

SECTION 013319 FIELD ENGINEERING

PART 1 GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work on this section.
- B. Throughout the specifications, types of materials may be specified by manufacturer's name and catalogue number in order to establish standards of quality and performance and not for the purpose of limiting competition. Alternate methods and/or materials may be submitted to the Architect for consideration. Those judged to be equal to that specified will receive written approval.
- C. Delaware Department of Transportation Specifications for Road and Bridge Construction, August 2001 and as amended.
- D. Delaware Department of Natural Resources and Environmental Control (DNREC) Sediment and Stormwater Regulations.

1.2 SUMMARY

Work included: Provided at the Contractor's expense, such field engineering services as are required for proper completion of the Work including, but not necessarily limited to:

- A. The Contractor shall be responsible for all stakeouts and elevation checks required for construction. All such Work shall be performed by a professional land surveyor. The surveyor shall verify adequacy of benchmarks before starting construction.
- B. Before the start of any building construction, the Contractor shall have a professional land surveyor locate and stake building corners, driveway entrances, driveways, parking areas and playfields. If there are any discrepancies between the actual layout and the project site plan, they shall be brought to the attention of the Architect and resolved before Work proceeds. A building and site stake out drawing stamped and signed by a professional land surveyor may be submitted in lieu of this preliminary stake out.
- C. After the corners of the exterior walls have been started, the Contractor shall obtain a wall check survey certificate made by a professional land surveyor. This survey shall show the accurate location of the building with reference to property lines.
- D. After the first sections of slab-on-grade have been placed in the building, the Contractor shall have a professional land surveyor verify and record the finish floor elevations on the wall check survey.
- E. At the end of the project, the Contractor shall have a professional land surveyor prepare and certify an as-built survey showing the accurate horizontal and vertical locations of all building corners, paved areas, sidewalks, utilities (including inverts), fencing, site walls, etc. located within the project area.

- F. As-Built survey shall be included in a standard C.A.D. format such as AutoCad and/or MicroStation and shall include 2-foot contours within the project limits.
- G. As-Built survey of all grasses ballfields shall minimally include a 25 foot grid across the entire area.
- H. A complete stormwater management as-built shall also be completed in accordance with DNREC's Standard Stormwater Management checklist. The Contractor's shall have a professional land surveyor prepare and certify an interim and final as-built, and the testing and inspection agent shall have a professional engineer certify the construction checklist at the interim and final stages of stormwater management facility construction.
- I. The contractor will be responsible for preparing and submitting to the project engineer five (5) copies of the interim and final stormwater management facility as-built, and additional facility information in accordance with the requirements set forth by DNREC.

1.3 RELATED WORK

- A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
- B. Additional requirements for field engineering also may be described in other Sections of these Specifications.

1.4 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.5 SUBMITTALS

- A. Comply with pertinent provisions of Section 013300-Submittals.
- B. Upon request of the Architect, submit;
 - 1. Data demonstrating qualifications of persons proposed to be engaged for field engineering services.
 - 2. Documentation verifying accuracy of field engineering work.
 - 3. Certifications, signed by the Contractor's retained field engineer, certifying that elevations and locations of improvements are in conformance with requirements of the Contract Documents.
 - 4. All certifications and surveys described in the Summary section of this specification.

1.6 PROCEDURES

- A. In addition to procedures directed by the Contractor for the proper performance of the Contractor's responsibilities:
1. Locate and protect control points before starting Work on the site.
 2. Preserve permanent reference points during process of the Work.
 3. Do not change or relocate reference points or items of the Work without specific approval from the Architect.
 4. Promptly advise the Architect when a reference point is lost or destroyed, or requires relations because of other changes in the Work.
 - a) Upon direction of the Architect, require the field engineer to replace reference stakes or markers.
 - b) Locate such replacements according to the original survey control.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

Not Applicable

END OF SECTION 013319

SECTION 013500 - SAFETY

1.1 SAFETY REQUIREMENTS

- A. All work shall be performed in accordance with rules, regulations, procedures and safe practices and/or OSHA and all other Government agencies having jurisdiction over the project.

1.2 SAFETY PRECAUTIONS AND PROGRAMS:

- A. Each Contractor shall be responsible for initiating, maintaining and supervising safety precautions and programs in connection with the work. The name of the safety officer for each contractor shall be provided to the Construction Manager.
- B. All Contractors shall comply with the provisions of the "Occupational Safety and Health Act" and Federal, State and local requirements.
- C. If a Contractor fails to maintain the safety precautions required by law or directed by the Construction Manager, the Construction Manager may take such action as necessary and charge the Contractor therefore. The failure of the Construction Manager to take any such action shall not relieve the Contractor of his obligations.
- D. The Contractor individually shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods and for any damage which may result from their failure or their improper construction, maintenance or operation.
- E. Prior to mobilizing to the job, the Contractor shall submit to the Construction Manager in writing, a description of his safety program for review and comment. Failure of the Construction Manager to make any changes shall not relieve the contractor of his obligations. During the conduct of the work, the Contractor shall immediately notify the Construction Manager in writing of all accidents and shall submit a written report describing in detail the circumstances of each accident within 24 hours of its occurrence.
- F. All Contractors shall notify the Construction Manager of any flammable, combustible and/or toxic materials intended for use on the project and shall furnish the Construction Manager with literature pertinent to the use and control of all materials, including, but not limited to M.S.D.S. sheets.
- G. Each Contractor shall delegate one representative who shall be responsible to maintain all safety requirements of the Contractor, and shall attend all project meetings scheduled by the Construction Manager.

1.3 SAFETY OF PERSONS AND PROPERTY:

- A. The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage or loss to:
 - 1. All Laurel School District personnel and all other persons who may be affected thereby.

2. All the work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-Subcontractors.
 3. Other property at the site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction and underground property.
- B. The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority, including the Owner's requirements bearing on the Safety of persons or property or their protection from damage, injury or loss.
- C. The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including danger signs and other warnings against hazards. He shall comply with safety regulations and notify the Construction Manager, until he is in compliance.
- D. The Contractor shall promptly remedy all damage or loss to any property caused in whole or in part by the Contractor, his Subcontractors, his Sub-Subcontractors, or anyone directly employed by any of them, or by anyone for whose acts any of them be liable.
- E. The Contractor shall not load or permit any part of the work to be loaded so as to endanger its integrity and safety.
- F. Contractors using a method of blasting to perform work on the project shall use all proper methods, including adequate safety matting and/or overburden, progressive time sequences and scaled distances, in accordance with all governmental regulations.
- G. The use of audio equipment and headsets will not be permitted on the construction site.

1.4 PERSONAL PROTECTION REQUIREMENTS

- A. All persons entering the project shall wear hard hats in good condition and meet ANSI Z89.1-1981 and ANSI Z89.2-1971. The hats shall be worn in the proper manner.
- B. All persons entering the project shall wear proper work boots, clothing attire including long trousers and shirts.
- C. All job site personnel are expected to strictly adhere to the following rules and regulations:
1. Use of approved eye protection by all Company personnel shall be required during all types of percussions and reciprocating work or when owner requirements govern.
 2. Approved respiratory equipment shall be worn by all personnel exposed to hazardous volumes of toxic or noxious dusts, fumes, mists, or gases. Check M.S.D.S. if not sure.

3. Personal protective equipment is to be used under unusual conditions, such as high temperature work, handling caustic or corrosive liquids, or molten metals.
4. When lifting material, keep back straight, bend knees, and lift with your legs. Get help if the load is too heavy.
5. Work clear of suspended loads. If a load is moved above where you are working or walking, stand clear until it has passed.
6. Unless it is part of your regular work, do not attempt to repair or adjust any electrical equipment.
7. Kill any circuit before attempting to work on it. Even voltages lower than 110 will cause death under certain conditions.
8. Treat all electric wires as live. Do not touch exposed wires. Report them immediately to your supervisor.
9. The Contractor is responsible for providing safety training to all of his employees.
10. All shipments to the site shall have the required documentation and labels attached and the documentation and labels shall be maintained while the material is on site.
11. As defined in the occupational Safety & Health Act, safety belts, complete with lanyards, or parachute-style harness, complete with lanyard, are to be used where there is a danger of falling.

1.5 HOUSEKEEPING

- A. Materials and equipment must be piled up or stored in a safe manner. Aisles must be kept clear.
- B. All drop cables/extension cords shall be elevated above the ground or protected in such a way to allow traffic to pass.
- C. Smoking will only be permitted in designated areas.
- D. Consumption of food and beverages in other than Company-designated areas and at specified times.
- E. Glass-bottled refreshments will not be allowed in the workplace.
- F. Graffiti will not be tolerated on the jobsite.
- G. All compressed gas cylinders must be stored in an upright position and tied off with the cap placed on top.

- H. The cords and connections at temporary panels must be maintained in an orderly fashion at all times to prevent tripping.
- I. Welding stubs and shells from explosive activated tools shall be collected and properly disposed of by Contractor.
- J. Nails are to be bent over and/or removed from wood.
- K. Aisles and stairwells as well as base areas of ladders are to be kept clear at all times.

1.6 M.S.D.S.-CONTROLLED PRODUCTS

- A. The Contractor is responsible for notifying R.Y. Johnson & Son, Inc of any controlled products that they bring or cause to have brought onto the site. The Contractor shall provide R.Y. Johnson & Son, Inc. with a copy of the Material Safety Data Sheet (M.S.D.S.) for the controlled product, and the Contractor shall retain a copy of the M.S.D.S. on site for their reference. The legal storage, use, and disposal of any controlled product is the responsibility of the Contractor.
- B. The Contractor shall comply with OSHA Communications' Standards 29 CFR 1910-1200 for hazardous materials. The Contractor shall maintain a Material Safety Data Sheet on file at the jobsite for each chemical brought to the site. M.S.D.S. sheets shall be submitted to R.Y. Johnson & Son, Inc. for record purposes.
- C. Temporary storage of hazardous materials shall be located in containment dikes provided by the Contractor requiring same in area identified by the Construction Manager. All tanks, drums, and containers are to be labeled with appropriate warnings (i.e., flammable, no smoking). Periodic inspections for leakage shall be the responsibility of the Contractor. Final cleanup and removal shall be by the Contractor.

1.7 EMERGENCIES

- A. In any emergency affecting the safety or persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss and shall immediately notify the Construction Manager of such emergency conditions. Any claims made by the Contractor for additional compensation or extension of time on account of emergency work shall be processed in accordance with Article 7, of the Supplementary Conditions.

1.8 ACCIDENT INVESTIGATION AND REPORTING

- A. All accident/incidents shall be reported.
- B. The Contractor shall submit an accident/incident report to R.Y. Johnson & Son, Inc. no later than 10 hours on the working day following the incident. A detailed report is to follow within 24 hours.

1.9 FIRST AID PROCEDURE

- A. The Contractor is to provide his own First Aid service.
- B. Each Contractor shall supply to R.Y. Johnson & Son, Inc. a list of their qualified First Aid personnel. Each Contractor is to have a minimum of one full-time qualified First Aid personnel on site. Contractor First Aid certificates shall be posted in the Contractor's site office and photocopies supplied to R.Y. Johnson & Son, Inc.

1.10 INDEMNIFICATION

- A. Contractors shall indemnify and hold harmless the Owner, the Construction Manager and the Architect/Engineer, all municipal authorities, and their agents and employees from and against all claims, damages, losses, and expenses including, but not limited to attorney's fees arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other work than the work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not is caused in part by a party indemnified hereunder.
- B. In any and all claims against the Owner, the Construction Manager or the Architect/Engineer or any of their agents or employees by any employee of a Contractor, and Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this paragraph shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the type of damages, compensation or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.
- C. To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Construction Manager, the Owner, and the Architect and their agents and employees from and against all claims, including citations and penalties imposed by the Occupational Safety and Health Administration, damages, losses, expenses and judgments including, but not limited to attorneys' fees, arising out of or resulting from performance of the work in an area which is unsafe, harmful, dangerous, or hazardous and which is caused in whole or in part by any act or omission of the Contractor, anyone directly or indirectly employed by it, or anyone for whose acts it may be liable, regardless of whether the claim, citation, penalty, damage, loss, expense or judgment results from unsafe, harmful, dangerous, hazardous or toxic materials or substances or whether from any other unsafe, harmful, dangerous or hazardous conditions.
- D. The obligations of the Contractor under this paragraph shall not extend to the liability of the Architect/Engineer or the Construction Manager, his agents or employees arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, design or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect/Engineer of the Construction Manager, their agents or employees provided such giving or failure to give is the primary cause of the injury or damage.

- E. No provision of this Subparagraph shall give rise to any duties on the part of the Architect or the Construction Manager not otherwise provided for by contract or by law.
- F. In the event that any party is requested but refuses to honor the indemnity obligations hereunder, then the party refusing to honor such requests shall, in addition to all other obligations, pay the cost of bringing any such action, including attorney's fees to the party requesting indemnity.

END OF SECTION 013500

SECTION 014000 - QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Architect.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
 3. Requirements for Contractor to provide quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
1. Division 1 Section "Cutting and Patching" specifies requirements for repair and restoration of construction disturbed by inspection and testing activities.
 2. Division 1 Section "Submittals" specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
1. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are included in the Contract Sum.

- B. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.
- C. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:
1. Provide access to the Work.
 2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.
 3. Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.
 4. Provide facilities for storage and curing of test samples.
 5. Deliver samples to testing laboratories.
 6. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
 7. Provide security and protection of samples and test equipment at the Project Site.
- D. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Architect and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.
1. The agency shall notify the Architect and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.
 3. The agency shall not perform any duties of the Contractor.
- E. Coordination: Coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.
1. The Contractor is responsible for scheduling times for inspections, tests, taking samples, and similar activities.

1.4 SUBMITTALS

- A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Architect. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.
1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.
 2. Report Data: Written reports of each inspection, test, or similar service include, but are not limited

to, the following:

- a. Date of issue.
- b. Project title and number.
- c. Name, address, and telephone number of testing agency.
- d. Dates and locations of samples and tests or inspections.
- e. Names of individuals making the inspection or test.
- f. Designation of the Work and test method.
- g. Identification of product and Specification Section.
- h. Complete inspection or test data.
- i. Test results and an interpretation of test results.
- j. Ambient conditions at the time of sample taking and testing.
- k. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.
- l. Name and signature of laboratory inspector.
- m. Recommendations on retesting.

1.5 QUALITY ASSURANCE

- A. **Qualifications for Service Agencies:** Engage inspection and testing service agencies, including independent testing laboratories, that are prequalified as complying with the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and tests to be performed.

1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. **General:** Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION 014000

SECTION 014100- REGULATORY REQUIREMENTS

PART I - GENERAL

1.1 SECTION INCLUDES

- A. Safety and Health Regulations.
- B. Housekeeping.
- C. M.S.D.S. Controlled Products.
- D. Emergencies.
- E. Employment Policy.
- F. Environmental Statutes and Regulations.
- G. Miscellaneous Regulations.
- I. Standard of Quality.

I.2 RELATED SECTIONS

- A. General and Supplementary Conditions of the Contract.

I.3 SAFETY AND BEALTH REGULATIONS

- A. These Contract Documents and the joint and several phases of construction hereby contemplated are to be governed, at all lines by applicable provisions of the Federal law(s), including but not limited to, the latest amendments of the following:
 - 1. Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596,
 - 2. Part 1910 - Occupational Safety and Health Standards, Chapter XIII of Title 29, Code of Federal Regulations.
- B. Nothing contained in these Contract Documents for construction shall be construed by the Contractor as relieving him in any way of his responsibility for strict compliance with the rules and regulations contained in the above mentioned Occupational Safety and Health Act.
- C. The use of products containing asbestos will not be permitted.
- D. All work shall be performed in accordance with rules, regulations, procedures and safe practices and/or OSHA and all other Government Agencies having jurisdiction over the project.

- E. Each Contractor shall be responsible for initiating, maintaining and supervising safety precautions and programs in connection with the work. The name of the safety officer for each contractor shall be provided to the Construction Manager.
- F. All Contractors shall comply with the provisions of the Occupational Safety and Health Act and Federal, State and local requirements.
- G. If a Contractor fails to maintain the safety precautions required by law or directed by the Construction Manager, the Construction Manager may take such action necessary and charge the Contractor therefore. The failure of the Construction Manager to take any such action shall not relieve the Contractor of his obligations.
- H. The Contractor individually shall be responsible for the safety, efficiency, and adequacy of his plant, appliances, and methods and for any damage which may result from their failure or their improper construction, maintenance or operation.
- I. Prior to mobilizing to the job, the Contractor shall submit to the Construction Manager in writing, a description of his safety program for review and comment. During the conduct of the work, the Contractor shall immediately notify the Construction Manager in writing of all accidents and shall submit a written report describing in detail the circumstances of each accident within 24 hours of its occurrence.
- J. All Contractors shall notify the Construction Manager of any flammable, combustible and/or toxic materials intended for use on the project and shall furnish the Construction Manager with literature pertinent to the use and control of all materials, including, but not limited to M.S.D.S sheets.
- K. Each Contractor shall delegate one representative who shall be responsible to maintain all safety requirements of the Contractor, and shall attend all project meetings scheduled by the Construction Manager.
- L. The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage or loss to: -
 - 1. All school personnel, employees on the work site and all other persons who may be affected thereby.
 - 2. All the work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-Subcontractors.
 - 3. Other property at the site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction and underground property.
- M. The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority, including the Owner's

requirements bearing on the Safety of persons or property or their protection from damage, injury or loss.

- N. The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including danger signs and other warnings against hazards. He shall comply with safety regulations and notify the Construction Manager, until he is in compliance.
- O. The Contractor shall promptly remedy all damage or loss to any property caused in whole or in part by the Contractor, his Subcontractors and his Sub-Subcontractors or anyone directly employed by any of them, or by anyone for whose acts any of them be liable.
- P. The Contractor shall not load or permit any part of the work to be loaded so as to endanger its integrity and safety.
- Q. Contractors using a method of blasting to perform work on the project shall use all proper
- R. The use of audio equipment and headsets will not be permitted on the construction site.
- S. All persons entering the project shall wear hard hats in good condition and meet ANSIZ89.1-1981 and ANSI Z89.2-1971. The hats shall be worn in the proper manner.
- T. All persons entering the project shall wear proper work boots, clothing attire including long trousers and shirts.
- U. All job site personnel are expected to strictly adhere to the following rules and regulations:
 - 1. Use of approved eye protection by all company personnel shall be required during all types of percussions and reciprocating work or when owner requirements govern.
 - 2. Approved respiratory equipment shall be worn by all company personnel exposed to hazardous volumes of toxic or noxious dusts, fumes, mists, or gases. Check M.S.D.S. if not sure.
 - 3. Personal protective equipment is to be used under usual conditions, such as high temperature work, handling caustic or corrosive liquids or molten metals.
 - 4. When lifting material, keep back straight, knees bent, and lift with your legs. Get help if the load is too heavy.
 - 5. Work clear of suspended loads. If a load is moved above where you are working or walking, stand clear until it has passed.
 - 6. Unless it is part of your regular work, do not attempt to repair or adjust any electrical equipment.
 - 7. Kill any circuit before attempting to work on it. Even voltages lower than 110 will cause death under certain conditions.
 - 8. Treat all electric wires as live. Do not touch exposed wires; report them immediately to your supervisor.
 - 9. The Contractor is responsible for providing safety training to all of his employees.
 - 10. All shipments to the site shall have the required documentation and labels attached and the documentation and labels shall be maintained while the material is on site.

11. As defined in the Occupational Safety & Health Act, safety belts, complete with lanyards or parachute style harness, complete with lanyards, are to be used where there is a danger of falling.

1.4 HOUSEKEEPING

- A. Materials and equipment must be piled up or stored in a safe manner. Aisles must be kept clear.
- B. All drop cables/extension cords shall be elevated above the ground or protected in such a way to allow traffic to pass.
- C. Smoking will only be permitted in designated areas.
- D. Consumption of food and beverages in other than Company-designated areas and at specified times are prohibited.
- E. Glass-bottled refreshments will not be allowed in the workplace.
- F. Graffiti will not be tolerated on the job-site.
- G. All compressed gas cylinders must be stored in an upright position and tied off with the cap placed on top.
- H. The cords and connections at temporary panels must be maintained in an orderly fashion at all times to prevent tripping.
- I. Welding stubs and shells from explosive activated tools shall be collected and properly disposed of by the Contractor.
- J. Nails are to be bent over and/or removed from wood,
- K. Aisles and stairwells as well as base areas of ladders are to be kept clear at all times.

1.5 M.S.D.S.-CONTROLLED PRODUCTS

- A. The Contractor is responsible for notifying R.Y. Johnson Construction Management of any controlled products that they bring or cause to have brought onto the site. The Contractor shall provide RY. Johnson Construction Management with a copy of the Material Safety Sheet (M.S.D.S.) for the controlled product and the Contractor shall retain a copy of the M.S.D.S. on site for their own reference. The legal storage, use, and disposal of any controlled product is the responsibility of the Contractor.
- B. The Contractor shall comply with OSHA Communication Standards 29 CFR 1910-1200 for hazardous materials. The Contractor shall maintain a Material Safety Data Sheet on file at the job-site for each chemical brought to the site, M.S.D.S. sheets shall be submitted to R.Y. Johnson Construction Management for record purposes

- C. Temporary storage of hazardous materials shall be located in containment dikes provided by the Contractor requiring same in area identified by the Construction Manager. All tanks, drums, and containers are to be labeled with appropriate warnings (i.e., flammable, no smoking). Periodic inspections for leakage shall be the responsibility of the Contractor. Final clean-up and removal shall be by the Contractor.

1.6 EMERGENCIES

- A. In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss and shall immediately notify the Construction Manager of such emergency conditions. Any claims made by the Contractor for additional compensation or extension of time on account of emergency work shall be processed in accordance with Article 7, of the Supplementary Conditions.

1.7 EMPLOYMENT POLICY

- A. Acceptance of a contract based on these specifications constitutes agreement by the Contractor to comply with State Policy as established by joint Resolution No. 16 of the General Assembly of 1958, which is: That on all public works being paid for in whole or in part with State or other public funds, preference shall be given to available persons who have been residents of Delaware for a period of at least six (6) months immediately prior to availability of positions for employment of laborers, mechanics and others, not including supervisor personnel not to exceed ten percent (10%) of the total working force.
- B. Competent Workmen: No person shall be employed to perform any work under the Contract who is not a competent and first-class workman or mechanic, as applicable. For purposes of this section, no workman or mechanic, as applicable, shall be regarded as competent and first class unless he shall be duly skilled in the applicable branch of labor and shall be paid not less than such rates of wages and for such hours work as shall be established and current rates of wages paid for such hours by employers of organized labor in performance of similar work in the locality where the work is to be performed.
- C. It is understood that the provisions of Title VI of the Civil Rights Act 1964 are hereby included in this contract to the end that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or otherwise subjected to discrimination under this Agreement.

The Contractor agrees to make such reports and to maintain and make available, such records as may be required to ensure compliance with ART.38, par. b and c. - this means permitting access by appropriate State or Federal officials during normal business hours to such facilities, records and other sources of information as may be pertinent to ascertain compliance with the regulations.

- D. All Contractors shall be subject to, and responsible for all costs relating to Contractor licensing ordinances and regulations.

1.8 ENVIRONMENTAL STATUES AND REGULUATIONS

- A. Contractor shall comply with all applicable provisions of federal and state laws dealing with the prevention of environmental pollution and the preservation of natural resources, including but not limited to Act No 247 approved October 26, 1962; the Federal Air Quality Act of 1967; the Clean Air Act; the Clean Water Restoration Act; the Water Pollution Control Act Amendments of 1956; the Water Quality Act of 1965; the Water Quality Improvement Act of 1970; The Water Pollution Control Act Amendments of 1972; The Water Facilities Act (see Consolidated Farmer's Home Administration Act of 1961); the Watershed Protection and Flood Prevention Act; the Pennsylvania Air Pollution Control Act; the Clean Streams Law; the Solid Waste Management Act; the Municipal Waste Planning, Recycling and Waste Reduction Act; A.H.E.R.A.; and all rules and regulations there under, including, but not limited to, those formulated by the United States Environmental Protection Agency, the Pennsylvania Department of Environmental Resources and the Department of Environmental Protection. Nothing contained in the Contract shall be construed as relieving Contractor in anyway of Contractors responsibility for strict compliance with all governmental requirements pertaining to environmental protection.
- B. These Contact Documents and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of Federal and State Law(s) dealing with the prevention of environmental pollution and the preservation of public natural resources, including but not limited to the latest amendments of the following:
1. Act No. 247 of the General Assembly of the Commonwealth of Pennsylvania relating to the prevention of environment pollution and the preservation of public natural resources in construction projects, enacted October 26, 1972.
- C. Pursuant to Act No. 247 of the 1972 Pennsylvania General Assembly, all proposals will be subject to all the provisions of all Federal and State statutes dealing with the prevention of pollution and preservation of public natural resources including, but not limited to; the Federal Air Quality Act of 1967; Clean Air Act, as amended; Clean Water Restoration Act; Water Pollution Control Act Amendments of 1956, Water Quality Act of 1965, Water Quality improvement Act of 1970. and Water Pollution Control Act Amendments of 1972; the Water Facilities Act (see Consolidated Farmers Home Administration Act of 1961); the Watershed Protection and Flood Prevention Act; the Pennsylvania Air Pollution Control Act; Clean Streams Law; Solid Waste Management Act; Sewerage Facilities Act; and all rules and regulations there under including, but not limited to, those formulated by the United States Environmental Protection Agency and the Pennsylvania Department of Environmental Resources.
- D. Act No. 247 provides that if the successful bidder must undertake additional work due to enactment of new or the amendment of existing statutes, rules or regulations occurring after the submission of the successful proposal, the Authority shall issue a change order setting for the additional work that must be undertaken, which shall not invalidate the contract. The cost of such a change order to the Authority shall be determined in accordance with the provisions of the

contract for change orders or force accounts, or if n such provision is set forth in the contract, then the cost to the Authority shall be the contractors costs for wages, labor costs other than wages, wage taxes, materials, equipment rentals, insurance and subcontractors attributable to the additional activity plus a reasonable sum for overhead and profit; provided however, that such additional costs to undertake work not specified in the invitation for proposal shall not be approved unless written authorization is given the successful bidder prior to his undertaking such additional activity. In the event of a dispute between the Authority and the successful bidder, arbitration procedures maybe commenced under the applicable terms of the construction contract, or, if the contract contains no such provision for arbitration, the then obtaining rules of the American Arbitration Association. I

- E. Nothing contained in the Contract Documents for construction shall be construed by the Contractor as relieving him in any way of his responsibility for strict compliance with the statutes, rules and regulations contained in the above mentioned Environmental Protection Act.

1.9 MISCELLANEOUS REGULATIONS

- A. Standard of Quality: The various materials and products specified in the specification by name or description are given to establish a standard of quality and of cost for bid purposes. It is not the intent to limit the acceptance to any one material or product specified, but rather to name or describe it as the absolute minimum standard that is desired and acceptable. A material or product of lesser quality would not be acceptable. Where proprietary names are used, whether or not followed by the words Approved equal®, they shall be subject to equals only as approved by the Architect and /or Engineer.

PART 2 -- PRODUCTS (NOT USED)

PART 3- EXECUTION (NOT USED)

END OF SECTION 014100

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": The term "approved," when used to convey Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by Architect, requested by Architect, and similar phrases.
- D. "Indicated": The term "indicated" refers to graphic representations, notes, or schedules on Drawings or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.
- E. "Regulations": The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": The term "furnish" means to supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": The term "install" describes operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, and protecting, cleaning, and similar operations.
- H. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.
- I. "Installer": An installer is the Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
- J. The term "experienced," when used with an entity, means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. "Project site" is the space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. **Applicability of Standards:** Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. **Publication Dates:** Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

C. **Conflicting Requirements:** If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

1. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

D. **Copies of Standards:** Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.

E. **Abbreviations and Acronyms for Industry Organizations:** Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

F. **Abbreviations and Acronyms for Industry Organizations:** Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AA	Aluminum Association, Inc. (The) www.aluminum.org	(202) 862-5100
AAADM	American Association of Automatic Door Manufacturers www.taol.com/aaadm	(216) 241-7333
AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AAN	American Association of Nurserymen (See ANLA)	
AASHTO	American Association of State Highway and Transportation Officials www.aashto.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 429-5155
ACI	American Concrete Institute/ACI International www.aci-int.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
ADC	Air Diffusion Council	(312) 201-0101
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AFPA	American Forest & Paper Association (See AF&PA)	
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AHA	American Hardboard Association www.ahardbd.org	(847) 934-8800
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955

AI	Asphalt Institute www.asphaltinstitute.org	(606) 288-4960
AIA	American Institute of Architects (The) www.aiaonline.org	(202) 626-7300
AISC	American Institute of Steel Construction, Inc. www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction	(303) 792-9559
ALA	American Laminators Association (See LMA)	
ALCA	Associated Landscape Contractors of America www.alca.org	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANLA	American Nursery & Landscape Association (Formerly: AAN - American Association of Nurserymen) www.anla.org	(202) 789-2900
ANSI	American National Standards Institute www.ansi.org	(212) 642-4900
AOSA	Association of Official Seed Analysts www.zianet.com/AOSA	(402) 476-3852
APA	APA-The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(941) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	(703) 524-8800
ASCA	Architectural Spray Coaters Association www.ascassoc.com	(856) 848-6120

ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org	(800) 527-4723 (404) 636-8400
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	American Society for Testing and Materials www.astm.org	(610) 832-9585
AWCI	AWCI International (Association of the Wall and Ceiling Industries International) www.awci.org	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (See WCMA)	
AWI	Architectural Woodwork Institute www.awinet.org	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association www.awpa.com	(817) 326-6300
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 661-4261
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963

CCC	Carpet Cushion Council www.carpetcushion.org	(203) 637-1312
CCFSS	Center for Cold-Formed Steel Structures www.umn.edu/~ccfss	(573) 341-4471
CDA	Copper Development Association Inc. www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association (The) www.canelect.ca	(613) 230-9263
CFFA	Chemical Fabrics & Film Association, Inc. www.taol.com/cffa	(216) 241-7333
CGA	Compressed Gas Association www.cganet.com	(703) 412-0900
CGSB	Canadian General Standards Board www.pwgsc.gc.ca/cgsb	(819) 956-0425
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.com (under construction)	(301) 596-2584
CPA	Composite Panel Association (Formerly: National Particleboard Association) www.pbmdf.com	(301) 670-0604
CPPA	Corrugated Polyethylene Pipe Association Division of Plastics Pipe Institute www.cppa-info.org	(800) 510-2772 (419) 241-2221
CRI	Carpet and Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200
CSA	CSA International (Formerly: IAS - International Approval Services) Division of Canadian Standards Association www.iasapprovals.org	(216) 524-4990

CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 462-8961
CTI	Cooling Tower Institute www.cti.org	(281) 583-4087
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
EIA/TIA	Electronic Industries Alliance/Telecommunications Industry Association www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eifsfacts.com	(800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
FCI	Fluid Controls Institute www.fluidcontrolsintitute.org	(216) 241-7333
FGMA	Flat Glass Marketing Association (See GANA)	
FM	Factory Mutual System (See FMG)	
FMG	FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com	(401) 275-3000
GA	Gypsum Association www.gypsum.org	(202) 289-5440
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) www.glasswebsite.com/gana	(785) 271-0208
GRI	Geosynthetic Research Institute www.drexel.edu/gri	(610) 522-8440
GTA	Glass Tempering Division of Glass Association of North America (See GANA)	

HI	Hydraulic Institute	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute Division of Gas Appliance Manufacturers Association www.gamanet.org	(908) 464-8200
HMMA	Hollow Metal Manufacturers Association Division of National Association of Architectural Metal Manufacturers (See NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc.	(410) 838-6550
IAS	International Approval Services (See CSA International)	
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(508) 394-4424
ICRI	International Concrete Repair Institute www.icri.org	(703) 450-0116
IEC	International Electro technical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IESNA	Illuminating Engineering Society of North America (The) www.iesna.org	(212) 248-5000
IGCC	Insulating Glass Certification Council www.igcc.org	(315) 938-7444
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
IRI	HSB Industrial Risk Insurers www.industrialrisk.com	(800) 520-7300 (860) 520-7300
ITS	Intertek Testing Services www.itsglobal.com	(800) 345-3851 (607) 753-6711
IWS	Insect Screening Weavers Association (Now defunct)	

KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LGSI	Light Gage Structural Institute www.loseke.com	(972) 625-4560
LMA	Laminating Materials Association (Formerly: ALA - American Laminators Association) www.lma.org	(201) 664-2700
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864 (847) 577-7200
LSGA	Laminated Safety Glass Association (See GANA)	
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MFMA	Maple Flooring Manufacturers Association www.maplefloor.org	(847) 480-9138
MFMA	Metal Framing Manufacturers Association	(312) 644-6610
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(614) 228-6194
ML/SFA	Metal Lath/Steel Framing Association (See SSMA)	
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry, Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(312) 332-0405
NAAMM	North American Association of Mirror Manufacturers (See GANA)	
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(281) 228-6200
NAIMA	North American Insulation Manufacturers Association (The) www.naima.org	(703) 684-0084

NAMI	National Accreditation and Management Institute, Inc.	(304) 258-5100
NAPM	National Association of Photographic Manufacturers (See PIMA)	
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900
NCPI	National Clay Pipe Institute www.ncpi.org	(414) 248-9094
NCTA	National Cable Television Association www.ncta.com	(202) 775-3669
NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	International Electrical Testing Association www.electricnet.com/neta	(303) 697-8441
NFPA	National Fire Protection Association www.nfpa.org	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-6372
NGA	National Glass Association www.glass.org	(703) 442-4890
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	National Oak Flooring Manufacturers Association www.nofma.org	(901) 526-5016

NPA	National Particleboard Association (See CPA)	
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association www.nrmca.org	(301) 587-1400
NSA	National Stone Association www.aggregates.org	(800) 342-1415 (202) 342-1100
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NTMA	National Terrazzo & Mosaic Association (The) www.ntma.com	(800) 323-9736 (703) 779-1022
NWWDA	National Wood Window and Door Association (See WDMA)	
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDCA	Painting and Decorating Contractors of America www.pdca.com	(800) 332-7322 (703) 359-0826
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (508) 230-3516
PGI	PVC Geomembrane Institute/Technology Program University of Illinois-Urbana Champaign //pgi-tp.ce.uiuc.edu	(217) 333-3929
PIMA	Photographic & Imaging Manufacturers Association (Formerly: NAPM - National Association of Photographic Manufacturers) www.pima.net	(914) 698-7603
RCSC	Research Council on Structural Connections c/o AISC www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute	(Contact by mail only)
RIS	Redwood Inspection Service Division of the California Redwood Association www.calredwood.org	(888) 225-7339 (415) 382-0662

RMA	Rubber Manufacturers Association www.rma.org	(800) 220-7620 (202) 682-4800
SAE	SAE International www.sae.org	(724) 776-4841 (724) 776-4960 (publications)
SDI	Steel Deck Institute www.sdi.org	(847) 462-1930
SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabfurn.com	(843) 689-6878
SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 938-7444
SIGMA	Sealed Insulating Glass Manufacturers Association www.sigmaonline.org/sigma	(312) 644-6610
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SPI	The Society of the Plastics Industry, Inc. www.plasticsindustry.org	(202) 974-5200
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPI/SPFD	The Society of the Plastics Industry, Inc. Spray Polyurethane Foam Division (See SPI)	
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org	(781) 444-0242
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association) www.ssma.com	(312) 456-5590

SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(800) 837-8303 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWRI	Sealant, Waterproofing & Restoration Institute www.swrionline.org	(816) 472-7974
TCA	Tile Council of America, Inc. www.tileusa.com	(864) 646-8453
TPI	Truss Plate Institute	(608) 833-5900
TPI	Turfgrass Producers International www.turfgrassod.org	(800) 405-8873 (847) 705-9898
UFAC	Upholstered Furniture Action Council www.ufac.org	(336) 885-5065
UL	Underwriters Laboratories Inc. www.ul.com	(800) 704-4050 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association //members.aol.com/unibell	(972) 243-3902
USG	United States Gypsum Company A Subsidiary of USG Corporation www.usg.com	(800) 874-4968 (312) 606-4000
USITT	United States Institute for Theatre Technology, Inc. www.culturenet.ca/usitt	(800) 938-7488 (315) 463-6463
USP	U.S. Pharmacopeia www.usp.org	(800) 822-8772 (301) 881-0666
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association (Formerly: AWCMA - American Window Covering Manufacturers Association) www.windowcoverings.org	(212) 661-4261

WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (847) 299-5200
WIC	Woodwork Institute of California www.wicnet.org	(916) 372-9943
WMMPA	Wood Molding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

G. Abbreviations and Acronyms for Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl2		
BOCA	BOCA International, Inc. www.bocai.org	(708) 799-2300
CABO	Council of American Building Officials (See ICC)	
IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org	(909) 595-8449
ICBO	International Conference of Building Officials www.icbo.org	(800) 284-4406 (562) 699-0541
ICC	International Code Council (Formerly: CABO - Council of American Building Officials) www.intlcode.org	(703) 931-4533
SBCCI	Southern Building Code Congress International, Inc. www.sbcci.org	(205) 591-1853

H. Abbreviations and Acronyms for Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

PRIVATE tbl3@dom1		
CE	Army Corps of Engineers CRD Standards	(601) 634-2355
CFR	Code of Federal Regulations www.access.gpo.gov/nara/cfr	(202) 512-1800

CPSC	Consumer Product Safety Commission www.cpsc.gov	(800) 638-2772 (301) 504-0990
DOC	Department of Commerce www.doc.gov	(202) 482-2000
DOD	Department of Defense DOD Specifications and Standards //astimage.daps.dla.mil/online	(215) 697-6257
EPA	Environmental Protection Agency www.epa.gov	(202) 260-2090
FAA	Federal Aviation Administration Department of Transportation www.faa.gov	(202) 366-4000
FCC	Federal Communications Commission www.fcc.gov	(202) 418-0190
FDA	Food and Drug Administration www.fda.gov	(888) 463-6332
FED-STD	Federal Standard (See FS)	
FS	Federal Specification (Available from DOD, GSA, and NIBS)	
FTMS	Federal Test Method Standard (See FS)	
GSA	General Services Administration www.gsa.gov	(202) 708-5082 (202) 619-8925 (Federal Specifications)
HUD	Department of Housing and Urban Development www.hud.gov	(202) 401-0388
LBL	Lawrence Berkeley Laboratory (See LBNL)	
LBNL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-5605
MILSPEC	Military Specification and Standards (See DOD)	
NCHRP	National Cooperative Highway Research Program (See TRB)	

NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-2000
OSHA	Occupational Safety & Health Administration (See CFR 29) www.osha.gov	(202) 219-5000
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2933
USDA	Department of Agriculture www.usda.gov	(202) 720-8732
USPS	Postal Service www.usps.gov	(202) 268-2000

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 014219 – REFERENCE STANDARDS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Specification Format.
- B. Specification Language and Form.

1.2 RELATED SECTIONS

- A. The specifications have been arranged in accordance with CSI / CSC “masterformat” master list of titles and numbering system.

1.3 FORMAT

- A. The imperative language of the technical sections of the specifications is directed to the Contractor unless specifically noted otherwise.
- B. Portions of the specifications have been derived from an automated master specification production system and may include minor deviations from traditional writing forms. Such deviations must be recognized as a normal result of this production technique and no other meaning will be implied or permitted.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 014219

SECTION 015000 -TEMPORARY CONSTRUCTION UTILITIES, FACILITIES, AND CONTROLS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-0 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies requirements for temporary construction, utilities, facilities, and controls required to support the successful construction of the project and maintain services until the permanent utilities, facilities, and controls are complete. They shall be installed, maintained, and removed subject to the Construction Manager's approval.

TABLE OF PARTS

	<u>PART 1 - General</u>
1.3	Quality Assurance
1.4	Project Conditions
1.5	Existing Utilities and Systems
	<u>PART 2 - Products</u>
2.1	Materials
2.2	Equipment
	<u>PART 3 - Execution</u>
3.1	Installation
3.2	Temporary Utility Installation
3.3	Use Charges
3.4	Water Service
3.5	Electrical Power
3.6	Lighting
3.7	Telephones
3.8	Sanitary Facilities
3.9	Storm Sewers
3.10	Dewatering Facilities
3.11	Heating and Ventilation
3.12	Field Offices
3.13	Roads and Parking
3.14	Enclosures
3.15	Lifts and Hoists
3.16	Elevators
3.17	Project Identification
3.18	Waste Disposal and Cleanup
3.19	Construction Aids and Protection
3.20	Fire Safety
3.21	Barricades, Warning Signs, and Lights
3.22	Site Enclosure Fence
3.23	Building Security, Enclosure, and Lockup
3.24	Environmental Protection, NPDES, and PPC
3.25	Workday

- 3.26 Lunch Wagon
- 3.27 Erosion Control
- 3.28 Excavation
- 3.29 Blasting
- 3.30 Material Inventories
- 3.31 Deliveries
- 3.32 Operation, Termination, and Removal
- 3.33 Snow Removal

1.3 QUALITY ASSURANCE

- A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
 - Municipal and Labor & Industry Building Code requirements
 - Health and safety regulations
 - Utility company regulations
 - Police, Fire Department and Rescue Squad rules
 - Environmental protection regulations
- B. Inspections: Arrange for authorities, having jurisdiction, to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.4 PROJECT CONDITIONS

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site. They shall be removed, relocated as required by the progress of the work, or directed by the Construction Manager.

1.5 EXISTING UTILITIES AND SYSTEMS

- A. Precaution must be taken to protect existing sanitary sewer, electrical, water and gas lines that cross the site. All existing building utility systems such as electrical, water, gas will be demolished and reconstructed during this project.
- B. Trade Contractors interrupting services due to their construction operations shall provide temporary utility lines, as required, to maintain services.

PART 2 PRODUCTS

2.1 MATERIALS

- A. General: Provide new materials; if acceptable to the Construction Manager, undamaged, previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- B. Lumber and Plywood: Comply with requirements in Division-6 Section "Rough Carpentry."
- C. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.
- D. Water: Provide potable water approved by local health authorities.
- E. Open-Mesh Fencing: Provide 11-gauge, galvanized two (2) inch, chain link fabric fencing, six (6) feet high with galvanized steel pipe posts, 1-1/2" I.D. for line posts and 2-1/2" I.D. for corner posts. Drive posts 30" into the ground at no less than 15' spacing.

2.2 EQUIPMENT

- A. General: Provide new equipment; if acceptable to the Construction Manager, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light, for connection of power tools, equipment, and GFI breakers.
- D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress.
- E. Electrical Welding Outlets: These will not be provided. Each Trade Contractor will be responsible for his own welding power.
- F. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.

- G. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.
- H. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
- I. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber, reinforced polyester shell or similar nonabsorbent material.
- J. First Aid Supplies: Comply with governing regulations.
- K. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

Comply with NFPA 10 classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 EXECUTIONS

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.
 - 1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
 - 3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.

3.3 USE CHARGES

- A. Cost for temporary facilities are to be paid by the Trade Contractor requiring or providing

the temporary facility unless noted otherwise.

- B. Owner will pay utility consumption costs during construction.

3.4 WATER SERVICE

- A. The Demolition Contractor shall install water service and distribution piping of sizes and pressures adequate for construction. As a minimum, provide a manifold pipe with two 3/4" hose bibs at the building water riser point of entrance until portions of the permanent piping system can be used to support construction activities. Water service may be run from a temporary or permanent source. Coordinate needs with Construction Manager.
 1. Sterilization: Sterilize temporary water piping prior to use.
 2. Protect system from freezing.
 3. Utilize City water pressure.

3.5 ELECTRICAL POWER

- A. After start of work at project site, when requested by the Construction Manager, the Electrical Contractor shall provide a temporary electrical power distribution system sufficient to accommodate temporary lighting and construction operations, including the use of power tools, and start-up of specified building equipment which must be tested, started or placed into use prior to completion of its permanent power connections. Provide weatherproof, grounded wiring with overload protection; with direct wired connections, where feasible, and for voltages up to 220/208 volts. Locate multiple outlets for 120 volt power, not less than 4 gang, at each story of construction, spaced so that the entire area of construction can be reached by power tools on a single extension cord of 100' maximum length. Maximum 20 Amp circuit breaker, four (4) receptacles per circuit breaker.
- B. The Electrical Trade Contractor shall provide and pay for all maintenance, servicing, operation, and supervision of lines installed.
- C. Provide service with ground fault circuit interrupter feature, as per NEC and OSHA requirements. The Demolition Contractor shall have a cord inspection program in place. He shall maintain the inspection records on site.
- D. As permanent power distribution system is accepted as substantially complete, either entire system or usable portions thereof, the Demolition Contractor shall make suitable provisions for temporary use thereof, and remove unused portions of temporary system.
- E. If required, provide meters for electrical power.
- F. When temporary electrical lines are no longer required, they shall be removed by the Electrical Trade Contractor and any part, or parts, of the grounds or buildings disturbed or damaged shall be brought back to their original condition.
- G. Electricity from existing lines may be used at no charge to the Trade Contractor, except for heating units, temporary offices, or storage. Each trade shall provide extension cords from the existing facilities, as required, for the execution of the Work. Electrical power for welding equipment will not be available.
- H. The Demolition Contractor shall maintain and operate permanent electrical supply and distribution system until time of final acceptance and transfer of operation to Owner's

personnel.

- I. The Demolition Contractor shall install switching controls for all lighting which will enable turning off temporary lighting during off-construction hours. The Electrical Trade Contractor shall provide manpower to control light switching and be responsible for it.
- J. Temporary power supplies to the Construction Manager's Office Conference/Office Complex shall be installed with service connection by the Demolition Contractor.
- K. The Demolition Contractor will provide power for oil or gas fired temporary heaters, if required by the Construction Manager. It will be connected so that it can remain "live" when the lighting has been turned off.
- L. The Demolition Contractor will provide 24-hour temporary power to any heat tape (installed by others) on temporary water and/or fire line. All temporary heat work will comply with existing OSHA requirements.
- M. Construction circuits shall be separate and independent from temporary lighting.
- N. The Demolition Contractor will extend a temporary electrical service and provide a termination box in the Trade Contractor's office trailer area for hook-up of the Trade Contractor's trailers. Cost for individual Trade Contractor trailer hook-up will be born by the Trade Contractor requiring this service. Use of electric heaters in those trailers and shanties will not be permitted.

3.6 LIGHTING

- A. Whenever overhead floor or roof deck has been installed, the Electrical Trade Contractor shall provide temporary lighting with local switching.
The Electrical Trade Contractor shall provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight and general lighting as stated below:
 - 1. Provide uniformly spaced general lighting utilizing one (1) 150 watt incandescent lamp equivalent to 1.0 watts/sq. ft. of floor areas, and one (1) 100 watt lamp per 50' of corridor or per flight of stairs. General lighting to have a minimum of 5' candles measured at floor level.
 - 2. Limit lighting installations to intensities which will accommodate normal access and workmanship requirements, recognizing that each entity performing work requiring higher intensity lighting will provide supplementary plug in temporary lighting and localized areas where such work is in progress.
 - 3. As permanent lighting system is substantially complete for each story or usable portion thereof, the Electrical Trade Contractor shall make suitable provisions for temporary use thereof and remove unused portions of temporary lighting system.
 - 4. The Demolition Contractor shall maintain and operate permanent lighting system until time of final acceptance and transfer of operation to Owner's personnel, including turning off lighting during off-construction hours.
 - 5. The Demolition Contractor shall replace bulbs that are burned out or substantially dimmed by substantial hours of use.

6. Special lighting required for construction activities shall be provided by contractor requiring it.
7. The Electrical Trade Contractor shall provide safety lighting in the stairways, hallways, and exterior security lighting on a 24-hour basis.
8. Furnish and install dusk to dawn type security lights on poles as shown on the site construction staging plan.
9. If more lighting is necessary to install finishes, drywall, painting, etc., the contractor needing the extra lighting will provide.

3.7 TELEPHONES

- A. The Construction Manager shall be responsible to provide telephone service to a demarcation point in the Trade Contractor office trailer area. Temporary phone service must support 10 office trailers that require phone and/or fax service. Cost for individual hook ups, telephones, and use fees, shall be the responsibility of each Trade Contractor.
- B. The Construction Manager shall make arrangements for one (1) public telephone to be installed on the site and include monthly service cost for the duration of the project.

3.8 SANITARY FACILITIES

- A. The Construction Manager shall provide temporary toilets. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.

Provide toilet tissue for each facility.
- B. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted. Provide means of locking facilities when construction is not in progress.

Provide one unit for use of Construction Managers office/conference meeting complex.
- C. Drinking Water Facilities: Each trade contractor shall provide drinking water for it=s own personnel.

3.9 STORM SEWERS

- A. If storm sewers are available, the Demolition Trade Contractor shall provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available, or cannot be used, the Sitework Trade Contractor shall provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.
- B. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.

- C. Comply with the soil erosion and sedimentation control plan and local authorities having jurisdiction.

3.10 DEWATERING FACILITIES

- A. For temporary drainage and dewatering facilities, and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division-2 Sections. Where feasible, utilize the same facilities. The Sitework Trade Contractor shall be responsible to maintain the site, excavations and construction free of water.
- B. In the event that storm drain piping is not completed when needed for roof drain tie in, then the Plumbing Trade Contractor shall provide temporary storm water drainage from the building, and the Sitework Trade Contractor shall control roof drainage from building onto the site.
- C. Demolition Contractor shall be responsible to drain or pump water and remove debris from the site so as not to delay his continuous work or progress. This shall include operating pumps during second shift in order to facilitate next-day continuation of work.
- D. Demolition Contractor shall excavate in a manner that prevents all surface water from flowing into the building area. Sitework Trade Contractor shall be responsible to remove any runoff water or debris which enters the building area.
- E. Demolition Contractor shall continue to drain site and remove debris until designed grades are obtained.
- F. Once building excavation grades are complete, the Concrete Work Contractor shall be responsible to remove all water and debris to install and backfill the building foundations.
- G. Upon completion of building foundations, each Trade Contractor shall be responsible to remove water and debris required to complete his work.

3.11 HEATING AND VENTILATION

- A. Temporary heating shall be provided and maintained by the Trade Contractor performing the work if the outside temperature falls below 40E F at anytime during the day or night for all exterior work or work performed prior to the building being enclosed by walls and roof.
- B. The Trade Contractor shall furnish temporary heat by acceptable means to provide sufficient heat to maintain a temperature of 55E F, 24 hours a day throughout the entire area of the work for which the Trade Contractor is responsible prior to the building being enclosed by walls and roof.
- C. Except where use of the permanent system is authorized, provide vented, self-contained LP gas or fuel oil heaters with individual space thermostatic control. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited. Temporary heating may not be provided using electrical heating equipment if using electrical power supplied by the Owner.
- D. As soon as the building, or portions thereof, is generally enclosed with walls and roof and

temporary heat is required for scheduled work, or required to facilitate proper workmanship, and permanent heating system is not yet operable or authorized for use, the HVAC Contractor shall arrange and provide temporary heat service for every entity authorized to do work at the project site. The HVAC Contractor shall maintain temperatures as indicated by other Specification Sections for each type of work to be performed. The Construction Manager shall be the sole arbiter of when the building is considered generally enclosed.

- E. Refer to paragraph 3.14 in section 01500 for responsibilities to install, maintain, and remove temporary enclosure of windows and doors until the permanent materials are in place.
- F. After the conditions of construction require continuous 24 hour heat in the building, the HVAC Contractor shall provide, operate, and maintain temporary radiation or unit heaters to provide required temperatures (minimum 55E F) for the conduct of work. This service shall be continued until the permanent heating system has been completely installed and is in operation. The HVAC Contractor shall furnish and pay for all fuel as required for providing temporary heat after the building is generally enclosed.
- G. As permanent heating/cooling system is substantially complete and operational for each story or usable portion thereof, the HVAC Trade Contractor shall make suitable provisions for use thereof in temporary heating and cooling. The HVAC Trade Contractor shall maintain and operate permanent system for temporary heating/cooling purposes, including service to occupied areas, if any, until time of final acceptance or transfer of operation to Owner's personnel, for major parts of system if not for entire heating system and air conditioning. The Owner shall pay for all fuel costs incurred by the permanent HVAC systems after acceptance of systems.
- H. Warranty: The warranty as required by the contract specifications will not begin until final acceptance of the system has been given by the architect for all or part of a system. The warranty period does not start with the use of the equipment for temporary heating and cooling.
- I. All permanent heating and air conditioning equipment used to supply temporary heat and air conditioning shall be completely cleaned and reconditioned by the HVAC Trade Contractor prior to final acceptance. Radiator traps and valves used in the heating system during the period of its operation to supply temporary heat shall not be reinstalled in the permanent system. Install new disposable filters and clean non-disposable filters prior to final acceptance. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
- J. APARAGRAPH OMITTED@
- K. Temporary Ventilation: A Trade Contractor requiring ventilation for work shall provide fans or other necessary equipment to condition air, provided prior approval has been obtained from the Construction Manager.
- L. Humidification: Where control of ambient humidity is required for proper performance of the work, or for curing/drying of installed work or for protection of installed work from deterioration due to variations in ambient conditions, each Trade Contractor shall provide his own temporary humidification or dehumidification equipment to maintain the required conditions. Coordinate the use of the equipment with temporary heating to produce the required conditions with a minimum overall use of energy.

- M. Permanent electrical power needed to operate permanent heating system must be provided by the Electrical Trade Contractor in conjunction with building enclosure, or the Electrical Trade Contractor shall furnish adequate temporary power to operate permanent heating system.
- N. In the event of permanent installed equipment failure, repairs or alternate equipment must be in place within 24 hours of failure or the Construction Manager will take action necessary to restore the heat to the design temperature and will deduct any and all charges from the HVAC Contractor.
- O. If additional heating above 55 degrees F or cooling below 80 degrees F is required by a Contractor to properly install and maintain his work, he shall be responsible to provide the additional heating and cooling.
- P. Connections for temporary electric to the temporary heat will be provided by the Electrical Contractor.

3.12 FIELD OFFICES

- A. Trade Contractors shall provide offices for their own personnel. All type and location of jobsite offices and equipment will be approved by the Construction Manager.
- B. Storage and Fabrication Sheds: Each Trade Contractor shall provide storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces. All steps and platforms connected to shelters must be per OSHA regulations.
- C. All offices and sheds must have the Trade Contractor's identification on them.

3.13 ROADS AND PARKING

- A. Demolition Trade Contractor shall construct and maintain temporary roads, construction parking and paving to adequately support the indicated loading and to withstand exposure to traffic during the construction period, in conjunction with the site logistics plan bound into this specification. Locate temporary paving for roads, storage areas and parking where the same permanent facilities will be located.
- B. Demolition Trade Contractor shall be responsible for providing stable parking area for all construction personnel on the jobsite by use of crushed stone/binder paving, including permanent parking areas.
- C. The Demolition Trade Contractor shall maintain truck tire wash facility at the construction entrance.
- D. Snow removal will be performed by the Demolition Contractor.

3.14 ENCLOSURES

- A. All temporary enclosures required for protection of exterior construction in progress and completed from exposure, bad weather, other construction operations, and similar activities

and to maintain the progress schedule, shall be provided by each contractor as necessary to protect their work.

- B. Demolition Contractor shall provide temporary building enclosure for protection of construction in progress, and completed, from exposure, foul weather, other construction operations, and similar activities. The extent of temporary enclosures will be as necessary to maintain the progress schedule.
- C. Where heat is needed and the permanent building enclosure is not complete, the Demolition Contractor shall provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

The Demolition Contractor shall be responsible to remove the temporary entrance enclosures and install the permanent entrances or reinstall parts of the temporary enclosures in such a manner that the building security is maintained at the end of each workday shift.

The Demolition Contractor shall be responsible to provide temporary window enclosures, in the event that aluminum window rough openings are fully prepared to receive finish window installation and the finish materials are not ready for prompt installation to maintain the construction schedule.

The Demolition Contractor shall furnish and install temporary entrance doors and maintain them until such time the permanent entrances are installed.

- D. Install tarpaulins securely with noncombustible wood framing and other materials. Close openings of 25 sq. ft. or less with plywood or similar materials.
- E. Dust partitions and enclosures if indicated on the drawings shall be constructed, maintained, and removed by the General Trades Contractor.
- F. Each Trade Contractor is required to construct, maintain, and remove dust partitions required to prevent dust from entering occupied areas due to the performance of his work.

3.15 LIFTS AND HOISTS

- A. Lifting and hoisting of all materials and equipment will be the responsibility of each Trade Contractor.
- B. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and shall be provided by contractor requiring same.
- C. Each Trade Contractor shall be responsible to provide all site and subsurface modification preparation and replacement required to use his lifting and hoisting equipment.

3.16 ELEVATORS

- A. Existing Elevator to be demolished.

3.17 PROJECT IDENTIFICATION

- A. The Construction Manager shall prepare project identification and other signs, as approved by the Owner, of the size indicated; install signs where indicated to inform the public and persons seeking entrance to the Project. Support on posts or framing of preservative treated wood or steel. See attached sketches at end of this section.
- B. The Construction Manager shall provide one (1) sign erected on the site, where directed, to identify the project. Sign shall include Project name, Owner's name, Architect's name, and Construction Manager's name. Size shall be 4' x 8'; color and lettering style shall be as designed by the Architect.
See attached sketches at end of this section.
- C. Engage an experienced sign painter to apply graphics.
- D. Temporary Signs: The Construction Manager shall prepare signs to provide directional information to construction personnel and visitors as required by the Construction Manager.
See attached sketches at end of this section.
- E. No other signs allowed on site unless approved by the Construction Manager.

3.18 WASTE DISPOSAL AND CLEANUP

- A. The construction manager shall provide trash collection containers for construction debris, exclusive of roofing tear off debris, rock, earth, site work demolition waste, masonry and concrete debris and pay for all debris disposal cost for them. Each trade contractor on the project will be required to clean up and deposit in the dumpster, all debris generated by his trade contract work on a daily basis. Roofing contractor, Site work contractor, Masonry contractor and Concrete contractor must pay their own solid waste removal costs. All other contractors will be provided with collection containers for their use at no cost to the contractor.

This requirement shall be enforced by the Construction Manager and will result in cost assessment against a Trade Contractor who fails to perform daily clean-up within 48 hours of verbal or written notice from the Construction Manager. Each Trade Contractor will be responsible for flattening or crushing all trash as necessary when placed into the dumpster. Hazardous material shall not be placed in the collection container.

- B. Contractors may be required to place salvageable and recyclable materials and debris in separate designated dumpsters or dispose of properly for their own salvage value.
- C. All Contractors are to participate in a monthly eight (8) hour general clean up which will be coordinated by the Construction Manager. Each Contractor shall provide a minimum of one (1) clean-up person for every 15 or less people on the Contractor's average work force for the month with the appropriate brooms, shovels, and wheel barrows. Clean up will be supervised by the Construction Manager.
- D. The Trades Contractors shall be responsible for weekly broom cleaning of all floor surfaces, for dust, dirt and general trash.
- E. The Construction Manger will be responsible for providing trash receptacles, "55 gallon capacity". Emptying them with weekly cleanup or when filled to capacity, shall be done by the Contractors performing the work in that area.

- F. The Demolition Contractor shall determine with the Construction Manager, a location for an enclosed trash chute to control dust for debris from second floor levels to the dumpster container. General Trades Contractor shall also erect a dimensional lumber guard railing around the trash chute to prevent jobsite personnel from exposure to falling debris.

3.19 CONSTRUCTION AIDS AND PROTECTION

- A. The Demolition Contractor shall provide wood handrails and barricades on all stairs and landings, according to OSHA regulations. Provide barricades at all elevator shafts.
- B. The Demolition Contractor shall furnish, install and remove at completion, all perimeter guard rails for elevated concrete slabs.
- C. The Demolition Contractor shall install safety coverings, handrail around all recessed areas and openings on all floors. Building perimeters, roof, wall, or shaft openings shall have perimeter protection as required by OSHA. This work shall comply with all OSHA requirements and remain in place until permanent construction fills those openings.
- D. The Demolition Contractor shall install roof edge perimeter protections and guard rails or coverings, at all roof openings.
- E. Each Trade Contractor, upon working in any of the areas named in the above paragraph, shall remove the safety covering and handrail to perform his work. Upon completion of his work for the day, lunch, or breaks, or any time when the individual Trade Contractor is not working in that opening, the safety covering and handrail must be replaced by the Trade Contractor removing it. At the end of each day, the General Trades Contractor will inspect the site and install all safety coverings and handrails. He shall report to the Construction Manager if coverings and handrails are not being reinstalled by other contractors.

At the end of the project, or in order to install permanent construction, the General Trades Contractor shall remove all coverings and handrails.

- F. The Trade Contractors requiring access to above grade work are responsible for providing ladders, scaffolding and appropriate methods to access their work. Trade Contractor desiring use of in place above grade work platforms must arrange directly with the party that owns the equipment and make all rental and insurance arrangements directly with that party.
- G. All work platforms, scaffolding, etc., on the project shall be available for access by the Owner, Architect, Municipal Authority, Testing Agency and/or Construction Manager.

3.20 FIRE SAFETY

- A. Existing fire protection shall be maintained in place until permanent sprinklered fire protection system is available for use. The Sprinkler System Trades Contractor shall provide the permanent sprinkler fire protection system for use at the earliest possible date after building enclosure and 55° F temperatures are maintained to protect the building structure.
- B. The Construction Manager shall provide fire extinguishers, as required by OSHA standards or other codes.

- C. Each Contractor shall store combustible materials in containers in fire-safe locations.
- D. Each Contractor shall maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
- E. Each Contractor shall provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- F. The Construction Manager shall provide the local fire company with a set of site and floor plans. He shall invite the local fire company to visit the project site and plan emergency response.

3.21 BARRICADES, WARNING SIGNS, AND LIGHTS

- A. All trade contractors requiring barricades, warning signs and lights shall comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against.

3.22 SITE ENCLOSURE FENCE

- A. The Construction Manager shall perform all temporary fencing work as indicated on the site logistics drawing. This work shall be done immediately upon mobilizing for Work at the beginning of the Project.
- B. The Demolition Contractor shall maintain permanent chain link fencing and fabric fencing throughout the duration of the Project, particularly maintaining security function of gate devices.

3.23 BUILDING SECURITY, ENCLOSURE, AND LOCKUP

- A. The Demolition Contractor shall install substantial temporary enclosure of partially completed areas of construction. Provide and maintain locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
- B. Each Trade Contractor is responsible for the secure storage of their own material and equipment on and off the site.

3.24 ENVIRONMENTAL PROTECTION, NPDES, AND PPC

- A. To the fullest extent permitted by law, the Trade Contractor shall indemnify and hold harmless the Owner and Construction Manager, their employees and agents, from claims, losses, damage, and expenses including, but not limited to, attorney's fees arising out of performance of the work as it relates to any type of pollution related situations. This would apply to bodily injury, sickness, disease or death, or to damages or destruction or contamination of tangible property arising out of the acts or omission of the Trade Contractor or the joint negligent acts of the Owner or Construction Manager, or anyone for whose acts the Trade Contractor may be liable.
- B. Each Trade Contractor, prior to construction, must comply with the National Pollution Discharge Elimination System (NPDES) and submit and State and Local Preparedness,

Prevention and Contingency Plans (PPC) to the Construction Manager before the start of work.

Each Trade Contractor must construct, operate and maintain storage of materials to provide protection for each individual worker, as well as the protection of property or real estate of the construction site and environment.

- C. Each Trade Contractor shall provide protection, operate temporary facilities, and conduct construction in ways and methods that comply with all environmental regulations, and minimize the possibility that air, water, and soil from becoming contaminated or polluted as a result of work or storage of supplies and materials, or equipment usage.
- D. Each Trade Contractor will designate and train a responsible employee in environmental contamination procedures, including, but not limited to, emergency responses, material and waste inventories, spills and leak precautions and responses, inspections, housekeeping, security, and external factors.
- E. Open burning will not be permitted.

3.25 WORKDAY

- A. The workdays for the project are defined as 7:00 a.m. to 3:30 p.m., Monday through Friday, with lunch period from 12:00B12:30 p.m. The progress schedule may require contractors to perform work other than the normal workday and in addition to the normal workday to meet milestones in the progress schedule for the project, or to make up time previously lost to regain the progress schedule requirements or to prevent interruption of the Owner's ongoing operations at no additional cost to the Owner.
- B. Working times other than the normal workday or in addition to the normal work day, must be arranged in advance with the Construction Manager.
- C. Trade Contractors who require additional workday hours to regain work time previously lost to meet the requirements of the project schedule shall be assessed for all costs including Construction Manager Supervision and other Trade Contractor cost necessary for the performance of their work.

3.26 LUNCH WAGON

- A. Lunch wagons, catered events or other non-construction related functions shall not be permitted on the project site, except by the written permission of the Owner and Construction Manager.
- B. No alcoholic beverages or controlled substances shall be allowed on the project at any time.

3.27 EROSION CONTROL

- A. The Demolition Contractor shall employ all methods required to comply with local regulatory authorities requirements to control erosion from the project site, including drainage control ditches, sediment basins, straw bale dikes, silt fencing and whatever procedure necessary to comply with requirements.
- B. The Demolition Contractor shall maintain these controls throughout the duration of the

project.

3.28 EXCAVATION

- A. Any Trade Contractor performing excavation shall protect all excavated materials from moisture, freezing and drying, so that the same materials excavated can be utilized for backfill.
- B. Any Trade Contractor performing excavation shall have an OSHA trained person on site during all excavation operations. This person shall evaluate soil types and conditions to determine the required shoring and excavation methods.

3.29 BLASTING

- A. Blasting is not permitted.

3.30 MATERIAL INVENTORIES

- A. Contractors shall coordinate the delivery and storage on the jobsite of all significant materials.
- B. Each Trade Contractor shall be responsible for the proper location, secure, and weather resistant storage as required of all materials. This includes placement of materials not to obstruct passage on site or within building structures or in any way which causes impediment or obstruction to other Trade Contractors.
- C. All material inventories must be stored by the Trade Contractor to avoid excessive loads on building structure.
- D. When directed by the Construction Manager, a Trade Contractor shall remove or relocate material inventories as required for the progress of the project.

3.31 DELIVERIES

- A. All contractors are required to properly instruct material suppliers and vendors to address deliveries to them specifically by named responsible party at the jobsite and require advance notice.
- B. All deliveries addressed to the project in general, the Owner, Architect or Construction Manager, will be refused and returned to shipper.
- C. The Owner will not be responsible for receipt, handling, or loss of any materials which are shipped to the Owner in error and received unknowing of relationship to the project.
- D. Contractor receiving materials at the jobsite shall be responsible for prevention of any mud or other deposits on public roadways or other areas outside project limit lines, which may result due to methods of material delivery. Trade Contractor shall instruct delivery conveyor to take appropriate measures to prevent depositing mud or other construction deposits outside of contract limit lines. Total responsibility of cleanup of mud or other construction deposit outside of contract limit lines will be the responsibility of the Trade Contractor receiving the delivery.

- E. Each Contractor shall provide his superintendent with a telephone pager to enable locating the superintendent on and off site.

3.32 OPERATION, TERMINATION AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
 - 2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- C. Termination and Removal: Unless the Construction Manager requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or not later than Substantial Completion. Complete or, if necessary restore, permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of the Trade Contractor. The Owner reserves the right to take possession of Project identification signs.
 - 2. The Demolition Contractor shall remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt, and other petrochemical compounds, and other substances which might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances, as required by the governing authority.

3.33 SNOW REMOVAL

- A. Snow removal for roads, building exterior, contractor parking, contractor office, staging, and Construction Manager's office area access will be performed by the Sitework Contractor.
- B. The General Trades Contractor shall be responsible for snow removal from within the building, maintaining safe walkway, stair traffic areas and building corridors, using anti-skid methods for snow, mud and/or ice removal, to provide safe usage.
- C. All snow and ice removal required to perform contractor specific tasks on floors, roof, work stages, etc., shall be performed by each Contractor.

END OF SECTION 015000

SECTION 016000 - MATERIALS AND EQUIPMENT PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

1. Multiple Prime Contracts: Provisions of this Section apply to the construction activities of each prime contractor.

- B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 1 Section "Reference Standards and Definitions" specifies the applicability of industry standards to products specified.
2. Division 1 Section "Submittals" specifies requirements for submittal of the Contractor's Construction Schedule and the Submittal Schedule.
3. Division 1 Section "Substitutions" specifies administrative procedures for handling requests for substitutions made after award of the Contract.

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.

1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - a. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, which is current as of the date of the Contract Documents.
 - b. "Foreign Products," as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside the United States and its possessions. Products produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of, nor living within, the United States and its possessions are also considered to be foreign products.
2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.4 SUBMITTALS

- A. Product List: A list of products required is included at the end of this Section. Prepare a schedule in tabular form showing each product listed. Include the manufacturer's name and proprietary product names for each item listed.
- B. Product List: Prepare a list showing products specified in tabular form acceptable to the Architect. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
 1. Coordinate product list with the Contractor's Construction Schedule and the Schedule of Submittals.
 2. Form: Prepare product list with information on each item tabulated under the following column headings:
 - a. Related Specification Section number.
 - b. Generic name used in Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of an initial product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 - a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.
 4. Completed List: Within 60 days after date of commencement of the Work, submit 3 copies of the completed product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 5. Architect's Action: The Architect will respond in writing to Contractor within 2 weeks of receipt of the completed product list. No response within this period constitutes no objection to listed manufacturers or products but does not constitute a waiver of the requirement that products comply with Contract Documents. The Architect's response will include a list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.5 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.
1. When specified products are available only from sources that do not, or cannot, produce a quantity adequate to complete project requirements in a timely manner, consult with the Architect to determine the most important product qualities before proceeding. Qualities may include attributes, such as visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources producing products that possess these qualities, to the fullest extent possible.
- B. Compatibility of Options: When the Contractor is given the option of selecting between 2 or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.
1. Each prime contractor is responsible for providing products and construction methods that are compatible with products and construction methods of other prime or separate contractors.
 2. If a dispute arises between prime contractors over concurrently selectable, but incompatible products, the Architect will determine which products shall be retained and which are incompatible and must be replaced.
- C. Foreign Product Limitations: Except under one or more of the following conditions, provide domestic products, not foreign products, for inclusion in the Work:
1. No available domestic product complies with the Contract Documents.
 2. Domestic products that comply with the Contract Documents are available only at prices or terms substantially higher than foreign products that comply with the Contract Documents.
- D. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on concealed surfaces or, where required for observation after installation, on accessible surfaces that are not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface that is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
7. Store products subject to damage by the elements above ground, under cover in a weather tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
 1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
- B. Product Selection Procedures: The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:
 1. Proprietary Specification Requirements: Where Specifications name only a single product or manufacturer, provide the product indicated. No substitutions will be permitted.
 2. Semi proprietary Specification Requirements: Where Specifications name 2 or more products or manufacturers, provide 1 of the products indicated. No substitutions will be permitted.
 - a. Where Specifications specify products or manufacturers by name, accompanied by the term "or equal" or "or approved equal," comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 3. Nonproprietary Specifications: When Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.
 4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
 5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated.
 - a. Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.

6. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.
7. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.
 - a. Where no product available within the specified category matches satisfactorily and complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category.
8. Visual Selection: Where specified product requirements include the phrase "... as selected from manufacturer's standard colors, patterns, textures ..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern, and texture from the product line selected.
9. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.
 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 016000

SECTION 017000 – CONTRACT CLOSEOUT

1.1 RELATED SECTIONS

- A. General and Supplementary Conditions.
- B. Section 013300 - Submittals: Procedures for closeout documents submittals.
- C. Section 015000 - Construction Facilities and Temporary Controls: Progress cleaning.
- D. Section 017500 - Starting of Systems: System start-up, testing, adjusting, and balancing.

1.2 CLOSEOUT PROCEDURES

- A. Completion of the Work specified herein is a condition precedent to issuance of the Final Certificate of Payment by Construction Manager and Architect.
- B. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect review.
- C. Provide submittals to Architect through Construction Manager that is required by governing or other authorities.
- D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- E. Owner will occupy portions of the site as specified in Section 01011.

1.3 HAZARDOUS-FREE MATERIALS CERTIFICATION

- A. Upon completion of this project, the Contractor shall deliver to the Architect three (3) copies of a notarized letter addressed to the Owner certifying that to the best of the Contractor's knowledge all products provided by them for incorporation into this project do not contain any hazardous materials exceeding current EPA guidelines.
- B. It is the responsibility of the Contractor to review "Manufacturer's Safety Data Sheets" (MSDS) on all products to ascertain compliance with EPA guidelines prior to shop drawing submission to the Architect. Incorporation of products into the project without the submission of shop drawings or samples to the Architect will indicate that the Contractor has ascertained that the products meet EPA limits.
- C. It is the responsibility of the Contractor to notify the Architect in writing of the lack of compliance of a product with EPA guidelines prior to ordering or incorporating any products into this project.

1.4 OPERATION AND MAINTENANCE DATA

- A. Submit data on 8-1/2 x 11 inch text pages, bound in three D side ring binders with durable plastic covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of Project.

- C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on white paper, in three parts as follows:
1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers. Include for all mechanical and electrical equipment a compilation of the nameplate data for equipment; name, address and phone number of nearest distributor; name, address and phone number of nearest service organization.
 2. Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - f. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents. Include videotapes of training sessions.
 - g. (1) 8x10 photograph of each piece of equipment.
 - h. Name and telephone number of service representative.
 - i. Test results/reports.
 - j. Certified performance curves.
 - k. Re-order information.
 - l. Catalog, model, serial number.
 - m. Wiring diagrams.
 - n. Assembly drawings.
 - o. Schedule
 - p. Charts
 - q. Nameplate data.
 3. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties and bonds.
- E. Submit 1 draft copy of completed volumes 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content of all document sets as required prior to final submission.
- F. Submit three copies of revised final volumes, within 10 days after final inspection.

1.5 WARRANTIES

- A. Provide triplicate notarized copies.
- B. Execute and assemble transferable warranty documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.6 FINAL SUBMISSIONS

- A. Submit Consent of Surety to Final Payment.
- B. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- C. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and the list has been endorsed and dated by the Architect.
- D. Affidavit of payment of all claims against the work.

1.7 PROJECT RECORD DOCUMENTS

- A. Trade contractors shall maintain on site, one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Construction Manager and Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.

- F. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract Drawings.
- G. Remove Architect seal from all documents.
- H. Submit documents to Architect with final Application for Payment.
- I. Submit a final liquidated damages settlement statement.

1.8 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed extra materials and parts as indicated within the respective specification sections; obtain receipt from Owner upon delivery and placement and prior to final payment.

END OF SECTION 017000

SECTION 017500 - FACILITY STARTUP/COMMISSIONING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Starting systems.
- B. Demonstration and instructions.

1.2 RELATED SECTIONS

- A. General and Supplementary Conditions.
- B. Section 017000 - Contract Closeout: System operation and maintenance data and extra materials.

1.3 STARTING SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Construction Manager, Architect/Engineer and Owner seven (7) days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or for other conditions which may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable manufacturer=s representative and Contractor=s personnel in accordance with manufacturer's instructions.
- G. When specified in individual Specification sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

1.4 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to Owner=s personnel no more than two (2) weeks prior to date of Substantial Completion.
- B. Demonstrate Project equipment and instruct in a classroom environment located at site and instructed by a qualified manufacturer=s representative who is knowledgeable about the Project.

- C. Contractor shall video tape the demonstration/instructions on format acceptable to Owner and provide two (2) copies of tape at Project closeout or at such time as directed by Construction Manager. Tape shall be clear in visual and audio recreation of demonstration and instructions. A professionally prepared training video produced by the manufacturer shall be an acceptable substitute to on-site video tape.
- D. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners= personnel in detail to explain all aspects of operation and maintenance.
- F. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment or designated location.
- G. Prepare and insert additional data in operations and maintenance manuals when needed for additional data becomes apparent during construction.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 017500

SECTION 017700 - CLOSEOUT PROCEDURES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Inspection procedures.
 2. Project Record Documents.
 3. Operation and maintenance manuals.
 4. Warranties.
 5. Instruction of Owner's personnel.
 6. Final cleaning.
- B. Related Sections include the following:
1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 2. Division 1 Section "Execution Requirements" for progress cleaning of Project site.
 3. Divisions 2 through 33 Sections for specific closeout and special cleaning requirements for products of those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 2. Advise Owner of pending insurance changeover requirements.
 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 5. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 6. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 7. Complete startup testing of systems.
 8. Submit test/adjust/balance records.
 9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 10. Advise Owner of changeover in heat and other utilities.

11. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
12. Complete final cleaning requirements, including touchup painting.
13. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or on additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.

2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
4. Include space for sign off and acceptance of each item.

1.6 PROJECT RECORD DOCUMENTS

- A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect and Owner's reference during normal working hours.
- B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
 1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - d. Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.
 2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 3. Mark important additional information that was either shown schematically or omitted from original Drawings.
 4. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
 5. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
- C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Note related Change Orders, Record Drawings, and Product Data, where applicable.
- D. Record Product Data: Submit one copy of each Product Data submittal. Mark one (1) set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, Record Drawings, and Record Specifications, where applicable.
- E. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

1.7 OPERATION AND MAINTENANCE MANUALS

- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:
1. Operation Data:
 - a. Emergency instructions and procedures.
 - b. System, subsystem, and equipment descriptions, including operating standards.
 - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
 - d. Description of controls and sequence of operations.
 - e. Piping diagrams.
 2. Maintenance Data:
 - a. Manufacturer's information, including list of spare parts.
 - b. Name, address, and telephone number of Installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance and service schedules for preventive and routine maintenance.
 - e. Maintenance record forms.
 - f. Sources of spare parts and maintenance materials.
 - g. Copies of maintenance service agreements.
 - h. Copies of warranties and bonds.
- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

1.8 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 - 3. Schedule training with Owner, through Architect, with at least seven days' advance notice.
 - 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.

- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:

1. System design and operational philosophy.
2. Review of documentation.
3. Operations.
4. Adjustments.
5. Troubleshooting.
6. Maintenance.
7. Repair.

3.2 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances. Cut lawn and field areas.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.

- l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Replace parts subject to unusual operating conditions.
 - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - s. Leave Project clean and ready for occupancy.
- C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.
- D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 017836 - WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.
 - 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" specifies procedures for submitting warranties.
 - 2. Division 1 Section "Contract Closeout" specifies contract closeout procedures.
 - 3. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.
 - 4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.
- C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.
- D. Separate Prime Contracts: Each prime contractor is responsible for warranties related to its own contract.

1.3 DEFINITIONS

- A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS

- A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty

shall be equal to the original warranty with an equitable adjustment for depreciation.

- C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.
 - 1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

- A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within 15 days of completion of that designated portion of the Work.
- B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect, for approval prior to final execution.
- C. Forms for special warranties are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Submit a draft to the Owner, through the Architect, for approval prior to final execution.
 - 1. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- D. Form of Submittal: At Final Completion compile 2 copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

- E. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper.
1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.
 3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 LIST OF WARRANTIES

- A. Schedule: Provide warranties on products and installations as specified in individual specification sections.

END OF SECTION 017836