

**ADDENDUM NO. 1**  
**GEORGETOWN ELEMENTARY SCHOOL**  
**CLASSROOM & KITCHEN ADDITIONS**  
Selbyville, Delaware 19975

May 14, 2015

NOTICE: Attach this addendum to the project manual for this project. It modifies and becomes a part of the contract documents. Work or materials not specifically mentioned herein are to be described in the main body of the specifications and as shown on the drawings. Bidders shall acknowledge receipt of this addendum on the space provided on the Bid Form. Failure to do so may subject the bidder to disqualification.

**The deadline for bidders to submit questions and substitution requests is Friday May 22, 2015 at 2:00 PM. All questions and substitution requests shall be sent via email to EDiS Company, Mike Neal, [mneal@ediscompany.com](mailto:mneal@ediscompany.com).**

**The bid opening date and time has changed. All bids are due Friday May 29, 2015 at 2:00 PM local time at the Indian River School District Offices, 31 Hoosier Street Selbyville, Delaware 19975.**

**Site visits are scheduled for Thursday May 14, 2015 at 4:00 PM and Tuesday May 19, 2015 at 4:00 PM. Visitors shall check in at the main office before entering the school.**

**Bidders are advised that the only reliable source of documents for this solicitation is the EDiS ftp site. Bidders that rely on information published on any other websites do so at their own risk.**

Whenever this Addendum modifies a portion of the Project Manual added information is shown in **Bold/Italicized** and deleted information is shown as ~~strikethrough~~.

The documents for the above referenced project, Project Manual, dated March 2, 2015 and Drawings, dated April 10, 2015, are amended as follows:

**CLARIFICATIONS**

1. All bids shall be prepared from complete Bid Documents, Drawings and Project Manual, dated March 2, 2015 and Drawings, dated April 10, 2015, procured through EDiS Company, and modified by subsequently issued addenda.
2. Electronic files will be available to Contractor according to the following terms, and the release included in the Project Manual (see below). Associated fee for requested files is the responsibility of the Contractor.
  1. Architect's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will be made available by Architect for Contractor's use in preparing submittals, upon specific request of the Contractor.
    - a. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
      - i. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
      - ii. Digital Drawing Software Program: The Contract Drawings are available in native

Autodesk Revit 2013 (Architectural and Structural), which can be converted to DWG, and AutoCAD (Civil, Mechanical, Plumbing, and Electrical).

- iii. Contractor shall execute a data licensing agreement(s) in the form of Agreement included in Project Manual.
  - iv. Charges for digital data files shall be as described in the data licensing agreement, and shall be the responsibility of the Contractor.
    1. Charge: As listed in media release.
  - v. Contractor shall follow the prescribed Digital Data File request procedure.
    1. Contractor shall inform Architect that digital data files will be requested, including information required for Architect to complete data licensing agreement.
      - a. Name of Contractor.
      - b. Name and title of Contractor's agent who will sign form.
      - c. Email address and name of person to receive digital data files.
      - d. File format.
      - e. List of drawings for which digital data files are being requested.
    2. Architect will provide data licensing agreement(s) to Contractor and indicate charges.
    3. Contractor shall sign data licensing agreement(s) and return to Architect along with payment for charges.
    4. Upon receipt of signed agreement(s) and payment for charges, Architect will convert files and send to Contractor through project website.
3. Submittals and RFIs shall be processed electronically. Finishes will be reviewed as physical submittals and shall also have electronic approval sheets. Refer to Division 01, Section 013300 "Submittal Procedures" for additional information.
  4. Contractor shall conduct and keep record of background checks for all employees and Subcontractor employees who are onsite, and shall make records available to Construction Manager and Owner upon request. Refer to Section 013500.

## PROJECT MANUAL

1. Section 011100 Summary of Work
  - a. ADD section.
2. Section 013216 Construction Progress Schedule
  - a. ADD "Pre-Bid Construction Schedule" to end of section
3. Section 013300 Submittal Procedures
  - a. ADD form "Release for use of Digital Media" to end of section.
4. Section 260924, "Lighting Control System"
  - a. REPLACE section in its entirety with the attached revised section.

## DRAWINGS

1. Sheet EL-101 – First and Second Floor Plans Classroom Addition Lighting New Work:
  - a. ADD one (1) three-way, 20A, 120V toggle switch with pilot light in Stair 209 on wall to the left of the access ladder to attic. REVISE lighted toggle switch at top of ladder to a three-way lighted toggle switch. Both switches should be wired to serve attic platform lights.

- b. ADD 0-10V control wiring from LCP2A to lights in stairwells 101 and 209 so that lights will dim to 30% output when no occupancy is detected in stairwells. Lights shall return to 100% output once occupancy is detected.
2. Sheet E-402 – Schedules Electrical:
- a. REPLACE schedule for lighting control panel LCP2A with the attached revised schedule.
  - b. Refer to electrical sketch ESK-01 for additional information.

## **ATTACHMENTS**

Spec Section 011100 – Summary of Work  
Pre-Bid Construction Schedule, dated 05.14.2015  
Release for use of Digital Media, undated  
Spec Section 260924 – Lighting Control System  
Gipe Drawing – ESK-01, dated 05.07.2015

**END OF ADDENDUM NO. 1**

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SECTION 101100 - 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

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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.

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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 and temporary water. 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 clean up 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.
- 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

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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 Section 006216 CERTIFICATE OF INSURANCE.
- 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, masonry 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 prior to the

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submission of their first invoice for approval on AIA G702/CMA, Application for Payment and G703, Continuation Sheet.

- 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. Daily clean up of the work is the responsibility of each individual Contractor which includes broom cleaning of their debris as required. Contractor 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, fire alarm, etc. systems will be shut off and locked out by the Owner as required by the Work. Tie-in's 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-start up of all systems should be performed by the Owner.
- AA. 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

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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.

- 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.

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CONTRACT NO. A-01 SITEWORK

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 31	Earthwork
Division 32	Exterior Improvements

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide sitework, storm, sanitary and water utilities, paving, curbs, walks and topsoil/seeding.
2. Furnish, install, maintain and remove sediment control system including sediment control plan. Maintain sediment control until substantial completion established by DNREC.
3. Clearing, grubbing and removal of trees, roots and stumps.
4. Topsoil stripping and stockpiling on site.
5. Saw cutting and removal of sidewalks, curbs, etc. in the performance of work is this Contractor's responsibility.
6. Rough grading for area defined on site drawings for building, lawn areas, bituminous roads, parking and walkways. Preparation of subgrade for building slabs, walks and pavements.
7. Furnish, install and maintain select fill under slab.
8. Provide a certified construction reviewer (CCR) to perform inspections and provide written reports; signed and sealed by a professional engineer. This Contractor shall include in the base bid an allowance of \$12,500 for CCR reporting. Any unused portion of the allowance shall be credited back to the Owner via change order.
9. Furnish, install and remove 1,000 linear feet of temporary orange construction fencing as directed by the Construction Manager.
10. Remove/relocate utilities including, but not limited to the removal of light standards.

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11. Proof rolling of limit of excavation.
12. All utilities shall be brought to within +/- 5 feet of the building line by this Contractor. The connection and all utilities from +/- 5 feet and into the building shall be by others.
13. Backfilling as detailed below is the responsibility of this Contractor. Soil types shall be in accordance with Division 31 specifications.
14. It is the intent to use on site material and not imported fill. The use of this onsite material shall conform with the compaction requirements as specified on Civil drawings and in Division 31. If the on site material does not meet those requirements or if there is insufficient on site material available, this contractor shall import at no additional expense to the project sufficient material to complete the work.
15. Provide perimeter protection of all excavated areas until suitably backfilled.
16. Provide grease trap.
17. Propane tanks and underground piping shall be by the Mechanical Contractor.
18. All underground ductbanks and handholes shall be by the Electrical Contractor.
19. Provide downspout boots.
20. Precast concrete bumper blocks.
21. Pavement markings.
22. Exterior signage.
23. Provide and maintain stabilized site entrance.
24. Provide street cleaning of mud, etc. on a daily basis.
25. Include all costs for temporary barricades, arrows, pedestrian protection, flagmen, etc. required to complete the work.
26. Base bid shall include all standard dewatering measures; utilizing trenches, crocks, stone and portable pumping measures. This contractor to provide these measures as required to perform their work. Well pointing if necessary will be handled as a negotiated cost by the Owner.
27. This Contractor shall provide and maintain all temporary access roads as detailed in Contract Documents, until completion of project.

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28. Furnish, install, maintain and remove temporary chain link site fencing, temporary walks as shown on the site plan. Maintain this work until Substantial Completion.
29. Temporary water will be the responsibility of the individual Contractors. The Construction Manager will not provide this service.
30. The Concrete Contractor shall furnish, install and maintain stone fill under slab. The Sitework Contractor shall leave the building pad at subgrade to within +/- 1/4" in preparation to receive stone fill. The Mechanical and Electrical Contractors shall complete their work under the slab on grade and shall be responsible to return the pad to the subgrade elevation left by the Sitework Contractor. The Concrete Contractor shall then adjust the select material to final subgrade, fine grade the slab and place the vapor barrier and stone fill.
31. Comebacks and out-of-sequence work may be required and as such should be included.
32. Provide concrete washout area on site that meets the current DNREC standard detail and specifications. Maintenance of the washout area during construction is the responsibility of the Concrete Contractor. The Sitework Contractor shall remove the washout area at Substantial Completion or earlier, as directed by the Construction Manager.
33. Provide mortar mixing area on site that meets the current DNREC standard detail and specifications. Maintenance of the mortar mixing area during construction is the responsibility of the Masonry Contractor. The Sitework Contractor shall remove the mixing area at Substantial Completion or earlier, as directed by the Construction Manager.
34. Provide all sensitive area protection measures as detailed on the drawings in accordance with the current DNREC standard detail and specifications. Maintain until Substantial Completion or earlier as directed by the Construction Manager.
35. This Contractor shall include in the base bid an allowance of \$10,000 for work directed by the Construction Manager. Any unused portion of the allowance shall be credited back to the Owner via change order.

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CONTRACT NO. A-02 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 3	Concrete
Section 072100	Thermal Insulation
Division 31	Earthwork

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide concrete foundations, slabs on grade, slabs on deck and all reinforcing steel.
2. This Contractor will be responsible for laying out all concrete work as shown on the drawings.
3. This Contractor to furnish and install reinforcing steel, admixtures, curing compound, sealers as required in the Contract Documents.
4. Perimeter insulation at foundation walls.
5. Termite protection.
6. Underslab vapor barrier, insulation, reglets, waterstops, control and construction joints (including required caulking at control and construction joints).
7. Placement of related items furnished under other Specification Sections.
8. 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.
9. All blockouts and embedments required by plans and specifications.
10. This Contractor to furnish and install all sleeves for incoming utilities at the perimeter walls.
11. This Contractor is responsible for grouting all structural steel base or leveling plates.

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12. 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.
13. Coordinate the "Notch" in the concrete slabs to allow for a future Contractor to easily install expansion joint details.
14. Provide concrete fill at steel pan stair treads, landings and associated items.
15. Provide dewatering after acceptance from Sitework Contractor until re-acceptance by the Sitework Contractor.
16. Provide excavation and backfill for concrete foundations. Soil types shall be in accordance with Division 31 specifications.
17. Provide off site disposal of all unsuitable excavated materials.
18. Provide and maintain perimeter fall protection at excavated area per OSHA standards.
19. Provide certified anchor bolt verification drawings to the Construction Manager for review prior to steel erection.
20. Equipment bases and foundations shall be the responsibility of the Contractor providing the equipment.
21. Asphalt concrete paving and portland cement concrete paving, sidewalks and curbs shall be provided by others.
22. All concrete testing will be completed by the Construction Manager, however, it will be the responsibility of this Contractor to furnish all samples.
23. Provide specified sloping for floor drains/trenches in kitchen as detailed (Drains to be furnished by Mechanical Contractor.)
24. 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.
25. This Contractor shall include in the base bid an allowance of \$10,000 for work directed by the Construction Manager. Any unused portion of the allowance shall be credited back to the Owner via change order.

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CONTRACT NO. A-03 MASONRY

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 4	Masonry
Section 072110	Insulating Air Barrier System
Section 079200	Joint Sealants

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. Caulking of masonry to masonry and to dissimilar materials.
3. Integral masonry flashings, expansion joints, insulation and other related items as required.
4. Mock up as required.
5. Grouting of door frames at masonry openings.
6. Weather protection and temporary heat as required to perform the work and maintain the project schedule.
7. Scaffolding as required to complete the work.
8. Dewatering of work areas.
9. Layout of the work including responsibility for all elevations and dimensions as they affect other Contractor's work.
10. Lintels either required by this Contract or install loose lintels furnished by others.
11. Fill at hollow concrete masonry units.
12. Setting of reinforcing steel in block walls.
13. Cast stone work.

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14. Temporary protection for final wash down/cleaning of masonry.
15. 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.
16. Cutting, fitting and building into masonry work, embedments provided by others.
17. Provide all firesafing and fire caulking as required. Work related to masonry work.
18. Bond beams including reinforcing and fill.
19. Furnish and install all masonry veneer anchors where required.
20. Masonry debris disposal.
21. Air/vapor barrier system.
22. This Contractor shall include in the base bid an allowance of \$10,000 for work directed by the Construction Manager. Any unused portion of the allowance shall be credited back to the Owner via change order.

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CONTRACT NO. A-04 STRUCTURAL STEEL & MISC. METALS

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 051200	Structural Steel Framing
Section 052100	Steel Joist Framing
Section 053100	Steel Decking
Section 055000	Metal Fabrications
Section 055100	Metal Stairs
Section 055213	Pipe and Tube Railings

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. Field check all anchor bolts prior to beginning erection.
4. Roof sump pans and related work.
5. Framing out for openings (roof drains, mechanical openings, access hatches, skylight, stairs, etc.). Assume opening frames will be field installed.
6. Prime paint systems, galvanizing, and related finishing of steel items, including touch up.
7. Masonry or precast anchors welded to steel columns and beams.
8. Supply and install shear studs.
9. Furnish, install, maintain and remove perimeter safety steel cables at all floor levels to conform with all OSHA standards for all trades.
10. 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 Contractor will be this Contractor's responsibility.

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11. 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.
12. Layout, installation and alignment of attachments at the slab edge condition.
13. No electrical power for welders will be provided.
14. 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.
15. 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.
16. This Contractor shall include all necessary staging, rigging, matting and remobilizations to accommodate this erection sequence.
17. Provide stairs, loose lintels, handrails, railings, steel ladders and accessories.
18. Furnish loose steel lintels, angles, plates and embedded items to the Concrete and Masonry contractors.
19. Miscellaneous rough hardware, iron shapes, framing and support angles.
20. Pipe bollards.
21. Stair nosings.
22. Diamond plate.
23. Coiling door frames.
24. Toilet partition supports.
25. Pre-engineered hanger rod canopy.
26. Galvanizing, as required.
27. Anchoring devices, fasteners, inserts and other related items associated with the installation of the above items.
28. Field touch-up paint.

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29. Verify field dimensions.
30. This Contractor shall include in the base bid an allowance of \$10,000 for work directed by the Construction Manager. Any unused portion of the allowance shall be credited back to the Owner via change order.

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CONTRACT NO. A-05 CARPENTRY AND GENERAL WORK

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 054000	Cold-Formed Metal Framing
Section 054400	Cold-Formed Metal Trusses
Section 061000	Rough Carpentry
Section 061600	Sheathing
Section 064023	Interior Architectural Woodwork
Section 072100	Thermal Insulation
Section 074646	Fiber-Cement Siding
Section 079500	Expansion Control
Section 081113	Hollow Metal Doors and Frames
Section 081416	Flush Wood Doors
Section 087100	Door Hardware
Section 092216	Non-Structural Metal Framing
Section 092900	Gypsum Board
Section 101100	Visual Display Units
Section 101400	Signs
Section 102113	Toilet Compartments
Section 102800	Toilet, Bath, and Laundry Accessories
Section 104400	Fire Protection Specialties
Section 105613	Metal Storage Shelving
Section 113100	Residential Appliances
Section 122113	Horizontal Louver Blinds
Section 123200	Institutional Casework

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 and exterior sheathing.
3. Provide all labor, material, trucking, equipment, hoisting, scaffolding, shoring, power, temporary facilities, permit fees, supervision, layout, clean up, etc. for the complete

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- performance of all demolition work.
4. This Contractor shall cut, cap, remove, and properly dispose of mechanical and electrical items scheduled to be removed as part of the Work. Safe-off of mechanical and electrical items to be removed shall be done by others.
  5. 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.
  6. Provide metal and wood doors and frames.
  7. Provide finish hardware related to all hollow metal and wood doors.
  8. Keying. All lock sets. Provide Owner with copy of the keying schedule.
  9. Construction cylinders.
  10. Coiling doors.
  11. Counter shutter.
  12. All field trimming required to adjust to existing conditions.
  13. All millwork, casework and trim.
  14. Fiber cement siding.
  15. Visual display boards.
  16. Signage.
  17. Toilet partitions.
  18. Fire extinguishers, cabinets and accessories.
  19. Toilet and bath accessories.
  20. Window treatments.
  21. Residential appliances.
  22. Mirrors.
  23. Anchoring devices, fasteners, inserts and other related items associated with the

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installation of the above items.

24. Provide metal studs, insulation, gypsum wallboard, taping, spackling, plaster and stucco.
25. Batt and spray foam insulation, both thermal and acoustical and related work.
26. Acoustical sealant of penetrations in insulated drywall partitions.
27. Access panel installation (assume 15 total).
28. Include filling of all interior hollow metal door frames in drywall where required.
29. Include fire taping and sealing at perimeter edge and as shown on the Drawings.
30. Provide architectural expansion joint systems, including joint covers materials at concrete slab, drywall and masonry construction.
31. Scaffolding and lifts for this work.
32. Comebacks and out-of-sequence work may be required and as such should be included.
33. Include all necessary field measurements.
34. Include two (2) passes per floor to "touch-up" mechanical penetrations to insure 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.
35. Bidders are advised to pay particular attention to top of wall conditions, fire and smoke safing of slabs and acoustical sealants.
36. Provide all metal framing as indicated for back up of other materials.
37. Provide metal furring.
38. Engineered shop drawings.
39. Coordinate electrical requirements with any automatic door operations.
40. Furnish hold open closers with fire alarm interface: Power wiring by Electrical Contractor. Fire alarm ties in by Electrical Contractor.
41. Coordinate card reader requirements with electrical hardware.
42. Install floor troughs furnished by the Kitchen Equipment Contractor. Fill in voids surrounding troughs with grout per detail on sheet K102.

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43. This Contractor shall include in the base bid allowances for 80 hours of Journeyman carpenter time and 80 hours of common labor time for work to be directed by the Construction Manager. Any unused portion of these allowances shall be credited back to the Owner via change order.
44. 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.
45. Provide temporary wood frames with reinforced poly for weather protection, in all of the window and door openings on the exterior elevations, until the windows and doors are ready to be installed. Remove and dispose of the temporary frames immediately prior to window and door installation. Provide temporary wood doors at the exterior doors, to include self-closing hardware and padlocks.
46. Provide a temporary demising partition from the floor to the bottom of the structure, where the kitchen addition meets the existing building in Classroom 222 and Multipurpose Room 132. The partition shall be sound attenuated with insulation and sealed to ensure no migration of sound, dust, or odors. Provide ½" drywall on the occupant side with a level 4 finish. Provide a double door opening with panic hardware on the occupant side for emergency egress from Multipurpose Room 132. Remove and dispose of the temporary partitions and door when directed by the Construction Manager.
47. This Contractor shall provide and maintain for the length of the project, one field office for the sole use of the Owner and Construction Manager. Include in the base bid all delivery, permit, rental, set up and removal fees. The office shall be at least 10' wide by 40' long, have central heating and cooling, a built-in plan table, built-in desks with file cabinets, and OSHA-compliant stairs. The office shall be secured to the ground using anchors and tie-downs. No skirting or a restroom is required.
48. This Contractor shall provide and maintain for the length of the project, four portable toilets for the use of all Contractors. Include all transportation, rental, and weekly cleaning charges.
49. This Contractor shall include in the base bid an allowance of \$7,500 for dumpsters for general jobsite debris generated by all Contractors. The allowance does not include masonry debris disposal. The allowance shall cover all transportation and landfill tipping fees. Any unused portion of the allowance shall be credited back to the Owner via change order.
50. This Contractor shall include in the base bid an allowance of \$10,000 for work directed by the Construction Manager. Any unused portion of the allowance shall be credited back to

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the Owner via change order.

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CONTRACT NO. A-06 ROOFING

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 073113	Asphalt Shingles
Section 075323	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing
Section 076200	Sheet Metal Flashing and Trim
Section 077200	Roof Accessories
Section 079200	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. Provide a complete asphalt shingle roofing assembly, including asphalt shingles, ice and water shield, flashings, and drip edge.
3. Caulking related to roofing, flashing and roof accessories.
4. 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.
5. Metal parapet coping.
6. Walk pads.
7. 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.
8. Metal drip edges.
9. Roof curbs.
10. Provide expansion joints that are integral to the roof.
11. Provide permanent patching of existing roofing systems at areas of demolition.

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Demolition of roof drains, mechanical and electrical equipment shall be performed by others. All patching shall conform to original warranty requirements and documents.

12. Gutters, downspouts and splash blocks.
13. Metal scuppers and related work.
14. Wood blocking shall be provided by others.
15. 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.

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CONTRACT NO. A-07 GLASS AND GLAZING

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 079200	Joint Sealants
Section 084113	Aluminum-Framed Entrances and Storefronts
Section 087100	Door Hardware
Section 088000	Glazing

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide storefront and glass and glazing systems.
2. Provide manual aluminum door systems and handling.
3. Finish hardware for aluminum doors only.
4. All glass and glazing at exterior of building.
5. Caulking related to storefront doors and curtain wall systems.
6. Mock-ups as required by the Drawings and Specifications.
7. Hoisting/scaffolding related to the work of this Contract.
8. Caulk between the materials supplied under this section and the adjacent surfaces.
9. Interior door and window glass.
10. Coordinate glass types with partition and door fire ratings.

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CONTRACT NO. A-08 ACOUSTICAL CEILINGS

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 095113	Acoustical Panel Ceilings

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. Supplemental suspension hangers at large ducts above ceilings and at openings for lighting fixtures.
3. Reflected ceiling layout
4. This Contractor shall cut openings in ceilings for sprinkler heads, lights, mechanical diffusers and grilles, etc.
5. Attic stock.
6. This Contractor shall include in the base bid an allowance for 40 hours of Journeyman carpenter time for acoustical ceilings work to be used as directed by the Construction Manager. Any unused portion of the allowance shall be credited back to the Owner via change order.
7. Provide ceiling panels with reinforced backing and support for retractable cord and plug sets as shown on sheet K102.

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CONTRACT NO. A-09 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 093000	Tiling
Section 096513	Resilient Base and Accessories
Section 096519	Resilient Tile Flooring
Section 096723	Resinous 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.
3. Ceramic tile.
4. Resilient flooring.
5. Resilient base.
6. Resilient transition and reducer strips at edges of resilient flooring.
7. Resinous flooring.
8. Rubber stair treads and risers.
9. Cleaning and protection.
10. Attic stock.
11. Provide cutting and fitting around work of others.

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CONTRACT NO. A-10 PAINTING

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 079200	Joint Sealants
Section 099113	Exterior Painting
Section 099123	Interior Painting
Section 099600	High-Performance Coatings

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide all painting as indicated on the finish schedule.
2. Sealing all interior joints between dissimilar materials that require sealants.
3. Paint all exposed lintels.
4. Provide supplementary ventilation as required in enclosed spaces.
5. Paint and caulk all hollow metal frames and doors as shown on the door schedule.
6. Paint metal stairs and railings.
7. Prefinished items will not be painted by this Contractor.
8. Paint all pipe bollards.
9. Protection of adjacent surfaces.
10. Minor patching prior to application of finishes.
11. Clean up.
12. This Contractor to allow 40 man hours and all required paint materials for these man hours to be used as directed by the Construction Manager.
13. Attic stock.
14. Final coat of paint is to be installed after ceilings are installed, if directed by Construction

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Manager.

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CONTRACT NO. A-11 KITCHEN 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
Section 114000	Food Service Equipment

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide food service equipment.
2. All final connections shall be made by the Electrical and Mechanical Contractors.
3. Any discrepancies between the Drawings, Specifications and site conditions or ambiguities in the documents shall immediately be reported to the Construction Manager in writing. Inconsistencies shall be corrected in writing or by reissuing the drawings. If the Contract Documents disagree with the quality or quantity of work required, the better quality or greater quantity shall be supplied unless otherwise instructed in writing by the Construction Manager. Any work performed by the Contractor at locations in question after his discovery of discrepancies, inconsistencies, ambiguities, or errors, without securing resolution, shall be at the Contractor's risk.
4. This Contractor shall verify all measurements at the site and assume full responsibility for their correctness before proceeding with his work. No extra compensation will be allowed because of differences between site conditions and those indicated on the drawings.
5. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer and shall be protected from damage until acceptance. Prefinished products which are damaged before or after installation shall be replaced with new and perfect materials. Materials finished after installation which are damaged shall be refinished or replaced as the Construction Manager may direct. No additional charge will be honored by the Construction Manager for repair or replacement of finished materials.
6. Should this Contractor feel that the Contract Documents call for work which he cannot guarantee, he shall so state, in writing, prior to bidding. Proceeding with any operation shall be construed as acceptance of all guarantee conditions.
7. Secure certificates of inspection and occupancy required by authorities having

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jurisdiction. Deliver copies of certificates to the Construction Manager prior to filing application for final payment.

8. Provide all caulking and sealants for proper installation and in accordance with public health regulations.
9. Start, test and demonstrate all equipment installed under this category of work.
10. Provide utility distribution system.
11. Relocate existing food service equipment as shown on the kitchen drawings.

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CONTRACT NO. A-12 FIRE PROTECTION

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 033000	Cast-In-Place Concrete
Section 078413	Fire Protection, HVAC, and Plumbing Penetration Firestopping
Division 21	Fire Protection
Division 26	Electrical
Division 31	Earthwork

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide piping, fittings, couplings, valves and sprinkler heads.
2. Excavation and backfill related to fire protection work as detailed below is the responsibility of this Contractor. Soil types shall be in accordance with Division 31 specifications.
3. Backfilling is the responsibility of this Contractor. Soil types shall be in accordance with project documents.
4. As-built drawings.
5. Concrete equipment pads, curbs and thrust blocks for fire protection work.
6. Testing and inspections.
7. Cutting and patching.
8. Firesafing.
9. Design.
10. The Concrete Contractor shall furnish, install and maintain stone fill under slab. The Sitework Contractor shall leave the building pad site at subgrade to within +/- 1/4" in preparation to receive stone fill. The Fire Protection, Mechanical and Electrical Contractors shall complete their work under the slab on grade and shall be responsible to return the pad to the subgrade elevation left by the Sitework Contractor. The Concrete

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Contractor shall then adjust the select material to final subgrade, fine grade the slab and place the vapor barrier and stone fill.

11. Flow and tamper switches to be supplied by this Contractor and wired by the Electrical Contractor. It is this Contractors responsibility to provide flow and tamper switches to meet applicable state and local codes.
12. Fire pump, controller and related work. Wiring of pump and controller to be by the Electrical Contractor.
13. Meter, if required, and all applicable fees.
14. Pipe identification.
15. Provide fire mains from +/- 5 feet outside building including connection in the building.

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CONTRACT NO. A-13 MECHANICAL

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 033000	Cast-In-Place Concrete
Section 078413	Fire Protection, HVAC, and Plumbing Penetration Firestopping
Section 089000	Louvers and Vents
Division 22	Plumbing
Division 23	Heating, Ventilating, and Air Conditioning
Division 26	Electrical
Division 31	Earthwork

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide a complete mechanical, plumbing and piping system as indicated on the Drawings and in the Specifications.
2. Division 26 of the specifications should be reviewed as it relates to the power wiring and other requirements for HVAC equipment including the coordination of furnishing and installing motor starters as provided in the specifications.
3. This Contractor shall be responsible to designate an individual within his organization, intimately familiar with this project and assigned on site, to act as the System Start-up Coordinator. This individual must be pre-approved by the Construction Manager. This individual's responsibilities shall include, but not be limited to, coordinating the start-up of all mechanical equipment, including the coordination between the Electrical Contractor, the Controls Contractor, and all testing, adjusting and balancing work. This individual shall report on a weekly basis, in written form, to the Construction Manager. These reports shall include a summary of current conditions including manufacturers' start-ups, systems' deficiencies noted to date and the remediation of same, coordination issues between trades, system interfacing and forecasting, as necessary to project the completion of each individual system within the building.
4. Excavation and backfill for underground mechanical/plumbing work is the responsibility of this Contractor. Soil types shall be in accordance with Division 31 specifications.
5. Backfilling is the responsibility of this Contractor. Soil types shall be in accordance with project documents.

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6. Equipment bases and housekeeping pads.
7. Permits/meters.
8. Pipe and duct insulation.
9. Penetrations through wall, floors, etc. including cutting, patching and fire safing.
10. Testing and balancing.
11. Clean up.
12. All guarantees and warranties to begin at the substantial completion of the entire project. Maintain equipment prior to substantial completion.
13. Hoisting, rigging and scaffolding.
14. ATC.
15. Ductwork, flex duct, grilles and diffusers.
16. Roof drains.
17. Louvers and vents.
18. Coordinate damper size, location and type of damper with kitchen drawings.
19. The Concrete Contractor shall furnish, install and maintain stone fill under slab. The Sitework Contractor shall leave the building pad site at subgrade to within +/- ¼" in preparation to receive stone fill. The Fire Protection, Mechanical and Electrical Contractors shall complete their work under the slab on grade and shall be responsible to return the pad to the subgrade elevation left by the Sitework Contractor. The Concrete Contractor shall then adjust the select material to final subgrade, fine grade the slab and place the vapor barrier and stone fill.
20. Temporary heat and ventilation installation, maintenance and removal. Refer to Division 1, Specification Section 015123 - TEMPORARY HEAT AND VENTILATION, for specific scope.
21. Propane piping, tanks and related appurtenances.
22. Trap priming system.
23. Roof curbs.

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24. All utilities will be brought to within +/- 5 feet of the building line by others. The Mechanical Contractor is responsible for connecting the utilities from +/- 5 feet outside the building line and completing the system within the building.
25. Install Owner pre-purchased equipment, if applicable.
26. Furnish access panels to the Carpentry and General Work Contractor for installation.
27. Final connection of kitchen equipment and appliances.
28. As-built drawings.
29. Demonstration and training.
30. Operation and maintenance manuals.
31. Attic stock.
32. Coordination drawings.
33. This Contractor shall include in the base bid an allowance of \$15,000 for work directed by the Construction Manager. Any unused portion of the allowance shall be credited back to the Owner via change order.

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CONTRACT NO. A-14 ELECTRICAL

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 033000	Cast-In-Place Concrete
Division 23	Mechanical
Division 26	Electrical
Division 27	Communications
Division 28	Electronic Safety and Security
Division 31	Earthwork

This contract also includes, but is not necessarily limited to, all labor, materials and equipment for the following:

1. Provide a complete electrical system as indicated on the drawings, schedules and in the specifications.
2. Division 23 of the specifications should be reviewed as it relates to the power wiring and other requirements for HVAC equipment including the coordination of furnishing and installing motor starters and controllers as detailed in the Specifications and on the Drawings.
3. Excavation and backfill for underground electrical work as required below is the responsibility of this Contractor. Soil types shall be in accordance with Division 31 specifications.
4. Backfilling is the responsibility of this Contractor. Soil types shall be in accordance with project documents.
5. Concrete for duct banks, light standards, above ground conduit encasement, equipment bases and any other concrete work specifically related to the electrical work. Include requirements of State and local codes for concrete encasement.
6. Temporary electric installation, maintenance and removal, including service to the Construction Manager's field office. Refer to Division 1, Specification Section 015113 - TEMPORARY ELECTRIC, for specific scope.
7. Rough in and final connection and related work for equipment provided under other contracts (i.e. kitchen, elevators, HVAC, sprinkler, motorized doors, etc.)

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8. Permits and inspections.
9. Penetrations through walls, floors, etc. including cutting, patching and fire safing.
10. Testing.
11. Clean up.
12. The Concrete Contractor shall furnish, install and maintain stone fill under slab. The Sitework Contractor shall leave the building pad site at subgrade to within +/- ¼" in preparation to receive stone fill. The Fire Protection, Mechanical and Electrical Contractors shall complete their work under the slab on grade and shall be responsible to return the pad to the subgrade elevation left by the Sitework Contractor. The Concrete Contractor shall then adjust the select material to final subgrade, fine grade the slab and place the vapor barrier and stone fill.
13. All guarantees and warranties to begin at the substantial completion of the entire project. Maintain equipment prior to substantial completion.
14. Hoisting, rigging and scaffolding.
15. Provide a complete fire alarm system. Water flow devices are supplied and installed by the Fire Protection Contractor and wired by this Contractor. Include tie-in to fire sprinkler flow and tamper switch.
16. Heat tracing.
17. Special systems (sound, clocks, communications, etc.).
18. Lightning protection with master UL certification.
19. Grounding of building columns and interior spaces as required.
20. Provide complete and functional voice and data systems.
21. As-built drawings.
22. Provide rough-in and final connection and related work for equipment provided under other contracts (i.e. kitchen, HVAC, sprinklers, motorized doors, etc.). Provide power to automatic hardware. Low voltage wiring from the controller to hardware shall be provided by the Carpentry and General Work Contractor.
23. Provide complete audio and audiovisual systems.

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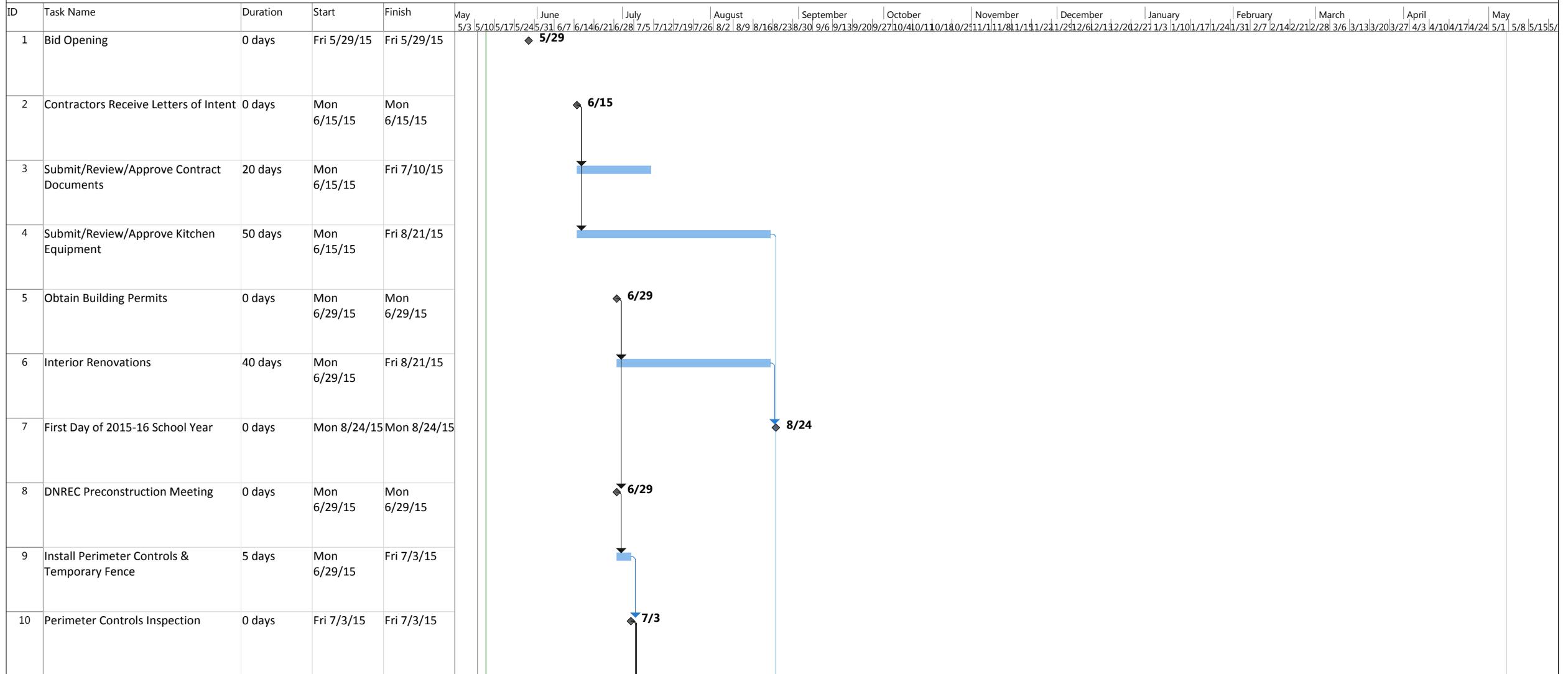
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24. Provide rough-in and final connection of kitchen equipment and appliances. Refer to Specification Section 11400 Food Service Equipment for specifics. Coordinate power/plug requirements with rough in for equipment with the Kitchen Equipment Contractor.
25. Provide a complete area of refuge signal system as described by the Drawings and Specifications.
26. Attic stock.
27. Demonstration and training.
28. Operation and maintenance manuals.
29. Coordination drawings.
30. This Contractor shall include in the base bid an allowance of \$10,000 for work directed by the Construction Manager. Any unused portion of the allowance shall be credited back to the Owner via change order.

END OF SECTION



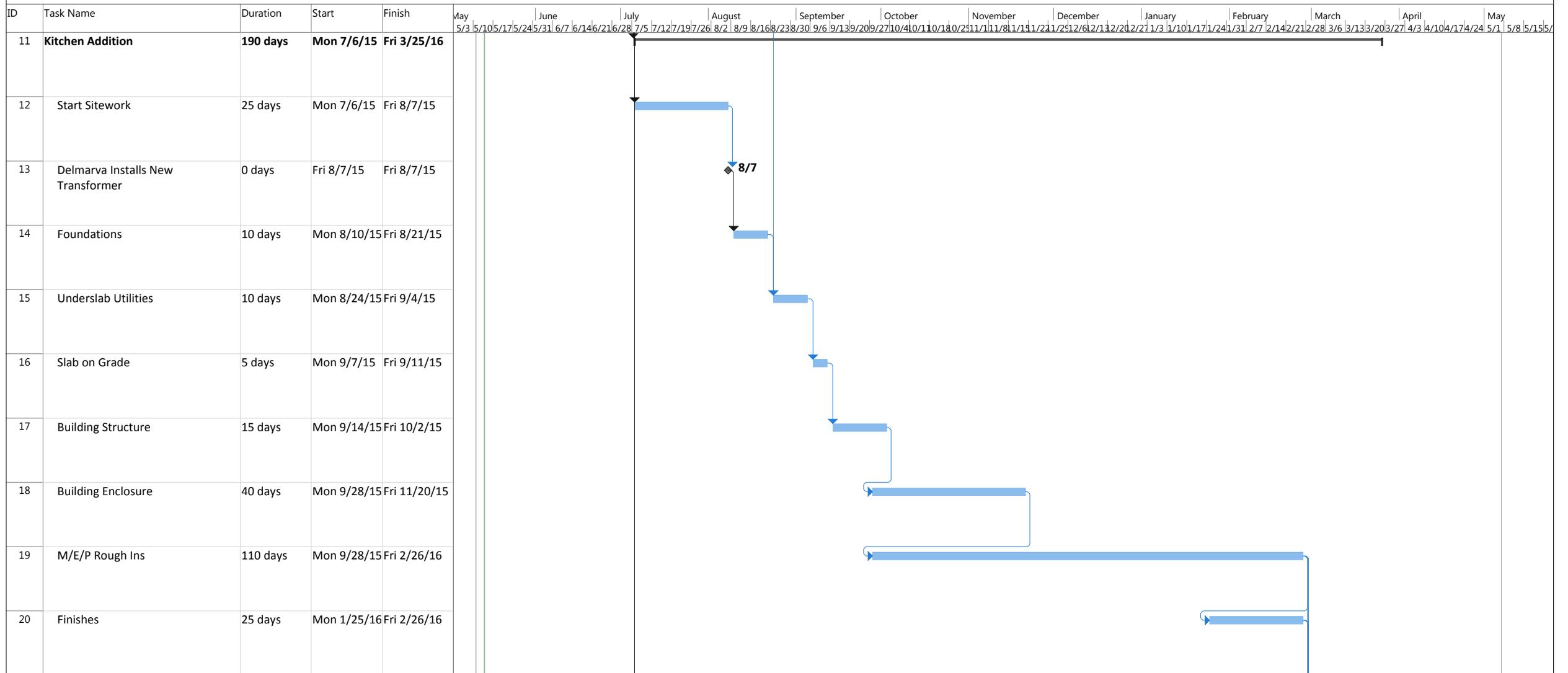
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Task		Project Summary		Manual Task		Start-only		Deadline	
Split		Inactive Task		Duration-only		Finish-only		Progress	
Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
Summary		Inactive Summary		Manual Summary		External Milestone			



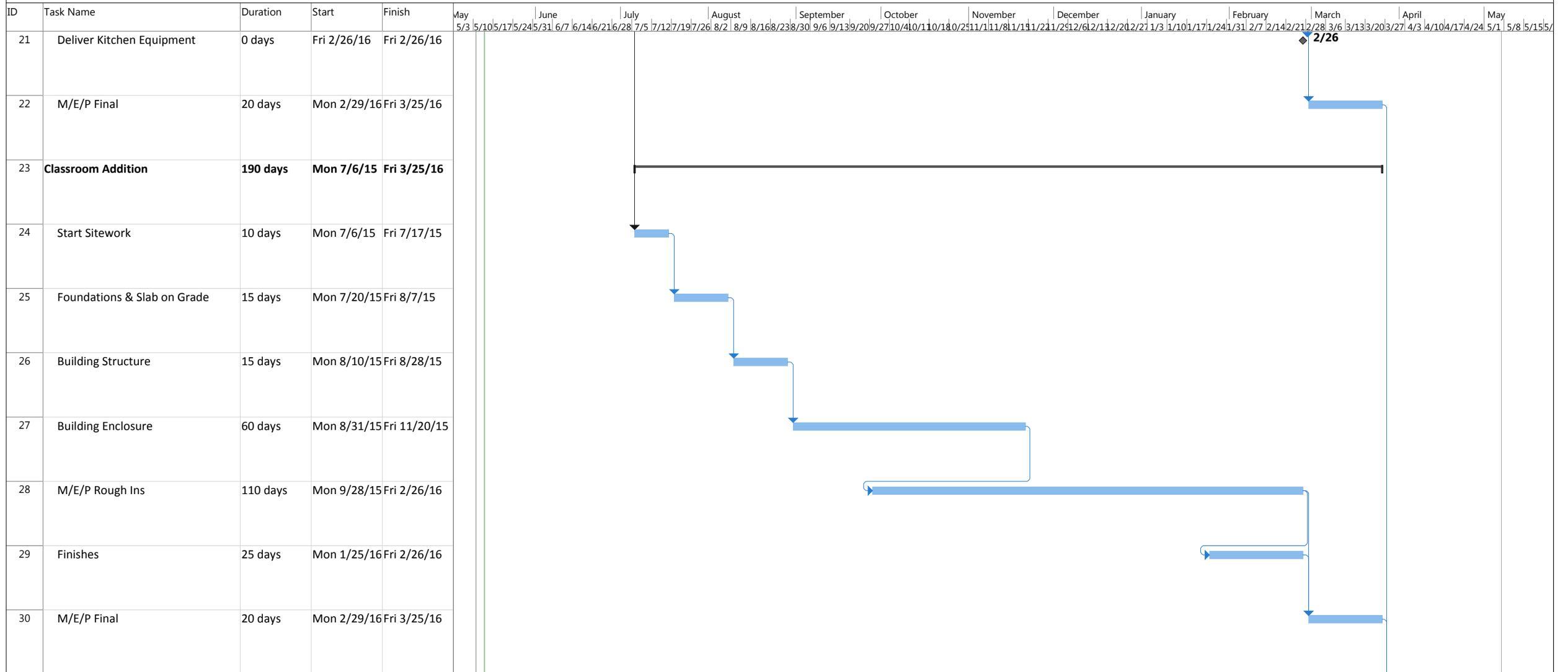
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Task		Project Summary		Manual Task		Start-only		Deadline	
Split		Inactive Task		Duration-only		Finish-only		Progress	
Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
Summary		Inactive Summary		Manual Summary		External Milestone			



Georgetown Elementary School Classroom & Kitchen Additions  
 Pre-Bid Construction Schedule  
 May 14, 2015



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			



Georgetown Elementary School Classroom & Kitchen Additions  
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ID	Task Name	Duration	Start	Finish	May	June	July	August	September	October	November	December	January	February	March	April	May																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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ARCHITECTURE  
PLANNING

Date: \_\_\_\_\_

**Project Name: Georgetown Elementary Classroom Addition**

Project Location: Georgetown, Delaware

Project Number: 2013157.05

## **Release for use of Digital Media**

Revised to include Building Information Modeling

Pursuant to your request, the Digital Media being provided is forwarded in accordance with the following terms.

### Definitions:

- a. The Work: the instrument of professional services of the Firm including but not limited to the design drawings, sketches, renderings, photographs, models, specifications.
- b. Digital Media: the electronic, electromagnetic and/or optical storage media, (i.e. physical media) on which the Work is stored.
- c. Digital Information: the information stored on Digital Media or sent via an electronic exchange method (email and FTP) known as the Work of the contracted design professional, Becker Morgan Group, Inc. and their consultants, herein after referred to as the Firm.
- d. Digital Documents: the collective Digital Information that constitutes equivalent physical documents or Work of the Firm. Digital Documents may include one or more electronic files produced by Computer Aided Design (CAD) software applications.

### Terms:

1. In accepting and utilizing Digital Information on any form of Digital Media generated and provided by the Firm, the Recipient covenants and agrees that all such Digital Information are instruments of service of the Firm prepared solely for use in connection with the single project for which they were prepared, who shall be deemed the author of the Digital Information, and shall retain all common law, statutory law and other rights, including copyrights.
2. The Digital Documents are provided as a convenience to the Recipient for informational purposes only in connection with the Recipient's performance of its responsibilities and obligations relating to the Project. The Digital Documents do not replace or supplement the printed copies of the Drawings and Specifications that are, and remain, the Contract Documents for the Project.
3. The Digital Information is provided only as a design record prior to construction and for reference to the Recipient. The information in no way shall be used for "as-built" or record purposes.
4. The Recipient agrees not to use this Digital Information, in whole or in part for any purpose or project other than the specific project for which the Recipient and the Firm have a prior Professional Services Agreement. It is further understood and agreed that only printed copies of the Instruments of Services shall be signed and sealed by Architect or its sub-consultants in accordance with the laws of the state in which the project is built.
5. The Work cannot be distributed, altered, reused, sold, leased, printed, plotted, or duplicated without the expressed written consent of the Firm.

6. For Shop Drawings - Where the Recipient has received specific permission to use the Digital Documents in connection with Recipient's obligation to prepare certain documents for the Project, Recipient shall, in addition to the other obligations set forth herein, be obligated to remove Architect's or Architect's Consultant's title block from the copy of the Digital Documents used by Recipient. It is understood and agreed that the Digital Documents are not to be used by any contractor or any of its subcontractors of any tier or any material supplier or vendor as a shop drawing or any other type of submittal or as the basis for preparing such shop drawing or submittal. The sole exception to this prohibition shall be that the Recipient may use the Digital Documents as backgrounds upon which to prepare its shop drawing or other submittal when it is specifically permitted in technical section of project specification. When these digital documents are used as backgrounds in the preparation of shop drawings or other submittals, the Recipient agrees to confirm the accuracy of the digital documents before using them, Recipient agrees to accept all responsibility for any errors or inaccuracies and to release the Architect and its sub-consultants from any liability or claims for recovery of damages or expenses arising as the result of such errors or inaccuracies.
7. Under no circumstances shall transfer of the Digital Information for use by the Recipient be deemed a sale by the Firm. The parties agree that the Digital Documents are not, nor shall they be construed to be, a product. The Firm makes no warranties, either express or implied, of the Digital Media or the Digital Information as to merchantability or fitness for any particular purpose the Recipient may need.
8. The Digital Information submitted by the Firm to the Recipient is submitted for an acceptance period of sixty days. Any defects the Recipient discovers during this period shall be reported to the Firm and may be corrected as part of the Firm's Basic Scope of Services. Correction of defects detected and reported after the acceptance period will be compensated for as Additional Services.
9. The Digital Information is not guaranteed as to accuracy and completeness of all dimensions and details. Information contained in the signed and sealed printed documents should be deemed to be correct and superior to digital information.
10. The Digital Information is not guaranteed as to compatibility, in so far as incompatibilities may be present now or in the future with the Recipient's computers, storage devices, software, and output systems.
11. The Digital Media on which the Digital Information is provided cannot be guaranteed as to its durability, completeness or usability, in so far as instabilities may be present in the Digital Media, and in the transferring, archiving, recording or translating systems now and in the future. The Firm is not liable in any way for the perpetuation of this Digital Information on released digital media or on digital media retained by the Firm for its archives. Recipient agrees to accept all responsibility for any errors or inaccuracies and to release Architect and its sub-consultants from any liability or claims for recovery of damages or expenses arising as the result of such errors or inaccuracies.
12. Provision of the Information to the Recipient in no way limits the Firm to the further use of the Digital Information for the Firm's benefit.
13. Recipient agrees to waive any and all claims and liability against Architect and its sub-consultants resulting in any way from any failure by Recipient to comply with the requirements of this Agreement for the Delivery of Documents in Digital Format. The Recipient agrees, to the fullest extent permitted by law, to indemnify and hold the Firm harmless from any damage, liability or cost, including reasonable attorney's fees and costs of defense, arising from any changes made by anyone other than the Firm or from any reuse of the Digital Information without the prior written consent of the Firm. Recipient further agrees to indemnify and save harmless the Owner, Architect and its sub-consultants and each of their partners, officers, shareholders, directors and employees from any and all claims, judgments, suits, liabilities, damages, costs or expenses (including reasonable defense and attorney's fees) arising as the result of either: 1) Recipient's failure to comply with any of the requirements of this Agreement for the Delivery of Documents in Digital Format; or 2) a defect, error or omission in the Digital Documents or the information contained therein, which defect, error or omission was not contained in the Contract Documents as defined in Paragraph 2 or where the use of such Contract Documents would have prevented the claim, judgment, suit, liability, damage, cost or expense.

The Recipient agrees to a \$200 charge per each of the following drawing sheets listed below, created within a CAD digital file, payable to this office prior to release of any Digital Information. NOTE: All sheets are available for release.

List Requested Drawing Sheets:

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The Recipient agrees to a \$500 charge per each of the following groups of CAD digital files checked below, payable to this office prior to release of any Digital Information. NOTE: Only those file groups listed below are available for release.

Check Requested Files:

- Structural Revit Model
- Architectural Revit Model
- K101, K102, K103, K104
- P101, P102, P104, P201, P202, FP100
- M101, M102, M103, M104, M201
- EL101, EL102, EM101, EP101, EP102, E103, E104, E201, E202

Please sign and return one copy of any release forms required by Consultants.

Please sign below and return one copy of this form with a check for the total payment made out to Becker Morgan Group.

*Recipient sign here>*

Accepted - signature \_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_  
Name/Title – printed

\_\_\_\_\_  
Company

BMG Principal - signature \_\_\_\_\_ Date \_\_\_\_\_

\_\_\_\_\_  
BMG Principal – printed

\_\_\_\_\_  
Prepared by – printed

DIVISION 26  
SECTION 260924  
LIGHTING CONTROL SYSTEM  
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## PART 1 GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections apply to this section.

### 1.2 SUMMARY

- A. The work covered in this section is subject to all of the requirements in the General Conditions of the Specifications. Contractor shall coordinate all of the work in this section with all of the trades covered in other sections of the specification to provide a complete and operable system. All Labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the work of this Section.

### 1.3 DESCRIPTION OF WORK

- A. Furnish and install a complete system for the control of interior lighting as indicated on the plans, detailed in the manufacturer submittal and as further defined herein. Contractor is solely responsible to verify quantity, installation locations and wiring requirements for this project. Specific manufacturers' catalog numbers, when listed in this section are for reference only. It is the responsibility of the contractor to verify with lighting control manufacturer all catalog information and specific product acceptability.
- B. The system shall include but not be limited by the following list: Pre-wired, microprocessor controlled relay panels with electrically held, electronically latched relays panels controlled via a complete list of communication based accessories including digital switches, digital photocells, Digital Time Clock (DTC) and interface cards to building automation systems and other devices. The type of lighting control equipment and wiring specified in this section is covered by the description: Microprocessor Controlled Digital Relay Lighting Control system with RS 485 Bus communications. Requirements are indicated elsewhere in these specifications for work including, but not limited to, raceways and electrical boxes and fittings required for installation of control equipment and wiring. They are not the work of this section.

### 1.4 SUBMITTALS

- A. Refer to Division 26 Section, *Common Work Results for Electrical*, Paragraph – “Shop Drawing Requirements”.
- B. Shop Drawings: Submit dimensioned drawings of lighting control system and accessories including, but not necessarily limited to, relay panels, switches, DTC, photocells and other interfaces. Shop drawings shall indicate exact location of each device or a RFI to confirm location. Plans are diagrammatical. EC to verify all lighting control material requirements from approved shop drawings. “Cut Sheet” submittal not acceptable.

- C. **Product Data:** Submit for approval 6 copies of manufacturer's data on the specific lighting control system and components. Submittal shall be in both electronic and hard copy formats. To prevent departures from approved system operation, electronic file submitted shall be able to be directly downloaded to the specified system at manufacturer facility. Submit a complete bill of materials with part numbers, description and voltage specifications.
- D. **One Line Diagram:** Submit a one-line diagram of the system configuration indicating the type, size and number of conductors between each component if it differs from that illustrated in the riser diagram in these specifications. Submittals that show typical riser diagrams are not acceptable.
- E. **Programming Forms:** Submit programming forms with complete information describing the operation of the network lighting control system and all other information necessary to show proper operation of the system.

#### 1.5 QUALITY ASSURANCE

- A. Control wiring shall be in accordance with the NEC requirements for Class 2 remote control systems, Article 725 and manufacturer specification.
- B. A licensed electrician shall functionally test each system component after installation, verify proper operation and confirm that all relay panel and switch wiring conforms to the wiring documentation.
- C. The Electrical Contractor (EC) is required to phone equipment manufacturer a minimum of 7 days before turnover for system checkout. At time of LC&D contact, all components to include phone line to modem must be installed, powered and operational.
- D. Comply with NEC and all local and state codes as applicable to electrical wiring work.
- E. Lighting control panels (LCPs) shall be UL 916 Listed. LCPs controlling emergency circuits shall be ETL listed to UL 924. Emergency source circuits controlled in normal operation by a relay panel shall fully comply with NEC 2011 700-10(b). Electrical Contractor is responsible for verifying compliance.
- F. The lighting control system shall be listed, approved and comply as required with all national, state and local energy codes to include but not limited to ASHRAE 90.1-2007.

#### 1.6 MAINTENANCE MATERIALS

- A. Division 01 - *Execution Requirements*: Spare parts and maintenance products.
- B. Provide 10% spare relays per Lighting Control Panel (LCP), up to the maximum capacity of the LCP.
- C. Provide CD version of manufacturers operating software to include graphical interface software.
- D. Provide 2 extra sets of as-built and operating manuals.

## 1.7 SUBSTITUTIONS

- A. Substitutions are permitted as voluntary alternates. Base bid must reflect the specified equipment.
- B. A product must go through the following process before being approved as a substitution:
  - 1. A list of substitutions shall be provided to the owner as an attachment to the bid form. Submit along with bill of material, CD of proposed operating system, and a one line diagram of the system configuration proposed indicating the type, size and number of conductors between each component.

## 1.8 SYSTEM DESCRIPTION

- A. The lighting control system shall be a networked system that communicates via RS485. The systems must be able to communicate with fully digital centralized relay panels, micro relay panels, digital switches, photocells, various interfaces and shall include all operational software. Relay panels shall control selected interior and exterior lighting and site lighting. Lighting control system shall include all hardware and software. Software shall be resident within the Digital Time Clock (DTC). System shall provide local access to all programming functions via Ethernet connection.
- B. System software shall provide real time status of each relay, each zone and each group.
- C. Lighting control system shall be able to be monitored by and take commands from a remote PC. At any time, should the remote PC go off-line all system programming uploaded to the lighting control system shall continue to operate as intended. Systems requiring an online PC or server for normal operation are not acceptable
- D. All devices shall be pre-addressed at the factory. Field addressing is not acceptable.
- E. All programs, schedules, time of day, etc, shall be held in non-volatile memory for a minimum of 10 years at power failure. At restoration of power, lighting control system shall implement programs required by current time and date.
- F. System shall be capable of flashing lights Off/On for any relay or any zone prior to the lights being turned Off. The warning interval time between the flash and the final lights off signal shall be definable for each zone. Occupant shall be able to override any scheduled Off sweep using local wall switches within the occupied space. Occupant override time shall be locally and remotely programmable and not exceed 2-hours.
- G. The system shall be capable of implementing On commands, Off commands, Raise (dimming) commands, Lower (dimming) commands for any relay, group or zone by means of digital wall switches, specification grade line voltage type wall switches, photocell, web based software or other devices connected to programmable inputs in a lighting control panel.
- H. The lighting control system shall provide the ability to control each relay and each relay group per this specifications requirement. All programming and scheduling shall be able

to be done locally at the master LCP and remotely via dial up modem and via the Internet. Remote connection to the lighting control system shall provide real time control and real time feedback.

- I. System may consist of centralized relay panels, micro relay panels, smart breaker panels, digital switches, photocells and various digital interfaces. Verify exact components specified. Micro relay panels, smart breaker panels, centralized relay panels and digital switches shall communicate as one network via RS485. Micro relay panels, mounted in each local area, per plans shall control all lighting fixtures in that space, provide power to occupancy sensors and take input from daylight sensor and occupancy sensors. Micro relay panels shall be capable of taking inputs from standard, line voltage type switches and outputting up to 8 independent 0v to 10v dimming signals. All micro relay panels and all devices connected to micro relay panels (switches, photocells and occupancy sensors, etc) shall be wired per lighting control manufacturer's instructions.
- J. LCP panels shall be capable of having up to sixteen (16) independent 0v to 10v dimming signals. All LCP Panels and devices connected to the relay panels (switches, photocells, occupancy sensors, etc.) shall be wired per lighting control manufacturers instructions.
- K. 4 thru 16 relay panels shall be available that contain field configurable relays. Panels shall include (4) inputs for photosensors, (4) inputs for occupancy sensors and (4) dry contact inputs. One 0-10V dimming output shall be available per relay.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work include the following:
  1. Lighting Control & Design (LC&D)
  2. Hubbell
  3. Cooper
  4. Leviton
  5. Lutron Electronics, Inc.
  6. N-Light
- B. Such firms shall be regularly engaged in manufacture of lighting control equipment and ancillary equipment, of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years. Any product other than those listed in this specification must be pre-approved a minimum of two weeks before bid time. No exceptions.

### 2.2 MATERIAL AND COMPONENTS

- A. Relay panels shall have the quantities of single pole and two pole relays and spares, devices and accessories required to perform the lighting control functions described herein and shown on the Drawings.
- B. The enclosures shall be NEMA 1 rated with a hinged door cover with a keyed lock. A 16 gauge steel barrier shall separate the high voltage and low voltage compartments of the panel and separate 120 volts and 277 volts.
- C. LCP input power shall be capable of accepting 120v or 277v without rewiring
- D. Control electronics in the low voltage section shall be capable of driving 2 to 48, 30a, 18,000 SCCR rated latching relays, control any individual or group of relays, provide individual relay overrides, provide a master override for each panel, store all programming in non-volatile memory, after power is restored return system to current state, provide programmable blink warn timers for each relay and every zone, and be able to control relays that default to Open, Normally Open Latching (NOL) or relays that default to Closed, Normally Closed Latching (NCL).
- E. Lighting control systems shall be digital and may consist of a Master LCP, Slave LCPs, Micro LCPs, digital switches, photocells and digital interface cards of the quantities necessary to perform the functions shown on the Drawings. All system components shall connect and be controlled via a single Category 5e, 4 twisted pair cable with RJ45 connectors, providing real time two-way communication with each system component. All Micro LCPs shall provide multiple quick connect inputs for photocells and occupancy sensors. Analog systems are not acceptable.
- F. The lighting control system is a networked system that communicates via RS485 and includes a centralized relay panel a photocell, various interfaces and operational software. The intent of the specification is to integrate all lighting control into one system. Lighting control system shall include all hardware and software. Software to be resident within the lighting control system. System shall provide local access to all programming functions at the DTC and remote access to all programming functions via dial up modem and through any standard computer workstation running an industry standard internet browser. Lighting control system shall have server built into the master LCP that “serves” HTML pages to any authorized workstation. Desktop computers are not part of this section and will be provided by others. Non-networked, non-digital system not acceptable.

### 2.3 DIMMABLE RELAY PANELS

- A. Panels shall contain 4, 8 or 16 field configurable relays as indicated on the plans and be part of the lighting control network. Each panel shall provide 300 mA at 24 VDC for powering occupancy sensors.
- B. Panels shall provide 4-programmable photocell inputs, 4-programmable occupancy sensors inputs and 4-programmable contact closure inputs. All inputs shall be able to be matrixed to any relay in the panel.
- C. Panels shall be capable of outputting a quantity of 0-10V dimming signals equivalent to the number of relays in the panel. In order to maximize daylight harvesting and minimize

disruption to occupants, each dimming output shall provide adjustment for baseline, start point, mid point end point, trim, fade up rate, fade down rate, time delay and enable/disable masking. Any 2 individual relays shall be able to be ‘bound’ to dim as one continuous load. (Relay 1 dims from 100% to 0%, then relay 2 starts dimming from 100% to 0%) All photocell setting must be remotely accessible. Systems providing On, Off with Time Delay only, and system that do not provide remote access are not acceptable.

#### 2.4 STANDARD OUTPUT RELAYS

- A. UL LISTED 30 Amp, Latching, 18000A SCCR, 277VAC Ballast and HID and 20 Amp Tungsten at 120 VAC.
- B. Relays shall be individually replaceable. Relay terminal blocks shall be capable of accepting two (2) #8 AWG wires on both the line and the load side. Systems that do not allow for individual relay replacement or additions are not acceptable.
- C. Relays shall be rated for 250,000 operations minimum at a full 30 ampere lighting load, default to closed at normal power loss, Normally Closed Latching (NCL).
- D. Other relay types may include: Normally Open Latching (NOL) relay rated for 250,000 operations; a 600 volt 2-pole NO and NC; and a Single Pole, Double Throw (SPDT) relay, as appropriate for the application of this project.
- E. Each relay shall have an identification label indicating the originating branch circuit number and panelboard name as indicated on the Drawings. This identification may be in the form of a schedule or directory affixed on the inside door of the panel. Each line side branch circuit conductor shall have an identification tag indicating the branch circuit number.
- F. Relays shall be manufactured to default to closed (simulated NC) upon loss of power, unless otherwise noted.

#### 2.5 FIELD CONFIGURABLE RELAYS

- A. UL Listed 40A, Latching, 65,000A SCCR, controlling 120VAC to 480VAC (in multi-pole configuration).
- B. Relays shall be individually replaceable. Relay terminals shall be capable of accepting two (2) #8 AWG wires on both the line and the load side.
- C. Relays shall have a manual override switch that allows the opening and closing of the relays when the system is not energized.
- D. Relays shall be field-configurable into single, double, and triple-pole configurations through the use of a handle-tie.
- E. Relays shall be rated for 250,000 operations minimum at full load and default to normally-closed at the loss of normal power.

- F. Each relay shall have an identification label indicating the originating branch circuit number and panelboard name as indicating on the Drawings. This identification may be in the form of a schedule of directly affixed on the inside door of the panel. Each line side branch circuit conductor shall have an identification tag indicating the branch circuit number.

## 2.6 DIGITAL SWITCHES

- A. All switches shall be digital and communicate via RS 485. Contact closure style switches, except as specified for connection to the micro relay panel matrix contact closure inputs, shall not be acceptable. The programming for a digital switch will reside in the switch itself, via double EPROM memory. Any digital switch button function shall be able to be changed locally (at the DTC or a PC) or remotely, via modem, Internet or Ethernet.
- B. Digital switches shall be devices that reside on the lighting control system bus. Digital switches shall connect to the system bus using the same cable and connection method required for relay panels. System shall provide capability to locally and remotely program each individual switch button, monitor and change function of each button locally and remotely. Each button shall be capable of being programmed for On only, Off only, On/Off (toggle), Raise (Dim up) and Lower (Dim down). Switches requiring low voltage control wires to be moved from one input terminal to another to accomplish these functions are not acceptable.
- C. Digital low voltage switch buttons shall have custom factory engraving (and filled) as shown on the Drawings. Engraving shall be up to two (2) lines and up to eight (8) characters per line, minimum. Buttons colors shall be white or ivory unless other colors are shown on the Drawings.

## 2.7 DIGITAL TIME CLOCK

- A. A Digital Time Clock (DTC) shall control and program the entire lighting control system and supply all time functions and accept interface inputs.
- B. DTC shall be capable of up to 32 schedules. Each schedule shall consist of one set of On and Off times per day for each day of the week and for each of two holiday lists. The schedules shall apply to any individual relay or group of relays.
- C. The DTC shall be capable of controlling up to 126 digital devices on a single bus and capable of interfacing digitally with other individual busses using manufacturer supplied interface cards.
- D. The DTC shall accept control locally using built in button prompts and use of a 8 line 21-letter display or from a computer or modem via an on-board RS 232 port. All commands shall be in plain English. Help pages shall display on the DTC screen.
- E. The DTC shall be run from non-volatile memory so that all system programming and real time clock functions are maintained for a minimum of 15 years with loss of power.
- F. Pre-installed lighting control software shall provide via local or remote PC a visual representation of each device on the bus, show real time status and the ability to change

the status of any individual device, relay or zone. System shall be capable of running optional Unity GX lighting control software, which shall provide for directly importing vector based graphics. No exceptions.

- G. Pre-Installed modem that allows for remote programming from any location using a PC. Modem to include all necessary software for local or remote control.
- H. DTC shall provide system wide timed overrides. Any relay, group or zone that is overridden On, before or after hours, shall automatically be swept Off by the DTC a maximum of 2 hours later.

## 2.8 INTERFACES

- A. For future expansion capability, system to have available all of the following interfaces.
  - 1. A dry contact input interface card that provides up to 14 programmable dry contract closure inputs.
  - 2. Interface card providing digital communication from one system bus to another system bus, allowing up to 12,000 devices to communicate.

## 2.9 LOW VOLTAGE CABLE

- A. This contractor shall furnish and install the required low voltage cable with RJ45 connectors between all switches and panels. The cable shall be UL listed, plenum rated, unshielded, four (4) twisted pairs, No. 24 AWG, Category 5e, extended distance, high speed data type with a flame retardant polyvinyl chloride jacket and a temperature range for dry locations of minus ten (10)degrees C to sixty (60) degrees C.
- B. Low voltage wiring for connections to photocells and contact closure switches shall be three (3) conductors, No. 18 AWG, plenum rated with a temperature range for dry locations of minus ten (-10) degrees C to sixty (60) degrees C.

## PART 3 EXECUTION

### 3.1 EQUIPMENT INSTALLATION

- A. Mount relay control cabinets adjacent to respective lighting panelboard. Cabinet shall be surface or flush mount, per plans. Wiring between relay control cabinet and panelboards to be per local codes and acceptable industry standards. Under no circumstances will any extra be authorized for payment to the EC or GC due to the EC's lack of knowledge or understanding of any and all prevailing codes or specified manufacturer's installation requirements. Neatly lace and rack wiring in cabinets. During construction process, protect all interior components of each relay panel and each digital switch from dust and debris. Any damage done to electronic components due to non-protection shall be the sole responsibility of the installing contractor.
- B. Wiring

1. Do not mix low voltage and high voltage conductors in the same conduit. No exceptions.
2. Ensure low voltage conduits or control wires do not run parallel to current carrying conduits.
3. Place manufacturer supplied “terminators” at each end of the system bus per manufacturer’s instructions.
4. Neatly lace and rack wiring in cabinets.
5. Plug in Category 5 patch cable that has been field-tested with a recognized cable tester, at the indicated RJ45 connector provided at each lighting control device, per manufacturer’s instructions.
6. Use Category 5 patch cable for all system low voltage connections. Additional conductors may be required to compensate for voltage drop with specific system designs. Contact LC&D or refer to the GR2400 manual for further information. Use shielded cable for dry contact inputs to lighting control system.
7. Do not exceed 4000ft-wire length for the system bus.
8. All items on the bus shall be connected in sequence (daisy chained). Star and spur topologies are not acceptable.
9. The specified lighting control system shall be installed by the electrical contractor who shall make all necessary wiring connections to external devices and equipment, to include photocell. Electrical Contractor is to wire per manufacturer’s instructions.

### 3.2 INSTALLATION AND SET-UP

- A. Verify that conduit for line voltage wires enters panel in line voltage areas and conduit for low-voltage control wires enters panel on low-voltage areas. Refer to manufacturer's plans and approved shop drawings for location of line and low-voltage areas. It is the responsibility of the contractor to verify with lighting control manufacturer all catalog information and specific product acceptability.
- B. Contractor to test all low voltage cable for integrity and proper operation prior to turn over. Verify with system manufacturer all wiring and testing requirements.
- C. Before Substantial Completion, arrange and provide a one-day Owner instruction period to designated Owner personnel. Set-up, commissioning of the lighting control system, and Owner instruction includes:
  1. Confirmation of entire system operation and communication to each device.
  2. Confirmation of operation of individual relays, switches, occupancy sensors and daylight sensors

3. Confirmation of system Programming, photocell settings, override settings, etc.
  4. Provide training to cover installation, maintenance, troubleshooting, programming, and repair and operation of the lighting control system.
- D. Panels shall be located so that they are readily accessible and not exposed to physical damage.
  - E. Panel locations shall be furnished with sufficient working space around panels to comply with the National Electrical Code.
  - F. Panels shall be securely fastened to the mounting surface by at least 4 points.
  - G. Unused openings in the cabinet shall be effectively closed.
  - H. Cabinets shall be grounded as specified in the National Electrical Code.
  - I. Lugs shall be suitable and listed for installation with the conductor being connected.
  - J. Conductor lengths shall be maintained to a minimum within the wiring gutter space. Conductors shall be long enough to reach the terminal location in a manner that avoids strain on the connecting lugs.
  - K. Maintain the required bending radius of conductors inside cabinets.
  - L. Clean cabinets of foreign material such as cement, plaster and paint.
  - M. Distribute and arrange conductors neatly in the wiring gutters.
  - N. Follow the manufacturer's torque values to tighten lugs.
  - O. Before energizing the panelboard, the following steps shall be taken:
    1. Retighten connections to the manufacturer's torque specifications. Verify that required connections have been furnished.
    2. Remove shipping blocks from component devices and the panel interior.
    3. Remove debris from panelboard interior.
  - P. Follow manufacturers' instructions for installation and all low voltage wiring.

### 3.3 SYSTEM TEST AND ACCEPTANCE

- A. Prior to the Architect/Engineer's final site visitation, and acceptance of each construction phase, this Contractor shall conduct a complete operating test of each system including each device. The systems shall test free from grounds, shorts, and other faults. All connections shall be thoroughly checked for mechanical and electrical connection. All equipment shall be demonstrated to operate in accordance with the requirements set forth in these Specifications and as shown on the Drawings.

- B. This Contractor shall perform all tests in the presence of the Owner. This Contractor shall furnish all personnel for use in the tests.
- C. When the work on the system has been completed and is ready for final review, a visit shall be made by the Owner at which time the Contractor shall demonstrate that the requirements of the Contract as it applies to this system have been carried out and that the system has been adjusted and operated in accordance herewith.

### 3.4 DOCUMENTATION

- A. This Contractor shall furnish to the Owner point-to-point “As Built” wiring diagrams for the lighting control systems. Diagrams must indicate exact mounting location of each system and their devices. This accurate “as built” shall indicate the loads controlled by each relay and the identification number for that relay, placement of switches and location of photocell. Original shall be given to Owner, copies placed inside the door of each LCP.
- B. This Contractor shall furnish to the Owner, four (4) sets of factory operation and maintenance manuals. These manuals shall include factory service manuals with complete parts lists, wiring and component schematics including circuit diagrams, programming forms with complete information and all other information necessary for the proper operation, service, and maintenance of the Lighting Control Systems.

### 3.5 SERVICE, SUPPORT, AND COMMISSIONING

- A. Start Up: This Contractor shall contact the system manufacturer at least 7 days before activation of the system.
- B. Ethernet factory support shall be available at no additional cost to the Contractor or Owner both during and after the warranty period. Factory to pre-program the lighting control system per plans and approved submittal, to the extent data is available. Text deleted. Upon request, manufacturer to provide remote Ethernet software at no added cost to the system owner. No exceptions.
- C. Upon completion of the installation of the entire lighting control system, and prior to the substantial completion of the project, this contractor shall have the system commissioned by an authorized system manufacturer’s representative. This contractor shall be responsible for participation and coordination within the Commissioning process including but not limited to:
  - 1. Verify proper installation and performance of the lighting control system.
  - 2. Provide a factory trained lighting control system technician/programmer for use during system verification and functional performance testing.
  - 3. Manipulate the lighting control systems to facilitate verification and performance testing.
  - 4. Perform and clearly document all completed startup and system operational checkout procedures, providing a copy to the Owner.
  - 5. Address current A/E punchlist items before functional testing.

6. Correct deficiencies (differences between specified and observed performance) as interpreted by the CA, Owner and A/E and retest the equipment.

3.6 CLEANING

- A. Division 01 - Execution Requirements: Final cleaning.
- B. Clean all switch faceplates.

END OF SECTION

POWER SUPPLY: 277VAC  
 SUPPLY CIRCUIT: L2A1-11  
 A.I.C. RATING: 18K

LIGHTING CONTROL PANEL: **LCP2A**

LOCATION: ELEC 261

RELAY NO.	POLES	AMPERES	VOLTAGE	PANELBOARD CIRCUIT	CIRCUIT DESCRIPTION	REMARKS
1	1	20	277	L2A1-13	<del>LTG CORRIDOR 100</del>	NOTE 4
2	1	20	277	L2A1-15	LTG STAIR 101, 209	NOTE 6 
3	1	20	277	L2A1-13	<del>LTG CORRIDOR 210</del>	NOTE 4
4	1	20	277	L2A1-17	LTG EXTERIOR	NOTE 5
5	1	20	--	--	SPARE	--
6	1	20	--	--	SPARE	--

MOUNTING: SURFACE  
 ENCLOSURE: NEMA 1  
 OPTIONS:  
 + DIGITAL TIME CLOCK  
 + MODEM FOR REMOTE DIAL-UP

**NOTES:**

- ALL SEQUENCES OF OPERATION SHALL BE VERIFIED WITH OWNER AND ADJUSTED AS REQUIRED.
- PROVIDE BARRIER TO SEPARATE DIFFERENT VOLTAGE CONDUCTORS.
- PROVIDE POWER SUPPLY FOR 4 OR MORE DEVICES DAISEY CHAINED ON ONE CONTROL CIRCUIT.
- LIGHTS TO BE ON DURING NORMAL SCHOOL HOURS, OFF AFTER 11PM UNLESS SIGNAL FROM OCCUPANCY SENSOR.
- ~~LIGHTS TO BE ON FROM DUSK 11PM AND FROM 6AM - DAWN~~
- LIGHTS TO DIM TO 30% WHEN NO OCCUPANCY DETECTED AND TO RETURN TO 100% WHEN OCCUPANCY IS DETECTED 

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PROJECT NAME:

**GEORGETOWN ELEMENTARY SCHOOL**

DRAWING NUMBER: E402

ISSUE DESCRIPTION: ADDENDUM NO. 1

SKETCH NUMBER:

SHEET TITLE:  
 SCHEDULES  
 ELECTRICAL

ISSUE DATE: 05/07/2015

SCALE: NO SCALE

**ESK-01**