : Tufted, manufactured in one color dye lot.
   1. Product: Reading Room manufactured by InterfaceFlor.
   2. Tile Size: 19.69 x 19.69 inch, nominal.

3. Color: Custom.
4. Approved Substitution:
   a. Product: Absorbed Tile, Light Series Collection manufactured by Shaw Contract Group.
   b. Provide custom color.

C. Carpet Tile Type CPT-3: Tufted, manufactured in one color dye lot.
1. Product: Viva Colores manufactured by InterfaceFlor.
2. Tile Size: 19.69 x 19.69 inch, nominal.
3. Color: See Finish Schedule.
4. Approved Substitution:
   a. Product: Applied Tile, manufactured by Shaw Contract Group.
   b. Provide custom color.

D. Carpet Tile : Tip-sheared loop, manufactured in one color dye lot.
1. Product: Ruffian II manufactured by Mannington.
2. Tile Size: 24 x 24 inch, nominal.
3. Color: See Finish Schedule.

E. Carpet Tile : Tufted, manufactured in one color dye lot.
1. Product: Recourse II manufactured by Mannington.
2. Tile Size: 24 x 24 inch, nominal.
3. Color: See Finish Schedule.

2.02 ACCESSORIES

A. Sub-Floor Filler: White premix latex; type recommended by flooring material manufacturer.

B. Edge Strips: Embossed aluminum, _____ color.

C. Adhesives: Acceptable to carpet tile manufacturer, compatible with materials being adhered; maximum VOC of 50 g/L; CRI Green Label certified; in lieu of labeled product, independent test report showing compliance is acceptable.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.

B. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.

C. Cementitious Sub-floor Surfaces: Verify that substrates are dry enough and ready for flooring installation by testing for moisture and pH.
1. Test in accordance with Section 09 0561.
2. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

3.02 PREPARATION

A. Prepare floor substrates for installation of flooring in accordance with Section 09 0561.

3.03 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install carpet tile in accordance with manufacturer's instructions and CRI (CIS).

C. Blend carpet from different cartons to ensure minimal variation in color match.

D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

E. Lay carpet tile in square pattern or as scheduled and shown, with pile direction alternating to next unit, set parallel to building lines.

F. Fully adhere carpet tile to substrate.

G. Trim carpet tile neatly at walls and around interruptions.

H. Complete installation of edge strips, concealing exposed edges.

3.04 CLEANING

A. Remove excess adhesive without damage, from floor, base, and wall surfaces.

B. Clean and vacuum carpet surfaces.

END OF SECTION

SECTION 09 9000
PAINTING AND COATING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Surfaces to be finished are indicated in this section and on the Drawings.

1.02 RELATED REQUIREMENTS

A. Section 01 6116 - Volatile Organic Compound (VOC) Content Restrictions.

B. Section 05 5000 - Metal Fabrications: Shop-primed items.

C. Section 05 5100 - Metal Stairs: Shop-primed items.

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of all products to be used, with the following information for each:

1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").

C. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.

D. Samples: Submit two paper "drop" samples, 8-1/2 by 11 inches in size, illustrating colors selected for each finishing product specified.

1. Where sheen is specified, submit samples in only that sheen.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the work of this section with minimum 5 years experience.

B. Material Safety Data Sheets: At project site maintain file of MSDS sheets for each product used; become familiar with and follow manufacturer's stated application and safety requirements.

1.06 MOCK-UP

A. See Section 01 4000 - Quality Requirements, for general requirements for mock-up.

B. Provide scheduled finishes in mock-up room.

C. Locate where directed.

D. Mock-up may remain as part of the Work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.08 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

1.09 EXTRA MATERIALS

A. See Section 01 6000 - Product Requirements, for additional provisions.

B. Supply 1 gallon of each color; store where directed.

C. Label each container with color in addition to the manufacturer's label.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide all paint and coating products used in any individual system from the same manufacturer.

B. In the event that a single manufacturer cannot provide all specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.

C. Basis of Design: Products by The Sherwin Williams Company are the basis of design and set the standard of quality required.

D. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS - GENERAL

A. Volatile Organic Compound (VOC) Content:

1. Provide coatings that comply with the most stringent requirements specified in the following:
   a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
   b. Ozone Transport Commission (OTC) Model Rule, Architectural, Industrial, and Maintenance Coatings; www.otcair.org; specifically:
      1) Opaque, Flat: 50 g/L, maximum.
      2) Opaque, Nonflat: 150 g/L, maximum.
      3) Opaque, High Gloss: 250 g/L, maximum.
      4) Varnishes: 350 g/L, maximum.
   c. Architectural coatings VOC limits of State in which the project is located.
2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.
3. Provide tints and colorants that will not add VOCs to specified products.

B. Paints and Coatings: Provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com, for specified MPI Categories, except as otherwise indicated.
   1. Provide ready mixed paints and coatings .
   2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

2.03 PAINT SYSTEMS

A. Provide Premium Grade systems (2 top coats) as defined in MPI Architectural Painting Specification Manual, except as otherwise indicated.

B. Provide colors as directed by Architect.
   1. Allow for minimum of five colors for each system, unless otherwise indicated, without additional cost to Owner.
   2. Extend colors to surface edges; colors may change at any edge as directed by Architect.
   3. Colors selected are from the Sherwinn-Williams color pallette.

2.04 EXTERIOR PAINT SYSTEMS

A. SYSTEM E-1:
   1. Substrate: Structural Steel and Metal Fabrications:
   2. Applications include but are not limited to pipes and downspout boots.
   3. Manufacturers and products:
      a. Sherwin Williams:
         1) 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series
         2) 2nd Coat: S-W ProIndustrial DTM Acrylic, semi-gloss
         3) 3rd Coat: S-W ProIndustrial DTM Acrylic, semi-gloss

B. SYSTEM E-2:
   1. Substrate: Galvanized Metal, Not Chromate Passivated:
   2. Applications include but are not limited to railings, lintels and bollards.
   3. Manufacturers and Products:
      a. Sherwin Williams:
         1) 1st Coat:S-W Pro Industrial Pro-Cryl® Primer, B66-310 Series
         2) 2nd Coat: S-W ProIndustrial DTM Acrylic, semi-gloss
         3) 3rd Coat: S-W ProIndustrial DTM Acrylic, semi-gloss

2.05 INTERIOR PAINT SYSTEMS

A. SYSTEM I-1:
   1. Substrate: Concrete Masonry Units and Brick - NEW
   2. Manufacturers and Products:
      a. Sherwin Williams:
         1) 1st Coat:S-W PrepRite® Block Filler, B25W25
         2) 2nd Coat:S-W ProIndustrial PreCatalyzed WB Epoxy, semi-gloss
         3) 3rd Coat: S-W ProIndustrial PreCatalyzed WB Epoxy, semi-gloss

B. SYSTEM I-2
   1. Substrate: Concrete Masonry Units, Brick and Glazed Brick – PREVIOUSLY PAINTED
   2. Manufacturers and Products:
      a. Sherwin Williams:
         1) 1st Coat: S-W Extreme Bond Primer

2) 2nd Coat: S-W ProIndustrial PreCatalyzed WB Epoxy, semi-gloss
3) 3rd Coat: S-W ProIndustrial PreCatalyzed WB Epoxy, semi-gloss

C. SYSTEM I-3
1. Substrate: Structural Steel and Metal Fabrications- EXCEPT Handrails
2. Manufacturers and Products:
a. Sherwin Williams:
1) 1st Coat:S-W Pro Industrial Pro-Cryl® Primer, B66-310 Series
2) 2nd Coat: S-W ProIndustrial DTM Acrylic, semi-gloss
3) 3rd Coat: S-W ProIndustrial DTM Acrylic, semi-gloss

D. SYSTEM I-4
1. Substrate: Hollow metal door frames - NEW
2. Manufacturers and Products:
a. Sherwin Williams:
1) 1st Coat: S-W Pro Industrial Pro-Cryl® Primer, B66-310 Series
2) 2nd Coat:S-W ProIndustrial WB Alkyd Urethane Enamel,semi-gloss B53-1150
3) 3rd Coat: S-W ProIndustrial WB Alkyd Urethane Enamel,semi-gloss B53-1150

E. SYSTEM I-5
1. Substrate: Metal door frames, Handrails, Railings, and Stair parts- PREVIOUSLY PAINTED
2. Manufacturers and Products:
a. Sherwin WIlliams:
1) 1st Coat: S-W Extrem Bond Primer
2) 2nd Coat:S-W ProIndustrial WB Alkyd Urethane Enamel,semi-gloss B53-1150
3) 3rd Coat:S-W ProIndustrial WB Alkyd Urethane Enamel,semi-gloss B53-1150

F. SYSTEM I-6
1. Substrate: Galvanized Metal, Not Chromate Passivated:
a. Sherwin WIlliams:
1) 1st Coat:S-W Pro Industrial Pro-Cryl® Primer, B66-310 Series
2) 2nd Coat: match adjacent surface
3) 3rd Coat: match adjacent surface

G. SYSTEM I-7
1. Substrate: Woodwork (Transparent, Not Floors or Stairs):
2. Manufacturers and Products:
a. Sherwin Williams:
1) Stain: S-W Minwax 250 VOC Oil Stain
2) Sealer: Sher-Wood Natural Wood Filler
3) 2nd Coat: S-W Wood Classics® Waterborne Polyurethane Varnish, Satin
4) 3rd Coat: S-W Wood Classics® Waterborne Polyurethane Varnish, Satin

H. SYSTEM I-8
1. Substrate: Wood Floors (Stained Finish):
2. Manufacturers and Products:
a. Sherwinn Williams:
1) 1st Coat: S-W Wood Classics 250 Stain
2) 2nd Coat: S-W DuraSeal Polyurethane 350 , satin finish
3) 3rd Coat: S-W DuraSeal Polyurethane 350 , satin finish

I. SYSTEM I-9

1. Substrate: Gypsum Board (Flat Finish):
2. Applications include but are not limited to walls, ceilings, soffits, and bulkheads.
3. Manufacturers and Products:
   a. Sherwin Williams:
      1) 1st Coat:S-W ProMar Latex 200 Primer
      2) 2nd Coat:S-W ProMar® 200 Latex Flat
      3) 3rd Coat:S-W ProMar® 200 Latex Flat

J. SYSTEM I-10
1. Substrate: Gypsum Board (Epoxy Finish):
2. Manufacturers and Products:
   a. Sherwin Williams:
      1) 1st Coat: S-W ProMar 200 Latex Primer
      2) 2nd Coat: S-W ProIndustrial PreCatalyzed WB Epoxy, semi-gloss, K46
      3) 3rd Coat: S-W ProIndustrial PreCatalyzed WB Epoxy, semi-gloss, K46

K. SYSTEM I-11
1. Substrate: Concrete Floor (Sealed): including but not limited to janitor and utility spaces:
2. Manufacturers and Products:
   a. W. R. Meadows:
      1) 1st Coat:CS-309/30 Concrete Curing and Sealing Compound
   b. b. Sherwin Williams:
      1) 1st Coat: S-W Loxon 7% sealer.

PART 3 EXECUTION

3.01 SCOPE -- SURFACES TO BE FINISHED

A. Paint all exposed surfaces except where indicated not to be painted or to remain natural; the term "exposed" includes areas visible through permanent and built-in fixtures when they are in place.

B. Paint the surfaces described in PART 2, indicated on the Drawings, and as follows:
1. If a surface, material, or item is not specifically mentioned, paint in the same manner as similar surfaces, materials, or items, regardless of whether colors are indicated or not.
2. Paint surfaces behind movable equipment and furnishings the same as similar exposed surfaces.
3. Paint surfaces to be concealed behind permanently installed fixtures, equipment, and furnishings, using primer only, prior to installation of the permanent item.
4. Paint back sides of access panels and removable and hinged covers to match exposed surfaces.
5. Finish top, bottom, and side edges of exterior doors the same as exposed faces.
6. Paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment occurring in finished areas to match background surfaces, unless otherwise indicated.
7. Paint shop-primed mechanical and electrical items occurring in finished areas.
8. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
9. Paint interior surfaces of air ducts and convector and baseboard heating cabinets with flat, nonspecular black paint where visible through registers, grilles, or louvers.
10. Paint dampers exposed behind louvers, grilles, to match face panels.

11. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

C. Do Not Paint or Finish the Following Items:
1. Items fully factory-finished unless specifically noted; factory-primed items are not considered factory-finished.
2. Items indicated to receive other finish.
3. Items indicated to remain naturally finished.
4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.
5. Anodized aluminum.
6. Polished and brushed stainless steel items.
7. Brick, precast concrete, integrally colored plaster.
8. Polished and brushed stainless steel, anodized aluminum, bronze, terne, and lead.
9. Acoustical materials.
10. Concealed piping, ductwork, and conduit.

3.02 EXAMINATION

A. Verify that surfaces are ready to receive Work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop-applied primer for compatibility with subsequent cover materials; report incompatible primer conditions and submit recommended changes for Architect's approval.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
1. Plaster and Gypsum Board: 12 percent.
2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
4. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

E. Measure the ph factor of concrete, masonry, and mortar before starting any finishing process, using the method specified in MPI Architectural Painting Manual.
1. Report results in writing to Architect before starting work.
2. If results of test indicates need for remedial action, provide written description of remedial action. If a different primer or paint systems is required, state the total cost of the change. Do not proceed with remedial action or change without receiving written authorization from Architect.

3.03 PREPARATION

A. Prepare surfaces as specified in MPI Architectural Painting Specification Manual and as follows for the applicable surface and coating; if multiple preparation treatments are specified, use as many as necessary for best results; where the Manual references external standards for preparation (e.g. SSPC standards), prepare as specified in those standards; comply with coating manufacturer's specific preparation methods or treatments, if any.

B. Coordinate painting work with cleaning and preparation work so that dust and other contaminants do not fall on newly painted, wet surfaces.

C. Surface Appurtenances: Prior to preparing surfaces or finishing, remove electrical plates, hardware, light fixtures, light fixture trim, escutcheons, machined surfaces, fittings, and similar items already installed that are not to be painted.

1. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before preparation and finishing.
2. After completing painting in each space or area, reinstall items removed using workers skilled in the trades involved.

D. Surfaces: Correct defects and clean surfaces which affect work of this section.

E. Marks: Seal with shellac those which may bleed through surface finishes.

F. Impervious Surfaces: Remove mildew by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

G. Concrete, Cement Plaster and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

H. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.

I. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

J. Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.

K. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.

L. Interior Wood Items to Receive Transparent Finish: Sand wood to obtain a uniform appearance before immediately starting work. Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

M. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.

N. Previously Painted surfaces: (including, but not limited to railings, door frames, CMU, glazed brick)
1. Apply test samples and perform in place test to check for compatibility, adhesion and film integrity of new materials to existing painted surfaces.
2. Report in writing any condition that may affect application, appearance or performance of the paint.
3. Painting of surface constitutes contractor's acceptance of surface and responsibility for any paint failure.

3.04 APPLICATION

A. Apply products in accordance with manufacturer's instructions and as specified or recommended by MPI Manual, using the preparation, products, sheens, textures, and colors as indicated.
1. Remove, refinish, or repaint work not complying with requirements.

B. Do not apply finishes over dirt, rust, scale, grease, moisture, scuffed surfaces, or other conditions detrimental to formation of a durable coating film; do not apply finishes to surfaces that are not dry.

C. Use applicators and methods best suited for substrate and type of material being applied and according to manufacturer's instructions.

D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate; provide total dry film thickness of entire system as recommended by manufacturer.
   1. Number of coats and film thickness required are the same regardless of application method.
   2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance.
   3. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive dry film thickness equivalent to that of flat surfaces.

E. Apply finish to completely cover surfaces with uniform appearance without brush marks, runs, sags, laps, ropiness, holidays, spotting, cloudiness, or other surface imperfections.
   1. Before applying finish coats, apply a prime coat of material recommended by manufacturer, unless the surface has been prime coated by others; where evidence of suction spots or unsealed areas in first coat appear, recoat primed and sealed surfaces to ensure finish coat with no burn through or other defects due to insufficient sealing.
   2. Apply first coat to surface that has been cleaned, pretreated, or otherwise prepared as soon as practical after preparation and before subsequent surface deterioration.
   3. Do not apply succeeding coats until the previous coat has cured as recommended by manufacturer.
   4. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat will not cause the undercoat to lift or lose adhesion.
   5. If manufacturer's instructions recommend sanding to produce a smooth, even surface, sand between coats.
   6. Before applying next coat vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
   7. Pigmented (Opaque) Finishes: Provide smooth, opaque surface of uniform finish, color, appearance, and coverage.

3.05 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection.

B. Owner will provide field inspection.

3.06 CLEANING AND PROTECTION

A. Collect waste material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.

B. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from site.

C. Protect other work, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting as approved by Architect.

D. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.

E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in MPI Manual.

END OF SECTION

SECTION 10 1101
VISUAL DISPLAY BOARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Markerboards and Tackboards.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Blocking and supports.

B. Section 09 2116 - Gypsum Board Assemblies: Concealed supports in metal stud walls.

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2009.

B. ASTM A424/A424M - Standard Specification for Steel, Sheet, for Porcelain Enameling; 2009a.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's data on markerboard, tackboard, tackboard surface covering, trim, and accessories.

C. Shop Drawings: Indicate wall elevations, dimensions, joint locations, special anchor details.

D. Samples: Submit two samples 2 by 2 inch in size illustrating materials and finish, color and texture of markerboard, tackboard, tackboard surfacing, and trim.

E. Maintenance Data: Include data on regular cleaning, stain removal .

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

1.06 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Provide five year warranty for markerboard to include warranty against discoloration due to cleaning, crazing or cracking, and staining.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Visual Display Boards:
   1. Claridge Products and Equipment, Inc: www.claridgeproducts.com.
   2. Polyvision Corporation (Nelson Adams): www.polyvision.com.

2.02 VISUAL DISPLAY BOARDS

A. Markerboards: Porcelain enamel on steel, laminated to core.
   1. Color: White.
   2. Steel Face Sheet Thickness: 24 gage, 0.0239 inch .
   3. Core: Particleboard, manufacturer's standard thickness, laminated to face sheet.
   4. Backing: Aluminum foil, laminated to core.
   5. Size: As indicated on drawings.
   6. Frame: As indicated on drawings, with concealed fasteners.
   7. Accessories: Provide chalk tray and map rail.

B. Tackboards: Fine-grained, homogeneous natural cork.
   1. Cork Thickness: 1/8 inch.
   2. Backing: Fiberboard, 3/8 inch thick, laminated to tack surface.
   3. Size: As indicated on drawings.
   4. Frame: Same type and finish as for markerboard.

2.03 MATERIALS

A. Porcelain Enameled Steel Sheet: ASTM A424/A424M, Type I, Commercial Steel, with fired-on vitreous finish.

B. Particleboard: ANSI A208.1; wood chips, set with waterproof resin binder, sanded faces.

C. Foil Backing: Aluminum foil sheet, 0.005 inch thick.

D. Adhesives: Type used by manufacturer.

2.04 ACCESSORIES

A. Map Rail: Extruded aluminum, manufacturer's standard profile, with cork insert and runners for accessories; 1 inch wide overall, full width of frame.

B. Cleaning Instruction Plate: Provide instructions for chalkboard cleaning on a metal plate fastened to perimeter frame near chalkrail.

C. Chalk Tray: Aluminum, manufacturer's standard profile, one piece full length of chalkboard, molded ends, concealed fasteners, same finish as frame.

D. Mounting Brackets: Concealed.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install boards in accordance with manufacturer's instructions.

B. Secure units level and plumb.

3.02 CLEANING

A. Clean board surfaces in accordance with manufacturer's instructions.

END OF SECTION

SECTION 10 2113.19
PLASTIC TOILET COMPARTMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Phenolic toilet compartments.

1.02 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall supports, door swings.

C. Product Data: Provide data on panel construction, hardware, and accessories.

PART 2 PRODUCTS

2.01 PHENOLIC TOILET COMPARTMENTS

A. Toilet Compartments: Factory fabricated doors, pilasters, and divider panels made of solid phenolic core panels with integral melamine finish, floor-mounted unbraced.

B. Doors:
1. Thickness: 3/4 inch.
2. Width: 24 inch.
3. Width for Handicapped Use: 36 inch, out-swinging.
4. Height: 58 inch.

C. Panels:
1. Thickness: 1/2 inch.
2. Height: 58 inch.

D. Pilasters:
1. Thickness: 3/4 inch.
2. Width: As required to fit space; minimum 3 inch.

2.02 ACCESSORIES

A. Pilaster Shoes: Formed chromed steel with polished finish, 3 in high, concealing floor fastenings.

B. Pilaster Brackets: Polished stainless steel.

C. Wall Brackets: Continuous type, polished stainless steel.

D. Attachments, Screws, and Bolts: Stainless steel, tamper proof type.

E. Hardware: Polished stainless steel:
1. Pivot hinges, gravity type, adjustable for door close positioning; two per door.
2. Door Latch: Slide type with exterior emergency access feature.
3. Door strike and keeper with rubber bumper; mounted on pilaster in alignment with door latch.
4. Coat hook with rubber bumper; one per compartment, mounted on door.
5. Provide door pull for outswinging doors.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.

B. Maintain 3/8 to 1/2 inch space between wall and panels and between wall and end pilasters.

C. Attach panel brackets securely to walls using anchor devices.

D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.

3.02 ADJUSTING

A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.

B. Adjust hinges to position doors in partial opening position when unlatched. Return out-swinging doors to closed position.

C. Adjust adjacent components for consistency of line or plane.

END OF SECTION

SECTION 10 2601
CORNER GUARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Corner guards.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Blocking for corner guard anchors.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Indicate physical dimensions and anchorage details.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Corner Guards:
   1. Construction Specialties, Inc: www.c-sgroup.com.
   2. Inpro: www.inprocorp.com.

2.02 COMPONENTS

A. Corner Guards - Surface Mounted: High impact vinyl with extruded aluminum full height retainer and integral impact absorbing device.
   1. Size: 2 inches.
   2. Corner: Square.
   3. Color: As selected from manufacturer's standard colors.
   4. Length: One piece.
   5. Preformed end caps.

2.03 FABRICATION

A. Pre-drill holes for attachment.

B. Form end trim closure by capping and finishing smooth.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings, concealed blocking, and anchors are correctly sized and located.

3.02 INSTALLATION

A. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to wall framing members only.

B. Position corner guard 4 inches above finished floor to 48 inches high.

3.03 TOLERANCES

A. Maximum Variation From Required Height: 1/4 inch.

END OF SECTION

SECTION 10 2800
TOILET ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Accessories for toilet rooms and utility rooms.

B. Electric hand dryers.

C. Grab bars.

1.02 RELATED REQUIREMENTS

A. Section 10 2113.19 - Plastic Toilet Compartments.

1.03 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2013.

B. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2015.

C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2015.

D. ASTM C1036 - Standard Specification for Flat Glass; 2011e1.

E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2012.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Products listed are made by Bobrick and Bradley Corporation.

B. Other Acceptable Manufacturers:
   1. AJW Architectural Products: www.ajw.com.
   2. ASI - American Specialties, Inc: www.americanspecialties.com.
   3. Substitutions: Section 01 6000 - Product Requirements.

C. Electric Hand/Hair Dryers:
   1. Dyson.
   2. Substitutions: Section 01 6000 - Product Requirements.

D. All items of each type to be made by the same manufacturer.

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
   1. Grind welded joints smooth.
   2. Fabricate units made of metal sheet of seamless sheets, with flat surfaces.

B. Stainless Steel Sheet: ASTM A666, Type 304.

C. Stainless Steel Tubing: ASTM A269/A269M, Type 304 or 316.

D. Mirror Glass: Tempered safety glass, ASTM C1048; and ASTM C1036 Type I, Class 1, Quality Q2, with silvering as required.

E. Adhesive: Two component epoxy type, waterproof.

F. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

G. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.03 FINISHES

A. Stainless Steel: No. 4 Brushed finish, unless otherwise noted.

B. Galvanizing for Items Other than Sheet: Comply with ASTM A123/A123M; galvanize ferrous metal and fastening devices.

C. Back paint components where contact is made with building finishes to prevent electrolysis.

2.04 TOILET ROOM ACCESSORIES

A. Toilet Paper Dispenser: Twin Jumbo Roll Dispenser
   1. Product: : Bobrick Model No. B-2892

B. Toilet Paper Dispenser: Multi-Roll Dispenser
   1. Product: Bobrick Model No. B-4288

C. Paper Towel Dispenser: Jumbo Roll Dispenser
   1. Product: Bobrick Model No. B-2860

D. Electric Hand Dryer:
   1. Manufacturers:
      a. Dyson Airblade V.
   2. Substitutions: Section 01 6000 - Product Requirements.

E. Waste Receptacle: Recessed and semi-recessed, stainless steel, seamless lower door for access to container, reinforced panel full height of door, continuously welded bottom pan and seamless exposed flanges.
   1. Liner: Removable, heavy-duty vinyl liner, attached at a minimum of 4 points with stainless steel grommets and hooks.
   2. Minimum capacity: 12 gallons.
   3. E-1 (Recessed) Product: B-346 manufactured by Bradley.
   4. E-2 (Semi-Recessed) Product: B-346-10 manufactured by Bradley.

F. Soap Dispenser: Soap lather dispenser, wall-mounted, surface, with black ABS cover .
   1. Product: Bobrick Model No. B-2012

G. Mirrors: Stainless steel framed, 1/4 inch thick laminated glass mirror.
   1. Series B- 290 manufactured by Bobrick.
   2. Size: shown on Drawings.

3. Frame: 0.05 inch angle shapes, with mitered and welded and ground corners, and tamperproof hanging system; No.4 finish.
4. Backing: Full-mirror sized, minimum 0.03 inch galvanized steel sheet and nonabsorptive filler material.

H. Grab Bars: Stainless steel, 1-1/2 inches outside diameter, minimum 0.05 inch wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 inches clearance between wall and inside of grab bar.
1. Length and configuration: As indicated on drawings.
2. Product: B-6806 Series manufactured by Bobrick.

I. Not Used

J. Sanitary Napkin Disposal Unit: Stainless steel, surface-mounted, self-closing door, locking bottom panel with full-length stainless steel piano-type hinge, removable receptacle.
1. Product: B-254 manufactured by Bobrick.

K. Combination Utility Shelf/Mop and Broom Holder: 0.05 inch thick stainless steel, Type 304, with 1/2 inch returned edges, 0.06 inch steel wall brackets.
1. Hooks: 4, 0.06 inch stainless steel rag hooks under shelf.
2. Mop/broom holders: 3 spring-loaded rubber cam holders under shelf.
3. Length: 34 inches.
4. Product: B-239 x 34 manufactured by Bobrick.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

C. Verify that field measurements are as indicated on drawings.

3.02 PREPARATION

A. Deliver inserts and rough-in frames to site for timely installation.

B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on the drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.
1. Grab Bars: As indicated on the drawings.

D. Mounting Heights and Locations: As required by accessibility regulations and as indicated on drawings

3.04 PROTECTION

A. Protect installed accessories from damage due to subsequent construction operations.

3.05 SCHEDULE

A. Toilet Paper Dispenser: Double Jumbo Rool; Provide as shown.

B. Toilet Paper Dispenser: Single Jumbo Rool; Provide as shown.

C. Paper Towel Dispenser: Provide as shown in toilet rooms and one for each sink in the following locations:

1. Annex Labs with multi-station sinks. (Provide 1 per sink.)

D. Electric Hand Dryer: Provide as shown in toilet rooms.

E. Waste Receptacle: Provide as shown in toilet rooms.

F. Soap Dispenser: Provide as shown in toilet rooms and one for each sink in the following locations:
   1. Annex Labs with multi-station sinks. (Provide 2 per sink.)

G. Mirrors: As shown in toilet rooms.

H. Grab Bars: 1-1/2 inch diameter. Provide as shown in toilet rooms.

I. Sanitary Napkin Disposal Unit: Provide as shown in toilet rooms.

J. Combination Utility Shelf/Mop and Broom Holder: Provide as shown in custodial closets.

END OF SECTION

SECTION 10 4400
FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire extinguishers.

B. Fire extinguisher cabinets.

C. Accessories.

D. Fire extinguisher signage.

1.02 RELATED REQUIREMENTS

A. Section 06 1000 - Rough Carpentry: Wood blocking product and execution requirements.

B. Section 21 1200 - Fire-Suppression Standpipes: Cabinet enclosure for standpipes.

1.03 REFERENCE STANDARDS

A. NFPA 10 - Standard for Portable Fire Extinguishers; 2013.

B. UL (FPED) - Fire Protection Equipment Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate cabinet physical dimensions, rough-in measurements for recessed cabinets, wall bracket mounted measurements, location, and other relevant information.

C. Product Data: Provide extinguisher operational features, color and finish, anchorage details, and other relevant information.

D. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

1.05 FIELD CONDITIONS

A. Do not install extinguishers when ambient temperature may cause freezing of extinguisher ingredients.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fire Extinguishers:
   1. Amerex Corporation : www.amerex-fire.com

B. Fire Extinguisher Cabinets and Accessories:
   1. JL Industries, Inc: www.jlindustries.com.
   2. Larsen's Manufacturing Co: www.larsensmfg.com.
   3. Potter-Roemer: www.potterroemer.com.
   4. Elkhart.
   5. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FIRE EXTINGUISHERS

A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.

B. Dry Chemical Type Fire Extinguishers: Carbon steel tank, with brass or aluminum valves and with pressure gage.
   1. Stored Pressure Operated: Deep Drawn.
   2. Class: A:B:C.
   3. Size: 10 pound.
   4. Finish: Baked polyester powder coat, color as selected.

C. K Type Extinguiser: Provide Wet Chemical (WC- 6L) Class K fire extinguishers with standard bracket in kitchens. (Maximum travel distance from cooking fire hazard to extinguisher = 30')

2.03 FIRE EXTINGUISHER CABINETS

A. Metal: Formed primed steel sheet.

B. Cabinet Configuration: Recessed.
   1. Sized to accommodate accessories.
   2. Interior nominal dimensions of 9-1/2 inch wide x 24 inch high x 6 inch deep.
   3. Trim: semi-recessed and returned to wall surface; 1-1/2 inch projection.
   4. Form cabinet enclosure with right angle inside corners and seams. Form perimeter trim and door stiles.

C. Fire rated cabinets: At fire rated partitions, provide fire-rated cabinet that is certified and listed by independent testing agency for one and two hour combustible and non-combustible wall systems to meet the requirements of ASTM E-814-83.
   1. All fire-rated cabinets shall have trims with reinforced corners and factory supplied anchoring devices.

D. Door: 1/2 inch thick, reinforced for flatness and rigidity; latch. Hinge doors for 180 degree opening with continuous piano hinge.

E. Door Style: Recess mounted, full view style, 18 gauge pressed steel construction, without locks.

F. Verify that cabinets are sized to accommodate extinguishers.

G. Door Glazing: Plastic, clear, 1/8 inch thick acrylic. Set in resilient channel gasket glazing.

H. Lettering: Vertical, die cut, red.

I. Cabinet Mounting Hardware: Appropriate to cabinet. Pre-drill for anchors.

J. Weld, fill, and grind components smooth.

K. Finish of Cabinet Exterior Trim and Door: Baked enamel, color as selected.

L. Finish of Cabinet Interior: White enamel.

2.04 ACCESSORIES

A. Extinguisher Brackets: J-Type, formed steel, galvanized and enamel finished.

B. Cabinet Signage: 3-D Fire Extinguisher Rigid Plastic Angle Sign – #PTD182.

2.05 ADDITIONAL EQUIPMENT

A. Provide ten (10) Dry Chemical Type fire extinguishers and brackets in addition to those shown on contract documents, to be located by the Authority Having Jurisdiction.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install cabinets plumb and level in wall openings.

C. Secure rigidly in place.

D. Place extinguishers in cabinets.

E. Positionof 3-D fire extinguisher signage: install 8 feet from floor to top of the sign. Center sign over the fire extinguisher/fire extinguisher cabinet.
   1. 3-D fire extinguisher signage to be installed in addition to typical fire extinguisher sticker/cabinet markings.

3.03 SCHEDULES

A. Provide wall-mounted fire extinguishers in the following locations:
   1. Mechanical rooms.
   2. Main electrical rooms.
   3. Complex kitchens (5 lb. multi-purpose).
   4. Apartment kitchens (5 lb. multi-purpose).
   5. Provide additional extinguishers to limit travel distance within room to 75 feet to nearest extinguisher.

B. Provide fire extinguishers in recessed cabinets in the following locations:
   1. Corridors
   2. Provide additional extinguishers and cabinets to limit travel distance from any point to nearest extinguisher to 75 feet.

END OF SECTION

SECTION 12 2413
WINDOW TREATMENT – ROLLER SHADES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Manual roller shades with light filtering fabric for exterior clear glazed windows.

1.02 REFERENCES

A. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

B. NFPA 701 - Fire Tests for Flame-Resistant Textiles and Films.

1.03 SUBMITTALS

A. Submit under provisions of Section 013000.

B. Product data: Provide manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Styles, material descriptions, dimensions of individual components, profiles, features, finishes and operating instructions.
   3. Storage and handling requirements and recommendations.
   4. Mounting details and installation methods.

C. Shop Drawings: Show location and extent of roller shades. Include elevations, sections, details, and dimensions not shown in Product Data. Show installation details, mountings, attachments to other Work, operational clearances, and relationship to adjoining work.

D. Samples for Initial Selection: For each colored component of each type of roller shade indicated.

E. Window Treatment Schedule: Submit Window Treatment Schedule using same room designations indicated on Drawings.

F. Maintenance Data: Include in maintenance manuals:
   1. Methods for maintaining roller shades/blinds and finishes.
   2. Precautions about cleaning materials and methods that could be detrimental to fabrics, finishes, and performance.
   3. Operating hardware.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has successfully completed and serviced installations similar in scope to that indicated for this Project.

B. Source Limitations: Obtain each type of window treatment through one source from a single manufacturer.

C. Anti-Microbial Characteristics: 'No Growth' per ASTM G 21 results for fungi ATCC9642, ATCC 9644, ATCC9645.

D. Fire-Test-Response Characteristics: Provide window treatment materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
   1. Flame-Resistance Ratings: Passes NFPA 701.

E. Mock-Up: Provide a mock-up (manual shades only) of one roller shade assembly for evaluation of mounting, appearance and accessories.

1. Locate mock-up in window designated by Architect.
2. Do not proceed with remaining work until, mock-up is accepted by Architect.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver in factory packages, marked with manufacturer and product name, fire-test-response characteristics, and location of installation using same room designations indicated on Drawings and in window treatment schedule.

1.06 PROJECT CONDITIONS

A. Environmental Limitations: Do not install window treatment until construction and wet and dirty finish work in spaces, including painting, is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Field Measurements: Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operable glazed units' operation hardware throughout the entire operating range. Notify Architect of discrepancies. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.07 WARRANTY

A. Products: Minimum 10 years from substantial completion or manufacturer’s standard warranty.

B. Installation: One year from substantial completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Approved Manufacturer: This Specification is based on products as indicated under individual product descriptions.

2.02 MANUAL ROLLER SHADES

A. Basis of specification
   1. Basis of Design: MechoShade Systems, Inc.
   2. Window Treatment Fabric:
      a. 3% Open EuroTwill Reversable Weave, 6000 Series.
      b. Color: One standard color as selected by Architect from manufacturer’s standard color pallette.
   3. Roller shade assembly:
      a. MechoShade: MechoShade/5
   4. Rollers: Electrogalvanized or epoxy primed steel or extruded-aluminum tube of diameter and wall thickness required to support and fit internal components of operating system and the weight and width of shade band material without sagging; designed to be easily removable from support brackets; with manufacturer's standard method for attaching shade material. Provide capacity for one roller shade band per roller.
   5. Direction of Roll: Regular, from back of roller.
   6. Mounting Brackets: Standard 1018 plated steel. Sizes to be compatible with window /shade size and clutch capacity. Bracket style to be compatible with mounting requirements and site conditions.
   7. Bottom Bar: Steel or extruded aluminum. Provide concealed, by pocket of shade material, internal-type bottom bar with concealed weight bar as required for smooth, properly balanced shade operation.

8. Shade Operation: Manual - with continuous loop bead chain, clutch, and cord tensioner and bracket lift operator.
9. Position of Clutch Operator: Right side of roller, as determined by hand of user facing shade from inside, unless otherwise indicated or dictated by field conditions.
10. Clutch: Capacity to lift size and weight of shade; sized to fit roller or provide adaptor.
11. Lift Assist Mechanism: Manufacturer's standard spring assist for balancing roller shade weight and lifting heavy roller shades.
12. Bead Chain: Nickel-plated metal or Stainless steel.
13. Cord Tensioner Mounting: As required per installation.
14. Operating Function: Stop and hold shade at any position in ascending or descending travel.

B. Accessories:
1. Fascias: Single or double types, as required by installation. One-piece extruded aluminum.
2. Manufacturer's standard hem bar.
3. End caps.

2.03 ROLLER SHADE FABRICATION

A. Product Description: Roller shade consisting of a roller, a means of supporting the roller, a flexible sheet or band of material carried by the roller, a means of attaching the material to the roller, a bottom bar, and an operating mechanism that lifts and lowers the shade.

B. Concealed Components: Non-corrodible or corrosion-resistant-coated materials.
1. Lifting Mechanism: With permanently lubricated moving parts.

C. Unit Sizes: Obtain units fabricated in sizes to fill window and other openings as follows, measured at 74 deg F:
1. Shade Units installed outside (typical) : If inside mount is required, edge of shade not exceed 1/4 inch from face of jamb.
2. Fabricate units to completely fill existing openings from head to sill and jamb-to-jamb, unless specifically indicated otherwise.
3. Fabricate shadecloth to hang flat without buckling or distortion.

D. Installation Brackets: Shall allow for easy removal and reinstallation of shade, operating hardware and for hardware position and shade mounting method indicated.

E. Installation Fasteners: Not fewer than two fasteners per bracket, fabricated from metal non-corrosive to shade hardware and adjoining construction; type designed for securing to supporting substrate; and supporting shades and accessories under conditions of normal use.

F. Colors of Metal and Plastic Components Exposed to View: As selected by Architect from manufacturer's full range, unless otherwise indicated.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 ROLLER SHADE INSTALLATION AND ADJUSTING

A. Install roller shades level, plumb, square, and true according to manufacturer's written instructions, and located so shade band is not closer than 2 inches to interior face of glass. Allow clearances for window operation hardware.

B. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.03 CLEANING AND PROTECTION

A. Clean roller shade surfaces after installation, according to manufacturer's written instructions.

B. Remove surplus materials, rubbish, and debris resulting from installation upon completion of work, and leave areas of installation in neat, clean condition.

C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, which ensure that roller shades are without damage or deterioration at time of Substantial Completion.

3.04 SCHEDULE

A. Provide roller shades at the following locations:

1. All exterior windows within scope limits, except windows serving corridors, stair towers, vestibules, toilet rooms, and storage rooms.
2. Elsewhere as noted on drawings.

END OF SECTION

SECTION 12 3600
COUNTERTOPS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Countertops for architectural cabinetwork.

B. Sinks molded into countertops.

C. Custom surrounds for metal lockers.

1.02 RELATED REQUIREMENTS

A. Section 06 4100 - Architectural Wood Casework.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

B. ISFA 2-01 - Classification and Standards for Solid Surfacing Material; International Surface Fabricators Association; 2013.

C. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Specimen warranty.

C. Shop Drawings: Complete details of materials and installation; combine with shop drawings of cabinets and casework specified in other sections.

D. Selection Samples: For each finish product specified, color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, minimum size 6 inches square, representing actual product, color, and patterns.

F. Test Reports: Chemical resistance testing, showing compliance with specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.06 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 COUNTERTOP ASSEMBLIES

A. Quality Standard: Premium Grade, in accordance with AWI/AWMAC/WI (AWS).

B. Solid Surfacing: Solid surfacing sheet or plastic resin casting over continuous substrate.
   1. Flat Sheet Thickness: 1/2 inch, minimum.

2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
   a. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
3. Other Components Thickness: 1/2 inch, minimum.
4. Exposed Edge Treatment: Built up to minimum 1-1/4 inch thick; square edge; use marine edge at sinks.
5. Back and End Splashes: Same sheet material, square top; minimum 4 inches high.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Verify that wall surfaces have been finished and mechanical and electrical services and outlets are installed in proper locations.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.

B. Seal joint between back/end splashes and vertical surfaces.

3.04 TOLERANCES

A. Variation From Horizontal: 1/8 inch in 10 feet, maximum.

B. Offset From Wall, Countertops: 1/8 inch maximum; 1/16 inch minimum.

C. Field Joints: 1/8 inch wide, maximum.

3.05 CLEANING

A. Clean countertops surfaces thoroughly.

3.06 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 14 2100
PASSENGER ELEVATORS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies electric traction elevators and hydraulic elevators .

B. Work Required:
   1. The work required under this section consists of all labor, materials and services required for the complete installation (including operational verification) of all the equipment required for the elevator(s) as herein specified.
   2. All work shall be performed in a first class, safe and workmanlike manner.
   3. In all cases where a device or part of the equipment is herein referred to in the singular, it is intended that such reference shall apply to as many of such devices or parts as are required to make complete installation.

C. Related Work
   1. Division 01 - Construction Facilities and Temporary Controls: protection of floor openings and personnel barriers; temporary power and lighting.
   2. Division 31 - Earthwork: excavation for elevator pit.
   3. Section 03 3000 - Cast-In-Place Concrete: elevator pit, and elevator machine foundation.
   4. Section 04 2000 - Unit Masonry: masonry hoistway enclosure, building-in and grouting hoistway doorframes, and grouting of sills.
   5. Section 05 5000 - Metal Fabrications: pit ladder and supports for entrances, rails and hoisting beam at top of elevator hoistway.
   6. Section 07 1300 - Sheet Waterproofing: waterproofing of elevator pit.
   7. Division 23 - Heating, Ventilating, and Air Conditioning: ventilation and temperature control of elevator equipment areas.
   8. Division 26 - Electrical:
      a. Main disconnects for each elevator.
      b. Electrical power for elevator installation and testing.
      c. Disconnecting device to elevator equipment prior to activation of sprinkler system.
      d. The installation of dedicated GFCI receptacles in the pit and overhead.
      e. Lighting in controller area, machine area and pit.
      f. Wiring for telephone service to controller.
      g. Emergency (Standby) Power Supply Systems: emergency generator for elevator operation.
      h. Fire Alarm Systems: The installation of fire and smoke detectors at required locations and interconnecting devices; fire alarm signal lines to contacts in the machine area.
      i. Telephone Systems: ADAAG-required emergency communications equipment.

D. Applicable Codes: Comply with applicable building and elevator codes at the project site, including but not limited to the following:
   1. ANSI A117.1, Buildings and Facilities, Providing Accessibility and Usability for Physically Handicapped People.
   2. ANSI/NFPA 70, National Electrical Code.
   3. ANSI/NFPA 80, Fire Doors and Windows.
   4. ASME/ANSI A17.7, Safety Code for Elevators and Escalators.
   5. ANSI/UL 10B, Fire Tests of Door Assemblies.

6. Local Building Codes

1.02 SYSTEM DESCRIPTION: ELEVATOR ELM 01

A. Equipment Description: Gen2® gearless traction elevator with Machine Room-less application.

B. Equipment Control: Elevonic® Control System.

C. Quantity of Elevators: 1

D. Elevator Stop Designations:
   1. Elevator No. 1: LL, 1, 2, Roof

E. Stops (maximum): 4

F. Openings: In line.

G. Travel: 54 feet

H. Rated Capacity: 4500 lb.

I. Rated Speed: 200 fpm

J. Platform Size: 5’ 9-1/2” W x 7’ 11-9/16” D

K. Clear Inside Dimensions: 5’ 8-5/16” W x 7’ 11” D

L. Cab Height: 9’ 7”

M. Clear height under suspended ceiling: 8’ 11-3/4” (2813mm)

N. Entrance Type and Width:
   1. Two-Speed Doors 4’ 0” (1219 mm).

O. Entrance Height: 7’ 0” (2134 mm)

P. Main Power Supply: 480 Volts + or - 5% of normal, three-Phase, with a separate equipment grounding conductor.

Q. Car Lighting Power Supply: 120 Volts, Single-phase, 15 Amp, 60 Hz.

R. Machine Location: Inside the hoistway at the top Signal Fixtures: Manufacturer’s standard.

S. Controller Location: Controller(s) shall be located adjacent to the hoistway at the top landing in a controller space

T. Performance:
   1. Car Speed: + 3 % of contract speed under any loading condition or direction of travel.
   2. Car Capacity: Safely lower, stop and hold up to 125% of rated load. (code required).

U. Ride Quality:
   1. Vertical Vibration (maximum): 12 - 17 milli-g
   2. Horizontal Vibration (maximum): 10 - 15 milli-g
   3. Vertical Jerk (maximum): 4.6 ± 1.0 ft./ sec3 (1.4 ± 0.3 m/ sec3)
   4. Acceleration/Deceleration (maximum): 2.6 ± .33 ft./ sec2 (0.8 ± 0.13 m/ sec2)
   5. In Car Noise: 50 - 55 dB(A)
   6. Stopping Accuracy: ± 0.2 in. (± 5 mm)
   7. Re-leveling Distance: ± 0.4 in. (± 10 mm)

V. Operation:
   1. Simplex Collective Operation: Using a microprocessor-based controller, operation shall be automatic by means of the car and hall buttons. If all calls in the system have been answered, the car shall park at the last landing served.

W. Operating Features - Standard
   1. Full Collective Operation

2. Anti-nuisance.
3. Fan and Light Protection.
4. Load Weighing Bypass.
5. Independent Service.
6. Full Collective Operation.
7. Firefighters' Service Phase I and Phase II
8. Top of Car Inspection.
9. Car to Lobby Operation.
10. Car Secure Access.
11. Provision for Card Reader in Car (Card Reader provided and Installed by others).
12. Automatic Standby Power Operation with Manual Override.

X. Door Control Features:
1. Door control to open doors automatically when car arrives at a landing in response to a normal hall or car call.
2. Elevator doors shall be provided with a reopening device that will stop and reopen the car door(s) and hoistway door(s) automatically should the door(s) become obstructed by an object or person.
3. Primary door protection shall consist of a two dimensional, multi-beam array projecting across the car door opening.
4. Door nudging operation to occur if doors are prevented from closing for an adjustable period of time.

Y. Provide equipment according to seismic zone: Refer to Structural Drawings.

1.03 SYSTEM DESCRIPTION: ELEVATOR ELA 01

A. Equipment Description: Holeless Hydraulic elevator with Machine-Room Less application
B. Equipment Control: Elevonic® Control System.
C. Quantity of Elevators: 1
D. Elevator Stop Designations: LL, 1
E. Stops : 2
F. Openings: In line.
G. Travel: 13’-6”.
H. Rated Capacity: 4500 lb.
I. Rated Speed: 125 fpm.
J. Platform Size: 5’-6 ¾” W x 8’-8” D
K. Clear Inside Dimensions: 5’-5 9/16” W x 7’-10 15/16” D
L. Cab Height: 9’-9”
M. Clear Cab Height: 9’-4 3/8” with 5/16” floor recess and dropped 6 LED ceiling or perimeter lit ceiling.
N. Entrance Type and Width:
1. Two Speed Door 4’ 0” (1219 mm) .
O. Entrance Height: 7’ 0” (2134 mm)
P. Main Power Supply: 480 - Volts, 3-Phase, 60Hz + or - 5% of normal, three-Phase, with a separate equipment grounding conductor.
Q. Car Lighting Power Supply: 120 Volts, Single-phase, 15 Amp, 60 Hz.

R. Machine and Controller Location: No machine-room required, tank and controller in hoistway pit.

S. Signal Fixtures: Manufacturer's standard with stainless steel metal button targets.

T. Controller Location: Inside hoistway, accessible by a door in a side hoistway wall on the 1st or 2nd landing.

U. Stopping Accuracy: ±1/4" (6.4 mm) under any loading condition or direction of travel.

V. Operation:

W. Simplex Collective Operation: Using a microprocessor-based controller, operation shall be automatic by means of the car and hall buttons. If all calls in the system have been answered, the car shall park at the last landing served.

X. Operating Features - Standard
   1. Full Collective Operation
   2. Fan and Light Protection.
   3. Firefighters' Service Phase I and Phase II.
   4. Top of Car Inspection.
   5. Emergency Rescue Unit
   6. Automatic Standby Power Operation with Manual Override.
   7. Independent Service.

Y. Door Control Features:
   1. Door control to open doors automatically when car arrives at a landing in response to a normal hall or car call.
   2. Elevator doors shall be provided with a reopening device that will stop and reopen the car door(s) and hoistway door(s) automatically should the door(s) become obstructed by an object or person.
   3. Door protection shall consist of a two dimensional, multi-beam array projecting across the car door opening.
   4. Door nudging operation to occur if doors are prevented from closing for an adjustable period of time.

Z. Provide equipment according to seismic zone: Refer to Structural Drawings.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's product data for each system proposed for use. Include the following:
   1. Signal and operating fixtures, operating panels and indicators.
   2. Cab design, dimensions and layout.
   3. Hoistway-door and frame details.
   4. Electrical characteristics and connection requirements.
   5. Expected heat dissipation of elevator equipment in hoistway (BTU).
   6. Color selection chart for Cab and Entrances.

B. Shop Drawings: Submit approval layout drawings. Include the following:
   1. Car, guide rails, buffers and other components in hoistway.
   2. Maximum rail bracket spacing.
   3. Maximum loads imposed on guide rails requiring load transfer to building structure.
   4. Clearances and travel of car.
   5. Clear inside hoistway and pit dimensions.
   6. Location and sizes of access doors, hoistway entrances and frames.

C. Operations and Maintenance Manuals: Provide manufacturer's standard operations and maintenance manual.

1.05 QUALITY ASSURANCE

A. Permits, Inspections and Certificates: The Elevator Contractor shall obtain and pay for necessary Municipal or State Inspection and permit as required by the elevator inspection authority, and make such tests as are called for by the regulations or such authorities. These tests shall be made in the presence of such authorities or their authorized representatives.

B. Designer Qualifications: Design guide rails, brackets, anchors, and machine anchors under direct supervision of a Professional Structural Engineer experienced in design of work of this type and licensed in the State in which the Project is located.

C. Perform structural steel design, fabrication, and installation in accordance with AISC 360, Specification for Structural Steel Buildings. Perform seismic design in accordance with applicable code.

D. Perform welding of steel in accordance with AWS D1.1/D1.1M.

E. Fabricate and install door and frame assemblies in accordance with NFPA 80.

F. Perform electrical work in accordance with NFPA 70.

G. Maintain one copy of each quality standard document on site.

H. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum ten years documented experience.

I. Installer Qualifications: Employees and supervisor on payroll of elevator equipment manufacturer.

J. Products Requiring Fire Resistance Rating: Listed and classified by UL.

K. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.06 WARRANTY

A. The elevator contractor’s warranty covers defective material and workmanship.
   1. The warranty period shall extend one (1) year from the date of completion or acceptance thereof by beneficial use, whichever is earlier, of each elevator.
   2. The warranty excludes: ordinary wear and tear, improper use, vandalism, abuse, misuse, or neglect or any other causes beyond the control of the elevator contractor.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. ThyssenKrupp Elevator: www.thyssenkruppelevator.com.

B. Otis Elevator Co: www.otis.com.

C. Schindler Elevator Corp: www.us.schindler.com.

D. Substitutions: See Section 01 6000 - Product Requirements.

E. All components to be manufactured by same entity.

2.02 ELEVATOR ELM 01:

A. Provide machine room-less traction passenger elevators.

B. Basis of Design: Gen2 manufactured by Otis Elevator Company.

C. Specifically, the system shall consist of the following components:

1. Controller located entirely inside the hoistway. No extra machine room or control closet space required.
2. An AC gearless machine using embedded permanent magnets mounted at the top of the hoistway.
3. Polyurethane Coated-Steel Belts for elevator hoisting purposes.
4. Regenerative drive that captures normally wasted energy and feeds clean power back into the building's power grid.
5. LED lighting standard in ceiling lights and elevator fixtures.
6. Sleep mode operation for LED ceiling lights and car fan.

D. Approved Installer: Otis Elevator Company

E. Controller Components:
1. Controller: A microcomputer based control system shall be provided to perform all of the functions of safe elevator operation. The system shall also perform car and group operational control.
   a. All high voltage (110V or above) contact points inside the controller shall be protected from accidental contact when the controller doors are open.
   b. Controller shall be separated into two distinct halves; Motor Drive side and Control side. High voltage motor power conductors shall be routed so as to be physically segregated from the rest of the controller.
   c. Field conductor terminations points shall be segregated; high voltage (>30 volts DC and 110 VAC,) and low voltage (< 30 volts DC)
   d. Controllers shall be designed and tested for Electromagnetic Interference (EMI) immunity according to the EN 12016 (May 1998): "EMC Product Family Standards for lifts, escalators, and passenger conveyors Part 2 - immunity"
2. Drive: A Variable Voltage Variable Frequency AC drive system shall be provided. The drive shall be set up for regeneration of AC power back to the building grid.

F. Machine and Govenor:
1. Machine: AC gearless machine, with a synchronous permanent-magnet motor, dual solenoid service and emergency disc brakes, mounted at the top of the hoistway.
2. Governor: The governor shall be a tension type car-mounted governor.
3. Buffers, Car and Counterweight: Oil type buffers shall be used.
4. Hoistway Operating Devices:
   a. Emergency stop switch in the pit
   b. Terminal stopping switches.
5. Positioning System: Consists of an encoder, reader box, and door zone vanes.
6. Guide Rails and Attachments: Guide rails shall be Tee-section steel rails with brackets and fasteners. Side counterweight arrangements shall have a dual-purpose bracket that combines both counterweight guide rails, and one of the car guide rails to building fastening.
7. Coated-Steel Belts: Polyurethane coated belts with high-tensile-grade, zinc-plated steel cords and a flat profile on the running surface and the backside of the belt. All driving sheaves and deflector sheaves should have a crowned profile to ensure center tracking of the belts. A continuous 24/7 monitoring system using resistance based technology has to be installed to continuously monitor the integrity of the coated steel belts and provide advanced notice of belt wear.
8. Governor Rope: Governor rope shall be steel and shall consist of at least eight strands wound about a sisal core center.

2.03 ELEVATOR ELA 01:

A. Provide machine-roomless holeless hydraulic elevators. from Otis Elevator Company.

B. Basis of Design: HydroFit manufactured by Otis Elevator Company.

C. Specifically, the system shall consist of the following components:
   1. The entire hydraulic system and the controller shall be located inside the hoistway. No extra machine room or control closet space is required.
   2. Sleep mode operation for LED ceiling lights and car fan.
   3. LED lighting standard in ceiling lights and elevator fixtures.

D. Approved Installer: Otis Elevator Company

E. Machine Components:
   1. The hydraulic system shall be of compact design suitable for operation under the required pressure. The power component shall be mounted in the hydraulic-fluid storage tank. The control valve shall control flow for up and down directions hydraulically and shall include an integral check valve. A control section including control solenoids shall direct the main valve and control: up and down starting, acceleration, transition from full speed to leveling speed, up and down stops, pressure relief and manual lowering. All of these functions shall be fully adjustable for maximum smoothness and to meet contract conditions. System to be provided with a low-pressure switch and a shut-off valve.
   2. The entire hydraulic system with hydraulic-fluid storage tank, power component and valves shall be located in the hoistway pit and be easily accessible for maintenance through an access door in the hoistway wall.
   3. A microprocessor-based controller shall be provided, including necessary starting switches together with all relays, switches, solid-state components and hardware required for operation, including door operation, as described herein. A three (3) phase overload device shall be provided to protect the motor against overloading.
      a. The controller shall be located together with the hydraulic system in the hoistway pit and be easily accessible for maintenance through the same access door that is also used for the hydraulic system.
   4. A manual lowering feature shall permit lowering the elevator at slow speed in the event of power failure or for adjusting purposes.
   5. Pressure Switch.
   6. Tank Heater.
   7. Low-oil control.

F. Hoistway Components:
   1. Plunger(s) and Cylinder(s): Each cylinder shall be constructed of steel pipe of sufficient thickness and suitable for the operating pressure. The top of each cylinder shall be equipped with a cylinder head with a drip ring to collect any oil seepage as well as an internal guide ring and self-adjusting packing. Each plunger shall be constructed of selected steel tubing or pipe of proper diameter machined true and smooth with a fine polished finish. Each plunger shall be provided with a stop ring electrically welded to it to prevent the plunger from leaving the cylinder. Each plunger and cylinder shall be installed plumb and shall operate freely with minimum friction.
   2. Car Guide Rails: Tee-section steel rails with brackets and fasteners.
   3. Polyurethane type buffers shall be used.
   4. Wiring: Wiring for hoistway electrical devices included in scope of the elevator system, hall panels, pit emergency stop switch, and the traveling cable for the elevator car.

2.04 HOISTWAY ENTRANCES:

A. Fascia: Galvanized sheet steel shall be provided at the front of the hoistway.

B. Frames: Entrance frames shall be of bolted construction for complete one-piece unit assembly. All frames shall be securely fastened to fixing angles mounted in the hoistway and shall be of UL fire rated steel.

C. Sills shall be extruded aluminum.

D. Doors: Entrance doors shall be of metal construction with vertical channel reinforcements.

E. Fire Rating: Entrance and doors shall be UL fire rated for 1-1/2 hour
   1. Entrance Finish: paint
      a. Color to be selected from the manufacturer's color chart.

F. Entrance marking plates: Entrance jambs shall be marked with 4” x 4” (102 mm x 102 mm) plates having raised floor markings with Braille located adjacent to the floor marking. Marking plates shall be provided on both sides of the entrance.

G. Sight Guards: sight guards will be furnished with all doors painted to match with painted doors.

2.05 EQUIPMENT: CAR COMPONENTS

A. Car frame and Safety: A car frame fabricated from formed or structural steel members shall be provided with adequate bracing to support the platform and car enclosures. The car safety shall be integral to the car frame and shall be Type "B", flexible guide clamp type.

B. Cab
   1. Premium Cab Options: Steel Shell Cab with raised laminate hang on panels.
      a. Laminate to be selected from manufacturer’s catalog of choices.
      b. Brushed Stainless Steel finished base plate located at top and bottom

C. Car Front Finish: Satin Stainless Steel.

D. Car Door Finish: Satin Stainless Steel.

E. Ceiling Type:
   1. LED Perimeter-lit ceiling Black (EW5).

F. Emergency Car Lighting: An emergency power unit employing a 6-volt sealed rechargeable battery and totally static circuits shall be provided to illuminate the elevator car in the event of building power failure.

G. Fan: A one-speed 120 VAC fan will be mounted to the ceiling to facilitate in-car air circulation, meeting A17.1 code requirements.
   1. The fan shall be rubber mounted to prevent the transmission of structural vibration and will include a baffle to diffuse audible noise.
   2. A switch shall be provided in the car-operating panel to control the fan.

H. Handrail: Handrails shall be provided on the side and rear walls of the car enclosure. Handrails shall be 3/8” x 2” (9.5 mm x 51 mm) flat tubular handrail with a Brushed Steel.

I. Threshold: Extruded Aluminum.

J. Emergency Exit Contact: An electrical contact shall be provided on the car-top exit.

K. Guides: Rubber roller guides shall be mounted on the top and the bottom of the car and counterweight. Car roller guides shall be 6-1/4” (160mm) at the top of the car, and 6-1/4” (160mm) at the bottom. The counterweight roller guides shall be 3” (76mm) at the top and the bottom.

L. Platform: The car platform shall be constructed of metal. Load weighing device shall be mounted on the belts at the top of the hoistway.

M. The LED ceiling lights and the fan should automatically shut off when the system is not in use and be powered back up after a passenger calls the elevator and pushes a hall button.

2.06 SIGNAL DEVICES AND FIXTURES

A. Car Operating Panel: A car operating panel shall be provided which contains all push buttons, key switches, and message indicators for elevator operation. The car operating panel shall have a satin stainless steel finish
   1. A car operating panel shall be furnished. It shall contain a bank of round stainless steel, mechanical LED illuminated buttons. Flush mounted to the panel and marked to correspond to the landings served. All buttons to have raised numerals and Braille markings with:

B. Vandal-Resistant, Flush satin stainless steel button with blue LED illuminating center jewel.

C. The car operating panel shall be equipped with the following features:
   1. Raised markings and Braille to the left hand side of each push-button.
   2. Car Position Indicator at the top of and integral to the car operating panel.
   3. Door open and door close buttons.
   4. Inspection key-switch.
   5. Elevator Data Plate marked with elevator capacity and car number.
   6. Help Button: The help button shall initiate two-way communication between the car and a location inside the building, switching over to another location if the call is unanswered, where personnel are available who can take the appropriate action. Visual indicators are provided for call initiation and call acknowledgement.
   7. Landing Passing Signal: A chime bell shall sound in the car to signal that the car is either stopping at or passing a floor served by the elevator.
   8. In car stop switch (toggle or key unless local code prohibits use)
   9. Firefighter's hat
   10. Firefighter's Phase II Key-switch
   11. Call Cancel Button

D. Car Position Indicator: A digital, LED car position indicator shall be integral to the car operating panel.

E. Hall Fixtures: Hall fixtures shall be provided with necessary push buttons and key switches for elevator operation.
   1. Integral Hall fixtures shall feature round stainless steel, mechanical buttons marked to correspond to the landings. Hall fixtures to be located in the entrance frame face or the wall. Buttons shall be in vertically mounted fixture. Fixture shall be Gold Satin finish.
   2. Button Options:

F. Vandal-Resistant, Flush satin stainless steel button with blue LED illuminating center jewel.

G. Car Lantern and Chime: A directional lantern visible from the corridor shall be provided in the car entrance. When the car stops and the doors are opening, the lantern shall indicate the direction in which the car is to travel and a chime will sound.

H. Card Reader Provision

PART 3 - EXECUTION

3.01 PREPARATION

A. Take field dimensions and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Do not proceed with work until unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Installation of all elevator components except as specifically provided for elsewhere by others.

B. Install system components. Connect equipment to building utilities.

C. Provide conduit, boxes, wiring, and accessories.

D. Mount machines on vibration and acoustic isolators, on bed plate and concrete pad. Place on structural supports and bearing plates. Securely fasten to building supports. Prevent lateral displacement.

E. Accommodate equipment in space indicated.

F. Install guide rails using threaded bolts with metal shims and lock washers under nuts. Compensate for expansion and contraction movement of guide rails.

G. Accurately machine and align guide rails. Form smooth joints with machined splice plates.

H. Bolt or weld brackets directly to structural steel hoistway framing.

I. Field Welds: Chip and clean away oxidation and residue, wire brush; spot prime with two coats.

J. Coordinate installation of hoistway wall construction.

K. Install hoistway door sills, frames, and headers in hoistway walls. Grout sills in place. Set entrances in vertical alignment with car openings and aligned with plumb hoistway lines.

L. Structural Metal Surfaces: Clean surfaces of rust, oil or grease; wipe clean with solvent; prime two coats.

M. Adjust equipment for smooth and quiet operation.

3.03 ERECTION TOLERANCES

A. Guide Rail Alignment: Plumb and parallel to each other in accordance with ASME A17.1 .

3.04 FIELD QUALITY CONTROL

A. Perform testing and inspection in accordance with requirements of Section 01 4000.
   1. Perform tests as required by ASME A17.2.
   2. Provide two weeks written notice of date and time of tests.
   3. Supply instruments and execute specific tests.

3.05 ADJUSTING

A. Adjust for smooth acceleration and deceleration of car so not to cause passenger discomfort.

B. Adjust automatic floor leveling feature at each floor to achieve 1/4 inch from flush.

3.06 CLEANING

A. Remove protective coverings from finished surfaces.

B. Clean surfaces and components ready for inspection.

3.07 PROTECTION

A. Do not permit construction traffic within cab after cleaning.

B. Protect installed products until project completion.

C. Touch-up, repair, or replace damaged products before Date of Substantial Completion.

3.08 MAINTENANCE

A. Perform maintenance work using competent and qualified personnel under the supervision and in the direct employ of the elevator manufacturer or original installer.

B. Provide service and maintenance of elevator system and components for one year from Date of Substantial Completion.

C. Examine system components monthly. Clean, adjust, and lubricate equipment.

D. Include systematic examination, adjustment, and lubrication of elevator equipment. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original equipment. Replace wire ropes when necessary to maintain the required factor of safety.

E. Perform work without removing cars during peak traffic periods.

F. Provide emergency call back service during working hours for this maintenance period.

3.09 DEMONSTRATION

A. The elevator contractor shall make a final check of each elevator operation with the Owner or Owner's representative present prior to turning each elevator over for use. The elevator contractor shall determine that control systems and operating devices are functioning properly.

END OF SECTION

SECTION 311000

SITE CLEARING

PART 1 GENERAL

1.01 DESCRIPTION

A. Site Clearing shall consist of clearing of the site within the limits of construction to include the following:
   1. Removal and disposal of trees and brush, weeds, roots, and similar materials.
   2. Removal and disposal of structures, paving, base course, utilities, concrete sidewalks and aprons, and all other obstructions which are designated on the Plans for removal during construction.
   3. Protection of existing utilities and adjacent property, structures, benchmarks, and monuments.

1.02 STANDARDS

A. The quality and performance of work specified in this section shall be in accordance with the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2001, latest revision (hereinafter referred to as the "Standard Specifications").
   1. Section 201: Clearing and Grubbing
   2. Section 211: Removal of Structures and Obstructions.

1.03 PHASING

A. Clearing, grubbing, and removal shall be performed prior to the grading and stripping operations, within the limits of grading, as indicated on the drawings and as specified herein. Following clearing, topsoil shall be stripped and stored for later use on the site or disposition by the Owner.

1.04 PROTECTION

A. The Contractor shall protect all trees, shrubs, ground plants, roads, walks, pavements, structures, civil improvements, and appurtenances not indicated to be cleared from the site. Methods of protection shall be by use of substantial wood or chain link fences, barriers, or other methods, as approved by the Engineer. Any trees, shrubs, ground plants, roads, walks, pavements, structures, or appurtenances indicated to remain that become damaged during construction of the project shall be repaired or replaced by the Contractor, as directed by the Engineer, at no additional cost to the Owner.

B. The Contractor shall contact all utility companies to mark the location of their facilities. The contractor shall protect all existing utilities in place and maintain continuous service to the Owner. Any damage to the utilities shall be corrected by the Contractor at his expense. The Contractor shall also be responsible for coordinating and/or relocating any utilities which must be relocated to accommodate the proposed construction.

PART 2 PRODUCTS

2.01 MATERIALS

A. All materials shall be at the Contractor's option, subject to the approval of the Engineer.

PART 3 EXECUTION

3.01 CLEARING AND GRUBBING

A. Clearing shall consist of the removal of all trees and shrubs, brush, down timber, rotten wood, heavy growth of grass and weeds, vines, rubbish, walks, roads, curbs, walls and foundations, existing utilities already abandoned, and all objectionable debris. All walls, foundations, slabs, pavements, curbs, and footings shall be removed to their full depth.

B. Grubbing shall consist of the removal of stumps, roots, root mats, stubs, buried logs, and other debris within the project limits. The Contractor shall remove all stumps and root mats in their entirety and all buried logs and other debris from within building areas and from the limits of proposed drives and walks. Within proposed lawn areas, stumps, roots and debris shall be removed to a minimum depth of one foot below design rough grade.

C. Construction methods shall be in accordance with Section 201 of the Standard Specifications.

3.02 DISPOSAL OF REMOVED MATERIALS

A. All timber and cleared materials shall become the property of the Contractor, and shall be disposed of by the Contractor. Burning of materials on site is prohibited.

B. Pavement, base course, concrete, utilities, and other obstructions shall be removed from the site and shall be disposed lawfully. The Contractor shall provide evidence of the lawful disposal when requested by the Owner or the Owner’s Representative.

3.03 SALVAGED MATERIALS

A. Materials listed to be salvaged for reuse shall be stored by the Contractor in such a manner to prevent damage to the material. Salvaged materials which are not reused shall be disposed of lawfully by the Contractor unless the Owner specifically requests to take possession of the material.

3.04 SITE DEMOLITION

A. Remove walks, roads, curbs, walls and foundations, existing utilities already abandoned, and all objectionable debris. All walls, foundations, slabs, pavements, curbs, and footings shall be removed to their full depth.

B. Procure all permits required for demolition and disposal. Coordinate utility work with utility companies and subcontractors. All debris shall be removed and disposed lawfully.

C. Where applicable, brace and shore all portions of the existing structure for safety and to maintain the integrity of the existing building. Provide protection for the general public. Disconnect all utilities prior to demolition in areas where live utilities may be located.

END OF SECTION

SECTION 312000

EARTHMOVING

PART 1 GENERAL

1.01 DESCRIPTION

A. Provide labor, materials, and equipment necessary to complete the work of this Section, including but not limited to the following:
   1. Filling and backfilling to attain indicated grades.
   2. Excavation, rough and finish grading.
   3. Furnishing and installing graded aggregate base course material for pavements, hot-mix patches and other structures.
   4. Undercut excavation and furnishing graded aggregate base course for undercut excavation.
   5. Furnishing excavation support systems, as required, including shoring and bracing.
   6. Excavation for trenches.
   7. Preparing topsoil stripped from the site and placing topsoil in locations requiring seeding or sodding.

B. Definitions
   1. Excavation: removal and disposal of all material encountered when establishing required grade elevations, including pavements and other obstructions visible on the ground surface, and underground structures and utilities indicated to be demolished and removed, and unsuitable subgrade material.
   2. Unauthorized excavation: Removal of materials beyond specified subgrade elevations without approval of Engineer.

1.02 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies
   1. All excavations shall be in compliance with Federal Occupational Safety and Health Act.
   2. Excavation work shall be in compliance with application requirements of other governing authorities having jurisdiction.

B. Standards
   1. Refer to the following sections in the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2001, latest revision. (Hereinafter referred to as the "Standard Specifications")

      Section 202: Excavation and Embankment
      Section 205: Rock Excavation for Roadway
      Section 206: Rock Excavation for Structures and Trenches.
      Section 207: Excavation and Backfill for Structures
      Section 208: Excavation and Backfill for Pipe Trenches
      Section 209: Borrow
      Section 210: Furnishing Borrow Type "C" for Pipe, Utility Trench

Section 212:	Undercut Excavation
Section 302:	Graded Aggregate Base Course
Section 732:	Topsoil
Section 733:	Topsoiling
Section 813:	Grading Requirements Minimum and Maximum Percentages Passing
Section 821:	Graded Aggregates

2. American Society for Testing and Materials (ASTM);

D-1556:	Density of Soil in Place by the Sand-Cone Method.
D-698:	Moisture Density Relations of Soils and Soil Aggregate Mixtures
D-2049:	Relative Density of Cohesionless Soils.
D-2166:	Unconfined Compressive Strength of Cohesive Soil.
D-2922:	Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)

1.03 SUBMITTALS

A. Material Certification and delivery Slips for:
   1. Select Borrow
   2. Graded Aggregate Base Course

1.04 JOB CONDITIONS

A. Existing Utilities
   1. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the Utility Owner immediately for directions. Cooperate with the Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility Owner.
   2. Do not interrupt existing utilities serving facilities occupied and used by the Owner.
   3. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

B. Use of Explosives: The use of explosives is not permitted unless approved by the Engineer.

C. Protection of Persons and Property
   1. Barricade open excavations occurring as part of this work and post with warning signs as required to protect persons on the site.
   2. Protect trees, shrubs, lawns and other features remaining as part of final landscaping.
   3. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement lateral movement undermining, washout and other hazards created by earthwork operations.
   4. In the event of damage, immediately make all repairs and replacements to the approval of the Engineer at no cost to the Owner.

D. Dust Control
   1. Use all means necessary to control dust on and near the work if such dust is caused by the Contractor's operations during performance of the work or if resulting from the conditions in which the Contractor leaves the site.
   2. Thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of other work on the site.

E. Weather Conditions: Do not place, spread, or roll fill material during freezing, raining, or otherwise unfavorable weather conditions.

PART 2 PRODUCTS

2.01 GENERAL

A. For approval of borrow materials, at least five (5) working days in advance of intention to import material, designate the proposed borrow area, and provide samples to prove the quality and suitability of the material.

2.02 ON-SITE FILL

A. All on-site materials used for fill shall be acceptable to the Engineer and shall be minimally subject to the following requirements:
   1. Free from deleterious substances, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay.
   2. Free of large rocks or lumps that may create voids or prevent proper compaction.

2.03 BORROW FILL MATERIAL

A. Free from deleterious substances, stumps, brush, weeds, roots, sod, rubbish, garbage and matter that may decay, and shall be Borrow Type "C" conforming to Section 209 of the Standard Specifications.

2.04 TRENCH AND CIVIL STRUCTURE BACKFILL MATERIAL

A. Backfill for civil structures shall conform to the requirements of Section 207 of the Standard Specifications.

B. Backfill for trenches shall conform to the requirements of Section 208 of the Standard Specifications.

C. All trench and civil structure backfill material shall meet the requirements of Section 209.03C of the Standard Specifications for Borrow Type C backfill. All suitable excavated material, which meets the requirements of Section 209.03C of the Standard Specifications shall be used for structure or trench backfill as far as practicable.

2.05 GRADED AGGREGATE BASE COURSE

A. Graded Aggregate base course for bituminous and concrete pavements and other structures shall be Type "B" conforming to the requirements for Graded Aggregate in Section 821 of the Standard Specifications.

2.06 GEOTEXTILE STABILIZATION FABRIC

A. Geotextile stabilization fabric used for undercut excavation shall be a woven polypropylene geotextile designed for base course reinforcement and subgrade stabilization. Geotextile shall have a minimum tensile strength of 500 lbs, and shall be Mirafi HP565, or approved equal.

2.07 TOPSOIL

A. Topsoil furnished from within or outside the project limits shall conform to Section 732 of the Standard Specifications except as modified by the following requirements.
   1. Topsoil shall not contain stones, lumps, roots or other objects larger than one inch in any dimension.
   2. Acid-Alkaline Range: pH 5.8 to 6.5.
   3. Free of pests, pest larvae, and matter toxic to plants.
   4. Maximum soluble salts: 500 ppm
   5. Free of viable Bermudagrass, quackgrass, Johnsongrass, nutsedge, poison ivy, Canada thistle, and other objectionable grassy or broadleaf weeds.

B. Topsoil Furnished from Outside Project Limits
   1. Gradation range:
      Sand (2.00 mm to 0.05 mm) 40-80 percent
      Silt (0.050 mm to 0.005 mm) 10-30 percent
      Clay (0.005 mm and smaller) 10-30 percent
      a. When one-half of the sand content is larger than 0.500 mm, the maximum sand content shall be seventy-five percent; and maximum clay content shall be fifteen percent.
      b. Lower limits of silt and clay shall be flexible to extent that soils with minimum combined silt and clay content of twenty percent shall be satisfactory. However, if more than one-half of the sand is larger than 0.50 mm., then minimum clay content shall be fifteen percent, or the minimum combined silt and clay content shall be twenty-five percent.
   2. Organic content:
      a. Minimum of 2.75 percent by weight.
      b. If necessary, add peat at the rate necessary to attain minimum organic content.

PART 3 EXECUTION

3.01 INSPECTION BY CONTRACTOR

A. Examine the areas and conditions under which excavating, filling and grading are to be performed. No extra cost or time allowances will be granted for conditions existing and visible at the time of the bid opening.

3.02 PREPARATION

A. Prior to commencement of work, establish location and extent of all utilities in the work areas. Maintain and protect, as required, existing utilities which pass through the work area.

B. Prior to excavation in pavement areas, saw cut existing pavement in accordance with Section 762 of the Standard Specifications.

3.03 EXCAVATION

A. Unauthorized Excavation

Unauthorized excavation shall not be at the Owner's expense. Under roadways and pipes, fill unauthorized excavation by removing all loosened material and providing select material as required to attain a firm and unyielding subgrade and/or foundation and to attain required grade elevations.

B. Rock Excavation

Rock Excavation shall apply to the removal of bedrock and ledgerock which cannot be accomplished without blasting or the use of rippers, and the use or disposal of such material. Excavation of material classified as "rock" shall conform to the requirements of Section 205 of the Standard Specifications.

C. Rock Excavation for Structures and Trenches shall apply to the removal, use, or disposal of all boulders or other detached stones having a volume of 1/3 cubic yard or more. Excavation of such material shall conform Section 206 of the Standard Specifications.

D. Undercut Excavation
   1. If unsuitable bearing materials are encountered at the required subgrade elevations notify the Engineer immediately.
   2. Unstable bearing materials shall be removed to a depth of one foot below subgrade. Place geotextile stabilization fabric and one foot of graded aggregate base course, Type B.
   3. Base course shall be placed and compacted in six-inch lifts.

E. Stability of Excavations
   1. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space.
   2. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.

F. Shoring and Bracing
   1. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.
   2. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction

3. Maintain shoring and bracing in excavations regardless of time period excavations will be open.
4. Brace, sheet, and support trench walls in such a manner that they will be safe and that the ground alongside the excavation will not slide or settle, and that all existing improvements of every kind, whether on public or private property, will be fully protected from damage.
5. In the event of damage to such improvements, immediately make all repairs and replacements necessary at no additional cost to the Owner.
6. Arrange bracing, sheeting and shoring so as to not place stress on any portion of the completed work until the general construction thereof has proceeded far enough to provide sufficient strength.
7. Exercise care in the drawing and removal of sheeting, shoring, bracing and timbering to prevent collapse and caving of excavation faces being supported.

G. Dewatering
1. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding the project site and surrounding area.
2. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water from excavations.
3. Convey water removed from excavations and rainwater to collecting or runoff areas, which are not subject to erosion. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

H. Material Storage
1. Stockpile satisfactory excavated materials where directed until required for use as backfill or fill. Place, grade and shape stockpiles for proper drainage.
2. Locate and retain soil materials away from edge of excavations.
3. Dispose of excess soil material and waste materials as herein specified. Excavated material unsuitable for backfilling shall be kept separate from other materials excavated, and disposed of. Materials suitable for backfilling shall not be disposed of until completion of filling or backfilling operations.

I. Excavation for Pavements and Pavement Patches
1. Cut surface under pavements to comply with cross- sections, elevations and grades as shown.

J. Excavation for Trenches
1. Dig trenches to the uniform width required for the particular item to be installed sufficiently wide to provide ample working room. Trench width to a point no less than two feet (2') above the outside top of pipe shall be the pipe outer diameter plus twenty-four inches (24").
2. Excavate trenches to the depth indicated or required. Carry the depth of trenches for piping to establish the indicated flow lines and invert elevations. Beyond the building

perimeter, keep bottoms of trenches for which elevations are not given sufficiently below finish grade to avoid freeze-ups.

3. Trenches for pipes shall not be opened more than the number of linear feet of pipe that can be placed and backfilled in one (1) day.
4. Grub roots and stumps within six inches (6") of outside surface of pipe bottom and sides to minimum depth of six inches (6") below grade. Backfill trenches with concrete where trench excavations pass within eighteen inches (18") of column or wall footings and which are carried below the bottom of such footings, or which pass under wall footings. Place concrete to the level of the bottom of adjacent footing.
5. Pipe bedding shall be as shown on the Plans.

K. Cold Weather Protection
1. Protect excavation bottoms against freezing when atmospheric temperature is less than thirty-five degrees (35°).

3.04 BACKFILL FILL AND COMPACTION

A. General
1. The project Inspector or Engineer shall be notified 24 hours in advance of any fill, backfill or compaction operations.
2. Place acceptable material in 8" lifts to required subgrade elevations.
3. Fills: Use suitable material (per Section 2.2 of this section) obtained from on-site excavation, except use borrow material when suitable on-site material is not available or when specified by the Engineer or shown on the Plans.
4. Backfilling: Use suitable material (per Section 2.2 of this section) obtained from on-site excavation, except use select backfill where indicated on Plans. Backfill to a height of two feet (2') above the top of pipe with earth free from stones, rock fragments, dirt clogs or frozen material greater than two inches (2") in largest dimension.
5. Do not provide additional off-site borrow material until all acceptable excavated materials on the site have been utilized in the work unless approved by the Engineer.
6. Place the various types of materials in the areas as designated on the Plans.

B. Backfill excavation as promptly as work permits, but not until completion of the following:
1. Inspection, testing, approval and recording locations of underground utilities.
2. Removal of concrete formwork.
3. Removal of shoring and bracing, and backfilling of voids satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.
4. Removal of trash and debris.
5. Permanent or temporary horizontal bracing is in place on horizontally supported walls.

C. Backfilling Prior to Approvals
1. Should any of the work be so enclosed or covered up before it has been approved, uncover all such work at no additional cost to the Owner.

2. After the work has been completely tested, inspected and approved, make all repairs and replacements necessary to restore the work to the condition in which it was found at the time of uncovering, all at no additional cost to the Owner.

D. Ground Surface Preparation Prior to Filling
1. Remove all vegetation, debris, topsoil, unsatisfactory soil materials, obstructions and deleterious materials from existing ground surface to a depth of not less than four inches (4") and not more than six inches (6") prior to placement of fills. Plow, strip or break-up sloped surfaces steeper than one (1) vertical to four (4) horizontal to a depth of not less than six inches (6") so that fill material will bond with existing surface.
2. When existing ground surface has a density less than that specified under "Compaction," for the particular area classification, break up the ground surface, pulverize, moisture condition to the optimum moisture content, and compact to required depth and percentage of maximum density.

E. Placement and Compaction
1. Place backfill materials in layers not more than eight inches (8") in loose depth.
2. Control soil compaction during construction providing minimum percentage of density specified for each area classification listed below.
3. Pavement areas are defined, for the purpose of this Section, as extending a minimum of five feet (5') beyond the building and/or pavement.
4. Compact soil to not less than the following percentages of maximum dry density for soils which exhibit a well-defined moisture density relationship determined in accordance with ASTM D-1557; and not less than the following percentages of relative density determined in accordance with ASTM D-2049, for soils which will not exhibit a well-defined moisture-density relationship.
   a. Lawn or Unpaved Areas: Compact top six inches (6") of subgrade and each layer of backfill or fill material at 90 percent (90%) maximum dry density.
   b. Walkways: Compact top six inches (6") of subgrade and each layer of backfill or full material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.
   c. Pavement Areas: Compact top twelve inches (12") of subgrade and each layer of backfill or fill material at 95 percent (95%) maximum dry density or 90 percent (90%) relative dry density.
   d. Base Course Materials: Compact each layer of base course material to 95% percent (95%) of maximum dry density.
   e. Trench Stabilization Materials: Compact each layer of material to 95 percent (95%) of maximum dry density.
5. Moisture control:
   a. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
   b. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
   c. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

d. Moisture condition fills materials to within 3 percent (3%) of the optimum moisture. Fill that is so wet that it is unstable under compaction equipment shall be dried and re-compacted to achieve a stable fill.

6. Puddling or jetting will not be permitted.
7. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice, or other unsuitable materials.
8. Place backfill and fill material evenly adjacent to structures, to be required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.
9. Compact backfill to height of two feet (2') above top of pipe using approved flat-faced mechanical tampers.

3.05 GRADING

A. General

Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

B. Grading Outside Building Lines

Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes, and as follows:

1. Lawn or unpaved areas: Finish area to receive topsoil to within not more than 0.10 feet above or below the required subgrade elevations.
2. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10 feet above or below the required subgrade elevation.
3. Pavement: Shape surface of areas under pavement line, grade and cross-section, with finish surface not more than 1/2 inch above or below the required subgrade elevation. All topsoil and other unsuitable material shall be removed and replaced with suitable backfill.

C. Compaction

1. After grading, compact subgrade surfaces to the depth and percentage of maximum density for each area classification.

D. Treating after Grading

1. After grading is completed, permit no further excavating, filling or grading.
2. Use all means necessary to prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

E. Subgrade Preparation
   1. All subgrade preparation shall be performed in accordance with the applicable Sections of the Delaware Department of Transportation Standard Specifications except as may be modified by this Specification Section.
   2. Subgrades for paving shall be firm and unyielding when proof-rolled in accordance with Section 202 of the Standard Specifications.

3.06 GRADED AGGREGATE BASE COURSE

A. General
   1. Base Course consists of placing graded aggregate base course material in layers of specified thickness over subgrade surface to support pavements, pavement patches and structures, as shown on Plans.
   2. Provide Base Course in accordance with Section 302 of the Standard Specifications, except as otherwise modified by this Specification Section.

B. Grade Control
   1. During construction, maintain lines and grades including crown and cross-slope of base course.

C. Placing
   1. Place base course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting base course material during placement operations.
   2. When a compacted base course is shown to be eight inches (8") or less, place material in a single layer. When shown to be more than eight inches (8") thick, place material in equal layers, except no single layer shall be more than eight inches (8") in thickness when compacted.
   3. Spread, shape and compact all base course material deposited on the subgrade during the same day.

3.07 FIELD QUALITY CONTROL

A. Quality control testing during construction. Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.

B. If subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no expense to the Owner. This shall include compaction and testing at areas initially tested and at other locations as directed.

3.08 MAINTENANCE

A. Protection of Graded Areas
   1. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
   2. Repair and establish grades in settled, eroded and rutted areas to specified tolerances.

B. Reconditioning Compacted Areas
   1. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape and compact to required density prior to further construction.

3.09 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Remove waste materials, including excess and unacceptable excavated material, trash and debris, and dispose of it off the Owner's property.

3.10 TOPSOILING

A. Preparation
   1. Verify that clearing, earthwork, grading and other preceding work affecting ground surface have been completed and that the area to be topsoiled is cleared, shaped, and dressed.
   2. Preparation of Topsoil Subsoil
      a. Shape and dress area to be topsoiled. This work includes grading to required lines and elevations; removal of all stones, clods, lumps two inches or larger in any dimension; removal of all wires, cables, pieces of concrete, tree roots, and debris or other unsuitable material.
      b. Do not proceed with installation of topsoil until this work has been approved.

B. Installation
   1. Place in even layers that will produce the minimum compacted thickness as indicated on the Plans.
   2. If quantity of topsoil obtained from stripping is insufficient for the project requirements, provide required topsoil from approved sources located outside project limits.
   3. Remove stones, lumps, roots and other objects larger than one inch in any dimension from graded topsoil surface.

C. Maintenance
   1. Immediately before establishment of ground cover, re-topsoil and regrade areas, which become eroded or otherwise disturbed.
   2. Perform all maintenance work in accordance with the Specifications without additional compensation.
   3. Maintenance period to extend until installation of ground cover.

D. Cleaning
   1. Immediately clean spills, soil, and conditioners on paved and finished areas.
   2. Haul and dispose of topsoil in excess of the quantity required for the project off site.
   3. Dispose of protective barricades and warning signs at termination of maintenance period.

END OF SECTION

SECTION 321216

ASPHALT PAVING

PART 1 GENERAL

1.01 DESCRIPTION

A. Work included: Provide labor, materials, and equipment necessary to complete the work of this Section, including but not limited to the following:
   1. Patching pavement, including removal of existing pavement and installation of bituminous concrete base course patch.
   2. Surface preparation, and installation of bituminous concrete base course (BCBC).
   3. Surface preparation, and installation of Type B, binder course pavement, where applicable.
   4. Installation of Type C, wearing surface course for pavement patching, and for overlay of existing bituminous pavement including patched and repaired areas.
   5. Pavement markings

1.02 STANDARDS

A. The quality of materials and performance of work specified in this section shall be in accordance with the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2001, latest revision (hereinafter referred to as the "Standard Specifications").
   1. Section 401: Hot-Mix, Hot-Laid Bituminous Concrete Pavement
   2. Section 406: Hot-Mix Patch
   3. Section 748: Pavement Markings
   4. Section 760: Pavement Milling

1.03 DEFINITIONS

A. Subgrade: Surface upon which pavements will be constructed.

B. Base Course: That portion of the pavement cross section consisting of graded aggregate base course or bituminous concrete deep lift.

1.04 QUALITY ASSURANCE

A. Bituminous concrete producer shall be regularly engaged in the production of hot-mix, hot-laid bituminous concrete, and shall be approved by the Delaware Department of Transportation or the Pennsylvania Department of Transportation.

1.05 SUBMITTALS

A. Job mix formula.

B. Provide copies of delivery slips at the end of each working day.

PART 2 PRODUCTS

2.01 GENERAL

A. Materials and mixtures shall comply with the following sections of Delaware Department of Transportation Standard Specifications. All bituminous concrete paving shall be obtained from a DelDOT approved plant.

2.02 PAVING MATERIALS AND MIXTURES

A. Graded Aggregate Base Course
   1. Materials: Section 302.

B. Hot Mix, Hot Laid Bituminous Concrete Pavement
   1. Materials: Section 401.
   2. Mixture: Section 401

C. Emulsified Asphalt: Section 811

D. Course Aggregate: Sections 805, 813

E. Tack Coat: CSS-1-h asphalt (diluted with 50% water) meeting the requirements of AASHTO M208.

2.03 JOB MIX FORMULA REQUIREMENTS

A. Provide job mix formulas for each required bituminous concrete mixture as specified in Section 401.20 of the Standard Specifications.

B. Submit for approval prior to beginning paving operations.

2.04 MIX DESIGN AND CONTROL REQUIREMENTS

A. The design and control requirements for all paving mixtures shall conform to Section 401 of the Standard Specifications.

2.05 SAMPLES AND TESTING

A. Methods and rates of sampling bituminous mixtures shall conform to Section 401 of the Standard Specifications with the following exceptions:

   1. Sampling shall be performed by the producer's quality control technician.
   2. For small scale projects where it is possible to attain the minimum lot size specified, a total of five (5) samples shall be taken at random for each type of mix specified, per each day's production.

B. Testing of bituminous concrete mixtures to determine the quantity of bitumen, gradation of aggregate, and conformance to mix design requirements shall be as specified in Section 401 of the Standard Specification.

C. Submit results of tests on forms signed by producer's quality control technician.

2.06 PREPARATION OF MIXTURES

A. The preparation of all bituminous mixtures shall conform to Section 401 of the Standard Specifications.

2.07 PAVEMENT MARKINGS

A. All paint shall be of materials approved by the Delaware Department of Transportation per Section 748 of the Standard Specifications.

B. Thermoplastic material, where required, shall meet the requirements of section 748 of the Standard Specifications.

PART 3 EXECUTION

3.01 GENERAL

A. The method of construction including bituminous concrete plant and equipment, bituminous concrete pavers, vehicles for transporting bituminous mixtures, rollers, and all construction methods shall conform to Section 401 of the Standard Specifications except as modified by the Supplemental Requirements below.

3.02 PAVEMENT MILLING

A. Construction methods for pavement milling shall conform to Section 760 of the Standard Specifications.

3.03 PAVEMENT PATCHING

A. Construction methods for patching pavement shall conform to Sections 401 and 406 of the Standard Specifications. A milling machine may be use for pavement and base course removal.

3.04 PROOF ROLL

A. Proof roll subgrade surfaces using heavy, rubber-tired rollers, or loaded dump truck in accordance with Section 202 of the Standard Specifications. Proof roll in the presence of the Owner’s Representative.
   1. Subgrades shall be firm and unyielding.
   2. Compact areas showing deflection and instability.

B. Notify the Engineer or the Inspector of unsatisfactory conditions.

C. Do not begin paving work until any such unsatisfactory conditions have been corrected.

3.05 SURFACE PREPARATION

A. Earth and Base Course Surface
   1. Remove loose and foreign material from compacted subgrade surface immediately before application as required.
   2. Use power broom or blowers and hand brooming as required.
   3. Do not displace subgrade material.

B. Existing Pavement Surfaces
   1. Remove loose and foreign material from existing pavement surfaces immediately before application of paving
   2. Use self-propelled mechanical sweepers. Supplement with hand brooming as required.
   3. Pay particular attention to cleaning of gutter lines and outer edges of pavement areas.
   4. Remove all weeds, grass or other vegetative matter growing in pavement areas, particularly along joints and curbs.

C. Minor Patching
   1. Existing pavement surfaces: Fill in depressions, and patch pavement in overlay areas that are not marked out for base repairs.

3.06 TACK COAT

A. Apply to cleaned surfaces of all pavements to be overlaid or slurry seal coated.

B. Apply to cleaned surfaces of newly constructed base pavement if coated with dust, dirt, foreign materials in sufficient amount to prevent bond with surface course.

C. Apply to edges of paving where base repairs are to be made.

D. Apply tack coat material at temperatures, specified in Section 401 of the Standard Specifications.

E. Apply at rate of 0.02 gallon per square yard immediately prior to placing pavement.

F. Apply tack coat by brush to contact surfaces of pavement cold joints, curbs, gutters, manholes, and other structures projecting into or abutting asphalt concrete pavement.

G. Allow surfaces to dry until material is in a condition of tackiness to receive pavement.

H. Take precautions to insure tack coat is not applied to exposed surfaces of curbs or other exposed surfaces. Tack coat so applied shall be removed by Contractor at no additional cost to Owner.

3.07 GENERAL SURFACE REQUIREMENTS

A. Test finished surface of each bituminous concrete course for smoothness using a ten (10) foot straightedge.

B. The straightedge shall have projections on the bottom at each end, either built-in or firmly attached, so that it is supported six (6") inches above the pavement surface at the ends. It shall be free from warp and deflection, and furnished by the Contractor without additional compensation.

C. Check surfaced areas at intervals and in directions specified.

D. Check surfaces for pavement smoothness immediately after initial compaction, and correct variations by removing or adding material as may be necessary. Then rolling shall be continued as specified.

E. Immediately after final rolling and while the pavement is still hot, the smoothness of the course shall be checked again and all projections or depressions exceeding the specified tolerances shall be corrected by removing defective work and replacing it with new surface course as specified. Portions of the surface otherwise unsatisfactory shall be replaced.

F. Finished surfaces shall be free of all roller marks, ridges and voids.

3.08 FIELD QUALITY CONTROL

A. Taking of pavement cores and testing for the determination of conformance to control air voids and pavement thickness shall be performed in accordance with Section 401 of the Standard Specifications.

B. When required per the General or Special Provisions, the Contractor shall employ and pay for the services of an Independent Testing Laboratory acceptable to the Engineer to perform additional field quality control sampling and testing when initial tests indicate work does not comply with the Contract Documents. All sampling and testing shall be performed as specified in section 401 of the Standard Specifications.

C. Areas of pavement removed for field quality control testing shall be replaced by the Contractor as follows:
   1. Clean debris from core area. Cut all exposed pavement edges vertical.
   2. Apply tack coat to exposed surfaces before installing replacement pavement.
   3. Fill core area with surface course mixture for the full depth of the core.
   4. Compact and grade mixture; seal repaired area with tack coat; and apply thin layer of sand over tack coat.

3.09 PAVEMENT MARKINGS

A. Paint equipment and installation shall conform to Section 748 of the Standard Specifications.

B. Application of Thermoplastic materials, where required, shall conform to Sections 748.08 and 748.09 of the Standard Specifications.

C. All markings shall comply with the Manual on Uniform Traffic Control Devices, the Delaware Manual on Traffic Controls for Street and Highway Construction and

Maintenance, the Delaware State Fire Prevention Regulations, and the Delaware State Accessibility Board.

END OF SECTION

SECTION 321313

CONCRETE PAVING

PART 1 GENERAL

1.01 DESCRIPTION

A. Sawcut and remove existing concrete paving, sidewalk, ramps, and pads as shown on the plan, marked in the field, or as directed by the Engineer.

B. Patch or provide new concrete paving, sidewalk, ramps, and pads in areas designated on Plans, marked in the field, or as directed by the Engineer.

C. Place Graded Aggregate Base Course below proposed concrete paving and sidewalks.

1.02 STANDARDS

A. The quality of materials and performance of work specified in this section shall be in accordance with the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2001, latest revision (hereinafter referred to as the "Standard Specifications").

Section 302: Graded Aggregate Base Course
Section 501: Portland Cement Concrete Pavement
Section 705: Portland Cement Concrete Sidewalk
Section 762: Saw Cutting
Section 812: Portland Cement Concrete

1.03 SUBMITTALS

A. Certificates: All deliveries of concrete shall be accompanied by delivery slips.

1.04 ENVIRONMENTAL REQUIREMENTS

A. Allowable Concrete Temperatures

1. Cold weather: 60 degrees Fahrenheit. (18° C) when discharged from the mixer.
2. Hot weather: Maximum concrete temperature is 80 degrees Fahrenheit. (30° C).

B. Do not place concrete during rain, when atmospheric temperature is at or below 36 degrees Fahrenheit (2° C), or when conditions are otherwise unfavorable.

1.05 PROTECTION

A. Protect concrete from pedestrian and vehicular traffic until concrete has been sufficiently cured.

PART 2 PRODUCTS

2.01 MATERIALS

A. Concrete
   1. Use concrete developing a compressive strength at twenty-eight (28) days of 4,500 p.s.i. for concrete paving and 3,000 p.s.i. for sidewalk.
   2. Use air-entrained concrete.

B. Cement aggregates, water and air-entrainment methods and materials conforming to Section 812 of the Standard Specifications.

C. Joint filler: Pre-formed expansion joint material, conforming to Section 808.06 of the Standard Specifications.

D. Curing compound: White pigmented liquid, conforming to AASHTO M 148 for Type 2, Class A or B.

E. Vapor barrier: Where called for on Plans shall be 6 mil. polyethylene.

F. Wire mesh reinforcement shall conform to the requirements of AASHTO M 31M.

G. Spalled areas shall be repaired with a pre-blended, pre-packaged cement based mortar requiring only the addition of potable water. The material shall not contain any chlorides or lime other than the amounts contained within the hydraulic composition. The concrete repair material shall have a minimum strength of 5000 psi after 28 days. Concrete repair material shall be as manufactured by Five Star Products, Inc., or approved equal.

H. Newly constructed concrete sidewalks shall be sealed with a concrete treating oil. The treating oil shall be a solution of boiled linseed oil and mineral spirits in accordance with ASTM D 260. Concrete treating oil shall be TK-3102, as manufactured by TK Products, or Lin-Seal, as distributed by W.R. Meadows, Inc., or approved equal.

PART 3 EXECUTION

3.01 REMOVING EXISTING PAVING AND SIDEWALK

A. All portions of existing concrete paving or sidewalk to be removed shall be isolated from pavements, curb, or buildings to remain by saw cutting or by the presence of an existing expansion joint. Care shall be exercised by the Contractor to insure that no damage occurs to any elements to remain and any damage to items to remain shall be replaced or repaired by the Contractor at no additional cost to the Owner.

B. Concrete shall be broken up by an approved power breaking machine. All concrete removed shall be taken off the project site an disposed of lawfully.

3.02 PREPARATION FOR NEW PAVING AND SIDEWALK

A. Excavate subgrade and set forms so that finished paving and sidewalk conforms to lines and grades shown on Plans.

B. Prepare paving and sidewalk subgrade as specified in Sections 501 and 705 of the Standard Specifications.

C. Verify that earthwork is completed to correct line and grade.

D. Verify that forms conform to line, grade and dimensions shown on Plans.

E. Check that subgrade is smooth, compacted and free of excessive moisture.

F. Do not commence work until conditions are satisfactory.

3.03 CONSTRUCTION METHODS

A. Concrete paving shall be constructed in accordance with the requirements of Section 501 of the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction.

B. Concrete sidewalks and aprons shall be constructed in accordance with the requirements of Section 705 of the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction.

B. Use vibration or tamping to consolidate the rapid set concrete patching material. Work material into saw cuts, extending beyond the corners of the repair area. Strike-off and shape the material to match the surrounding concrete.

C. Concrete treating oil for sidewalks shall be sprayed or rolled onto clean and dry concrete in accordance with the manufacturer's written instructions.

END OF SECTION

SECTION 331100

WATER UTILITY PIPING

PART 1 GENERAL

1.01 DESCRIPTION

A. Furnish and install Ductile Iron water pipe, fittings, and appurtenances as shown on the Plans and described herein.

B. Furnish and install P.V.C. water pipe, fittings, and appurtenances where shown on the Plans and described herein.

C. All water mains, fittings, taps, valves, and fire hydrants shall be supplied, installed, disinfected, and tested in accordance with the requirements of the City of Wilmington Department of Public Works, and the Delaware Department of Health.

D. Furnish and install copper water tubing for service connections under three-inches in diameter.

E. Coordinate with the he City of Wilmington Department of Public Works for service connections and to determine the scope of services to be performed by the City of Wilmington.

F. Related work specified elsewhere includes:

Section 02200: Earthwork

1.02 STANDARDS

A. City of Wilmington Department of Public Works Standards and Specifications.

B. American Water Works Association
1. AWWA C900
2. AWWA C151
3. AWWA C104
4. AWWA C110
5. AWWA C111

1.03 SUBMITTALS

A. All pipe and fittings shall be inspected and tested at place of manufacture as required by the AWWA standards referenced in the specification. Provide the Engineer with two copies of certifications from each manufacturer stating the product was inspected as required, and that the test results comply with AWWA standards.

B. Submit manufacturers' product data for pipe, fittings, valves, hydrants, and gaskets.

C. All manufacturers shall validate other than by certification, the ductility of each length of pipe by an Underwriters Laboratory approved method. All P.V.C. pipe is to have Underwriters Laboratory approval.

PART 2 PRODUCTS

2.01 MATERIALS

A. Polyvinyl Chloride Pipe
   1. Water mains shall conform to AWWA C900, Class 150.
   2. P.V.C. services shall conform to ASTM-2241 for SDR 21, unless otherwise approved by the Water Company or Engineer.

B. Joints for P.V.C. Pipe: Integral-bell push-on joints except where mechanical joints are necessary to change pipe material.

C. Pipe Fittings
   1. Shall be ductile iron fittings conforming to AWWA C110, with minimum pressure rating of 350 p.s.i.
   2. Fittings shall be cement-lined, 1/8-inch thick, in accordance with AWWA C104 and seal-coated inside.
   3. Fittings shall have mechanical joints.

D. All water valves, valve boxes, and fire hydrants shall meet the requirements of City of Wilmington Department of Public Works and the Delaware Department of Health.

E. Ductile Iron Pipe
   1. Shall conform to AWWA C-151, Class 350, and shall be manufactured in eighteen or twenty foot nominal lengths.
   2. All ductile iron pipe for water mains shall be cement-lined, 1/8-inch thick, in accordance with AWWA C104 and seal coated inside.
   3. Use Push-on joints, conforming to AWWA C151 and AWWA C111, except where mechanical joints are indicated on the Plans.

F. Seamless copper tubing shall be type “K” in conformance with ASTM B-88 and ANSI/NSF 61. Valves and fittings shall be in conformance with AWWA C800.

PART 3 EXECUTION

3.01 INSPECTION AND QUALITY OF PIPE

A. Before being lowered into the trench, each pipe shall be carefully inspected, and those not meeting the Specifications shall be rejected and either destroyed or removed from the work within ten (10) hours. No pipe shall be laid except in the presence of the Owner’s designated representative. The Owner’s designated representative may order the removal and relaying of any pipe not so laid.

B. The Contractor shall carefully examine all pipe and special castings before placing the same in the trench. Any pieces which are broken or show evidence of cracks or fractures shall be rejected by the Contractor. Such inspection shall carry with it the responsibility on the part of the Contractor for the removal at the Contractor's own expense of all pipe, special castings, and appurtenances, incorporated in the work, and which under test are found to be cracked or otherwise defective.

3.02 INSTALLATION

A. Excavation and backfill for pipes shall conform to Specification Section 02200 - Earthwork and shall be as shown on the Plans.

B. All piping shall be installed in a neat and workmanlike manner. All piping shall be installed to accurate lines and grades and shall be supported as shown, specified, or necessary. Where temporary supports are used, they shall be sufficiently rigid to prevent shifting or distortion of the pipe. Suitable provision shall be made for expansion where necessary.

C. No defective pipe or fitting shall be laid or placed in the piping, and any piece discovered to be defective after having been laid shall be removed and replaced by a sound and satisfactory piece by the Contractor at the Contractor's own expense.

D. Every pipe and fitting shall be cleared of all dirt and other debris before being installed and shall be kept clean until accepted in the completed work.

E. No pipes shall be laid in fill or other unsuitable material, in a wet trench, or in the same trench with another pipe or other utility unless so noted on the drawings. A minimum eighteen inch (18") clearance shall be maintained between the outside surface of pipe and outside surface of other existing pipes and structures. When this clearance cannot be maintained, contact the Engineer for instructions prior to proceeding with the pipe installation.

F. No direct contact between pipes and structures at crossings will be permitted. Pipes in place shall not be worked over or walked on until covered by backfill well tamped in place to a depth of twelve inches over the pipe.

G. Minimum cover over water mains shall be three and one half feet (3-½').

H. The interior of all pipes shall be thoroughly cleaned of all foreign material before being lowered into trench. Pipes shall be kept clean during laying operations by means of plugs or other approved methods.

I. Gas, storm sewer, and sanitary sewer lines shall have right-of-way and water mains shall be installed to avoid the same. If conflicts occur between proposed water lines and other utilities, the water lines shall be dropped below the conflicting utility to attain the proper clearance.

J. Brace all plugs as required to prevent leakage or blowout during testing.

K. All newly placed pipes shall be pressure tested, sterilized, and cleaned in accordance with City of Wilmington Department of Public Works, the Delaware Department of Health, and NFPA Standards and Specifications.

3.03 PIPING SUPPORTS

A. The Contractor shall furnish and install all supports necessary to hold the piping and appurtenances in a firm, substantial manner at the lines and grades indicated on the drawings or specified. Bends, tees, and other fittings buried in the ground shall be backed up with concrete placed against undisturbed earth where firm support can be obtained. If the soil does not provide firm support, then suitable bridle rods, clamps, and accessories to brace the fitting properly shall be provided. Such bridle rods, etc., shall be coated thoroughly with an approved bituminous paint after assembly, or, if necessary, before assembly. This work shall include bracing plugs to prevent leakage or blowout during testing.

3.04 HANDLING AND CUTTING PIPE

A. Handle and lay pipe and fittings to avoid damage to the pipe, scratching or marring machined surfaces, and abrasion of the coating or lining. Pipe cuts shall be made using an abrasive wheel, rotary wheel cutter, guillotine pipe saw, milling wheel saw, or other method approved by the Engineer. Grind cut ends and rough edges smooth. For push-on connections, bevel cut all ends.

3.05 ASSEMBLING PIPE

A. Clean ring groove and bell socket prior to inserting rubber gasket seal. Properly seat gasket; make sure it faces proper direction.

B. Clean bell and spigot ends of pipe. Lubricate spigot end of pipe and rubber gasket.

C. Hold pipe securely and in proper alignment when joining.

D. Join pipe so that reference mark on spigot end, if provided by manufacturer, is flush with end of bell.

E. Join pipe in strict accordance with manufacturer’s printed installation procedures.

F. General Procedure for Joining PVC Pipe
   1. Join pipe up to twenty-four inches in diameter when installed on non-granular and firm bedding, by means of a bar and wood block or use mechanical pipe pullers.
   2. Do not use excavating equipment to force pipe Sections together.
   3. Hold pipe securely and in proper alignment when joining.
   4. Do not disturb previously made joints. Check completed piping to assure joints are intact. Insure backfilling is accomplished without disturbing pipe.
   5. Do not allow earth, stones, or other debris to enter pipe or end section.

3.06 PROTECTION

A. Protect all finished work. Joints once made and disturbed shall be subjected to immediate rejection. It shall therefore be the duty of the Contractor to avoid the slightest movement in completed work, while in the act of laying the pipe, in backfilling, or in the passage of workmen up and down the trench. At all times during which pipe is not being laid, the end of the pipe shall be sealed with a tight fitting plug. In no case will the drainage of trench water through a completed pipe be permitted.

B. All curves, bends, tees, hydrants and ends of pipe shall be securely blocked with socket clamps, yokes, or concrete blocking to prevent movement. At the end of a line or turn, where provision has been made for future extension or connections, fittings shall be furnished with lugs and anchored by means of socket clamps or yokes.

3.07 ADAPTORS

A. When it is necessary to join pipes of different types the Contractor shall furnish and install the necessary adaptors. Adaptors shall have ends conforming to the above Specifications for the appropriate type of joint to receive the adjoining pipe. When adaptors join two classes of pipe, the adaptors may be the lighter class.

3.08 CLEANING AND TESTING

A. All waterlines shall be fully cleaned, disinfected, and tested in accordance with City of Wilmington Department of Public Works and the Delaware Department of Health standards and requirements, or the NFPA standards in the case of fire system lines, before being accepted by the Owner.

END OF SECTION

SECTION 334100

SANITARY AND STORM DRAINAGE PIPING

PART 1 GENERAL

1.01 DESCRIPTION

A. Furnish and install polyvinyl chloride (PVC) gravity sewer and storm pipe and appurtenances as shown on the Plans and described herein.

B. Furnish and install catch basins and manholes, and connect existing pipes to manholes or catch basins, and connect proposed pipes to existing manholes or catch basins where shown on the Plans or as directed by the Engineer.

C. Repair and adjust catch basins and catch basin tops as shown on the Plans.

1.02 STANDARDS

A. American Society for Testing and Materials (ASTM)

1. ASTM D-2241: Polyvinyl Chloride (PVC) Pressure-Rated Pipe.
2. ASTM 1785: Schedule 40 Polyvinyl Chloride (PVC) pipe.

B. City of Wilmington Department of Public Works

C. Delaware Department of Transportation Standard Specifications for Road and Bridge Construction, dated August 2001, latest revision:
1. Section 708: Drainage Inlets and Manholes
2. Section 710: Adjusting and Repairing Drainage Inlets and Manholes

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Storage and Materials
1. Store materials to prevent physical damage.
2. Store pipe and fittings off ground to prevent dirt and debris from entering.
3. Store flexible gasket materials and joint primer or adhesive compounds in cool dry place. Keep rubber gaskets clean, away from oil, grease, excessive heat, and out of direct sunlight.

B. Handling of Materials
1. Protect materials during transportation and installation to avoid physical damage.
2. Do not install out-of-round pipe.
3. Unload pipe to prevent abrasion.
4. Do not drag or push pipe while handling or distributing on project site.

PART 2 PRODUCTS

2.01 MATERIALS

A. P.V.C. Pipe and Fittings
   1. ASTM D-2241; SDR 26 or SDR 21.
   2. ASTM 1785, Schedule 40

B. All catch basins and manholes shall be precast or cast-in-place Portland cement concrete (p.c.c.) and shall conform to Section 708 of the Standard Specifications. Precast manholes shall conform with ASTM C-478, except where noted on the Plan.

C. Area Drains
   1. P.V.C. surface drainage inlets shall include the drain basin type indicated on the Plans. The drainage inlets shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system.
   2. Ductile iron grates shall be furnished by the manufacturer of the drainage inlet and shall be made with a round bottom flange that closely matches the diameter of the drainage inlet. Ductile iron used in the manufacture of the castings shall conform to ASTM A536 and be painted black.
   3. Area drains shall be as manufactured by Nyoplast, a division of Advanced Drainage Systems, Inc., or approved equal.

PART 3 EXECUTION

3.01 MATERIAL INSPECTION

A. The following information shall be clearly marked on each pipe section of P.V.C. pipe:
   1. Pipe type and SDR number.
   2. Nominal pipe size.
   3. The PVC cell classification.
   4. Name or trademark of manufacturer.
   5. The ASTM Specification designation.

B. P.V.C. Fittings shall have the following markings:
   1. The ASTM Specification designation.
   2. Manufacturer's name or trademark.
   3. Nominal size.
   4. The material designation.

C. Inspect pipe for defects prior to placement in trench. The pipe and fittings shall be free from visible cracks, holes, foreign inclusions or other injurious defects.

D. Assure that all materials are of the type specified and are not defective. Unmarked pipe or pipe and materials not meeting Specifications requirements shall be removed from the site as directed by the Engineer.

3.02 INSTALLATION

A. Fine grade trench bottom so that pipe is supported for its full length.

B. Install piping beginning at the low point of the system, true to grades and alignment indicated on the Plans. Place the bell ends of the pipe facing upstream.

C. Do not lay pipe on unsuitable material, in wet trench, or in same trench with another pipe or utility.

D. General Procedure for Joining Pipe

1. Do not use excavating equipment to force pipe sections together.
2. Hold pipe securely and in proper alignment when joining.
3. Do not disturb previously made joints. Check completed piping to assure joints are intact. Insure placement of backfill over pipe is accomplished without disturbing pipe position.
4. Do not allow earth, stones, or other debris to enter pipe or fittings.
5. Method of installing joint materials and joining piping shall be in strict accordance with manufacturer's printed instructions.

3.03 BACKFILL AND COMPACTION

A. Bedding and Initial Backfill
1. Bedding and initial backfill shall be in accordance with the manufacturer’s written instruction or, in absence of said instructions, in accordance with Section 31200 of these Specifications.
2. Install initial backfill material as shown on the Plan details for the type of pipe being used.
3. When required, material shall be placed under the pipe haunch to provide adequate side support. Material shall be installed for entire trench width and shall be tamped and rodded to insure full contact with pipe at haunch up to the spring line.
4. Little or no tamping of the initial backfill directly over the pipe shall be done.

B. Final Backfill
1. Final backfill shall be in accordance with Section 312000 of these Specifications.

3.04 TESTING

A. Deflection Testing – PVC Sanitary Sewer Pipe
1. For pipe conforming to the requirements of ASTM D-3034, the maximum allowable pipe deflection (reduction in vertical diameter) shall be 7-1/2%.
2. For pipe conforming to the requirements of ASTM D-2241, the maximum allowable pipe deflection (reduction in vertical inside diameter) shall be 5%.
3. Deflection tests shall be successfully performed on the complete installation by means of one of the following methods prior to the acceptance of construction.
   a. “Go-No-Go” mandrel properly sized
   b. Calibrated television.

B. Lamping
   1. Sewer lines shall meet the following standards to pass the lamping inspection:
      a. The barrel of the pipe shall have no vertical deflection and at least seventy-five percent of the barrel shall be visible in the horizontal direction.
      b. Pipe not meeting this Specification shall be re-laid and re-lamped until compliance is achieved at no additional cost to the Owner.

B. Low Pressure Air Test
   1. All gravity sanitary sewer lines shall be air tested in accordance with the requirements of the City of Wilmington Department of Public Works.
   2. The drop in pressure during the prescribed test time shall not exceed 0.5 psi, from 3.5 to 3.0 psi testing pressure. A drop in pressure below 3.0 psi shall indicate a failure of the test.

3.04 CATCH BASINS AND MANHOLES

A. Catch basins and manholes shall be installed in accordance with Section 708 of the Standard Specifications.

B. Installation of rubber gaskets for precast catch basins and manholes shall be in accordance with the manufacturer's recommendations.

C. Frames shall be well bedded in mortar, making a watertight joint. Cover and frame shall have a shop coat of asphaltic pitch and shall have a field coat of similar paint after the frame is set in final position.

D. Repair and adjustment of catch basins and manholes shall be in accordance with Section 710 of the Delaware Department of Transportation Standard Specifications for Road and Bridge Construction.

E. Area drains shall be installed in accordance with the details on the Plans and in accordance with the manufacturer’s written instructions.

END OF SECTION