

# **CONSTRUCTION PROJECT DIVISION 1 SPECIFICATIONS**

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## **Section 010000 Miscellaneous Requirements**

### **1. Summary**

These Miscellaneous Requirements are issued as supplements to the Uniform General Conditions for Construction Contracts (UGCs) and any Special Conditions that form a part of the Contract for Construction between the Owner and the General Contractor (or Construction Manager, or Design-Build Contractor). The term “Contractor”, as used herein, is meant to refer to a General Contractor, or a Design-Build Contractor, or a Construction Manager. Should any provision of these Division 1 Specifications conflict with the Contract, the UGCs or the Special Conditions, the latter shall govern.

### **2. Removal of Debris (see Section 015240)**

The Contractor shall remove and legally dispose of all demolition debris and all unused construction materials off-site. Unless specifically noted otherwise, all excess earth and rock excavation materials shall be removed and disposed of off-site. Such demolition debris, unused construction materials and excess excavated earth and rock shall be handled, transported and legally disposed of at the Contractor’s expense.

### **3. Drawings and Specifications (also see UGC Article 6)**

3.1 The Drawings and Specifications are intended to describe and provide for a finished and complete piece of Work that meets the requirements of all the applicable governing laws, ordinances, rules, and regulations of the locality. It is mandatory that all work must meet these requirements.

3.1.1 No extra compensation will be allowed for the Contractor’s rework due to its failure to conform to any such requirements unless the original installation was directed by written order issued by the A/E or the Owner.

3.1.2 Anything mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be like effect as if shown or mentioned in both. If the Contractor believes that some information is missing then that information should be requested of the Owner or A/E in writing. Should the Drawings disagree among themselves, or with the Specifications, the better quality and/or greater quantity of work and/or materials shall be included with the Contractor’s project proposed pricing. In the case where the Specifications do not fully agree with the material schedules, the material schedules shall govern.

3.1.3 The general character of the detail work is shown on Drawings, but minor modifications may be made by A/E in full size Drawings, shop drawings, or models. Contractor shall not

attempt to execute any part of the Work requiring such drawings until he has received approved copies of same.

- 3.1.4 Where the word “similar or typical” occurs on Drawings, they shall be understood in their general sense and not as meaning identical. All details shall be worked out in relation to their location and their connection to other parts of the Work. If the Contractor finds this to be beyond its capability, interpretations and directions should be requested of the A/E.
- 3.1.5 Small scale and large scale drawings are intended to be mutually compatible and explanatory. In case of variances, the following order of preferences is established to define the intent of the work.
  - 3.1.6 Explanatory notes on Drawings;
    - 3.1.6.1 Recorded dimensions;
    - 3.1.6.2 Large scales details;
    - 3.1.6.3 Small scale details;
    - 3.1.6.4 Scaled measurements
- 3.2 The “Scope of Work” description placed in the front portion of each section of the Specifications is intended to designate the scope and locations of all items of Work included in that section, either generally or specifically. It is not, however, intended to limit the scope of the work where plans, schedules, or notes indicate a larger scope.

**4. Interpretations of Documents (see UGC 3.2.2)**

Whether bidding or building the Project, if there is any doubt as to the meaning of any part of the Construction Documents, the Contractor shall submit a written request to the Owner seeking an interpretation. If the question has to do with technical requirements, the Contractor should provide the A/E with a copy of the request as the Owner will typically ask the A/E for the technical interpretation. If such a request is made during bidding, it should be made at least ten days before bid opening.

Interpretations shall then be issued by written response only and during bidding only by issuing an “Addendum” to the bid documents. When in doubt during construction, the Contractor should proceed only with a written interpretation by the Owner, or in its absence, proceed only after notifying the Owner in writing about the interpretation that is being used. Failure of the Contractor to request an interpretation shall not relieve the Contractor from responsibility to complete the Work to the Owner’s satisfaction. If the Contractor does not agree that an interpretation received is satisfactory and without cost or time implications, the Owner should be notified immediately in writing of that fact.



**5. Materials and Work (see UGC 8.1)**

- 5.1 Unless otherwise specified, all materials shall be new and free of asbestos, noxious or toxic fumes, urea-formaldehyde and lead (lead in potable water system) and both workmanship and materials shall be of the best quality. If requested by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of his materials and workmanship. Any work installed that does not meet the requirements of the Construction Documents shall be removed and replaced with conforming Work. **(UGC 3.3.5)**
- 5.2 The Contractor and subcontractors shall be responsible for the proper care and protection of all materials and equipment furnished both during and after installation. Such materials and equipment may be staged inside the construction fence, or areas designated by the Owner, but only consistent with a Staging Plan acceptable to the Owner. All materials affected by the weather shall be covered and protected to keep them free from damage while being transported to the site. When stored on site, they shall be placed in watertight storage shed/compartments or otherwise protected from the weather. Any material damaged by water or other causes shall be removed from the site and replaced with new material.
- 5.3 When necessary to avoid delay or to protect work or equipment, provide suitable watertight coverings over windows, doors, skylights, hatchways, and such other openings admitting rain, including the Owner's materials within the building area when working on a combined effort.
- 5.4 The Contractor and subcontractors shall protect and be responsible for their Work and any damage to their Work from the date of delivery or installation until Substantial Completion when the Owner will take possession and assume responsibility. They shall make good, without cost to the Owner, any damage or loss that may occur to their Work during this period.
- 5.5 When any room in one of Owner's buildings has been provided for use as a shop, storeroom, etc., the Contractor shall restore the room to equal, or better, condition by providing repairs, patching, cleaning, and painting at its sole expense.
- 5.6 During the execution of the Work the open ends of all piping, conduit and mechanical ducts and openings in equipment shall be sealed in such a way as to prevent the entrance of foreign matter. All heating, ventilating, plumbing and electrical equipment shall be covered and protected. All plumbing fixtures shall be protected and boarded over to prevent their usage by any person. All drains shall be covered until they are placed into service.
- 5.7 The Contractor shall provide all scaffolding and ladders necessary for performing the Work. All scaffolding shall be so constructed,

anchored and braced to comply in all respects with OSHA guidelines to afford safety and protection to both workers and their Work, the inspectors and the Work of other contractors.

- 5.8 Except as otherwise specified, the Contractor shall furnish at its own cost and risk all tools, apparatus, hoists or cranes, derricks, etc. needed for the Work.
- 5.9 Temporary equipment shall be installed in such a manner that finished Work will not be damaged by smoke, falling mortar, concrete or other causes. The location and arrangement of temporary equipment shall be subject to the approval of the Owner.
- 5.10 All temporary shoring required for the installation of Work shall be provided by the Contractor who will take all responsibility.
- 5.11 The Contractor and its subcontractors shall provide on the premises, at locations approved by the Owner, suitable watertight storage sheds for the storage of tools and equipment. Such sheds shall be at least 6 inches off the ground on heavy joists. The Contractor shall maintain such sheds in good condition and remove them when directed by the Owner.
- 5.12 **Also see Sections 013100, 013523 and 015000 for related requirements.**

**6. Intent of the Documents (see UGC 11.1.2)**

- 6.1 It is the intention of the Construction Documents to describe and require the complete installation of the various systems and the Contractor is to furnish all items necessary to make the various systems complete, although each and every item required may not be specifically mentioned in the Construction Documents.
- 6.2 It is not the intent of the Construction Documents to limit materials, equipment or fixtures to the product of any particular manufacturer. Where definite materials, equipment or fixtures have been specified by name, manufacturer or catalog number, it has been done to set a quality standard, applicability, physical conformity and other characteristics. It is not the Owner's intent to discriminate against or prevent any dealer, jobber or manufacturer from furnishing materials, equipment or fixtures that meet or exceed the characteristics of the specified items. However, substitutions of materials shall not be made without a specific written request by the Contractor having been approved by the Owner in writing. **(See paragraph 18 of this Section).**
- 6.3 Any discrepancies in the Specifications must be reported to the Owner for clarification, correction and interpretation from the A/E before the work is executed.

**7. Existing Underground Utilities**

If existing underground lines occur in the site where the work is to be accomplished, such lines will be located and staked by the Contractor for the benefit of the Owner and the Contractor prior to start of the work. Contractor shall maintain these markings throughout the duration of the construction project. Prior to any excavation, the Contractor shall review with the Owner the locations of all underground utilities and receive the Owner's written permission to proceed.

**8. Pumping, Shoring, Etc.**

- 8.1. Pumping: When necessary to avoid delay or to protect the Work or the premises, provide suitable pumping equipment and keep excavations, pits and other areas involved free of water that may leak, seep, or rain in. Do not allow water to flow into excavations. Do not allow water to flow off site in quantities or at rates that exceed the quantities or rates that existed prior to the start of construction
- 8.2. Shoring: The Contractor shall provide and be responsible for all temporary shoring required for execution and protection of the work. After all construction is secure and stable, and when authorized by the Structural Engineer or Civil Engineer, the Contractor shall remove all shoring.

**9. Hazardous Materials**

- 9.1 If during the course of his work, the Contractor observes the existence of asbestos, or asbestos bearing materials, the Contractor shall immediately terminate further operations and notify Owner of the condition. The Owner will, after consultations, determine a further course of action. **(UGC 7.5)**
- 9.2 Contractor shall furnish Manufacturer's Safety Data Sheets (MSDS) on all materials and products installed by the Contractor and subcontractors on this project to indicate no asbestos-containing materials have been installed.

**10. Substantial Completion (see UGC 1.26 and 12.1.1)**

"Substantial Completion" constitutes a stage of project completion that will allow Owner beneficial occupancy for the purpose of safely installing furnishings, maintaining normal security over them, and use of the facility for its intended purpose. Substantial Completion shall not be considered as Final Completion as there may be minor correction items outstanding and there are additional completion items required to achieve Final Completion. Upon acceptance that an entire Project, or a portion of a Project, as Substantially Complete the Owner will take possession from the Contractor and assume operations, maintenance and insurance liability responsibilities for that portion of the Project.

- 11. Coordination (see UGC 3.3.6.2 and 4.4 of the CM@R contract)**  
The Contractor and subcontractors on the project shall coordinate their work with each other, advising on work schedules, equipment locations, etc. It shall be the responsibility of Contractor to assure this coordination and to schedule and supervise the work of all subcontractors performing work under this contract. Contractor shall be responsible for the proper fit of the various parts of the Work and for the coordination of operations of all trades, the subcontractors and the material suppliers engaged upon or in connection with the Work as well as those of his own employees. Contractor shall accommodate and coordinate with other independent contractors and Owner personnel on site during construction to allow them necessary access to perform their work.
- 12. Observation of Work (see UGC 8.5.1)**  
The Owner's representatives, as well as the A/E, shall have access to the work at all times wherever it is in preparation or progress. The Contractor shall provide proper and safe facilities for such access and for observation.
- 13. Cooperation with Building Officials**  
Contractor, Subcontractor and all related suppliers, vendors and employees will cooperate with applicable utility and government officials and inspectors at all times. If such official or inspector deems special inspections necessary, provide assistance and facilities that will expedite such inspection or observation.
- 14. Notification**  
The Contractor shall notify the Owner at least 48 hours in advance (Monday thru Friday) of concrete pours, roofing installation, start of each new section of classification of work, concealment of plumbing, heating, air conditioning, or electrical work.
- 15. Ongoing Operations/Construction Personnel**

  - 15.1 The facilities of the campus will only be available during the scheduled construction time-period as specified by the Owner, and if not specified, then from 8:00 a.m. until 6:00 p.m., Monday through Friday. Work during other times, including weekends, shall only be allowed with prior request and written authorization from the Owner. In addition, the Contractor shall accommodate and coordinate its construction work force and activities to allow the Owner's forces and Owner's separate contractors (i.e. telephone, data, IT, computer, and furniture installation) to enter the jobsite to perform their work.
  - 15.2 This project is surrounded by continuously functioning campus facilities, including student housing, academic and research efforts.

- The Contractor shall make every effort to avoid disruptions to ongoing campus activities and to maintain a safe environment for students, faculty, and staff in the areas adjacent to the Project.
- 15.3 Adjacent facilities will continue to be used for their intended purpose while this Project is underway and the following requirements shall apply:
- 15.3.1 Contractor, Subcontractors, Owner and A/E shall meet regularly to coordinate and schedule any construction activities affecting ongoing operations including, but not limited to: testing days, student/staff holidays, special events, etc.
- 15.3.2 The Owner may have other contractors, or its own employees, performing work on the campus and in the vicinity of the Contractor's Work. The Contractor shall not commit any act, or allow any act, that will interfere with the performance of work by these other work forces. The Contractor shall cooperate with all performing parties so that the Owner can realize the best possible outcome of all projects involved and requiring coordination.
- 15.3.3 Student, faculty and general public safety is of utmost importance. Fire and life safety exiting from buildings must be maintained at all times and closely monitored. Review and receive approval for changes in existing conditions with the local fire marshal for each phase of construction. Provide temporary signage as required by the fire marshal and/or the Owner.
- 15.3.4 Fire arms, drugs, intoxicating beverages, X-rated materials, etc. are banned from the Owner's property.
- 15.3.5 Smoking is not allowed inside any campus building or anywhere on the campus except in designated areas. Smoking will not be allowed in any enclosed area of the building(s) of this project. Enclosed, as used here, refers to erection of exterior walls and overhead structure for any portion of the project; it does not mean to limit the term to only "dried in" situations. Use of or possession of illegal drugs or alcohol on the project site or anywhere on campus is prohibited.
- 15.3.6 Construction personnel are not to communicate or interact with students and faculty on site. Only the Project Superintendent, Project Manager and/or their appointed representatives may communicate with the faculty and administrative staff on an as needed basis.
- 15.4 Campus utilities must not be interrupted except when scheduled and approved in advance through Owner-designated campus channels.

The Contractor or his personnel shall NOT open or close any valves of the central campus utility systems. Valve operation is to be done by University utilities personnel only. The Contractor shall not activate or de-activate any campus utility system or component of any system, without express written direction from the Owner.

- 15.5 Chemical cleaning of new utility additions shall be done by circulating a good non-phosphate cleaner through as much of the new system as possible. Prior to dumping the cleaning agent, the Contractor shall notify the local City/County industrial water treatment department to sample the effluent. If the City/County officials approve of dumping to drain, then the Contractor will dump into the sanitary sewer. The Contractor shall refill the new system with water and again have the City/County water treatment officials sample the effluent prior to dumping. If at any stage the City/County water treatment officials refuse to accept the effluent, then the Contractor must make special arrangements for legal disposal at its expense and provide the Owner with copies of the resulting shipping and disposal manifests.

**16. Field Measurements (see 014518 – Field Engineering)**

- 16.1 The Contractor will employ an experienced, competent staff to establish or survey the building lines, elevations, and field dimensions. Each subcontractor shall verify all existing grades, lines, levels and dimensions affected by their work.
- 16.2 Before ordering any materials or doing any work, each subcontractor shall verify all measurements and shall be responsible for their correctness. Any difference between the actual dimensions and conditions on the site and those indicated on the drawings shall be submitted to the Owner for instructions and consideration before proceeding with the work.

**17. Substitutions (see UGC 8.3.5 and 8.3.6)**

The Contractor may submit and Owner and A/E will consider substitutions that have not been submitted and approved prior to receipt of proposals. Contractor shall submit a written substitution request on an Owner approved form and the substitution shall be fully identified for product or method being replaced by substitution, including related specification section and drawing number(s) and fully documented to show compliance with the requirements of the Construction Documents. Include product data/drawings, description of methods, samples where applicable and Contractor's detailed comparison of significant qualities between the specified item and the proposed substitution. The Contractor shall include a statement of effect on construction time, coordination and other affected work, cost information or proposal and a written guarantee indicating the proposed substitution will result in overall work equal to or better than work

originally indicated. Contractor shall allow sufficient time for review and approval of such proposed substitutions.

## **Section 012000 Project Meetings**

### **1. Pre-Construction Conferences (see UGC 3.1.1 and CM@R Contract 5.1 and Exhibit G)**

- 1.1 Prior to commencing construction, the Contractor shall schedule a meeting to review all aspects of the Construction Project. The time of the Pre-Construction Conference and the attendees shall be determined through discussions between the Owner and Contractor prior to scheduling.
- 1.2 The following is a tentative agenda for the Pre-Construction Conference:
  - Critical work sequencing;
  - Designation of responsible personnel;
  - Procedures for processing submittals, substitutions, applications for payment, proposal requests, change letters and Contract Close-out procedures;
  - Parking and access to the site;
  - Office, storage areas and temporary facilities;
  - Utility information;
  - Testing procedures;
  - Procedures for maintaining record documents.
- 1.3 Minutes of the Pre-Construction Conference will be kept and distributed to all attendees and to all team members not present at the meeting. All final decisions recorded in the minutes shall become binding on the parties.

### **2. Pre-Installation Conferences**

Conduct a Pre-installation Conference at the site before each construction activity that requires extensive coordination and for those activities where a pre-installation meeting is specifically required by the specification section.

### **3. Progress Meetings (see UGC 8.5 and 8.6)**

- 3.1 The Contractor shall schedule progress meetings at regular intervals to discuss and monitor the construction project. The Contractor shall determine the meeting times and required attendees.
- 3.2 Minutes of the Progress Meeting shall be kept and distributed to all attendees and to all team members not present at the meeting.

**4. Close-out Meetings**

- 4.1 When the Contractor determines that a Project, including all punch list items, has been substantially completed and an acceptance date established, a formal project close-out meeting will be scheduled and attended by the parties designated by the Owner and A/E.
- 4.2 At the close-out meeting, upon documentation of exceptions and assignment of completion responsibilities, the close-out documents required by the Construction Documents will be released to the Owner.
- 4.3 Minutes of the Project Close-out meeting will be kept by the A/E and any exceptions identified will be recorded. Specific completion dates for the exceptions will be established and tracked by the Owner to ensure expeditious completion. Copies of the minutes will be distributed to all attendees.

**Section 013100 Project Administration**

**1. Subcontracts (see UGC 3.3.6)**

- 1.1 Contractor agrees to bind every subcontractor, and every subcontractor agrees to be bound by the terms and conditions of the Owner's contract.
- 1.2 The Contractor is required to submit a list of all first tier subcontractors to the Owner as subcontracts are executed.

**2. Flow of Communications (see UGC 3.2, 3.3.1 and 3.3.6)**

- 2.1 The Owner's Designated Representative (ODR) is the Owner's primary representative for the Project who will be designated to the Contractor in writing. The ODR is the only party authorized to issue written/or oral instructions directly to the Contractor that involve changes to the contract scope, cost or time of the Work, save and except those changes noted in 2.2 below. If any other party directs the Contractor to make changes to the Work that will involve scope, cost or time the Contractor should notify the ODR immediately in writing. **(see UGC 1.17)**
- 2.2 Normally, the Owner will also designate in writing an Owner's Designated Site Representative (ODSR). The ODSR will have the authority, delegated by the ODR, to make decisions on behalf of the Owner concerning coordination with the University of Work on the site including: traffic controls, site safety, scheduling of utility outages,



and all matters within the contract that do not involve changes to the scope, cost and/or time for completion. However, ODSR shall have the authority to approve changes for cost in an amount not to exceed \$25,000.00 and execute all certificates of substantial completion. The ODSR, or a designee, will coordinate and conduct quality inspections of the construction work as it is installed or performed, authorize payments (except first and final) and conduct final acceptance inspections. The ODSR will be the Contractor's primary point of contact on the site.

**3. Project Changes (see UGC 9.1, 9.3.3.3, 9.6.2.2 and Article 11)**

- 3.1 All changes to the Contract involving scope, cost, or time will be issued on the standard Texas State University System (TSUS) Change Order form. Such Change Orders are valid only if signed by either the Chancellor of the TSUS or by the Vice Chancellor for Contract Administration, except as noted in 2.2 above. A single Change Order may include several different change issues and they will not be required to be related to each other.
- 3.2 Prior to issuing a Change Order, the Owner must have received from the Contractor a Change Order Proposal that is complete in its description of the changes in scope and its detailed presentation of cost and time implications of the proposed change. If the Owner and Contractor do not agree on the implications of a proposed change, they will meet and discuss and resolve their differences prior to proceeding with the changes to the Work.
  - 3.2.1 The Contractor shall summarize all costs for each change at each level of subcontractor and supplier by preparing a "Cost Analysis" and shall provide each subcontractor's cost summary as backup. Additional support documentation from both the Contractor and its subcontractors is encouraged.
  - 3.2.2 Where the Contractor believes it is entitled to a time extension, it shall so state as part of its response to the Change Proposal, including a justification for such request. Time extensions will be granted only if a Change Order Proposal affects the activities on the Critical Path of the Owner approved Project Schedule (i.e., when the work impacts the "Contract Substantial Completion Date").
  - 3.2.3 If the Owner and Contractor cannot mutually agree upon a fair and reasonable cost and time settlement, the Owner may: 1) Reject the quotation and void the Change Order Proposal, 2) Issue instruction to the Contractor to proceed on a time and material basis for a price to be determined later not to exceed a

fixed maximum dollar and time, or 3) Issue a Unilateral Change Order.

3.2.4 The Owner may issue Field Orders directly to the Contractor for minor changes to the contract, which can be negotiated in the field. Pricing backup shall be the same as a Change Order Proposal and is to be outlined as noted above. Once the Owner and the Contractor have signed the Field Order, the work is authorized and the Field Order will be included in the next Change Order.

**4. Liquidated Damages (see UGC 9.11, 12.1.4 and 25.2)**

If assessed, liquidated damages will be withheld from progress payments beginning with the first payment after the Contract completion date and until all work of the contract is complete. The amount assessed shall be deducted from the contract price through a written Change Order.

**5. Site Use Issues**

5.1 The Contractor is responsible for the actions of its entire work force, including Subcontractor and Supplier employees, whenever they are on the campus. Harassment of any kind toward any person will not be tolerated. Offending workers will be removed from the project immediately and permanently. Harassment includes any action such as jeering, whistling, calling-out, staring, snickering, making rude or questionable comments, or similar behavior. Any offending worker or employee will be removed.

5.2 The Contractor shall provide and submit a program plan for worker orientation, identification and control of access to the site and for managing personnel records, including payroll records. All workers on the project shall participate in this program before beginning work of the project. This plan shall include, as a minimum:

5.2.1 Employee identification badges with a photo of the employee, the employer and employees' name. Badges shall be provided for all employees and produced by a system on site. This identification shall be worn at all times while on the project site. Lack of an ID badge shall be grounds for removal from the project until the badge is produced.

5.2.2 Identification badges for workers, busing of workers from remote parking lots, frequent written and verbal reminders to the work force of appropriate behavior and avoidance of campus facilities and publication of acceptable access and egress routes from the work site are all minimum requirements of the plan.

**6. Shop Drawings and Submittals (see UGC 8.3 and CM@R contract 4.5)**

- 6.1 Refer to the UGC for requirements not identified in this section.
  - 6.2 The Contractor shall assign an identifying number to each submittal following a format to be established at the Pre-Construction Conference. The same number with a numerical or alphabetical suffix will be used to identify re-submittals.
  - 6.3 The burden of timeliness to complete the submittal process is on the Contractor. The Contractor shall allow sufficient time within the construction schedule for the A/E and Owner to review and approve all submittals, including time for all re-submittals on any unaccepted/rejected submittal.
  - 6.4 Any deviation from the Construction Documents shall be conspicuously noted on the submittal and the transmittal cover sheet. Failure to so note deviations will void any action taken on the submittal.
  - 6.5 All manufacturers' data contained within the submittal shall have all inapplicable features crossed out or deleted in a manner that will clearly indicate exactly what is to be furnished.
  - 6.6 Equipment of larger sizes than shown, even though of a specified manufacturer, will not be acceptable unless it can be demonstrated that ample space exists for proper installation, operations and maintenance.
  - 6.7 The Owner will not be responsible for payment of any item that has not been submitted and approved through the established submittal process. **(UGC 10.5.1.4)**
  - 6.8 The exact method for distribution and the exact number of submittal copies required for distribution will be determined at the Pre-Construction Conference. The Contractor shall anticipate providing digital submittals in PDF format with the understanding that submittals requiring physical samples will be provided both as digital submittals in PDF format (to including photos of the samples) as well as provided with a minimum of four (4) copies of each physical sample in addition to those needed by the Contractor and its subcontractors. Two (2) of the approved physical samples will be returned to the Contractor and one (1) shall be set aside for subsequent turn over to Owner at Project Closeout.
- 7. Substitution of Materials, Labor and Equipment (see UGC 8.3.5 and 010000 paragraph 17)**
- 7.1 Refer to the UGC for requirements not identified in this section.
  - 7.2 The specified products referenced in the Construction Documents establish minimum qualities for which substitutions shall at least equal to be considered acceptable. The burden of proof of equality rests with the Contractor. The Owner retains sole authority for acceptance of substitutions.

- 7.3 All substitutions shall be submitted with ninety (90) days of the Notice to Proceed for Construction and be clearly marked as such on the transmittal cover sheet for the submittal.
  - 7.4 The Contractor shall allow a minimum of four (4) weeks for review of each substitution by the A/E and/or Owner in addition to the requirements identified in Section 7.3 above.
  - 7.5 When requested by the A/E, the Contractor shall provide a sample of the proposed substitution item. In some cases, samples of both the specified item and the proposed item shall be required for comparison purposes.
  - 7.6 Acceptance of materials and equipment will be based on the supplier/manufacturer's published data and will be tentative subject to submission of complete shop drawings and/or specifications indicating compliance with the Construction Documents. Acceptance of materials and/or equipment under this provision shall not be construed as authorizing any deviation from the Construction Documents, unless specifically directed in writing from the A/E.
  - 7.7 Any and all additional costs or time resulting from the acceptance or rejection of any substitution shall be the sole responsibility of the Contractor. These include costs that are not presented at the time of the substitution request and those costs that become known after the approval of the substitution. This includes direct as well as indirect costs.
  - 7.8 If a substitution is accepted, and the substitute proves defective, or otherwise unsatisfactory as determined by the Owner for the service intended within the warranty period, the substitute shall be replaced with the material or equipment specified in the Construction Documents, or as approved by the Owner, at no additional cost to the Owner.
- 8. Allowances (see 13.1 and Exhibit C of CM@R contract)**
- 8.1 Allowances shall include:
    - Cost of materials to Contractor.
    - Delivery to project site; handling, storage and installation at project site.
    - Protection, security, including insurance.
    - Contractor's overhead and profit and other costs.
  - 8.2 At contract closeout, monies remaining in any allowance line item will be credited to the Owner by Change Order.
- 9. Alternates**
- 9.1 Alternates will be exercised and added to the proposed contract sum at the option of the Owner.

- 9.2 For any or all additive alternates selected or otherwise approved for addition to the contract sum by the Owner, the Contractor shall coordinate all related work and modify the surrounding work as required to complete the work, including changes under each alternate, only if acceptance is designated in the contract.

**10. Unit Prices (see UGC 11.2 and paragraph 5.4.2 of CM@R contract)**

The Contractor shall provide unit prices for specific portions of the work identified by the Owner during the pre-bid process. Unit pricing shall include all costs of materials, including, but not limited to shipping, and their related labor cost, including, but not limited to all appropriate burdens and markups.

**11. Applications for Payment (see UGC Article 10 and 12.3 as well as Article 12 of the CM@R contract)**

11.1 Such requests shall be presented on the Texas State University System (TSUS) Pay Application forms. The TSUS Schedule of Values forms, which may be supplemented with columnar continuation sheets, shall separately identify each update to the original contract or GMP amounts.

11.2 The Contractor's project accounting records shall be kept on the basis of generally accepted accounting principles in accordance with cost accounting standards issued by the Federal Office of Management and Budget Cost Accounting Standards Board and organized by each pay request period.

11.3 Prior to the submission of the initial Application for Payment the Contractor shall submit the following documents to the A/E and Owner for review:

11.3.1 Contract Price of GMP Schedule of Values: A single document itemizing the breakdown of the Contract Price/GMP, including general conditions, contingencies and allowances shall be submitted using TSUS standard Schedule of Values format. The Contractor shall submit a draft breakdown and such submittal shall be a condition precedent to the processing of the first pay application. The Contractor shall submit subsequent draft copies of the Schedule of Values no later than five (5) working days prior to formal submission of each monthly pay request.

11.3.1.1 The breakdown shall follow the trade divisions of the specifications.

11.3.1.2 No adjustment to the original detailed breakdown of the contract line item shall be made once accepted by the Owner and A/E, unless such adjustment is directed by the Owner in writing.

11.3.1.3 Construction Manager at Risk or Design-Builders will be allowed to reallocate among General

Conditions line items after consultation with, and agreement from, the Owner. In the event the contractual limit on General Conditions costs are exceeded, the overruns shall be subtracted from the Fee.

- 11.3.2 The Contractor shall not use subcontractor invoices/pay applications in lieu of a single Schedule of Values from the Contractor.
- 11.3.3 The breakdown shall anticipate future Change Orders and make provisions for incorporating all changes into the breakdown listing. If issued, Change Orders shall be identified separately and shall itemize the GMP Change Orders, Change Proposals and/or Field Orders, which are incorporated into each Change Order for payment on a line-item basis. Contracts with Guaranteed Maximum Price proposals shall repeat the process outlined in this section every time a subcontract is added to the monthly Schedule of Values for payment.
- 11.3.4 Submission and approval of Construction Staging Plans, Parking Plans, Quality Control Plans and Trenching Plans are a prerequisite for starting Work at the site and for receiving the first monthly partial payment.
- 11.4 At a minimum, the Contractor shall provide attachments to each month's payment request in digital PDF format as follows:
  - 11.4.1 Monthly HUB Progress Assessment reports.
  - 11.4.2 Updated Submittal Schedule.
  - 11.4.3 All invoices required by the contract.
  - 11.4.4 The wage rate notification form for each member of the workforce not previously submitted.
  - 11.4.5 Updated RFI and ASI logs.
  - 11.4.6 Updated Work Progress Schedule as specified herein.
  - 11.4.7 Updated quality control tracking logs indicating status of items identified for resolution by Contractor that have been raised by Contractor's quality control reviews, A/E site reviews, and material testing reports.
  - 11.4.8 Construction photographs (with key plan identifying each photo location) showing progress of work related to payment request.
- 11.5 All regular monthly applications for payment shall be submitted to the Owner and A/E for review and approval in draft form no less than five working days prior to the formal submission. The Contractor shall be prepared to review the draft copy at the project site, or at such other location as may be agreed to by the parties. Failure to comply with the requirements outlined in this section shall relieve the Owner from its

obligation to make payments on any/all line items until the Contractor meets all requirements.

11.5.1 Payments cannot exceed the contract, work in-place, or subcontract amounts as noted on the Schedule of Values line items.

11.5.2 All as-built drawings shall be up to date and available for review by the A/E and Owner.

11.5.3 When requesting payment for materials stored off site, all such materials shall be specifically identified, including supporting documentation, photos and insurance. The Contractor should be available to escort the Owner to visit and personally verify the stored materials in a physically separated and secure area.

11.6 Request for payments in association with release of, or reduction in retainage, or completion of work have additional requirements outlined in the UGC.

**12. Procurement of Subcontracts (Applies to Construction Manager at Risk and Design-Build Contracts Only) - (see 5.6 & 5.7 of the CM@R contract)**

12.1 The Construction Manager at Risk (CM) or Design/Build Contract (DB) shall provide a written Bid/Proposal Package Strategy (B/PPS) for procuring subcontracts including self-performance work (other than General Conditions), prior to the approval of the Guaranteed Maximum Price, but no later than twenty calendar days prior to the first advertisement for subcontractor proposals. The B/PPS shall be a written plan submitted to, and reviewed by the Owner.

12.1.1 The plan shall identify bid packages that are most advantageous to the Project and align with the CM/DB's HUD Good Faith Effort by providing at least three qualified respondents (including CM/DB). Each bid package shall include the UGC, Owner's Division 1 Specifications, Drawings and Specifications and any other TSUS requirements included in the CM/DB Contract pertaining to the scope of work covered in the packages.

12.1.2 The B/PPS shall include the following for each bid package contemplated:

- Anticipated scope of work to be procured;
- A current Work Progress Schedule;
- Anticipated selection criteria and questions;
- Self-perform work proposals to be submitted by the CM/DB;
- Proposed advertising dates;
- Proposed pre-proposal meeting(s) dates;
- Proposed receipt, review and award dates;
- Anticipated notice to proceed dates.

- 12.2 The CM/DB shall update the B/PPS monthly at a minimum, as conditions change, or as proposed dates are revised.
- 12.3 Per the Texas Higher Education Code 51.782: “A Construction Manager-at-Risk shall publicly advertise, in the manner prescribed by the TSUS, and receive bids or proposals from trade contractors or subcontractors for the performance of all major elements of the work other than the minor work that may be included in the general conditions”.
- 12.4 The goal of the Project Team shall be to have all work procured through advertised competitive proposals, however, if a “minor procurement” condition arises during the process, the following procurement guidelines may be used by the CM/DB, with Owner approval, for procurement of work:

Less than \$5,000.00	No requirements
Between \$5,000.01 to \$25,000.00	Obtain three solicitations
	Greater than \$25,000.00
	Advertised competitive proposals

If the CM does not receive at least three competitive proposals on procurements over \$5,000.00, the CM shall re-package the scope and re-issue the proposal without additional cost to the Owner, or delay to the project “Substantial Completion” date. This solicitation requirement does not pertain to Change Orders to existing subcontracts.

- 12.5 Work shall be divided into reasonable lots; however, material and labor acquired through purchase order/vendor type contracts are subject to the entire project (i.e. Concrete material shall be procured as a unit price time an estimated total project quantity provided by the CM/DB to equal a total construction cost). Work shall not be incrementally divided for the purpose of circumventing the procurement guidelines of 12.4 above.
- 12.6 The CM/DB may establish selection criteria for each phase of work for review and approval by the Project Team. Criteria shall be qualifications based and consistent with the information needed by the CM/DB to make a proper evaluation and selection. The CM/DB shall establish a selection matrix including cost, criteria, weighting and ranking procedures for evaluation and work with the Project Team to tailor the selection criteria to be project and scope specific to ensure the questions are proper and relevant to the goals of the project. HUB participation/status cannot be used as criteria for determining “best value,” only for determining if the respondent is responsive.



- 12.6.1 The CM/DB shall establish clear criteria and questions so that those reading the Request for Proposals will understand how they will be evaluated.
- 12.6.2 If criteria are not included in the advertisement for proposals, the proposal shall be considered a lump sum bid, and the CM/DB shall award the work to the lowest qualified, responsive bidder.
- 12.6.3 After selection criteria have been established, the CM/DB shall publicly advertise the work in general circulations and trade associations in accordance with TEC 51.782 for CM, Article 7 of the current Contract for DB and the Texas Administrative Code 111.14 –“HUB” for both CM and DB. This advertisement shall include, at a minimum, the following:
  - TSUS Project Number and Project Name;
  - Institution/Campus name;
  - CM/DB name and address;
  - CM/DB contract name and phone number;
  - Location for viewing of plans and specifications;
  - Date, time and location of Pre-proposal meeting(s);
  - Date, time deadlines(s), and location for receiving proposals;
  - Instruction to respondents for submitting proposals;
  - Selection criteria, questions and submittal requirements.
- 12.7 At the time and location identified in the advertisement, the CM/DB shall hold a Pre-proposal meeting(s) for all potential subcontractors with the Project Team and Owner present. The CM/DB shall review the following at a minimum:
  - The general scope of the project and specific scope of work included in this package;
  - Instructions to respondents for submitting proposals;
  - Selection criteria and questions;
  - HUB Good Faith Effort requirements;
  - Project safety requirements;
  - Project schedule requirements;
  - Payment procedures and requirements, including retainage;
  - Commissioning and Close-out requirements.
- 12.8 If the CM/DB identifies any self-performance in the B/PPS (work to be performed by its own employees), the CM/DB shall submit a proposal to the Owner at least 24 hours before the advertised time and location in a manner so as not to compromise the competitive process.
- 12.9 The CM/DB shall accept all proposals at the advertised location until the advertised deadline. Upon receipt, the Owner shall be allowed to review the proposal and confirm the time and date received. Any proposals received after the deadline shall not be considered by the

- CM/DB, and shall be returned to the respondent unopened. Fax proposals shall not be accepted unless the ODR, prior to the initial advertisement for proposals, approves a detailed plan by the CM/DB for proper care and custody.
- 12.10 After compiling, reviewing and verifying the costs and scope associated with all proposals, the CM/DB shall provide a “bid tabulation” matrix and a proposed Schedule of Values for review by the project team.
- 12.10.1 The bid tabulation matrix shall compare all equivalent scope proposals to the CM/DB’s estimate.
- 12.10.2 Each matrix shall indicate the CM/DB estimate(s) for each scope of work and identify the respective cost savings/over-runs.
- 12.10.3 The CM/DB may use values/quantities from its own estimate to provide full scope comparisons between each respondent, however, these “plug” numbers shall be clearly identified in the matrix to the Project Team and be used only to compare various proposals.
- 12.10.4 The proposed updated Schedule of Values shall summarize all executed and recommended “best value” subcontracts to provide a current status of the Guaranteed Maximum Price Proposal.
- 12.10.5 Once the proposals are compiled into a bid tabulation matrix and the proposed Schedule of Values has been updated, the CM/DB shall request a meeting with the Project Team to review the proposals.
- 12.11 The CM/DB shall lead the proposal review meeting and identify any exclusions or conditions, identify any non-qualifying respondents and any other problems that may have occurred during the process.
- 12.11.1 The CM/DB shall confirm that the respondents are qualified, meet the established selection criteria, and identify the amount of the proposals.
- 12.11.2 The CM/DB shall identify the “best values” and the current status of the buyout savings to the project team. If the “best value” causes the CM/DB to exceed the Cost of Work line item, including contingencies in the GMP the CM/DB shall acknowledge that the overage will be deducted from the CM/DB’s Construction Phase Fee.
- 12.12 Once the “best value” respondent has been identified by the CM/DB, without exception by the Owner, the CM/DB shall finalize negotiations with the selected “best value” respondent. If the CM/DB is unsuccessful in its negotiations with the selected respondent, the CM/DB shall notify the ODR that it intends to begin negotiations with the second “best value” and report the cost implications to the

Schedule of Values. Once negotiations are successfully completed the CM/DB shall notify the Owner in writing that it intends to write a subcontract to the selected “best value” respondent and identify the bid package number, value of the contract, along with any changes from the bid day value, changes in scope, report the current status of the GMP identifying the current savings/overages and provided a copy of the executed subcontract or purchase order prior to any request for payment by the CM/DB for applicable work.

- 12.13 The Owner reserves the right to object to the “best value” identified by the CM/DB and may conduct an evaluation of the selection process. If after evaluation the Owner disagrees with the CM/DB “best value” recommendation, the Owner may instruct the CM/DB to re-bid the scope of work or use the Owner’s “best value” selection. If the value of the Owner’s selection causes an increase in the Total Contract Price, the increase will be the responsibility of the Owner.
- 12.14 The process identified in this section shall be repeated for each bid package until the project is entirely bought-out.

**13. Contractor Daily Reports**

The Contractor shall provide the Owner with a report detailing its daily activities on the Project in a format acceptable to the Owner. All tests performed by the Contractor are to be attached to these daily reports. All work reports required of subcontractors shall be attached to the Contractor’s daily report. As a minimum, the report shall include the following information as it relates to the day’s activities on site: subcontractors on site, equipment on site, areas of work, type of work performed, materials received, tests performed, any injuries or accidents, any oral instructions received from the Owner or A/E, any material damage, any change in supervisory personnel and anything that might impact the projects quality or schedule. These reports shall be submitted to the Owner on a daily basis. Not receiving these reports in a timely manner may be grounds for the Owner withholding payments until they are submitted.

**14. As-Built Drawings and Record Drawings (see UGC 10.3 and 11.4 as well as paragraph 25.7 of the CM@R contract)**

- 14.1 One copy of all record documents in digital PDF format and in hardcopy shall be kept up to date and available at the Project Site and also available digitally to the Owner and A/E. “As-Built” drawings, specifications, detail manuals, and submittals shall be continuously annotated in digital PDF format by the Contractor to reflect actual record field conditions, addenda, issuance of all Change Orders and clarifications, and actual dimensional records for underground and all other services. As-Built drawings shall be kept available digitally to

the Owner and A/E. One copy of all approved submittals and material selections shall also be kept available in digital PDF format.

- 14.2 Maintenance of current documentation by the Contractor is required in order to process pay applications. The Owner and A/E will review the status of such documentation monthly, at a minimum. Also refer to the Commissioning Procedures and Project Close-out Procedures for detailed instructions on As-Built drawings and specifications.

**15. Utility Outages**

- 15.1 The Contractor shall notify the Owner, in writing, of any planned utility outages ten business days in advance of the anticipated outage date. The notice shall identify the utility(s) to be shutdown, the anticipated duration of the outage and the subcontractor responsible for initiating and terminating the outage. The Owner has final authority to approve or disapprove of the requested outage date and time.

- 15.2 A standard form for processing a request for utility shutdown or any other disruption shall be provided by the Owner at the Pre-Construction Conference. The Contractor shall utilize this form, with attachments as necessary, in requesting an outage.

**16. Coordination of Space (see UGC section 3.3 and 3.3.6.2 in particular. also see paragraph 4.4 of the CM@R contract)**

- 16.1 The Contractor and subcontractors should coordinate the use of Project space and sequence of installation of mechanical, electrical, plumbing, HVAC and Communications work which is indicated diagrammatically on the drawings. The Contractor and subcontractors should follow routing shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space. The Contractor and subcontractors should utilize space efficiently to maximize accessibility for other and future installations, maintenance and repairs. Making adjustments due to field conditions is considered a part of the work.

- 16.2 Within finished areas all pipes, ducts and wiring should be concealed, unless otherwise directed in the plans and specifications. The Contractor and subcontractors should coordinate locations of fixtures and outlets with finish elements.

- 16.3 The Contractor and subcontractors should verify that mechanical and electrical controls, valves, cut-offs, cleanouts, switches and other items are located in such a manner as to make them readily accessible to the user.

- 16.4 In no case shall locations of equipment be established by scaling the drawings. In the event exact dimensions are not provided with the drawings either supplemental instructions should be obtained from

the A/E, or approval of placement from the Owner, should be obtained prior to final placement.

- 16.5 All work should be arranged in a neat and orderly manner while maximizing clearances.
- 16.6 All operating system components which will be approved through the submittal process should be reviewed prior to submittal to confirm there is physically adequate space to accommodate the device.

**17. Repair of Damage (see UGC 3.3.11.3)**

The Contractor shall be responsible for any loss or damage caused by Contractor, his workers or his subcontractors, to the Work, materials stored on site, to tools and equipment, to adjacent property and to persons. The Contractor shall make good any loss, damage or injury at Contractor's own expense and take particular care to protect adjacent buildings, utilities, landscape and lawn sprinkler systems.

**18. Deliveries**

- 18.1 The Owner will not accept delivery of products and materials bound for the Contractor. The Owner will not be responsible for material losses, or make arrangements to have someone present for acceptance of deliveries.
- 18.2 The name and address of Owner shall not be used for delivery of materials and equipment.
- 18.3 The Contractor should make arrangements for deliveries in accordance with construction schedules and in ample time to facilitate inspection prior to installation without causing delay to the project.

**19. Protection of Utilities, Etc. (see UGC 3.3.11.3)**

The Contractor and all subcontractors and vendors should take precaution to protect and leave intact the streets, site and work previously accomplished, including buildings, streets, utility poles, fire hydrants, utility lines, catch basins and storm drainage systems.

**Section 013200 Project Planning and Scheduling**

**(see UGC Article 9 and Section 5.3 of the CM@R contract)**

**1. Definitions:**

- 1.1 Project Schedule (a.k.a. Work Progress Schedule) – the schedule developed, monitored and maintained by the Contractor and used by the Project Team during Pre-construction and Construction phases of the project.

- 1.2 Project Team – refers to the Owner, Architect/Engineer (A/E), Design Consultants, Users, Contractor and Subcontractors that are contracted and/or specifically assigned to the Project.
- 1.3 Work Day – refers to a day in which work is planned, excluding weekends and legally recognized state holidays.
- 1.4 Critical Path – is the sequence of activities that determines the longest duration for the project when the Total Float is equal to, or less than zero.
- 1.5 Total Float – the number of days an activity on the longest path can be delayed without delaying the Substantial Completion Date. Total float should not be shown as a single activity, but rather the relationship between the early and late finish dates or early and late start dates of each activity.

## **2. Purpose**

- 2.1 Time is an essential part of this contract. Therefore, the timely and successful completion of the Work requires careful planning and scheduling of all activities inherent in the completion of the project.
- 2.2 The Contractor shall participate with the Owner and A/E in a project planning workshop promptly upon execution of the contract unless specified differently in the Construction Documents. The Schedule shall be coordinated with the Contract Price Breakdown, or Schedule of Values, and shall include all significant procurement actions (including long lead-time delivery items and related approval activities), all work placement activities (including start and completion dates), identification of the timing of overhead inspections, system startup and commissioning activities, pre-final and final inspections, and punch list corrections as a minimum.
- 2.3 Acceptance of the Project Schedule; or any subsequent update thereof, by the Owner is for format and extent of detail of the Project Schedule only. Such “acceptance” does not indicate approval of the Contractor’s means or methods, or of any change to the contract terms including without limitation any required contract milestones.
- 2.4 The Project Schedule shall be developed with a certain amount of float time. This float, which shall be no less than ten percent of the total duration of the project, shall be presented in a format which facilitates reporting of progress and trends and can be used to identify risk and opportunities, project upcoming activities and forecast project milestones.
- 2.5 The Owner must be able to reasonably rely on the Contractor’s Project Schedule in order to make accurate commitments to the Project Team, campus administration and other parties as necessary.

**3. Contractor Responsibilities**

- 3.1 The Contractor is responsible for planning, managing, coordinating and scheduling all activities from a Notice to Proceed to Final Completion of the project within the time allotted by the contract.
- 3.2 The Contractor is responsible for keeping the Owner and Project Team fully informed of schedule status and upcoming activities throughout the project.
- 3.3 The Contractor's Pre-Construction and Construction project management personnel shall actively participate in the planning and development of the Project Schedule and shall be prepared to review such development and progress with the Owner, A/E and any other members of the Project Team so the planned sequences and procedures are clearly understood by all parties.
- 3.4 The Contractor is to plan for appropriate activity durations to allow for thorough review, procurement, submittal, installation, inspection, testing and commissioning of all work in order to confirm compliance with the project plans and specifications.

**4. Schedule Development Requirements**

- 4.1 Appropriate logic relationships must be in place and complete, while the Project Schedule shall be free of any mandatory and/or late finish constraints, except for the Substantial Completion Date.
- 4.2 The estimated activity duration of an activity shall be expressed in work days only.
- 4.3 During Pre-Construction Services, the Project Team will establish the maximum duration for every activity included in the schedule.
- 4.4 The Project Schedule should be coordinated with the Contractor's Submittal Schedule and Schedule of Values.
- 4.5 The Contractor's Submittal Schedule is to be provided to the Owner and A/E for review and approval prior to the Contractor coordinating the Submittal Schedule with the Project Schedule to allow Submittals that require longer review times to be identified and planned for.

**5. Planning and Scheduling Workshop**

- 5.1 Within fifteen calendar days after the Notice of Proceed is issued the Contractor will conduct a Planning and Scheduling Workshop with the Contractor's Project Manager, Superintendent, the Owner, A/E, User Representative and any available subcontractors prior to submitting the initial Project Schedule to the Owner.
- 5.2 Two separate Planning and Scheduling Workshops should be held with the aforementioned parties prior to the Contractor submitting the baseline Pre-construction Project Schedule.
- 5.3 The baseline schedule shall be submitted within 10 work days after the Planning and Scheduling Workshops are complete.

**6. Construction Phase Baseline Schedule Submittal**

- 6.1 The Baseline Project Schedule shall be submitted to the Owner with the required Total Float and a current data date (within five days of the date of submission). The Baseline Schedule will be updated within ten days of the date when each subcontractor is procured and brought on to the project.
- 6.2 Once the full scope of the Project has been approved (i.e. the last stage GMP Change Order has been executed), the Project Manager shall coordinate with the Owner to reset the Baseline Project Schedule.
- 6.3 The Owner reserves the right to withhold any and all payments related to the Project Schedule and/or General Conditions if a Baseline Project Schedule is not submitted, or is not acceptable to the Owner.
- 6.4 The Project Schedule shall be presented in a graphic time-scaled view including all activities, early start and finish dates, estimated durations and total float, sorted by early start.

**7. Updating the Project Schedule**

- 7.1 Once the Baseline Project Schedule has been accepted, the Project Manager shall update the Project Schedule on at least a monthly basis and submit the updated Project Schedule with the draft application for payment.
- 7.2 Project Schedule updates shall be based on actual work progress, current logic and remaining durations.
- 7.3 Total Float is intended to be used proportionally with the duration of the project; therefore, there should be no remaining Total Float at the actual Substantial Completion Date.

**8. Excusable Delays and Time Extensions**

- 8.1 Excusable delays shall be administered per the UGC.
- 8.2 If an excusable delay extends the Contract Substantial Completion Date, the ODR may extend the contract time by the number of excusable calendar days lost on the Project Schedule, or take other actions as appropriate under the terms of the contract.
  - 8.2.1 Any Change Order Proposal that the Contractor claims, or will claim, justifies an extension of contract time must contain the information necessary to justify the time extension.
  - 8.2.2 Change Order Proposals that do not affect the Critical Path for the Project and delay the Substantial Completion Date, or does not include a request for additional time prior to approval by the ODR, shall not be due a time extension.



- 8.3 Once the ODR accepts a time extension, and authorizes the Contractor to proceed with the contract change, the proposed revision shall be incorporated in the Project Schedule.

## **Section 013220 Photographic Documentation**

### **1. Photographic Media**

- 1.1 Digital Images: Provide high resolution images in a digital format acceptable to the ODR.
- 1.2 Video Format: Provide high definition color video in a digital file format acceptable to the ODR.

### **2. Construction Photographs**

- 2.1 Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the work. Photos with blurry or out-of-focus areas will not be accepted.
- 2.2 Maintain key plan with each set of construction photos that identifies each photo location.
- 2.3 Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- 2.4 Date and Time: Include date and time filename for each image.
- 2.5 Preconstruction Photos: Before commencement of work on the project take digital photos of the project site and surrounding properties, including existing items to remain during construction, for different vantage points.
- 2.6 Take photos to show existing conditions adjacent to the project site.

3. **Construction Videos** - Preconstruction Video: Before starting construction on the project site prepare a video recording of the site and surrounding properties from different vantage points. Show existing conditions of the site and adjacent buildings. Show protection efforts by Contractor including, but not limited to, tree protection and storm water controls.

## **Section 013520 LEED Requirements**

1. **Definitions** - LEED – Leadership in Energy and Environmental Design.
2. **Submittals** - The Contractor shall provide preliminary submittals of its LEED Action Plan, indicating how the Owner’s requirements will be met, within thirty days after the Start date established by the Notice to Proceed. Submit additional LEED submittals required by other specification sections.

**3. Quality Assurance**

LEED Coordinator: Engage an experienced LEED-Accredited Professional to coordinate LEED requirements. LEED coordinator may also serve as waste management coordinator.

**Section 013523 Project Safety Requirements**

**(see UGC Article 7 and Section 5.8 of the CM@R contract)**

**1. Purpose**

- 1.1 The Contractor shall bear overall responsibility for all aspects of safety at the project.
- 1.2 The Contractor shall, at all times, provide adequate resources, equipment, training and documentation to:
  - 1.2.1 Assure compliance with all applicable regulatory and contract requirements.
  - 1.2.2 Assure a safe work environment at the Project.
  - 1.2.3 Instill a culture for safe behavior in all supervisors and workers.
  - 1.2.4 Ensure a universal understanding that safety and health issues take precedence over all other considerations at the Project.
- 1.3 The Contractor and every subcontractor shall comply with the requirements of this section and all Federal, State, and local statutes, standards, and regulations. In any circumstance where this Section differs from, or is in conflict with any statutory requirement, the more stringent shall apply.
- 1.4 The Owner reserves the right to have any manager, supervisor or worker removed from the project for disregarding the Project's safety requirements.
- 1.5 The Owner reserves the right to deduct from the contract any safety related expenses that the Owner incurs as a result of the Contractor's, or any subcontractor's, failure to comply with the requirements of this section.
- 1.6 The Owner will deny requests for time extensions and/or monetary considerations whenever the Owner intercedes on behalf of safety compliance as a result of Contractor failure to act as required by the contract.

**2. Contractor's Project Safety Coordinator (PSC)**

- 2.1 The Contractor shall provide a Project Safety Coordinator, who shall be responsible for safety training, inspections, investigations, record keeping, reporting, incident response, and claims management, and shall serve as the technical advisor to the Contractor's Project staff for all safety issues.

- 2.2 If the contract value is less than \$3,000,000 the Contractor's project superintendent may perform these duties. If the contract value exceeds \$3,000,000 the Contractor shall furnish a construction safety specialist.
3. **Subcontractors' Project Safety Representative (PSR)**

Every subcontractor shall identify one employee to be its Project Safety Representative who will be on-site during all the subcontractor's activities and will participate in all training activities, audits, etc. related to the safety program.

  - 3.1 The PSR shall attend all safety meetings while the company is actively performing work at the project and shall be responsible for reporting all incidents to the PSC.
  - 3.2 The PSR shall transport or accompany any injured co-worker that requires medical attention at facilities outside the project.
  - 3.3 The PSR shall be responsible for either conducting or making arrangements for all training, equipment and materials that workers need to perform their duties in the safest possible manner.
4. **Project Safety Program**
  - 4.1 The Contractor shall develop a written, site specific, safety program. It shall be printed in English and an initial draft shall be submitted to the Owner for review and comment as a prerequisite to issuance of the Notice to Proceed with construction services'
  - 4.2 The Contractor shall incorporate Owner comments into a final draft which shall be resubmitted to the Owner for concurrence.
5. **Personal Protective Equipment (PPE)**
  - 5.1 PPE shall be required for all workers in construction areas. The followings items shall be furnished, inspected, and maintained by the employer. The Contractor shall maintain an adequate inventory to furnish these items for five Owner representatives who may visit the project from time to time:
    - 5.1.2 Hard Hats (safety helmets): shall be ANSI stamped (Z89.1-1997, Type I, Class E, G and C and be worn at all times while in the construction areas.
    - 5.1.3 Eye protection (safety glasses): shall be ANSI stamped Z87. If a worker wears prescription glasses (plastic lenses only) that are marked Z87, the employer shall furnish goggles or safety glasses that are designed to fit over another pair of glasses and be worn at all times while in the construction areas.
    - 5.1.4 Vests shall be at a minimum a Class II reflective traffic vests and be worn at all times while in the construction areas.

5.1.5 Hand protection, Hearing Protection, Respiratory Protection, Fall Arrest Equipment, Other PPE: shall all be furnished as required to comply with OSHA Standards.

6. **Medical Equipment** - The Contractor shall maintain at least one first aid kit on the project site at all times per ANSI Z308.1.

7. **Certifications**

Supervisors, Competent Persons, Equipment and Crane Operators, and Emergency Responders shall all be identified in lists submitted by employers to the PSC prior to commencement of work. In addition to lists, the employers shall include copies of all available training certificates or formal documentation to support the declared positions. For all operations that require a “competent person” (per OSHA definition), the PSC shall maintain a project file containing the transmittals from each employer naming each person declared to be competent for each operation. For operations requiring independent certification, a copy of the certificates shall be attached.

8. **Project Safety Signs and Posters**

8.1 The Contractor shall post safety regulation signs at every point of entry to the project in English and Spanish. The content of the sign should at a minimum indicate that visitors are required to check in at the project office, persons entering the construction area must be appropriately attired, no weapons, tobacco, alcohol, controlled substances and related paraphernalia may be brought onto the premises, a posted speed limit will be identified and copies of the MSDS sheets are available at the project office.

8.2 The Contractor shall post emergency contacts and notification, including phone numbers, notification of insurance carrier for Worker’s Compensation Coverage and any and all other required State and Federal postings.

**9. Project Safety Training and Meetings**

- 9.1 Within fifteen days of the issuance of the Notice to Proceed the Contractor shall hold the initial safety meeting and all Project Team members are strongly encouraged to participate.
- 9.2 The PSC shall present orientation training to every person who is to be allowed into the construction area without an escort. A translator shall be present when there are workers in attendance who do not speak English.
- 9.3 The PSC shall maintain a site safety orientation log signed by all persons receiving safety training.
- 9.4 Project safety meetings will be held on a weekly basis and will be chaired by the PSC and attended by all companies' PSRs who are currently on site. The topics of discussion should focus on safety and loss control issues.
- 9.5 "Tool Box Talks" shall be conducted on a weekly basis by each PSR and will cover safety issues related to upcoming work, current site conditions and review of any recent incidents.
- 9.6 Special task training should occur when new equipment or non-routine activities are scheduled.

**10. Safety Inspections**

- 10.1 Daily – The PSC shall observe work operations in all areas of the project and note any violations in the daily progress reports.
- 10.2 Weekly – A comprehensive safety inspection shall be conducted by the PSC and each PSR for their respective work areas. A written record of the observations and recommended corrections should be made and placed in the project files.
- 10.3 Quarterly – The PSC shall facilitate an inspection which shall include, but not be limited to the following: fall arrest equipment, fire extinguishers, rigging, ladders, hand tools, power tools, cords, welding leads, hoses, alarms, respirators, ground fault circuit interrupters, first aid stations, eye wash stations, and emergency rescue equipment.
- 10.4 Semi-annually – The PSC shall facilitate an inspection of all hoists, cranes, mobile equipment, motorized lift platforms, stages, generators and compressors to assure proper operational condition.
- 10.5 The PSC shall notify the Owner within one hour of the arrival at the project site by any representative of a regulatory agency and provide the Owner with a copy of any published findings or citations issued to any employer and shall ensure that statutory posting requirements are met.

- 11. Records and Reports** - The PSC shall prepare a written report for each incident that involves any injury that may not be resolved by first aid response and/or each incident that involves damage to property or

equipment. The report should contain a list of factual details that created the incident, the responsive actions that occurred during and immediately following the incident and recommendations for modifications to prevent repetition of the incident. A copy of the report should be submitted to the Owner within 24 hours of the incident.

## **12. Construction Operations**

### **12.1 Cranes**

12.1.1 Tower cranes and related power supply equipment shall be surrounded by at least an eight foot high, 5/8" plywood enclosure with lock controlled entrance.

12.1.2 Operators of cranes, derricks and/or hoisting equipment shall possess certification from a nationally accredited training organization.

12.2 Demolition - Safe egress paths and barrier isolation of impacted areas shall be monitored and maintained to prevent entry by other trades and members of the public. This includes removal of materials and trash from elevated locations.

### **12.3 Electrical Power**

12.3.1 Ground fault circuit interruption (GFCI) shall be the primary protection from exposure to electrical current for all workers on the project. Only exit lighting and medium-high (greater than 240) voltage service will not be GFCI protected.

12.3.2 All strings of temporary lights shall be fully lamped and guarded regardless of height, and shall be continuously maintained. Adequate levels of illumination for the work operations must be maintained at all times.

12.3.3 All receptacles and switches shall have trim plates installed before they are energized.

12.3.4 All power distribution panels shall have full covers installed before primary power is brought into the panel.

### **12.4 Excavations**

12.4.1 Prior to starting, each excavation shall be reviewed with the Owner to obtain any historical knowledge about existing utilities in the area. Where applicable, "utility locates" will be called for seventy-two hours in advance of commencement of the excavation. Potholing and/or hand excavation shall be required within two horizontal feet of located centerlines and in areas where knowledge is lacking.

12.4.2 When a trench excavations cannot be backfilled in the same day as it is created, a highly visible barricade shall be erected no less than six feet from all approachable edges. All portable means of access shall be removed at the end of each workday.

12.4.3 Earth ramps that are to be used for walking access shall not exceed twenty percent in grade slope. Steeper slopes shall be gated and used for equipment only.

12.5 Fall Protection and Prevention

12.5.1 Any walking/working surface shall be defined to have a fall exposure that has one or more sides, ends or edges without a guardrail system attached or a solid continuous wall of at least forty-two inches in height above the walking/working surface, and within twelve horizontal inches from the edge. The Contractor shall require engineered or conventional fall protection measures for each and every fall exposure that involves vertical distances equal to or greater than six feet. The recognized exemptions/exceptions are as follows:

- Portable step ladders
- Extension and straight ladders
- Erection and dismantling of scaffolding
- Limited exposure for engaging and disengaging a hook
- Vertical fall exposure protected by a warning line and six foot setback

12.5.2 Provide covers over holes which are secured and clearly marked as covers.

12.5.3 Job built ramps and bridges must be covered with non-skid materials.

12.5.4 Materials, scraps, waste and tools shall never be allowed to free-fall from a height greater than twenty feet, unless it is contained within a chute or controlled by a hoist.

12.6 Fire Protection

12.6.1 The Contractor shall review fire prevention needs and procedures with the Owner and shall post appropriate information and warnings.

12.6.2 The Contractor shall maintain unobstructed access to fire extinguishers, temporary fire protection facilities, stairways and other access routes.

12.6.3 The Contractor shall provide supervision of welding operations, combustion type temporary heating units and similar sources of ignition.

12.6.4 All floors that have combustible materials present shall be accessible from ground level by a usable stair system. For structures greater than three stories in height shall have a fire sprinkler stand pipe installed and it shall be charged to within two stories (or thirty vertical feet) of all floors containing combustible materials. A Siamese connection shall be installed at every second level to provide access for fire hoses.

- 12.6.5 All fire extinguishers that are not task-specific shall be adequate in number and description to comply with OSHA declared limits for egress points, floor area and travel distances. They shall be situated in highly visible locations.
- 12.6.6 All fire extinguisher that are task specific shall be inspected and furnished in advance by the employer that will be conducting the work that requires such fire fighting provisions. Such extinguishers shall be located with twenty-five feet from the perimeter of the task operation.
- 12.7 Housekeeping - The Contractor shall ensure that all subcontractors effectively clean the project site continuously throughout each workday. Effective cleanup shall address all of the following housekeeping issues:
  - 12.7.1 All construction waste, trash, and debris shall be placed in designated receptacles. No glass bottles will be permitted on the project site.
  - 12.7.2 Stack all whole and scrap materials in locations that do not obstruct a clear pathway nor create a risk of toppling causing injury or damage to the work.
  - 12.7.3 Place all hoses, cords, cables and wires in locations that prevent them from being damaged by tires, sharp edges, or pinch points and from creating trip or hook hazards.
  - 12.7.4 Secure and effectively cover all materials on roofs and elevated levels to prevent displacement by wind.
  - 12.7.5 All materials and equipment shall be protected from the elements while staged on the project site.
  - 12.7.6 All signs, barricades, fire extinguishers, guardrails, gates, etc. are to be restored to their proper locations in sound condition after they have been moved for work purposes.
  - 12.7.7 Properly store and secure all flammable and combustible liquids and gases.
  - 12.7.8 Collect and place all cut-off or waste pieces of rolling stock into waste and scrape containers as they are created.
  - 12.7.9 Live rounds ejected from powder-actuated tools shall be immediately placed in designated containers and periodically returned to the tool dealer or law enforcement agency for proper disposal.
  - 12.7.10 All puncture and impalement exposures shall be covered or eliminated as soon as they are created.
- 12.8 Ladders
  - 12.8.1 Portable aluminum ladders are prohibited.
  - 12.8.2 Extension, straight and job built ladders shall be secured from movement at the top and bottom.



- 12.8.3 Manufactured portable ladders shall display ANSI heavy duty rating (Class 1-A) and be inspected daily.
- 12.9 Medical Assistance and Screening
  - 12.9.1 The PSC shall maintain a First Aid Log for all treatment administered on the project.
  - 12.9.2 Drug and alcohol screening shall be mandatory for every supervisor and/or worker who sustains or contributes to the cause of any injury (beyond first aid) or property damage incident.
  - 12.9.3 Minimum requirements for chemical screening shall at least match the threshold limits for a NIDA 5-panel protocol and for alcohol screening shall at least match the Texas DOT vehicle operator's limit for blood alcohol content.
  - 12.9.4 Any supervisor or worker who tests positive shall be ejected and excluded from return to work at the project. Successful completion of an acceptable rehabilitation program may be considered by the Owner for restoring a person's ability to return to the project. The final decision rest solely with the Owner.
- 12.10 Petroleum Fuel Operated Equipment
  - 12.10.1 Where possible, equipment operator cabs shall be locked during non-working hours. Only equipment operators and direct supervisors shall have access to keys.
  - 12.10.2 Any combustion engine equipment with less than ninety-eight percent clean air exhaust shall not be operated in enclosed spaces unless the exhaust is piped to outside air, and fresh air is brought into the space to replace the amount being consumed. This includes generators/welders and compressors as well as mobile equipment.
  - 12.10.3 For hose and termination fittings on air compressors, whip checks shall be used at all connection points. Emergency shut off valves shall be installed on every discharge fitting of all air compressors.
- 12.11 Public Protection - The public boundary perimeter shall be secured from public intrusion. Attractive nuisance items such as tower cranes, tall ladders, fire escapes, large excavations, etc. shall require additional and separate security measures.
- 12.12 Project Service Water
  - 12.12.1 Potable water: comply with city health requirements.
  - 12.12.2 Non-potable water: Water storage containers, hose bibs and faucet shall be posted in English and Spanish "Danger - Do Not Drink"
- 12.13 Welding and Burning

- 12.13.1 Oxygen and fuel gas cylinders shall not be stored together, including on bottle carts. At the end of any workday bottles must be moved to OSHA prescribed storage arrangements.
- 12.13.2 Anti-flashback arrestors shall be installed at the pressure regulator gauges of all Oxy-Acetylene cutting rigs.
- 12.13.3 Welding operations shall not be allowed to present an opportunity for flash burn exposures to the eyes of any workers in the vicinity. All welding operations shall provide appropriate screening measures, erected in advance to contain the high energy light.

## **Section 014200                      Reference Standards**

1.     **Governing Regulations/Authorities** - The Architect/Engineer (A/E) has contacted the appropriate authorities having jurisdiction for the listed regulations and codes to obtain information for preparation of the Construction Documents. The Contractor may contact the authorities having jurisdiction directly for information and decisions having bearing on the work. **Refer to the coversheet of the plans issued for construction to identify the appropriate authorities having jurisdiction.**
  
2.     **Standards**
  - 2.1     Reference to standards, codes, Specifications, recommendations and regulations refer to the latest edition or printing prior to the date of issue of the Construction Documents.
  - 2.2     Applicable portions of standards listed that are not in conflict with the Construction Documents are hereby made a part of the Specifications
  - 2.3     Modifications or exceptions to Standards shall be considered as amendments and unmodified portions shall remain in full effect. In cases of discrepancies between standards, the more stringent requirements shall govern.
  - 2.4     Copies of Standards: Each entity engaged in construction of the Project is required to be familiar with industry standards applicable to its respective construction activity. Copies of applicable standards are not bound with the Construction Documents. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source.
  
3.     **Schedule of Standards**  
  

AA	Aluminum Association 1525 Wilson Blvd. Suite 600 Arlington, VA 22209
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703.358.2960  
Fax 703.358.2961  
[www.aluminum.org](http://www.aluminum.org)

- AABC** Associated Air Balance Council  
1518 K St. NW  
Washington, DC 20005  
202.737.0202  
[www.aabchq.com](http://www.aabchq.com)
- AAMA** American Architectural Manufacturers Assoc.  
1827 Walden Office Square, Suite 550  
Schaumburg, IL 60173-4268  
847.303.5664  
Fax 847.303.5774  
[www.aamanet.org](http://www.aamanet.org)
- AAN** American Association of Nurserymen  
1250 Eye St., NW, Suite 500  
Washington, DC 20005  
202.789.2900
- ANLA** American Nursery and Landscape Association  
1000 Vermont Ave., NW, Suite 300  
Washington, DC 20005-4914  
202.789.2900  
[www.anla.org](http://www.anla.org)
- AASHTO** American Association of State Highway and Transportation  
Officials  
444 North Capitol St., Suite 225  
Washington, DC 20001  
202.624.5800  
[www.transporation.org](http://www.transporation.org)
- ACI** American Concrete Institute  
38800 Country Club Dr.  
Farmington Hills, MI 48331  
248.848.3700  
Fax 248.848.3701  
[www.aci-int.org](http://www.aci-int.org)
- ACIL** American Council on Independent Laboratories  
1629 K St. NW

Washington, DC 20006  
202.887.5872  
[www.acil.org](http://www.acil.org)

**ACPA** American Concrete Pipe Association  
1303 West Walnut Hill Lane, Suite 305  
Irving, TX 75038-3008  
972.506.7216  
Fax 972.506.7682  
[www.concrete-pipe.org](http://www.concrete-pipe.org)

**ADC** Air Diffusion Council  
1901 N. Roselle Rd., Suite 800  
Schaumburg, IL 60195  
847.706.6750  
Fax 847.706.6751  
[www.flexibleduct.org](http://www.flexibleduct.org)

**AF&PA** American Forest & Paper Products  
(Formerly National Forest Products Assoc. (NFPA))  
1111 Nineteenth St., NW, Suite 800  
Washington, DC 20036  
800.878.8878  
Fax 202.463.2700  
[www.afandpa.org](http://www.afandpa.org)

**AI** Asphalt Institute  
2696 Research Park Dr.  
Lexington, KY 40512-4052  
606.288.4960  
<http://www.asphaltinstitute.org>

**AIA** American Institute of Architects  
1735 New York Ave. NW  
Washington, DC 20006  
202.626.7300  
[www.aia.org](http://www.aia.org)

**AIHA** American Industrial Hygiene Assoc.  
P 2700 Prosperity Ave., Suite 250  
Fairfax, VA 22031  
703.849-888  
[www.aiha.org](http://www.aiha.org)

- AISC** American Institute of Steel Construction  
One East Wacker Dr., Suite 3100  
Chicago, IL 60601-2001  
312.670.2400  
[www.aisc.org](http://www.aisc.org)
- AISI** American Iron and Steel Institute  
1140 Connecticut Ave., NW, Suite 705  
Washington, DC 20036  
202.452.7100  
[www.steel.org](http://www.steel.org)
- AITC** American Institute of Timber Construction  
7012 S. Revere Parkway, Suite 140  
Centennial, CO 80112  
303.792.9559  
303.792.0669  
[www.aitc-glulam.org](http://www.aitc-glulam.org)
- ALI** Associated Laboratories, Inc.  
500 S. Vermont St.  
Palatine, IL 60067  
800.685.0026  
[www.associatedlabs.org](http://www.associatedlabs.org)
- ALSC** American Lumber Standards Committee  
P.O. Box 210  
Germantown, MD 20875  
301.972.1700  
[www.alsc.org](http://www.alsc.org)
- AMCA** Air Movement and Control Assoc.  
30 W. University Dr.  
Arlington Heights, IL 60004-1893  
847.394.0150  
[www.amca.org](http://www.amca.org)
- ANSI** American National Standards Institute  
1819 L St., NW, 6<sup>th</sup> Fl.  
Washington, DC 20036  
202.293.8020  
Fax 202.293.9287  
[www.ansi.org](http://www.ansi.org)

- APA** American Plywood Assoc.  
7011 S. 19<sup>th</sup>  
Tacoma, WA 98466  
253.565.6600  
Fax 253.565.7265  
[www.apawood.org](http://www.apawood.org)
- ARI** Air Conditioning and Refrigeration Institute  
4100 North Fairfax Dr., Suite 200  
Arlington, VA 22203  
703.524.8800  
Fax 703.528.3816  
[www.ari.org](http://www.ari.org)
- ARMA** Asphalt Roofing Manufacturers Assoc.  
Public Information Dept.  
1156 15<sup>th</sup> St., NW, Suite 900  
Washington, DC 20005  
202.207.0917  
Fax 202.223.9741  
[www.asphaltroofing.org](http://www.asphaltroofing.org)
- ASA** Acoustical Society of America  
2 Huntington Quadrangle, Suite 1N01  
Melville, NY 11747-44502  
516.576.2360  
Fax 516.576.2377  
[www.asaa.aip.org](http://www.asaa.aip.org)
- ASC** Adhesive and Sealant Council  
7979 Old Georgetown Rd. Suite 500  
Bethesda, MA 20814  
301.986.9700  
Fax 301.986.9795  
[www.ascouncil.org](http://www.ascouncil.org)
- ASHRAE** American Society of Heating, Refrigerating and Air-  
Conditioning Engineers  
1791 Tullie Circle, NE  
Atlanta, GA 30329  
404.636.8400  
Fax 404.321.5478  
[www.ashrae.org](http://www.ashrae.org)

- ASME** American Society of Mechanical Engineers  
Three Park Ave.  
New York, NY 10016-5990  
800.843.2763  
[www.asme.org](http://www.asme.org)
- ASPE** American Society of Plumbing Engineers  
8614 Catalpa Ave., Suite 1007  
Chicago, IL 60656-1116  
773.693.2773  
Fax 773.695.9007  
[www.aspe.org](http://www.aspe.org)
- ASSE** American Society of Sanitary Engineers  
901 Canterbury, Suite A  
Westlake, OH 44145  
440.835.3040  
Fax 440.835.3488  
[www.asse-plumbing.org](http://www.asse-plumbing.org)
- ASTM** American Society for Testing and Materials  
100 Barr Harbor Dr.  
West Conshohocken, PA 19428-2959  
610.832.9500  
Fax 610.832.9555
- AWCMA** American Window Covering Manufacturers Assoc.  
355 Lexington, AVE, 17<sup>th</sup> Fl.  
New York, NY 10017  
212.297.2122  
Fax 212.370.9047  
[www.wcmanet.org](http://www.wcmanet.org)
- AWI** Architectural Woodwork Institute  
46179 Westlake Dr., Suite 120  
Potomac Falls, VA 20165  
571.323.3636  
Fax 571.323.3630  
[www.awinet.org](http://www.awinet.org)
- AWPA** American Wood-Preservers' Assoc.  
P.O. Box 361784  
Birmingham, AL 35236-1784  
205.733.4077  
[www.awpa.com](http://www.awpa.com)

- AWPB** American Wood Preservers Bureau  
4 D. Washington, St  
Newnan, GA 30263  
404.254.9877
- AWS** American Welding Society  
50 N.W. LeJeune Rd.  
Miami, FL 33126  
800.443.9353  
Fax 305.443.9353  
[www.aws.org](http://www.aws.org)
- BHMA** Builder's Hardware Manufacturers Assoc.  
355 Lexington Ave., 15<sup>th</sup> Fl.  
New York, NY 10017  
212.297.2122  
Fax 212.370.9047  
[www.buildershardware.com](http://www.buildershardware.com)
- BIA** The Brick Industry Association  
1850 Centennial Park Dr., Suite 301  
Reston, VA 20191  
703.620.0010  
Fax 703.620.3928  
[www.bia.org](http://www.bia.org)
- BIFMA** Business and Institutional Furniture Manufacturers Assoc.  
2680 Horizon, Dr., SE, Suite A-1  
Grand Rapids, MI 49546-7500  
616.285.3963  
Fax 616.285.3765  
[www.bifma.org](http://www.bifma.org)
- CFFA** Chemical Fabrics & Film Assoc., Inc.  
c/o Thomas Assoc., Inc  
1300 Sumner Ave.  
Cleveland, OH 44115-2851  
216.241.7333  
[www.chmicalfabricsandfilm.com](http://www.chmicalfabricsandfilm.com)
- CISCA** Ceiling and Interior Systems Construction Assoc.  
5700 Old Orchard Rd., 1<sup>st</sup> Fl.



Skokie, IL 60077  
708.965.2776  
[www.cisca.org](http://www.cisca.org)

**CISPI** Cast Iron Soil Pipe Institute  
5959 Shallowford Rd., Suite 419  
Chattanooga, TN 37421  
615.892.0137  
Fax 615.892.0817  
[www.cispi.org](http://www.cispi.org)

**CRI** Carpet and Rug Institute  
P.O. Box 2048  
Dalton, GA 30722  
706.278.8835  
Fax 706.278.8835 [www.carpet-rug.org](http://www.carpet-rug.org)

**CRSI** Concrete Reinforcing Steel Institute  
933 North Plum Grove Rd.  
Schaumburg, IL 60173-4758  
847.517.1200  
Fax 847.517.1206  
[www.crsi.org](http://www.crsi.org)

**CTIOA** Ceramic Tile Institute of America  
12064 Jefferson, Blvd.  
Culver City, CA 90230-6219  
310.574.7800  
Fax 310.821.4655  
[www.ctioa.org](http://www.ctioa.org)

**DHI** Door and Hardware Institute  
14150 Newbrook Dr., Suite 200  
Chantilly, VA 20151  
703.222.2010  
Fax 703.222.2410  
[www.dhi.org](http://www.dhi.org)

**ETL** ETL Testing Laboratories, Inc.  
P.O. Box 2040  
Route 11, Industrial Park  
Cortland, NY 13045  
607.753.6711  
[www.etl.com](http://www.etl.com)

**ECDS** Energy Conservation Design Standards for New State Buildings  
State Energy Conservation Office  
Texas Facilities Commission  
P.O. Box 13047  
Austin, TX 78711-3047

**FGMA** Flat Glass Marketing Assoc.  
(The Flat Glass Marketing Assoc. included Glass Tempering Association, and members of the Laminators Safety Glass Association consolidated to form the Glass Assoc. of North America)  
2495 SW Wanamaker Dr., Suite A  
Topeka, KS 66614  
785.271.0208  
Fax 785.271.0166  
[www.glasswebsite.com](http://www.glasswebsite.com)

**FM** Factory Mutual Research Organization  
500 River Ridge  
P.O. Box 9102  
Norwood, MA 02062  
617.762.4300

**GA** Gypsum Association  
810 First St., NE #510  
Washington, DC 20002  
202.289.5440  
Fax 202.289.3707  
[www.gypsum.org](http://www.gypsum.org)

**HMA** Hardwood Manufacturers Assoc.  
400 Penn Center Blvd., Suite 350  
Pittsburg, PA 15235  
412.829.0770  
Fax 412.829.0844  
[www.hmamembers.org](http://www.hmamembers.org)

**HPMA** Hardwood Plywood Manufacturers Assoc.  
1825 Michael Farraday Dr.  
Reston, VA 20190  
703.435.2900  
Fax 703.435.2537  
[www.hpva.org](http://www.hpva.org)

- IBC** International Building Code  
International Code Council  
500 New Jersey Ave., NW 6<sup>th</sup> Fl.  
Washington, DC 20001-2070
- IBD** Institute of Business Designers  
341 Merchandise Mart  
Chicago, IL 60654  
312.647.1950
- ICC** International Code Council  
500 New Jersey Ave., NW, 6<sup>th</sup> Floor  
Washington, DC 20001  
888.422.7233  
Fax 202.783.2348  
[www.iccsafe.org](http://www.iccsafe.org)
- IECC** International Energy Conservation Coder  
[www.iccsafe.com](http://www.iccsafe.com)
- IEEE** Institute of Electrical and Electronic Engineers  
3 Park Ave., 17<sup>th</sup> Fl.  
New York, NY 10016-5997  
212.419.7900  
Fax 212.752.4929  
[www.ieee.org](http://www.ieee.org)
- IESNA** Illuminating Engineering Society of North American  
120 Wall Street, Fl. 17  
New York, NY 10005  
212.248.5000  
Fax 212.248.5017  
[www.iesna.org](http://www.iesna.org)
- IFC** International File Code  
[www.iccsafe.org](http://www.iccsafe.org)
- IGCC** Insulating Glass Certification Council  
c/o ETL Testing Laboratories, Inc.  
P.O. Box 9  
Henderson Harbor, NY 13651  
315.646.2234  
Fax 315.646.2297

[www.igcc.org](http://www.igcc.org)

**ILI** Indiana Limestone Institute of American  
400 Stone City Bank Bldg.  
Bedford, IN 47421  
812.275.4426  
Fax 812.279.8682  
[www.iliai.com](http://www.iliai.com)

**IPC** International Plumbing Code  
[www.iccsafe.org](http://www.iccsafe.org)

**ISA** Instrument Society of America  
67 Alexander Dr.  
Research Triangle Park, NC 27709  
919.549.8411  
Fax 919.549.8288  
[www.isa.org](http://www.isa.org)

**LIA** Lead Industries Assoc., Inc.  
Sparta, New Jersey  
[www.leadinfo.com](http://www.leadinfo.com)

**LPI** Lightning Protection Institute  
25475 Magnolia Dr.  
P.O. Box 99  
Maryville MO 64468  
800.488.6864  
[www.lightning.org](http://www.lightning.org)

**MBMA** Metal Building Manufacturers Assoc.  
1300 Sumner Ave.  
Cleveland OH 44115-2851  
216.241.7333  
Fax 216.241.0105  
[www.mbma.com](http://www.mbma.com)

- MCAA** Mechanical Contractors Assoc. of America  
1385 Piccard Dr.  
Rockville, MD 20850  
301.869.5800  
Fax 301.990.9690  
[www.mcaa.org](http://www.mcaa.org)
- MFMA** Maple Flooring Manufacturers Assoc.  
60 Revere Dr., Suite 500  
Northbrook, IL 60062  
888.480.9138  
Fax 847.480.9282  
[www.maplefloor.org](http://www.maplefloor.org)
- MIA** Marble Institute of America  
28901 Clemens Rd., Suite 100  
Cleveland, OH 44145  
440.250.9222  
Fax 440.250.9223  
[www.marble-institute.com](http://www.marble-institute.com)
- ML/SFA** Metal Lath/Steel Framing Assoc.  
(A Division of the National Association of Architectural Metal  
Manufacturers)  
800 Roosevelt Rd., Bldg. C, Suite 312  
Glen Ellyn, IL 60137  
630.942.6591  
Fax 630.7903095  
[www.naamm.org](http://www.naamm.org)
- NAAMM** National Association of Architectural Metal Manufacturers  
800 Roosevelt Rd., Bldg. C, Suite 312  
Glen Ellyn, IL 60137  
630.942.6591  
Fax 630.7903095  
[www.naamm.org](http://www.naamm.org)
- NAIMA** North American Insulation Manufacturers Assoc,  
44 Canal Center Plaza, Suite 310  
Alexandria, VA 22314  
703.684.0084  
Fax 703.684.0427  
[www.naima.org](http://www.naima.org)

**NAPA** National Asphalt Pavement Association  
NAPA Building  
5100 Forbes Blvd.  
Lanham, MD 20706  
888.468.6499  
[www.hotmix.org](http://www.hotmix.org)

**NCMA** National Concrete Masonry Assoc.  
13750 Sunrise Valley Dr.  
Herndon, VA 20171-4662  
703.713.1900  
Fax 703.713.1910  
[www.ncma.org](http://www.ncma.org)

**NEC** National Electrical Code (NFPA)

**NECA** National Electrical Contractors Assoc.  
3 Bethesda Metro Center, Suite 1100  
Bethesda, MD 20814  
301.657.3110  
Fax 301.215.4500  
[www.necanet.org](http://www.necanet.org)

**NEII** National Elevator Industry, Inc.  
1677 County Route 64  
P.O. Box 838  
Salem, NY 127865-0838  
518.854.3100  
Fax 518.854.3257  
[www.neii.org](http://www.neii.org)

**NEMA** National Electrical Manufacturers Assoc.  
1300 North 17<sup>th</sup> St., Suite 1752  
Rosslyn, VA 22209  
703.841.3200  
Fax 703.841.5900  
[www.nema.org](http://www.nema.org)

**NFPA** National Fire Protection Assoc.  
1 Batterymarch Park  
Quincy, MA 02169-7471  
617.770.3000  
Fax 617.770.0700

[www.nfpa.org](http://www.nfpa.org)

- NHLA** National Hardwood Lumber Assoc.  
6830 Raleigh-LaGrange Rd.  
Memphis, TN 38184-0518  
901.377.1818  
[www.natlhardwood.org](http://www.natlhardwood.org)
- NLGA** National Lumber Grades Authority  
#302 960 Quayside Dr.  
New Westminster, BC V3M 6G2 Canada  
604.524.2393  
Fax 604.524.2893  
[www.nlga.org](http://www.nlga.org)
- NPA** National Particleboard Assoc.  
18928 Premiere Court  
Gaithersburg, MD 20879-1569  
301.670.0604  
Fax 301.840.1252  
[www.pbmdf.org](http://www.pbmdf.org)
- NPCA** National Paint and Coatings Assoc.  
1500 Rhode Island Ave., NW  
Washington, DC 20005  
202.462.6272  
Fax 202.462.8549  
[www.paint.org](http://www.paint.org)
- NRCA** National Roofing Contractors Assoc.  
10255 W. Higgins Rd., Suite 600  
Rosemont, IL 60018-5607  
708.299.9070  
Fax 847.299.1183
- NTMA** National Terrazzo and Mosaic Assoc.  
201 North Maple, Suite 208  
Purcellville, VA 20132  
540.751.0930  
Fax 540.751.0935  
[www.ntma.com](http://www.ntma.com)
- NWWDA** National Wood Window and Door Assoc.  
1400 E. Touhy Ave.

Des Plains, IL 60018  
800.223.2301  
Fax 708.299.1286

- PCA** Portland Cement Assoc.  
5420 Old Orchard Rd.  
Skokie, IL 60077  
847.966.6200  
Fax 847.966.8389  
[www.cement.org](http://www.cement.org)
- PCI** Precast/Prestressed Concrete Institute  
209 W. Jackson Blvd. #500  
Chicago, IL 60606  
312.786.0300  
Fax 312.786.0353  
[www.pci.org](http://www.pci.org)
- RFCI** Resilient Floor Covering Institute  
401 E. Jefferson St., Suite 102  
Rockville, MC 20850  
301.340.8580  
Fax 301.340.7283  
[www.rfci.com](http://www.rfci.com)
- RMA** Rubber Manufacturers Assoc.  
1400 K St., NW, Suite 900  
Washington DC 20005  
202.682.4800  
[www.rma.org](http://www.rma.org)
- SDI** Steel Deck Institute  
P.O. Box 25  
Fox River Grove, IL 60021  
847.458.4647  
Fax 847.458.4648
- SECO** State Energy Conservation Office  
LBJ State Office Bldg.  
111 E. 17<sup>th</sup> St., Rm 1114  
Austin, TX 78701  
512.463.1931  
Fax 512.475.2569  
[www.seco.cpa.stat.tx.us](http://www.seco.cpa.stat.tx.us)



- SGCC** Safety Glazing Certification Council  
P.O. Box 730  
Sackets Harbor, NY 13685  
315.646.2234  
Fax 315.646.2297  
[www.sgcc.org](http://www.sgcc.org)
- SIGMA** Sealed Insulating Glass Manufacturers Assoc.  
401 N. Michigan  
Chicago, IL 60611  
312.644.8610  
[www.sigmaonline.org](http://www.sigmaonline.org)
- SJI** Steel Joist Institute  
3127 Mr. Joe White Ave.  
Myrtle Beach, SC 29577-6760  
843.626.1995  
Fax 843.626.5565  
[www.steeljoist.org](http://www.steeljoist.org)
- SMACNA** Sheet Metal and Air Conditioning Contractors National Assoc.  
4201 Lafayette Center Dr.  
Chantilly, VA 20151-1209  
703.803.2980  
703.803.3732  
[www.smacna.org](http://www.smacna.org)
- SPIB** Southern Pine Inspection Bureau  
P.O. Box 10915  
Pensacola, FL 32524-0915  
850.434.2611  
Fax 850.433.5594  
[www.spib.org](http://www.spib.org)
- SPRI** Single Ply Roofing Institute  
77 Rumford Ave., Suite 3B  
Waltham, MA 02453  
781.647.7026  
Fax 781.647.7222  
[www.spri.org](http://www.spri.org)
- TCA** Tile Council of America  
100 Clemson Research Blvd.

Anderson, SC 29625  
864.646.8453  
Fax 864.646.2821  
[www.tileusa.com](http://www.tileusa.com)

- TIMA** Thermal Insulation Manufacturers Assoc.  
29 Bank St.  
Stanford, CT 06901  
203.324.7533  
(Standards now issued by NAIMA, [www.naima.org](http://www.naima.org))
- UFAC** Upholstered Furniture Action Council  
Box 2436  
High Point, NC 27261  
919.885.5065  
[www.ufac.org](http://www.ufac.org)
- UL** Underwriters Laboratories, Inc.  
333 Pfingsten Rd.  
Northbrook, IL 60062-2096  
847.272.8800  
Fax 847.272.8129  
[www.ul.com](http://www.ul.com)
- WSFI** Wood and Synthetic Flooring Institute  
4415 W. Harrison St., Suite 242-C  
Hillside, IL 60162  
708.449.2933
- WWPA** Western Wood Products Assoc.  
522 SW Fifth Ave., Suite 500  
Portland, OR 97204-2122  
503.224.3930  
Fax 503.224.3934  
[www.wwpa.org](http://www.wwpa.org)
- W.W.P.A.** Woven Wire Products Assoc.  
2515 N. Nordica Ave.  
Chicago, IL 60635  
312.637.1359  
[www.wovenwire.org](http://www.wovenwire.org)

**Government Agencies**

- CPSC** Consumer Products Safety Commission  
4330 E. West Highway  
Bethesda, MD 20814  
301.504.7923  
Fax 301.504.0124  
[www.cpsc.gov](http://www.cpsc.gov)
- CS** Commercial Standard  
(U.S. Department of Commerce)  
1401 Constitution Ave., NW  
Washington, DC 20230  
202.482.2000  
[www.commerce.gov](http://www.commerce.gov)
- DOC** U.S. Department of Commerce  
1401 Constitution Ave., NW  
Washington, DC 20230  
202.482.2000  
[www.commerce.gov](http://www.commerce.gov)
- EPA** Environmental Protection Agency  
1445 Ross Ave., Suite 1200  
Dallas, TX 75202  
214.665.6444  
[www.epa.gov](http://www.epa.gov)
- FS** Federal Specifications (from GSA Specifications Unit WFSIS)  
7<sup>th</sup> and D St., SW  
Washington DC 20407  
202.708.9205  
[www.apps.fss.gsa.gov/pub/fedspecs](http://www.apps.fss.gsa.gov/pub/fedspecs)
- GSA** General Services Administration  
1800 F. St., SW  
Washington DC, 20405  
202.708.9205  
[www.gsa.gov](http://www.gsa.gov)

<b>TFC</b>	Texas Facilities Commission 1711 San Jacinto Austin, TX 78701 512.463.6363 <a href="http://www.tbpc.state.tx.us">www.tbpc.state.tx.us</a>
<b>NIST</b>	National Institute of Standards and Technology 100 Bureau Dr., Stop 1070 Gaithersburg, MD 20899-1077 301.975.6478 Fax 301.975.8295 <a href="http://www.nist.gov">www.nist.gov</a>
<b>OSHA</b>	Occupational Safety and Health Administration Federal Office Building 1205 Texas Ave., Rm 806 Lubbock, TX 79401 806.472.7681 Fax 806.472.7686 <a href="http://www.osha.gov">www.osha.gov</a>
<b>PS</b>	Product Standard of NBS (U.S. Department of Commerce) Washington, DC 20230 202.482.2000 <a href="http://www.thenbs.com">www.thenbs.com</a>
<b>USDA</b>	U.S. Department of Agriculture 1400 Independence Ave., SW Washington, DC 20250 202.447.2791 <a href="http://www.usda.gov">www.usda.gov</a>

## **Section 014300 Quality Assurance**

### **1. General Requirements**

- 1.1 The Contractor is responsible for controlling the quality of the Work of its forces and its subcontractors and all of the Work of the Project in general and as set forth in the Construction Documents. The Contractor shall provide qualified personnel, approved by the Owner, to perform daily supervision, reviews and inspections of subcontractor work to insure quality, accuracy, completeness and compliance.

- 1.2 The Owner will employ a testing laboratory and/or geotechnical engineering service to perform quality assurance test and to transmit copies of test reports to the Contractor. Sampling and testing that the Owner may require is specified in this section and in the various technical sections requiring quality assurance testing. The Contractor shall cooperate with the Owner's testing personnel, provide access to the work, to manufacturer's and fabricator's operations, furnish incidental labor and facilities and samples for test and inspection as specified.
  - 1.2.1 Employment of the testing laboratory to perform quality assurance tests is for the benefit of Owner in confirming that performance and quality of the work is in conformance with the Construction Documents.
  - 1.2.2 Employment of the testing laboratory by Owner in no way relieves Contractor's obligation to perform the work in accordance with the Construction Documents and Owner's testing laboratory shall not be the same as Contractor's testing laboratory.
  - 1.2.3 The testing firm shall make all inspections and perform all tests in accordance with the rules and regulations of the building code, local authorities, the specifications of the ASTM and these Construction Documents.
  - 1.2.4 Any costs incurred by the Owner due to re-testing of materials or re-inspection of work due to non-compliance with the Construction Documents by the contractor shall be at the expense of the Contractor and shall be deducted from the next pay request accordingly.
- 1.3 Limits of testing laboratory authority: Laboratory is not authorized to:
  - 1.3.1 Approve or reject any portion of the work.
  - 1.3.2 Perform any duties of the Contractor and subcontractors.
  - 1.3.3 Revoke, alter, relax, expand, or release any requirement of the Construction Documents or to approve or accept any portion of the Work, except where such approval is specifically called for in the specifications.
  - 1.3.4 Work will be checked as it progresses, but failure to detect any defective work or materials shall not, in any way, prevent later rejection when such defect(s) are discovered.
- 1.4 When requested by the Owner, the Contractor will demonstrate a material's compliance with the specifications in one of the following ways:
  - Manufacturer's Certificate of Compliance
  - Mill Certificate
  - Testing Laboratory Certifications

- Report of actual test results from Owner's designated laboratory, or a laboratory satisfactory to the Owner. Materials so tested shall be provided by the Contractor and selected by the Owner, or in the presence of the Owner, and the method of testing shall comply with the professional societies' standard specifications.
- 1.5 The Owner may require Special Inspections, Testing or Approval of certain materials or Work in addition to those clearly specified in the Construction Documents. Upon notification by the Owner of such requirements, the Contractor shall promptly arrange for such Special Inspections, Testing and Approval procedures. The costs associated with these efforts shall be borne by the Owner, except that if such materials or Work fail the initial Owner-paid inspections, tests and approvals, then subsequent tests required to prove the materials or Work suitable for inclusion in the Project Work shall be borne by the Contractor.
  - 1.6 If the Contractor covers any of the Work that is required to be inspected, tested or approved by the Construction Documents, then that Work shall be uncovered, inspected, tested or approved and then recovered at the Contractor's sole expense.
  - 1.7 The Contractor shall have the right to have tests performed on any material at any time for its own information and job control so long as the Owner is not charged for these tests or forced to rely on these tests when appraising quality of the materials. The tests specified in the Construction Documents for a specific material shall take precedence over any testing initiated by and paid for by the Contractor.
2. **Below Grade Inspections** - Before covering or backfilling of any improvement below grade, cover up inspections will be conducted to see that all items meet the plans and specifications. Only after all the deficiencies have been corrected will the Contractor be allowed to install any backfill.
  3. **Concrete Inspections** - Before the placing of any cast-in-place concrete structure, an inspection will be conducted to see that all items meet the intent of the Construction Documents. Only after all deficiencies have been corrected will the Contractor be allowed to proceed.
  4. **Wall Closure/Above-Ceiling Inspections** - Before the installation of any ceiling or the closing of walls chases, an inspection will be conducted to see that all items fully meet the contract document requirements before being covered. Only after all the deficiencies have been corrected will the Contractor be allowed to install the ceiling or close-up the wall. As a

minimum, the following should be in place before an above-ceiling inspection is scheduled:

- All light fixtures installed and working;
- All plumbing installed and insulation complete;
- All rigid and flexible ducts installed;
- All required valve identification tags installed;
- All air devices installed and connected;
- All control wiring and devices installed and connected;
- The ceiling support structure installed.

**5. Substantial Completion Inspection (see UGC 12.1.1)**

When the Contractor feels that the work is complete and ready for the Owner's intended use, it will notify the A/E and Owner at least seven days prior to the date the Contractor is ready for a Substantial Completion Inspection. The A/E and appropriate members of the design team along with the Owner will perform a detailed inspection of the all work and furnish the Contractor with a list of incomplete or unsatisfactory items. When the Contractor has completed all the work related to these items the Pre-Final Inspection will be complete.

**6. Final Inspection & Acceptance (see UGC 12.1.2 & 12.3)**

Upon verification by the A/E and Owner that the deficiencies found during the Pre-Final Inspection have been corrected, and the work is ready for Final Inspection and Acceptance, the A/E and Owner will schedule a Final Inspection. When the work is found to be acceptable under the Construction Documents without exception and the contract is fully performed, then a Final Acceptance Notice will be issued by the A/E.

**7. One-year Warranty Inspection**

Within thirty-days prior to the expiration of the one year anniversary of the Substantial Completion date the Owner shall prepare a list of deficiencies related solely to the workmanship and material warranties provided by the Contractor through the Construction Documents. The Contractor shall make the necessary repairs and replacements and notify the Owner that all work is complete and Owner shall review and approve the work and provide written acceptance.

**8. Execution**

**8.1 Pier Drilling Operations**

- 8.1.1** A representative of the soils testing laboratory shall make continuous inspections to determine that proper bearing stratum is obtained and utilized for bearing and that shafts are properly clean and dry before pouring concrete.

- 8.1.2 Soils testing laboratory shall furnish complete pier log showing the diameter, top and bottom elevations of each pier, casing required or not required, bell size, actual penetration into bearing stratum, elevation of top of bearing stratum, and volume of concrete used.
- 8.2 Reinforcing Steel Mechanical Splices
  - 8.2.1 Visually inspect and report on the completed condition of each mechanical splice of reinforcing steel.
  - 8.2.2 Each mechanical splice shall be visually inspected to ensure compliance with building code and the manufacturer's published criteria for acceptable completed splices.
  - 8.2.3 Special emphasis shall be placed on inspection of the end preparation of each bar to be spliced.
  - 8.2.4 Submit copies of manufacturer's published criteria for acceptable completed splices prior to observing mechanical splices.
  - 8.2.5 Reports on each splice shall indicate location, size of bars and acceptability or rejection of splice. Reasoning for rejection shall be provided in the report.
- 8.3 Reinforcing Steel and Embedded Metal Assemblies - Inspect all concrete reinforcing steel for compliance with Construction Documents and approved shop drawings prior to placing concrete. All instances of noncompliance shall be immediately brought to the attention of the Contractor for correction and then, if not corrected, reported to the A/E. Observe and report on the following:
  - Number and size of bars;
  - Bending and lengths of bars;
  - Splicing;
  - Clearance to forms including chair heights;
  - Clearance between bars or spacing;
  - Rust, form oil and other contaminants;
  - Grade of steel;
  - Securing, tying and chairing of bars;
  - Excessive congestion of reinforcing steel;
  - Installation of anchor bolts and placement of concrete around such bolts;
  - Fabrication of embedded metal assemblies, including visual inspection of all welds;
  - Visually inspect studs and deformed bar anchors on embedded assemblies for compliance with the Construction Documents.
- 8.4 Concrete Inspection & Testing
  - 8.4.1 Receive, evaluate and certify all proposed concrete mix designs submitted by the Contractor which comply with the



Construction Documents. Mix designs not complying shall be returned by the laboratory as unacceptable.

- 8.4.2 Secure composite samples of concrete at the jobsite and perform the appropriate tests as specified in the Construction Documents. Test results will be provided to the appropriate design team members, the Contractor and the Owner.
- 8.4.3 Inspect the application of curing compounds and monitor all curing conditions to assure compliance with the Construction Documents.
- 8.5 Post-tensioning of Concrete
  - 8.5.1 Verify certification of calibration of jacking equipment used in the post-tensioning operations.
  - 8.5.2 Observe and report on placement and anchorage of tendons immediately prior to placement of concrete.
  - 8.5.3 Provide a registered professional engineer experienced in post-tension operations to observe and report on the placement, post-tensioning and elongation measurement of each tendon.
  - 8.5.4 Observe and report on grouting of tendons noted to be bonded.
- 8.6 Masonry
  - 8.6.1 Provide a qualified inspector to inspect all structural masonry work on a periodic basis.
  - 8.6.2 Inspect the following:
    - Preparation of masonry prisms for testing;
    - Placement of reinforcing;
    - Grout spaces;
    - Mortar mix operations;
    - Bedding of mortar for each type of unit and placing of units;
    - Grouting operations;
    - Condition of units before laying for excessive absorption.
  - 8.6.3 Provide a report of each inspection.
- 8.7 Structural Steel
  - 8.7.1 Inspect all structural steel during and after erection for conformance with the Construction Documents and shop drawings. Any cases of insufficient bracing or guying, or other unsafe conditions shall be immediately called to the attention of the Contractor and reported to the A/E and Owner.
  - 8.7.2 Inspect the following:
    - Proper erection of all pieces;
    - Proper installation of all bolts;
    - Plumbness of structure and proper bracing;
    - Proper field painting;
    - Visual examination of all field welding;

- Inspect all shop fabricated members, upon arrival at the jobsite, for defects;
  - Inspection of shop and field welding shall be in accordance with the AWS Structural Welding Code – Steel, latest edition;
  - Inspection of bolted construction shall be in accordance with AISC specifications for structural steel buildings;
  - Inspection of stud field welding shall be in accordance with AWS structural welding code latest edition.
- 8.8 Expansion Bolt Installations
- 8.8.1 Inspect the drilling of holes and installation of expansion bolts for compliance with the Construction Documents and shop drawings.
- 8.8.2 Verify the installation torque of the expansion bolts for compliance with the manufacturer’s installation instructions.
- 8.9 Metal Floor Deck - Field inspection shall consist of the following:
- Check types, gauges and finishes for conformance with Construction Documents and shop drawings;
  - Exam for proper erection of all metal deck, fastenings, reinforcing of holes, deck reinforcing, miscellaneous deck supports, hanger tabs, shear studs, deck closures, painting and other coatings.
- 8.10 Metal Roof Deck - Field inspection shall consist of the following:
- Check types, gauges and finishes for conformance with Construction Documents and shop drawings;
  - Exam for proper erection of all metal deck, fastenings, reinforcing of holes, deck reinforcing, miscellaneous deck supports, hanger tabs, shear studs, deck closures, painting and other coatings.

## **Section 014339 Site Mock-ups (see UGC 8.4)**

### **1. General**

- 1.1 The Contractor shall direct all the appropriate subcontractors in the construction of all site mock-ups for review by the Owner and Architect/Engineer (A/E) as required by the Construction Documents.
- 1.2 The mock-up(s) when approved by the A/E and Owner shall become the site reference for quality of the incorporated features of materials and workmanship.
- 1.3 The mock-up shall not be part of the work and shall remain in place until Substantial Completion, or otherwise directed by the Owner.

## **Section 014500 Quality Control (see 014000)**

### **1. General Requirements**

- 1.1 Quality control shall be the sole responsibility of the Contractor, unless specifically noted otherwise. The Contractor shall be responsible for all testing, coordination, start-up, operational checkout and commissioning of all items of work included in the project. All costs for these services shall be included in the Contractor's cost of work and general conditions.
- 1.2 Specific quality control requirements for individual construction activities are specified in sections that govern those activities.
- 1.3 The Contractor employed testing agency shall comply with the requirements of ASTM C - 1021, 1077, 1093, E - 329, 543 and 548.
- 1.4 The Contractor shall develop design mixes for products to be used and have the appropriate test performed by the Contractor's employed testing agency at its own expense.

## **Section 014518 Field Engineering**

1. **Quality Assurance** - Surveyor Qualifications: Engage a land surveyor, registered in the State of Texas, to perform required land surveying services.
2. **Examination** - Verify layout information shown on the construction documents, in relation to the property survey and existing benchmarks and building locations and finish floor elevations before proceeding to lay out the work. Protect existing benchmarks and control points. Preserve permanent reference points during construction.
  - 2.1 Do not change or relocate benchmarks or control points without prior written approval from the Owner.
  - 2.2 Establish and maintain a minimum of two permanent benchmarks on the site.
3. **Performance**
  - 3.1 Work from lines and levels established by the Construction Documents. Calculate and measure required dimensions with indicated and recognized tolerances. Do not scale drawings to determine dimensions.
  - 3.2 Record deviations from required lines and levels and advise A/E immediately when deviations exceed indicated or recognized tolerances.

- 3.3 Furnish information necessary to adjust, move, or relocate existing structures, utility poles, lines services, or other appurtenances located in or affect by construction.
- 3.4 The as-built documents shall include a final Title I property survey.

**Section 015000 Construction Facilities and Temporary Controls**  
(see UGC 3.3.4, 8.1 & 13.1; also see 5.6.8, 5.8.2 13.13 & 13.1.4 of the CM@R contract)

**1. General Requirements**

- 1.1 Contractor shall provide all construction facilities and temporary controls specified in this section and as necessary for the proper and expeditious prosecution of the work. The Contractor will be provided with a description of the Project Site and the Limits of Construction either by the Construction Documents, or by the Owner. At any time such a description has not been provided, the Contractor should request it of the Owner in writing.
- 1.2 The Contractor shall erect a wire mesh fence around the Project Site. The Contractor and all its personnel, assigns, material suppliers and subcontractors shall confine and limit their work to the Project Site and shall confine their construction activities to within the Limits of Construction. All areas beyond these defined areas are patrolled either by the Campus Police or by the Police Department of the City. All public and University laws, ordinances, rules and regulations shall be obeyed. No tools, construction vehicles or construction materials shall be permitted to be outside the Project Site. Loitering of construction-related personnel in areas outside the Project Site is strongly discouraged and it will be discontinued if it becomes persistent, or otherwise a nuisance to the ordinary and normal functioning of the campus. **(UGC 3.3.11)**
- 1.3 All campus roads, drives, fire lanes and sidewalks/pedestrian routes (other than those specifically given over to the Contractor for its use) must be kept open and clean at all times. The Contractor shall make advanced preparations for, and obtain security clearance for, all significant materials and equipment movements that will disrupt traffic and pedestrian flows. The Contractor shall provide all traffic controls, warning signs, barricades and flag persons needed to minimize disruptions during such approved movements. When such movements cause damage or leave debris, the Contractor shall immediately repair and clean up afterwards. **(UGC 3.3.11.3)**
- 1.4 Contractor shall pay all charges for all connections to and distribution from existing services and sources of supply.

- 1.5 Requirements of service and utility companies relating to the work shall be ascertained by Contractor, and the Contractor shall comply with all requirements, including those relating to continued protection and maintenance until completion of the work.
- 1.6 Materials and construction for construction facilities and temporary controls may be new or used, must be in adequate capacity, must not create unsafe conditions and shall not be unsightly.
- 1.7 Contractor shall relocate temporary services and facilities at its own expense, as required by progress of construction. **(see UGC 7.2.1)**
- 1.8 Contractor shall remove all temporary services and facilities when their use is no longer required or at completion of the project. **(see UGC 3.3.11)**
- 1.9 Contractor shall clean and repair damage caused by temporary services and facilities to new condition for new work and to a condition as good as or better than existing prior to start of work for existing construction projects. **(see UGC 3.3.11.3)**

## 2. **Yard Repairs**

Where compaction of the soil has occurred in turf or other plant material areas within the limits of construction, the areas shall be rejuvenated by deep cultivation of the compacted soil. After completion of construction, the Contractor shall scarify the construction site within the limits of construction to a minimum depth of eight inches, except within thirty feet of trees where it shall be a six inch depth. The Contractor will either place sod or hydro mulch on the rejuvenated areas, as may be mutually agreed to between the Owner and the Contractor, depending on the season and availability of irrigation.

## 3. **Temporary Utilities and Services**

- 3.1 The Contractor shall provide for all necessary and appropriate temporary utilities and services for execution and protection of the work.
- 3.2 Schedule of Costs and Fees for Utility Services are different on different campuses. The Contractor must review the Construction Documents carefully and communicate with the Owner to determine the status on each Project.
  - 3.2.1 **Temporary Water** – The Contractor shall provide and install temporary lines for all water required for the Work and will arrange with the Owner’s Utility Department for connection to the campus system and for services.
  - 3.2.2 **Temporary Electrical** – The Contractor shall arrange with the local Utility Company for temporary power and for metering. When using this temporary power, the Contractor shall be responsible for all related costs, including energy costs and fuel costs. If such power is available from the campus power

systems, then the Contractor will make the same arrangements, but the Owner will pay for the power used unless the Contractor wastes energy and is not consuming it in a reasonable and prudent manner. The Contractor shall not energize the permanent power on the Project it is constructing until the Owner specifically approves.

3.2.3 **Temporary Heating, Cooling and Ventilation** – If temporary heating/cooling/ventilation is required for the protection of the Work or the work forces, the Contractor shall provide, at its cost, Owner-approved apparatus.

3.2.4 **Temporary Lighting** – The Contractor shall provide adequate temporary lighting to facilitate quality workmanship and appropriate inspection of the Work. Temporary lighting provided by the Contractor also must be adequate for site security, inspections of excavations, night work if pursued and for personal and general safety of operations. Provide the following minimum standards:

3.2.4.1 Provide and maintain lighting for construction operations to achieve a minimum lighting level of two watts per square foot.

3.2.4.2 Provide and maintain one watt per square foot lighting for exterior staging and storage areas after dark for security purposes.

3.2.4.3 Provide and maintain one-quarter watt per square foot lighting to interior work areas after dark for security purposes.

3.2.4.4 Permanent building lighting may be utilized during construction.

3.2.5 **Temporary Services Provided by Owner** – When approved by the Owner, the Contractor may request that Project mechanical and electrical systems be put into service prior to Substantial Completion, even if only to facilitate Contractor operations. However, the Contractor shall NOT open or close any valve connecting to the campus systems without specific Owner approval. During operation of the equipment prior to Substantial Completion the Contractor shall keep the equipment in good operating condition, properly and legally flushed with chemical treatment systems, properly started and stopped, properly maintained, including regular replacement and/or cleaning of filters. Without exception the filters will be newly replaced just prior to turning the equipment over to the Owner for operation. The actual warranty periods will not

start until the equipment is officially turned over to the Owner at Substantial Completion.

- 3.2.6 **Temporary Facilities/Equipment Removal** – Prior to turning the Project over to the Owner for operation and maintenance, the Contractor shall completely remove all temporary facilities and equipment from the Project Site and shall repair or replace any material, equipment, finished surfaces or landscaping that has been damaged by its activities on the site.

**4. Construction Aids**

- 4.1 Material and Personnel Hoists: The Contractor shall provide material and personnel hoist as required for normal use by all trades without charge. All necessary guards, signals and safety devices required for safe operation of these hoists shall be provided and properly maintained at all times.
- 4.2 Stairs: Provide temporary protective treads, handrails and wall coverings at stairways.

**5. Barriers and Enclosures**

- 5.1 Contractor shall construct temporary barricades, warning signs, hazard and warning lights, walks, passage-ways and similar temporary barriers and enclosures that are necessary to protect persons and property from hazards or damage due to construction operations, and required by the Owner, city, state or federal laws, ordinances or codes.
- 5.2 Contractor shall furnish and install construction fences and gates within the limits of construction, prior to beginning any other work on the project.
- 5.3 Contractor shall furnish and install movable fences as may be necessary and appropriate to facilitate execution of the work.
- 5.4 The Contractor shall be responsible for the protection of existing building surfaces (both interior and exterior), utilities, exterior structures, pavements, sidewalks, landscape, vegetation and irrigation systems. Any damage to existing areas will be repaired by the Contractor at its expense and to the satisfaction of the Owner. Such needed repairs that are not timely undertaken or completed by the Contractor may, at the Owner's sole discretion, be repaired by the Owner and the related expenses deducted from the Contract Amount by change order.
- 5.5 All existing trees, shrubs or endangered plants within the Project Site or near access ways to the Project Site, shall be protected by the Contractor as indicated on the Drawings and maintained in sound condition unless ordered by the Owner to remove them. Contractor

shall furnish and install barricades, fences and guards as necessary to prevent damage to existing trees, shrubs or endangered plants indicated to remain after construction is completed. Contractor shall not remove, cut or trim any tree, shrub or endangered plant before first notifying the Owner and receiving prior approval for the action. The Contractor will be responsible for repair or replacement in kind of damaged vegetation including watering and maintenance until fully restored.

- 5.6 All fencing, gates, barricades and guards shall be maintained to be straight, level and having a neat and uniform appearance while in place. Upon removal all holes and damage caused by the placement and use of the fences shall be repaired to its original condition.
- 5.7 Contractor shall provide temporary roofing and weather tight insulated closures for openings in exterior surfaces as required to maintain specified working conditions and moisture content of all project materials.

## **6. Security**

- 6.1 The Contractor shall provide security and facilities to protect the Work, materials and equipment from unauthorized entry, vandalism, or theft until Substantial Completion has been achieved. If deemed necessary the Contractor may, at its own expense, employ unarmed security personnel. The Contractor must first notify the Owner and provide particulars about the security firm and its personnel prior to its employment.
- 6.2 The Campus Police will not provide security for the Project Site or the areas that are given over to the Contractor's control.

## **7. Temporary Controls**

- 7.1 Cleaning during construction: Contractor at all time shall keep the premises free from accumulation of waste materials and rubbish caused by operations for the work. Provide a collection can at each area used for eating. Pick up garbage daily. Keep project site free of garbage, trash, vermin and rodent infestation. Require each subcontractor to collect and deposit waste and rubbish caused by subcontractor operations at designated locations. Clean interior areas prior to start of finish work and maintain areas free of dust and other contaminants during finishing operations. Protect installed equipment and seal installed ductwork and piping to prevent intrusion of dust. When the Work is within or adjacent to existing spaces that continue to be occupied, protect finishes, seal off occupied spaces and open ductwork and piping. The Contractor shall provide personnel for janitorial work to clean up (both on the Project Site and



- in adjacent spaces) any dust or debris that results from its operations. **(see UGC 3.3.8)**
- 7.2 Noise control: In and around occupied areas, minimize use of noise producing equipment and sequence the Work to minimize its affect on occupants. Work with noise producing equipment adjacent to occupied spaces will be coordinated with the Owner. Curtail such use to accommodate specific meetings or activities when requested by the Owner.
- 7.3 Water control: Provide methods to control surface water to prevent damage to the project and adjoining properties. Control fill, grade and ditch to direct surface drainage away from excavations, pits, tunnels and other construction areas. Direct runoff to proper runoff paths.
- 7.4 Storm Water Pollution Prevention Plan (SWPPP): Contractor shall be responsible for securing the appropriate SWPPP permit and paying all related fees, penalties, fines, etc., related thereto, from Texas Commission on Environmental Quality (TCEQ). The Contractor shall implement the SWPPP plan and insure that all devices and structures are properly maintained through the course of the project. Upon completion of the project the Contractor shall provide TCEQ with a Notice of Termination within thirty days of final stabilization achievement. Refer to SWPPP for additional requirements and to ensure compliance with its requirements.
- 7.5 Pollution controls: Provide methods, means and facilities required to prevent contamination of soil, water, or atmosphere by discharge of noxious or hazardous substances from construction operations. The Contractor shall notify the Owner immediately of all pollutant spills. The Contractor shall be solely responsible for cleaning up and properly disposing of, in accordance with applicable laws and regulations, all spilled pollutants brought to the Site as a part of the Work including oil, paint, fuels, antifreeze, solvents, etc. The Contractor must keep accurate records of these clean up and disposal actions.
- 7.6 Protection of installed work: **(see UGC 10.3.4.1)**
- 7.6.1 Protect installed work and provide special protection where specified in individual specification sections.
- 7.6.2 Provide temporary and removable protection of installed products and control activity in the immediate area to prevent damage.
- 7.6.3 Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- 7.6.4 Protect finished floors, stairs and other surfaces from dirt traffic, wear, damage, or movement of heavy objects.

- 7.6.5 Prohibit traffic or storage upon waterproofed or roofed surfaces, or in the alternative obtain the manufacturer's recommendations for protection.
- 7.6.6 Prohibit traffic from landscaped areas.

**8. Parking: (see UGC 3.3.11.1)**

- 8.1. Parking for workmen employed on the site shall be provided within the Limits of Construction or on such remote site as may be designated by the Owner from time to time. Any costs involved in Contractor parking shall be borne by the Contractor. The Contractor's forces shall not park on campus in areas outside the Project Site.
- 8.2. In some, but not all circumstances, Owner may provide remote parking spaces near the campus. In these cases the parking may be available for Contractor use at no cost, but permits issued by the campus police will be necessary to use this parking. In providing remote parking the Owner will not take on any responsibility for the vehicles, or contents of the vehicles, when they are parked in the remote locations provided.
- 8.3. The contractor shall provide adequate reserved parking for the Owner's and the A/E's Project Team members who regularly visit the Project Site.
- 8.4. The Contractor shall be responsible for restoration of all pavement, curbs, signage, sidewalks, etc., damaged by the construction operations and/or the workmen.

**9. Field Offices and Sheds**

- 9.1. The office shall be weather tight, with lighting, electrical outlets, high-speed internet connection, telephone, heating, cooling and ventilation and equipped with sturdy furniture, a drawing table and plan racks.
- 9.2. Provide adequate space for projects meetings.

**10. Temporary Toilets (see UGC 3.3.4)**

- 10.1 Provide, maintain and pay for required temporary sanitary facilities and enclosures. Provide at time of project mobilization and do not remove until Substantial Completion. Locate these facilities away from public view as much as practical.
- 10.2 Clean and empty these facilities at least weekly unless it is needed more often to keep them sanitary. Post notices, remove deposited debris and take all steps necessary to keep the facilities clean and sanitary.
- 10.3 Do not use the Owner's toilet facilities, unless specifically approved by the Owner.

## **Section 015010 Project Signage**

### **1. Installation of Temporary Project Signage**

- 1.1 When permitted by the Owner, an exterior construction project sign shall be installed immediately after contract award. The sign will make specific reference to the Texas State University System and to the Component Institution in whose behalf the project is being constructed.
- 1.2 Prior to any construction or installation of the sign, submit to the Owner for approval a quarter scale drawing, complete with all graphics and lettering.
- 1.3 The Contractor shall ensure the exterior construction project signage is properly set-back from all street intersections and pedestrian walkways such that it does not conflict with or impede fields of view necessary to vehicular and pedestrian traffic circulation.
- 1.4 The Contractor may install one sign bearing the company name, logo, project address and point of contact.
- 1.5 The sign shall remain the property of the Contractor and shall be removed from the Project Site and legally disposed of at the completion of the Work.

2. **Signage Dimensions and Materials** - The exterior construction project sign shall be constructed of a single four foot by eight foot sheet of three-quarter inch thick marine plywood placed on two four inch by four inch treated posts. The Architect/Engineer (A/E) shall provide the Contractor with the lettering, font background and rendering of the project, which will be installed by a professional sign company. All related costs shall be included in the General Conditions costs of Construction Manager at Risk and Design-Build contracts.

## **Section 015240 Construction Waste Management**

### **1. Definitions**

- 1.1 Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- 1.2 Disposal: Removal off-site of demolition and construction waste and deposited in landfill or incinerator acceptable to authorities having jurisdiction.
- 1.3 Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- 1.4 Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

- 1.5 Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the work.
2. **Performance Goals** - The Contractor shall develop a waste management plan that will result in end of project rates for salvage/recycling as directed by the Owner during the Pre-construction conference.
3. **Quality Assurance** - The Contractor shall continuously monitor the disposal, recycling, salvage and reuse of materials generated by the Project to confirm compliance with the waste management plan and provide a report to the project team at each progress meeting.
4. **Waste Management Plan** - The Contractor shall develop a plan consisting of waste identification, waste reduction work plan and cost/revenue analysis. The plan should include separate sections for demolition and construction waste.
5. **Salvaging Demolition Waste**
  - 5.1 Salvage of items for sale or donation by the Contractor or subcontractors is not permitted.
  - 5.2 Salvaged items for Owner's use:
    - 5.2.1 Clean salvaged items;
    - 5.2.2 Pack or crate items and properly identify contents on the container;
    - 5.2.3 Store items in a secure area until delivery to Owner;
    - 5.2.4 Transport items to Owner's designated storage area.
6. **Recycling Demolition and Construction Waste, General** - Separate recyclable waste by type at project site to maximum extent practical.
  - 6.1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from the project site.
  - 6.2. Remove recyclable waste off Owner's property and transport to recycling receiver or processor within a reasonable time after an appropriate amount has been accumulated.

## **Section 017000 Contract Close-out**

1. **General (see UGC Article 12)**
  - 1.1 Project closeout is hereby defined to include requirements near the end of the contract time, in preparation for Substantial Completion acceptance, occupancy by Owner, release of retainage, final acceptance, final payment and similar actions evidencing completion of the work.

- 1.2 Time of closeout is directly related to completion and acceptance and may either be a single time period for the entire project, or a series of times for individual portions or phases of the project that have been certified as substantially complete at different times.
  - 1.3 If the project is to be accepted in phases, whether by originally specified project scope or by subsequent agreement between the parties, then the project closeout requirements shall pertain to each separately accepted portion or phase of the project. All required documentation for the portion of the project to be occupied early shall be furnished by the Contractor to the Owner on, or before, the date of early occupancy by the Owner. Such early occupancy of any portion of the Work will not waive the Contractor's obligations to complete the remaining Work within the Contract Time specified in the contract.
- 2. Record Documents (see UGC 6.2)**
- 2.1 Record documents for project closeout shall include, but not necessarily limited to the following, which are required for substantial completion:
    - As-built record drawings;
    - As-built record specifications;
    - Operating & maintenance manuals;
    - Record approved submittals and samples;
    - Certificate of no asbestos products incorporated in project;
    - Completed punch lists.
- 3. Required Documents**
- 3.1 Required documents for final payment to be released included final versions of all of the above and the following:
    - Final release of claims and liens; **(see 12.3.5 through 12.3.8 of the CM@R contract)**
    - Affidavit of payment of debts and claims;
    - Consent(s) of surety;
    - Completed SWPPP documents and Notice of Termination;
    - Completed commissioning and closeout manuals.
- 4. Requirements for Substantial Completion (see UGC 12.1.1)**
- 4.1 Prior to requesting Architect/Engineer (A/E) and Owner to schedule a Substantial Completion, or Pre-Final inspection, the Contractor shall complete the following and list known exceptions in the request:
    - 4.1.1 Contractor's payment request should reflect a minimum of 95% completion for all applicable work.
    - 4.1.2 Provide A/E and Owner with a complete copy of the Contractor's most current punch list.

- 4.1.3 Submit to the A/E for review a full set of as-built record drawings and specifications.
  - 4.1.4 Submit to the A/E for review preliminary copies of the operating and maintenance manuals.
  - 4.1.5 Submit release enabling Owner's full and unrestricted use of the work and access to service and utilities, including operating certificates and similar releases.
  - 4.1.6 Contractor shall make provisions for final changeover of locks with the Owner's personnel.
  - 4.1.7 Complete initial clean up requirements as described in the specifications.
  - 4.2 The Contractor shall ensure that the work is ready for inspection and/or re-inspection. If the work is found not to be as stated in the Contractor's punch list or the items have not been substantially corrected/completed; the inspection will be terminated.
- 5. Requirements for Final Acceptance (see UGC 12.1.2)**  
Prior to requesting A/E and Owner to schedule final inspection for the project, the Contractor shall complete the following:
- 5.1 Prepare draft payment request showing 100% completion for each line item on the schedule of values, including all appropriate releases and supporting documentation.
  - 5.2 Submit a copy of the pre-final punch list which includes evidence that each item has been completed or otherwise resolved.
  - 5.3 Submit final meter readings for utilities as of the time when the Owner took possession.
  - 5.4 Transmit completed commissioning and close-out manuals to the Owner.
  - 5.5 Complete final cleaning and touch-up.
  - 5.6 Submit final payment request.
  - 5.7 Submit evidence of final and continuing insurance coverage complying with applicable insurance requirements.
- 6. Operating and Maintenance Manuals (see UGC 6.2.3 & 6.2.4)**
- 6.1 Contractor shall organize operating and maintenance manual information in digital PDF format so that the information is organized into suitable sets of manageable size, and organized into individual binders properly tabbed and indexed using digital bookmarks within the PDF file. The text content within the resulting PDF file shall be text based (not image based) to support text searchability and text selection when viewing the resulting PDF file with a PDF viewer. The operating and maintenance manual information in digital PDF format shall be provided to the Owner and A/E. In addition (if requested) up

to two complete hardcopies of each bound operating and maintenance manual shall be provided to the Owner.

- 6.2 The requirements of this section are separate, distinct and in addition to product submittal requirements that may be established by this and other sections of the specifications.
- 6.3. Material and equipment data required by this section is intended to include all data necessary for the proper installation, removal, normal operation, emergency operation, startup, shutdown, maintenance, cleaning, adjustment, calibration, lubrication, assembly, disassembly, repair, inspection, trouble shooting and service of the equipment or materials.

**7. Record Product Submittals**

During progress of the work, maintain approved copies of each product data submittal and shop drawings in digital PDF format, and mark-up significant variations in the actual work in comparison with submitted information. A separate binder with one copy of all SDS sheets for any and all products incorporated into the project shall be maintained during the course of the project in digital PDF format, this binder shall be included in the record submittal documents in digital PDF format and (if requested) also in hardcopy format.

**8. Record Sample Submittals**

Immediately prior to the date(s) of Substantial Completion, arrange for A/E and Owner to meet with Contractor at the project site to determine which (if any) of the submitted samples or mock-ups maintained by Contractor during progress of the work are to be transmitted to Owner for record purposes.

**9. Commissioning and Close-out Manual**

The Contractor shall incorporate all commissioning and closeout documentation and/or verification not included in the operating and maintenance manuals, into a manual for transmittal to the Owner in digital PDF format and (if requested) also in hardcopy format.

**Section 019100 General Commissioning Requirements**

**1. Scope of Work Included**

- 1.1 It is of primary concern that all operable systems installed in the project perform in accordance with the Construction Documents and the specified Owner's operational needs. This is particularly critical for systems affecting life safety, building controls, plumbing, HVAC, lighting and power delivery systems. The process of assuring such performance is achieved is commonly referred to as "Commissioning".

- 1.2 This section establishes minimum general and administrative requirements pertaining to start-up and commissioning of equipment, devices, and building systems. Additional technical and operational requirements for particular systems and components are established in the various technical sections of the specifications. The Contractor is solely responsible for the Commissioning process.

## **2. Commissioning Plan**

- 2.1 The Contractor shall prepare a detailed commissioning plan to identify the following:
  - 2.1.1 Project commissioning team members;
  - 2.1.2 Commissioning activities;
    - Pre-functional tests;
    - Start-up tests;
    - Functional tests;
    - System integration testing.
  - 2.1.3 The Contractor shall properly document the results of each phase of the commissioning plan and notify Architect/Engineer (A/E) and Owner of any failures to achieve the specified performance levels.
- 2.2 The Contractor shall incorporate the commissioning plan into the project baseline schedule to reflect dates and durations of all commissioning activities.

## **3. Equipment Documentation Requirements**

The Contractor shall develop a complete equipment matrix/list of all equipment, devices and systems which will be presented to the project commissioning team at the Pre-commissioning conference. The following information should be included on the matrix/list:

- Brief equipment identification text;
- Equipment or device i.d. number;
- Start-up inspection required;
- Associated building system;
- Governing specification section;
- Appropriate submittal reference number(s);
- Installation location (room number or column coordinates).

## **4. Test Equipment**

- 4.1 The Contractor and subcontractors shall provide all specialized tools, test equipment and instruments required to execute start-up, checkout and functional performance testing of equipment under their contracts.
- 4.2 Test equipment shall be of sufficient quality and accuracy to test and/or measure system performance within tolerances specified. A



testing laboratory shall have calibrated the test equipment within the previous twelve months. Calibration shall be NIST traceable and in accordance with the manufacturer's recommendations.

**5. Pre-commissioning Meeting**

- 5.1 The Contractor shall conduct the Pre-commissioning meeting and review all aspects of the commissioning plan. All documentation will be discussed and test procedures will be reviewed for approval by the Owner.
- 5.2 The Contractor shall establish target dates for each of the commissioning activities and these will be discussed at all future project progress meetings.

- 6. Pre-installation Meeting** - The Contractor shall schedule a pre-installation meeting for the work of each major building system. This meeting shall be scheduled following approval of system submittals and prior to commencement of system installation work.

**7. Contractor's Verification of Installation**

The Contractor shall perform a review of all tests to confirm completion and compliance with the specified performance specifications. The Contractor shall verify:

- Each component device has been properly installed;
- All shop drawings and product data submittals have been approved;
- All valve charts, wiring diagrams, control schematics, electrical panel directories, etc. have been submitted, approved and properly installed;
- All tabulated data has been submitted for each system and/or device as required by the specifications;
- All test reports and/or certifications required have been submitted and accepted;
- Any and all deficiencies have been corrected and re-tested to conformance with the specifications.

**8. Contractor's Operational Testing**

- 8.1 The Contractor shall operate, or cause to be operated each system, device or equipment item, both intermittently and continuously, for the appropriate duration as set forth in the specifications and/or in accordance with the manufacturer's recommendations. These operations will be documented as a functional test.
- 8.2 Each component device and each building system shall be exercised to the full extent of its capability, from minimum to maximum, and under automatic control, where it is applicable, as well as checking manual operation.

**9. Integrated System Demonstration**

- 9.1 After successful completion and subsequent documentation of all system operations, the Contractor shall schedule a meeting with the project commissioning team to review the demonstration of all integrated systems within the facility.
- 9.2 The demonstration(s) shall include not only normal operating conditions over the entire operating range, but also failure modes such as major component failure and loss of power.

**10. Owner Training**

- 10.1 Training shall consist of classroom type sessions followed by on-site demonstrations of system operations.
- 10.2 The Contractor shall provide a minimum of eight hours of video recording of the training, with audio. The Owner will designate which portions of the training will be recorded. The video shall be produced in a professional manner.

**END OF CONSTRUCTION PROJECT DIVISION 1 SPECIFICATIONS**