

MD Anderson Agreement No. _____

MD Anderson Project No. _____

EXHIBIT A

**UNIFORM GENERAL CONDITIONS FOR UNIVERSITY OF TEXAS SYSTEM BUILDING
CONSTRUCTION CONTRACTS**

2013 Uniform General Conditions
for
University of Texas System Building Construction Contracts
For use on all UT System and Institution Construction Projects

Last Revision: 06/20/2018 ems

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Article 1. Definitions

Unless the context clearly requires another meaning, the following terms have the meaning assigned herein.

- 1.1 *Application for Payment* means Contractor's monthly partial invoice for payment that includes any portion of the Work that has been completed for which an invoice has not been submitted and performed in accordance with the requirements of the Contract Documents. The Application for Payment accurately reflects the progress of the Work, is itemized based on the Schedule of Values, bears the notarized signature of Contractor, and shall not include subcontracted items for which Contractor does not intend to pay.
- 1.2 *Application for Final Payment* means Contractor's final invoice for payment that includes any portion of the Work that has been completed for which an invoice has not been submitted, amounts owing to adjustments to the final Contract Sum resulting from approved change orders, and release of remaining Contractor's retainage.
- 1.3 *Architect/Engineer (A/E)* means a person registered as an architect pursuant to Tex. Occ. Code Ann., Chapter 1051, as a landscape architect pursuant to Tex. Occ. Code Ann., Chapter 1052, a person licensed as a professional engineer pursuant Tex. Occ. Code Ann., Chapter 1001, and/or a firm employed by Owner or Design-Build Contractor to provide professional architectural or engineering services and to exercise overall responsibility for the design of a Project or a significant portion thereof, and to perform the contract administration responsibilities set forth in the Contract.
- 1.4 *Baseline Schedule* means the initial time schedule prepared by Contractor for Owner's information and acceptance that conveys Contractor's and Subcontractors' activities (including coordination and review activities required in the Contract Documents to be performed by A/E and ODR), durations, and sequence of work related to the entire Project to the extent required by the Contract Documents. The schedule clearly demonstrates the critical path of activities, durations and necessary predecessor conditions that drive the end date of the schedule. The Baseline Schedule shall not exceed the time limit current under the Contract Documents.
- 1.5 *Certificate of Final Completion* means the certificate issued by A/E that documents, to the best of A/E's knowledge and understanding, Contractor's completion of all Contractor's Punchlist items and pre-final Punchlist items, final cleanup and Contractor's provision of Record Documents, operations and maintenance manuals, and all other Close-Out documents required by the Contract Documents.
- 1.6 *Change Order* means a written modification of the Contract between Owner and Contractor, signed by Owner, Contractor and A/E.
- 1.7 *Close-out Documents* mean the product brochures, submittals, product/equipment maintenance and operations instructions, manuals, and other documents/warranties, record documents, affidavit of payment, release of lien and claim, and as may be further defined, identified, and required by the Contract Documents.
- 1.8 *Contract* means the entire agreement between Owner and Contractor, including all of the Contract Documents.
- 1.9 *Contract Date* is the date when the agreement between Owner and Contractor becomes effective.
- 1.10 *Contract Documents* mean those documents identified as a component of the agreement (Contract) between Owner and Contractor. These may include, but are not limited to, Drawings; Specifications; General Conditions and Owner's Special Conditions; and all pre-bid and/or pre-proposal addenda.
- 1.11 *Contract Sum* means the total compensation payable to Contractor for completion of the Work in accordance with the terms of the Contract.

- 1.12 *Contract Time* means the period between the start date identified in the Notice to Proceed with construction and the Substantial Completion date identified in the Notice to Proceed or as subsequently amended by a Change Order.
- 1.13 *Contractor* means the individual, corporation, limited liability company, partnership, firm, or other entity contracted to perform the Work, regardless of the type of construction contract used, so that the term as used herein includes a Construction Manager-at-Risk or a Design-Build firm as well as a general or prime Contractor. The Contract Documents refer to Contractor as if singular in number.
- 1.14 *Construction Documents* mean the Drawings, Specifications, and other documents issued to build the Project. Construction Documents become part of the Contract Documents when listed in the Contract or any Change Order.
- 1.15 *Construction Manager-at-Risk*, in accordance with Tex. Educ. Code § 51.782, means a sole proprietorship, partnership, corporation, or other legal entity that assumes the risk for construction, rehabilitation, alteration, or repair of a facility at the contracted price as a general contractor and provides consultation to Owner regarding construction during and after the design of the facility.
- 1.16 *Date of Commencement* means the date designated in the Notice to Proceed for Contractor to commence the Work.
- 1.17 *Day* means a calendar day unless otherwise specifically stipulated.
- 1.18 *Design-Build* means a project delivery method in which the detailed design and subsequent construction is provided through a single contract with a Design-Build firm; a team, partnership, or legal entity that includes design professionals and a builder. The Design-Build Project delivery shall be implemented in accordance with Tex. Educ. Code § 51.780.
- 1.19 *Drawings* mean that product of A/E which graphically depicts the Work.
- 1.20 *Final Completion* means the date determined and certified by A/E and Owner on which the Work is fully and satisfactorily complete in accordance with the Contract.
- 1.21 *Final Payment* means the last and final monetary compensation made to Contractor for any portion of the Work that has been completed and accepted for which payment has not been made, amounts owing to adjustments to the final Contract Sum resulting from approved change orders, and release of Contractor's retainage.
- 1.22 *Historically Underutilized Business (HUB)* pursuant to Tex. Gov't Code, Chapter 2161, means a business that is at least 51% owned by an Asian Pacific American, a Black American, a Hispanic American, a Native American and/or an American Woman; is an entity with its principal place of business in Texas; and has an owner residing in Texas with proportionate interest that actively participates in the control, operations, and management of the entity's affairs.
- 1.23 *Notice to Proceed* means written document informing Contractor of the dates beginning Work and the dates anticipated for Substantial Completion.
- 1.24 *Open Item List* means a list of work activities, Punchlist items, changes or other issues that are not expected by Owner and Contractor to be complete prior to Substantial Completion.
- 1.25 *Owner* means The Board of Regents of The University of Texas System, acting through the responsible entity of The University of Texas System or one of its Institutions as identified in the Contract as Owner.
- 1.26 *Owner's Designated Representative (ODR)* means the individual assigned by Owner to act on its behalf and to undertake certain activities as specifically outlined in the Contract. ODR is the only party

authorized to direct changes to the scope, cost, or time of the Contract.

- 1.27 *Owner's Special Conditions* mean the documents containing terms and conditions which may be unique to the Project. Owner's Special Conditions are a part of the Contract Documents and have precedence over the Uniform General Conditions
- 1.28 *Project* means all activities necessary for realization Owner's desired building or other structure including all ancillary and related work. This includes design, contract award(s), execution of the Work itself, work by Owner's forces and/or other contractors and fulfillment of all Contract and warranty obligations.
- 1.29 *Progress Assessment Report (PAR)* means the monthly compliance report to Owner verifying compliance with the HUB subcontracting plan (HSP).
- 1.30 *Proposed Change Order (PCO)* means a document that informs Contractor of a proposed change in the Work and appropriately describes or otherwise documents such change including Contractor's response of pricing for the proposed change.
- 1.31 *Punchlist* means a list of items of Work to be completed or corrected by Contractor before Final Completion. The Punchlist(s) indicates items to be finished, remaining Work to be performed, or Work that does not meet quality or quantity requirements as required in the Contract Documents.
- 1.32 *Record Documents* mean the drawing set, Specifications, and other materials maintained by Contractor that documents all addenda, Architect's Supplemental Instructions, Change Orders and postings and markings that record the as-constructed conditions of the Work and all changes made during construction.
- 1.33 *Request for Information (RFI)* means a written request by Contractor directed to A/E or ODR for a clarification of the information provided in the Contract Documents or for direction concerning information necessary to perform the Work that may be omitted from the Contract Documents.
- 1.34 *Samples* mean representative physical examples of materials, equipment, or workmanship used to confirm compliance with requirements and/or to establish standards for use in execution of the Work.
- 1.35 *Schedule of Values* means the detailed breakdown of the cost of the materials, labor, and equipment necessary to accomplish the Work as described in the Contract Documents, submitted by Contractor for approval by Owner and A/E.
- 1.36 *Shop Drawings* mean the drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data prepared by Contractor or its agents which detail a portion of the Work.
- 1.37 *Site* means the geographical area of the location of the Work.
- 1.38 *Specifications* mean the written product of A/E that establishes the quality and/or performance of products utilized in the Work and processes to be used, including testing and verification for producing the Work.
- 1.39 *Subcontractor* means a business entity that enters into an agreement with Contractor to perform part of the Work or to provide services, materials, or equipment for use in the Work.
- 1.40 *Submittal Register* means a list provided by Contractor of all items to be furnished for review and approval by A/E and Owner and as identified in the Contract Documents including anticipated sequence and submittal dates.
- 1.41 *Substantial Completion* means the date determined and certified by Contractor, A/E, and Owner when the Work, or a designated portion thereof, is sufficiently complete, in accordance with the Contract, so

as to be operational and fit for the use intended.

- 1.42 *Unit Price Work* means the Work, or a portion of the Work, paid for based on incremental units of measurement.
- 1.43 *Unilateral Change Order (ULCO)* means a Change Order issued by Owner without the complete agreement of Contractor, as to cost and/or time.
- 1.44 *Work* means the administration, procurement, materials, equipment, construction and all services necessary for Contractor, and/or its agents, to fulfill Contractor's obligations under the Contract.
- 1.45 *Work Progress Schedule* means the continually updated time schedule prepared and monitored by Contractor that accurately indicates all necessary appropriate revisions as required by the conditions of the Work and the Project while maintaining a concise comparison to the Baseline Schedule.

Article 2. Wage Rates and Other Laws Governing Construction

- 2.1 Environmental Regulations. Contractor shall conduct activities in compliance with applicable laws and regulations and other requirements of the Contract relating to the environment and its protection at all times. Unless otherwise specifically determined, Owner is responsible for obtaining and maintaining permits related to stormwater run-off. Contractor shall conduct operations consistent with stormwater run-off permit conditions. Contractor is responsible for all items it brings to the Site, including hazardous materials, and all such items brought to the Site by its Subcontractors and suppliers, or by other entities subject to direction of Contractor. Contractor shall not incorporate hazardous materials into the Work without prior approval of Owner, and shall provide an affidavit attesting to such in association with request for Substantial Completion inspection.
- 2.2 Wage Rates. Contractor shall not pay less than the wage scale of the various classes of labor as shown on the prevailing wage schedule provided by Owner in the bid or proposal specifications. The specified wage rates are minimum rates only. Owner is not bound to pay any claims for additional compensation made by any Contractor because the Contractor pays wages in excess of the applicable minimum rate contained in the Contract. The prevailing wage schedule is not a representation that qualified labor adequate to perform the Work is available locally at the prevailing wage rates.
 - 2.2.1 Notification to Workers. Contractor shall post the prevailing wage schedule in a place conspicuous to all workers on the Project Site and shall notify each worker, in writing, of the following as they commence work on the Contract: the worker's job classification, the established minimum wage rate requirement for that classification, as well as the worker's actual wage. The notice must be delivered to and signed in acknowledgement of receipt by the worker and must list both the wages and fringe benefits to be paid or furnished for each classification in which the worker is assigned duties. When requested by Owner, Contractor shall furnish evidence of compliance with the Texas Prevailing Wage Law and the addresses of all workers.
 - 2.2.1.1 Contractor shall submit a copy of each worker's wage-rate notification to ODR with the application for progress payment for the period during which the worker was engaged in activities on behalf of the Project.
 - 2.2.1.2 The prevailing wage schedule is determined by Owner in compliance with Tex. Gov't Code, Chapter 2258. Should Contractor at any time become aware that a particular skill or trade not reflected on Owner's prevailing wage schedule will be or is being employed in the Work, whether by Contractor or by Subcontractor, Contractor shall promptly inform ODR of the proposed wage to be paid for the skill along with a justification for same and ODR shall promptly concur with or reject the proposed wage and classification. Contractor is responsible for determining the most appropriate wage for a particular skill in relation to similar skills or trades

identified on the prevailing wage schedule. In no case, shall any worker be paid less than the wage indicated for laborers.

- 2.2.2 Penalty for Violation. Contractor, and any Subcontractor, will pay to the State a penalty of sixty dollars (\$60) for each worker employed for each day, or portion thereof, that the worker is paid less than the wage rates stipulated in the prevailing wage schedule.
- 2.2.3 Complaints of Violations.
 - 2.2.3.1 Owner's Determination of Good Cause. Upon receipt of information concerning a violation, Owner will conduct an investigation in accordance with Tex. Gov't Code, Chapter 2258 and make an initial determination as to whether good cause exists that a violation occurred. Upon making a good cause finding, Owner will retain the full amounts claimed by the claimant or claimants as the difference between wages paid and wages due under the prevailing wage schedule and any supplements thereto, together with the applicable penalties, such amounts being subtracted from successive progress payments pending a final decision on the violation.
 - 2.2.3.2 No Extension of Time. If Owner's determination proves valid that good cause existed to believe a violation had occurred, Contractor is not entitled to an extension of time for any delay arising directly or indirectly from the arbitration procedures.
- 2.3 Venue for Suits. The venue for any suit arising from the Contract will be in a court of competent jurisdiction in Travis County, Texas, or as may otherwise be designated in the Owner's Special Conditions.
- 2.4 Licensing of Trades. Contractor shall comply with all applicable provisions of State law related to license requirements for skilled tradesmen, contractors, suppliers and or laborers, as necessary to accomplish the Work. In the event Contractor, or one of its Subcontractors, loses its license during the term of performance of the Contract, Contractor shall promptly hire or contract with a licensed provider of the service at no additional cost to Owner.
- 2.5 Royalties, Patents, and Copyrights. Contractor shall pay all royalties and license fees, defend suits or claims for infringement of copyrights and patent rights, and shall hold Owner harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by Owner or A/E. However, if Contractor has reason to believe that the required design, process, or product is an infringement of a copyright or a patent, Contractor shall be responsible for such loss unless such information is promptly furnished to A/E.
- 2.6 State Sales and Use Taxes. Owner qualifies for exemption from certain State and local sales and use taxes pursuant to the provisions of Tex. Tax Code, Chapter 151. Upon request from Contractor, Owner shall furnish evidence of tax exempt status. Contractor may claim exemption from payment of certain applicable State taxes by complying with such procedures as prescribed by the State Comptroller of Public Accounts. Owner acknowledges not all items qualify for exemption. Owner is not obligated to reimburse Contractor for taxes paid on items that qualify for tax exemption.

Article 3. General Responsibilities of Owner and Contractor

- 3.1 Owner's General Responsibilities. Owner is the entity identified as such in the Contract and referred to throughout the Contract Documents as if singular in number.
 - 3.1.1 Preconstruction Conference. Prior to, or concurrent with, the issuance of Notice to Proceed with construction, a conference will be convened for attendance by Owner, Contractor, A/E and appropriate Subcontractors. The purpose of the conference is to establish a working

understanding among the parties as to the Work, the operational conditions at the Project Site, and general administration of the Project. Topics include communications, schedules, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, maintaining required records and all other matters of importance to the administration of the Project and effective communications between the Project team members.

3.1.2 Owner's Designated Representative. Prior to the start of construction, Owner will identify Owner's Designated Representative (ODR), who has the express authority to act and bind Owner to the extent and for the purposes described in the various Articles of the Contract, including responsibilities for general administration of the Contract.

3.1.2.1 Unless otherwise specifically defined elsewhere in the Contract Documents, ODR is the single point of contact between Owner and Contractor. Notice to ODR, unless otherwise noted, constitutes notice to Owner under the Contract.

3.1.2.2 All directives on behalf of Owner will be conveyed to Contractor and A/E by ODR in writing.

3.1.2.3 Owner will furnish or cause to be furnished, free of charge, the number of complete sets of the Drawings, Specifications, and addenda as provided in the Agreement or Special Conditions.

3.1.3 Owner Supplied Materials and Information.

3.1.3.1 Owner will furnish to Contractor those surveys describing the physical characteristics, legal description, limitations of the Site, Site utility locations, and other information used in the preparation of the Contract Documents.

3.1.3.2 Owner will provide information, equipment, or services under Owner's control to Contractor with reasonable promptness.

3.1.4 Availability of Lands. Owner will furnish, as indicated in the Contract, all required rights to use the lands upon which the Work occurs. This includes rights-of-way and easements for access and such other lands that are designated for use by Contractor. Contractor shall comply with all Owner identified encumbrances or restrictions specifically related to use of lands so furnished. Owner will obtain and pay for easements for permanent structures or permanent changes in existing facilities, unless otherwise required in the Contract Documents.

3.1.5 Limitation on Owner's Duties.

3.1.5.1 Owner will not supervise, direct, control or have authority over or be responsible for Contractor's means, methods, technologies, sequences or procedures of construction or the safety precautions and programs incident thereto. Owner is not responsible for any failure of Contractor to comply with laws and regulations applicable to the Work. Owner is not responsible for the failure of Contractor to perform or furnish the Work in accordance with the Contract Documents. Except as provided in Section 2.5, Owner is not responsible for the acts or omissions of Contractor, or any of its Subcontractors, suppliers or of any other person or organization performing or furnishing any of the Work on behalf of Contractor.

3.1.5.2 Owner will not take any action in contravention of a design decision made by A/E in preparation of the Contract Documents, when such actions are in conflict with statutes under which A/E is licensed for the protection of the public health and safety.

3.2 Role of Architect/Engineer. Unless specified otherwise in the Contract between Owner and Contractor,

A/E shall provide general administration services for Owner during the construction phase of the project. Written correspondence, requests for information, and Shop Drawings/submittals shall be directed to A/E for action. A/E has the authority to act on behalf of Owner to the extent provided in the Contract Documents, unless otherwise modified by written instrument, which will be furnished to Contractor by ODR, upon request.

3.2.1 Site Visits.

3.2.1.1 A/E will make visits to the Site at intervals as provided in the A/E's Contract (or the Design/Build Contractor's Contract, if applicable) with Owner, to observe the progress and the quality of the various aspects of Contractor's executed Work and report findings to Owner.

3.2.1.2 A/E has the authority to interpret Contract Documents and inspect the Work for compliance and conformance with the Contract. Except as referenced in Paragraph 3.1.5.2, Owner retains the sole authority to accept or reject Work and issue direction for correction, removal, or replacement of Work.

3.2.2 Clarifications and Interpretations. It may be determined that clarifications or interpretations of the Contract Documents are necessary. Upon direction by ODR, such clarifications or interpretations will be provided by A/E consistent with the intent of the Contract Documents. A/E will issue these clarifications with reasonable promptness to Contractor as A/E's supplemental instruction ("ASI") or similar instrument. If Contractor believes that such clarification or interpretation justifies an adjustment in the Contract Sum or the Contract Time, Contractor shall so notify Owner in accordance with the provisions of Article 11.

3.2.3 Limitations on Architect/Engineer Authority. A/E is not responsible for:

3.2.3.1 Contractor's means, methods, techniques, sequences, procedures, safety, or programs incident to the Project, nor will A/E supervise, direct, control or have authority over the same;

3.2.3.2 The failure of Contractor to comply with laws and regulations applicable to the furnishing or performing the Work;

3.2.3.3 Contractor's failure to perform or furnish the Work in accordance with the Contract Documents; or

3.2.3.4 Acts or omissions of Contractor, or of any other person or organization performing or furnishing any of the Work.

3.3 Contractor's General Responsibilities. Contractor is solely responsible for implementing the Work in full compliance with all applicable laws and the Contract Documents and shall supervise and direct the Work using the best skill and attention to assure that each element of the Work conforms to the Contract requirements. Contractor is solely responsible for all construction means, methods, techniques, safety, sequences, coordination and procedures.

Contractor shall visit the Site before commencing the Work and become familiar with local conditions such as the location, accessibility and general character of the Site and/or building.

3.3.1 Project Administration. Contractor shall provide Project administration for all Subcontractors, vendors, suppliers, and others involved in implementing the Work and shall coordinate administration efforts with those of A/E and ODR in accordance with these general conditions, Division 1 of the Specifications and other provisions of the Contract, and as outlined in the pre-construction conference.

- 3.3.1.1 At the request of Owner and at no additional cost, Contractor shall furnish to the ODR one copy of the current edition of the RSMeans Facilities Construction Cost Data Book in hard copy format or digital medium as directed by the ODR.
- 3.3.2 Contractor's Management Personnel. Contractor shall employ a competent person or persons who will be present at the Project Site during the progress of the Work to supervise or oversee the work. The competent persons are subject to the approval of ODR. Contractor shall not change approved staff during the course of the project without the written approval of ODR unless the staff member leaves the employment of Contractor. Contractor shall provide additional quality control, safety and other staff as stated in the Contract Documents.
- 3.3.3 Labor. Contractor shall provide competent, suitably qualified personnel to survey, lay-out, and construct the Work as required by the Contract Documents and maintain good discipline and order at the Site at all times.
- 3.3.4 Services, Materials, and Equipment. Unless otherwise specified, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities, incidentals, and services necessary for the construction, performance, testing, start-up, inspection and completion of the Work.
- 3.3.5 Contractor General Responsibility. For Owner furnished equipment or material that will be in the care, custody, and control of Contractor, Contractor is responsible for damage or loss.
- 3.3.6 Non-Compliant Work. Should A/E and/or ODR identify Work as non-compliant with the Contract Documents, A/E and/or ODR shall communicate the finding to Contractor, and Contractor shall correct such Work at no additional cost to the Owner. The approval of Work or the failure to find non-compliant Work by either A/E or ODR does not relieve Contractor from the obligation to comply with all requirements of the Contract Documents.
- 3.3.7 Subcontractors. Contractor shall not employ any Subcontractor, supplier or other person or organization, whether initially or as a substitute, against whom Owner shall have reasonable objection. Owner will communicate such objections in writing within ten (10) days of receipt of Contractor's intent to use such Subcontractor, supplier, or other person or organization. Contractor is not required to employ any Subcontractor, supplier or other person or organization to furnish any of the work to whom Contractor has reasonable objection. Contractor shall not substitute Subcontractors without the acceptance of Owner.
- 3.3.7.1 All Subcontracts and supply contracts shall be consistent with and bind the Subcontractors and suppliers to the terms and conditions of the Contract Documents including provisions of the Contract between Contractor and Owner.
- 3.3.7.2 Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with Contractor. Require all Subcontractors, suppliers and such other persons and organizations performing or furnishing any of the Work to communicate with Owner only through Contractor. Contractor shall furnish to Owner a copy, at Owner's request, of each first-tier subcontract promptly after its execution. Contractor agrees that Owner has no obligation to review or approve the content of such contracts and that providing Owner such copies in no way relieves Contractor of any of the terms and conditions of the Contract, including, without limitation, any provisions of the Contract which require the Subcontractor to be bound to Contractor in the same manner in which Contractor is bound to Owner.

- 3.3.8 Continuing the Work. Contractor shall carry on the Work and adhere to the progress schedule during all disputes, disagreements, or alternative resolution processes with Owner. Contractor shall not delay or postpone any Work because of pending unresolved disputes, disagreements or alternative resolution processes, except as Owner and Contractor may agree in writing.
- 3.3.9 Cleaning. Contractor shall at all times, keep the Site and the Work clean and free from accumulation of waste materials or rubbish caused by the construction activities under the Contract. Contractor shall ensure that the entire Project is thoroughly cleaned prior to requesting Substantial Completion inspection and, again, upon completion of the Project prior to the final inspection.
- 3.3.10 Acts and Omissions of Contractor, its Subcontractors and Employees. Contractor shall be responsible for acts and omissions of his employees and all its Subcontractors, their agents and employees. Owner may, in writing, require Contractor to remove from the Project any of Contractor's or its Subcontractor's employees whom ODR finds to be careless, incompetent, unsafe, uncooperative, disruptive, or otherwise objectionable.
- 3.3.11 Ancillary Areas. Contractor shall operate and maintain operations and associated storage areas at the site of the Work in accordance with the following:
- 3.3.11.1 All Contractor operations, including storage of materials and employee parking upon the Site of Work, shall be confined to areas designated by Owner.
- 3.3.11.2 Contractor may erect, at its own expense, temporary buildings that will remain its property. Contractor shall remove such buildings and associated utility service lines upon completion of the Work, unless Contractor requests and Owner provides written consent that it may abandon such buildings and utilities in place.
- 3.3.11.3 Contractor shall use only established roadways or construct and use such temporary roadways as may be authorized by Owner. Contractor shall not allow load limits of vehicles to exceed the limits prescribed by appropriate regulations or law. Contractor shall provide protection to road surfaces, curbs, sidewalks, trees, shrubbery, sprinkler systems, drainage structures and other like existing improvements to prevent damage and repair any damage thereto at the expense of Contractor.
- 3.3.11.4 Owner may restrict Contractor's entry to the Site to specifically assigned entrances and routes.
- 3.3.12 Separate Contracts. Owner reserves the right to award other contracts in connection with the Project under the same or substantially similar contract terms, including those portions related to insurance and waiver of subrogation. Owner reserves the right to perform operations related to the Project with Owner's own forces.
- 3.3.13 Under a system of separate contracts, the conditions described herein continue to apply except as may be amended by change order.
- 3.3.14 Contractor shall cooperate with other contractors or forces employed on the Project by Owner, including providing access to Site, integration of activities within Contractor's Work Progress Schedule and Project information as requested.
- 3.3.15 Owner shall be reimbursed by Contractor for costs incurred by Owner which are payable to a separate contractor because of delays, improperly timed activities, or defective construction by Contractor. Owner will equitably adjust the Contract by Change Order for costs incurred by Contractor because of delays, improperly timed activities, damage to the Work or defective construction by a separate contractor.

3.4 Indemnification of Owner.

- 3.4.1 Contractor covenants and agrees to **FULLY INDEMNIFY and HOLD HARMLESS**, Owner and the elected and appointed officials, employees, officers, directors, volunteers, and representatives of Owner, individually or collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, liability and suits of any kind and nature, including but not limited to, personal or bodily injury, death or property damage, made upon Owner directly or indirectly arising out of, resulting from or related to Contractor's activities under this Contract, including any acts or omissions of Contractor, or any agent, officer, director, representative, employee, consultant or the Subcontractor of Contractor, and their respective officers, agents, employees, directors and representatives while in the exercise of performance of the rights or duties under this Contract. The indemnity provided for in this paragraph does not apply to any liability resulting from the negligence of the Owner, its officers or employees, separate contractors or assigned contractors, in instances where such negligence causes personal injury, death or property damage. **IN THE EVENT CONTRACTOR AND OWNER ARE FOUND JOINTLY LIABLE BY A COURT OF COMPETENT JURISDICTION, LIABILITY WILL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO THE STATE UNDER TEXAS LAW AND WITHOUT WAIVING ANY DEFENSES OF THE PARTIES UNDER TEXAS LAW.**
- 3.4.2 Contractor shall protect and indemnify the Owner from and against all claims, damages, judgments and losses arising from infringement or alleged infringement of any United States patent, or copyright that arise out of any of the work performed by the Contractor or the use by Contractor, or by Owner at the direction of Contractor, of any article or material. Upon becoming aware of a suit or threat of suit for patent or copyright infringement, Owner shall promptly notify Contractor and Contractor shall be given full opportunity to negotiate a settlement. Contractor does not warrant against infringement by reason of Owner's or Project Architect's design of articles or their use in combination with other materials or in the operation of any process. In the event of litigation, Owner agrees to cooperate reasonably with Contractor and parties shall be entitled, in connection with any such litigation, to be represented by counsel at their own expense.
- 3.4.3 The provisions of this indemnification are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.
- 3.4.4 Contractor shall promptly advise Owner in writing of any claim or demand against Owner or against Contractor which involves Owner and known to Contractor and related to or arising out of Contractor's activities under this Contract.
- 3.4.5 These indemnity provisions shall survive the termination of this Agreement regardless of the reason for termination.

Article 4. Historically Underutilized Business (HUB) Subcontracting Plan

- 4.1 General Description. The purpose of the Historically Underutilized Business (HUB) program is to promote equal business opportunities for economically disadvantaged persons (as defined by Tex. Gov't Code, Chapter 2161) to contract with the State of Texas in accordance with the goals specified in the State of Texas Disparity Study. The HUB program annual procurement utilization goals are defined in 34 T.A.C. § 20.13(b).
- 4.1.1 State agencies are required by statute to make a good faith effort to assist HUBs in participating

in contract awards issued by the State. 34 T.A.C. § 20.13(b) outlines the State's policy to encourage the utilization of HUBs in State contracting opportunities through race, ethnic and gender neutral means.

- 4.1.2 A Contractor who contracts with the State in an amount of \$100,000 or greater is required to make a good faith effort to award subcontracts to HUBs in accordance with 34 T.A.C. § 20.14(a)(2)(A) by submitting a HUB subcontracting plan within twenty-four (24) hours after the bid or response is due and complying with the HUB subcontracting plan after it is accepted by Owner and during the term of the Contract.
- 4.2 Compliance with Approved HUB Subcontracting Plan. Contractor, having been awarded this Contract in part by complying with the HUB program statute and rules, hereby covenants to continue to comply with the HUB program as follows:
 - 4.2.1 Prior to adding or substituting a Subcontractor, promptly notify Owner in the event a change is required for any reason to the accepted HUB subcontracting plan.
 - 4.2.2 Conduct the good-faith effort activities required and provide Owner with necessary documentation to justify approval of a change to the approved HUB subcontracting plan.
 - 4.2.3 Cooperate in the execution of a Change Order or such other approval of the change in the HUB subcontracting plans as Contractor and Owner may agree to.
 - 4.2.4 Maintain and make available to Owner upon request business records documenting compliance with the accepted HUB subcontracting plan.
 - 4.2.5 Upon receipt of payment for performance of Work, submit to Owner a compliance report, in the format required by Owner that demonstrates Contractor's performance of the HUB subcontracting plan.
 - 4.2.5.1 Progress Assessment Report (PAR): monthly compliance reports to Owner (contracting agency), verifying their compliance with the HUB subcontracting plan, including the use/expenditures they have made to Subcontractors. (The PAR is available at <http://www.window.state.tx.us/procurement/prog/hub/hub-forms/progressassessmentrpt.xls>).
 - 4.2.6 Promptly and accurately explain and provide supplemental information to Owner to assist in Owner's investigation of Contractor's good-faith effort to fulfill the HUB subcontracting plan and the requirements under 34 T.A.C. § 20.14(a)(1).
- 4.3 Failure to Demonstrate Good-Faith Effort. Upon a determination by Owner that Contractor has failed to demonstrate a good-faith effort to fulfill the HUB subcontracting plan or any Contract covenant detailed above, Owner may, in addition to all other remedies available to it, report the failure to perform to the Comptroller of Public Accounts, Texas Procurement and Support Services Division, Historically Underutilized Business Program and may bar Contractor from future contracting opportunities with Owner.

Article 5. Bonds and Insurance

- 5.1 Construction Bonds. Contractor is required to tender to Owner, prior to commencing the Work, performance and payment bonds, as required by Tex. Gov't Code, Chapter 2253. On Construction Manager-at-Risk and Design-Build Projects the Owner shall require a security bond, as described in Subsection 5.1.2 below.
 - 5.1.1 Bond Requirements. Each bond shall be executed by a corporate surety or sureties authorized to do business in the State of Texas and acceptable to Owner, on Owner's form, and in

compliance with the relevant provisions of the Texas Insurance Code. If any bond is for more than ten (10) percent of the surety's capital and surplus, Owner may require certification that the company has reinsured the excess portion with one or more reinsurers authorized to do business in the State. A reinsurer may not reinsure for more than ten (10) percent of its capital and surplus. If a surety upon a bond loses its authority to do business in the State, Contractor shall, within thirty (30) days after such loss, furnish a replacement bond at no added cost to Owner.

5.1.1.1 A Performance bond is required if the Contract Sum is in excess of \$100,000. The performance bond is solely for the protection of Owner. The performance bond is to be for the Contract Sum to guarantee the faithful performance of the Work in accordance with the Contract Documents. The form of the bond shall be approved by the Office of the Attorney General of Texas. The performance bond shall be effective through Contractor's warranty period.

5.1.1.2 A Payment bond is required if the Contract price is in excess of \$25,000. The payment bond is to be for the Contract Sum and is payable to Owner solely for the protection and use of payment bond beneficiaries. The form of the bond shall be approved by the Office of the Attorney General of Texas.

5.1.2 Security Bond. The security bond provides protection to Owner if Contractor presents an acceptable guaranteed maximum price ("GMP") to Owner but is unable to deliver the required payment and performance bonds within the time period stated below.

5.1.3 When Bonds Are Due

5.1.3.1 Security bonds are due before execution of a Construction Manager-at-Risk or Design-Build Contract.

5.1.3.2 Payment and performance bonds are due before execution of a contract on competitively bid or competitively sealed proposal projects or before execution of a GMP proposal on Construction Manager-at-Risk projects or Design-Build projects.

5.1.4 Power of Attorney. Each bond shall be accompanied by a valid power of attorney (issued by the surety company and attached, signed and sealed with the corporate embossed seal, to the bond) authorizing the attorney-in-fact who signs the bond to commit the company to the terms of the bond, and stating any limit in the amount for which the attorney can issue a single bond.

5.1.5 Bond Indemnification. The process of requiring and accepting bonds and making claims thereunder shall be conducted in compliance with Tex. Gov't Code, Chapter 2253. IF FOR ANY REASON A STATUTORY PAYMENT OR PERFORMANCE BOND IS NOT HONORED BY THE SURETY, CONTRACTOR SHALL FULLY INDEMNIFY AND HOLD OWNER HARMLESS OF AND FROM ANY COSTS, LOSSES, OBLIGATIONS OR LIABILITIES IT INCURS AS A RESULT.

5.1.6 Furnishing Bond Information. Owner shall furnish certified copies of the payment bond and the related Contract to any qualified person seeking copies who complies with Tex. Gov't Code § 2253.026.

5.1.7 Claims on Payment Bonds. Claims on payment bonds must be sent directly to Contractor and his surety in accordance with Tex. Gov't Code § 2253.041. All payment bond claimants are cautioned that no lien exists on the funds unpaid to Contractor on such Contract, and that reliance on notices sent to Owner may result in loss of their rights against Contractor and/or his surety. Owner is not responsible in any manner to a claimant for collection of unpaid bills, and accepts no such responsibility because of any representation by any agent or employee.

- 5.1.8 Payment Claims when Payment Bond not Required. The rights of Subcontractors regarding payment are governed by Tex. Prop. Code §§ 53.231 – 53.239 when the value of the Contract between Owner and Contractor is less than \$25,000.00. These provisions set out the requirements for filing a valid lien on funds unpaid to Contractor as of the time of filing the claim, actions necessary to release the lien and satisfaction of such claim.
- 5.1.9 Sureties. A surety shall be listed on the US Department of the Treasury's Listing of Approved Sureties maintained by the Bureau of Financial Management Service (FMS), www.fms.treas.gov/c570, stating companies holding Certificates of Authority as acceptable sureties on Federal bonds and acceptable reinsuring companies (FMS Circular 570).
- 5.2 Insurance Requirements. Contractor shall carry insurance in the types and amounts indicated in this Article for the duration of the Contract. The required insurance shall include coverage for Owner's property prior to construction, during construction and during the warranty period. The insurance shall be evidenced by delivery to Owner of certificates of insurance executed by the insurer or its authorized agent stating coverages, limits, expiration dates and compliance with all applicable required provisions. Upon request, Owner, and/or its agents, shall be entitled to receive without expense, copies of the policies and all endorsements. Contractor shall update all expired policies prior to submission for monthly payment. Failure to update policies shall be reason for withholding of payment until renewal is provided to Owner.
- 5.2.1 Contractor, consistent with its status as an independent contractor, shall provide and maintain all insurance coverage with the minimum amounts described below until the end of the warranty period unless otherwise stated in Owner's Special Conditions. Failure to maintain insurance coverage, as required, is grounds for suspension of Work for cause pursuant to Article 14. The Contractor will be notified of the date on which the Builder's Risk insurance policy may be terminated by any means deemed appropriate by Owner.
- 5.2.2 Coverage shall be written on an occurrence basis by companies authorized and admitted to do business in the State of Texas and rated A-, VII or better by A.M. Best Company or similar rating company or otherwise acceptable to Owner.
- 5.2.2.1 Insurance Coverage Required.
- 5.2.2.1.1 Workers' Compensation. Insurance with limits as required by the Texas Workers' Compensation Act and Employer's Liability Insurance with limits of not less than:
- \$1,000,000 each accident;
- \$1,000,000 disease each employee; and
- \$1,000,000 disease policy limit.
- Policies must include (a) Other States Endorsement to include TEXAS if business is domiciled outside the State of Texas, and (b) a waiver of all rights of subrogation in favor of Owner.
- 5.2.2.1.2 Commercial General Liability Insurance, including premises, operations, independent contractor's liability, products and completed operations and contractual liability, covering, but not limited to, the liability assumed under the indemnification provisions of this Contract, fully insuring Contractor's (or Subcontractor's) liability for bodily injury (including death) and property damage with a minimum limit of:

\$1,000,000 per occurrence;

\$2,000,000 general aggregate;

\$2,000,000 products and completed operations aggregate; and

Coverage shall be on an “occurrence” basis.

The policy shall include coverage extended to apply to completed operations and explosion, collapse, and underground hazards. The policy shall include endorsement CG2503 Amendment of Aggregate Limits of Insurance (per Project) or its equivalent.

If the Work involves any activities within fifty (50) feet of any railroad, railroad protective insurance as may be required by the affected railroad, written for not less than the limits required by such railroad.

- 5.2.2.1.3 Asbestos Abatement Liability Insurance, including coverage for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos containing materials. *This requirement applies if the Work or the Project includes asbestos containing materials.

The combined single limit for bodily injury and property damage will be a minimum of \$1,000,000 per occurrence.

*Specific requirement for claims-made form: Required period of coverage will be determined by the following formula: continuous coverage for life of the Contract, plus one (1) year (to provide coverage for the warranty period), and an extended discovery period for a minimum of five (5) years which shall begin at the end of the warranty period.

Employer’s liability limits for asbestos abatement will be:

\$1,000,000 each accident;

\$1,000,000 disease each employee; and

\$1,000,000 disease policy limit.

If this Contract is for asbestos abatement only, the All-Risk Builder’s Risk or all-risk installation floater (5.2.2.1.5.e) is not required.

- 5.2.2.1.4 Business Automobile Liability Insurance, covering all owned, hired, and non-owned vehicles, with a minimum combined single limit for bodily injury (including death) and property damage of \$1,000,000 per occurrence. No aggregate shall be permitted for this type of coverage.

Such insurance is to include coverage for loading and unloading hazards.

Contractor or any subcontractor responsible for transporting asbestos or other hazardous materials defined as asbestos shall provide

pollution coverage for any vehicle hauling asbestos containing cargo. The policy must include a MCS 90 endorsement with a \$5,000,000 limit and the CA 9948 Pollution Endorsement, or its equivalent.

- 5.2.2.1.5 All-Risk Builder's Risk Insurance, if applicable (or all-risk installation floater for instances in which the project involves solely the installation of material and/or equipment). Coverage is determined by the Contract Sum, as detailed, below.

BUILDERS RISK REQUIREMENT FOR PROJECTS WITH A CONTRACT SUM <\$20 MILLION

- 5.2.2.1.5.1 Contractor shall purchase and maintain in force builders risk insurance on the entire Work. Such insurance shall be written in the amount of the original contract, plus any subsequent change orders and plus the cost of materials supplied or installed by others, comprising Total Value for the entire Project at the site. The insurance shall apply on a replacement cost basis with no coinsurance provision. A sublimit may be applicable to flood coverage, but sublimit must be at least 20% of the Total Value of the Project. The limit for all other perils, including Named Windstorm, Wind, and Hail, must be equal to the Total Value for the entire Project at the site. (If Installation Floater, limit shall be equal to 100 percent of the contract cost.)
- 5.2.2.1.5.2 This insurance shall name as insureds the Owner, the Contractor, and all subcontractors and sub-subcontractors in the Work.
- 5.2.2.1.5.3 Builders risk insurance shall be on an "all risk" or equivalent policy form and shall include, without limitation, insurance against fire and extended coverage perils, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, boiler and machinery/mechanical breakdown, testing and startup, and terrorism.
- 5.2.2.1.5.4 This insurance shall cover the entire work at the site as required in 5.2.2.1.5.1, including, but not limited to, the following:
- Temporary works including but not limited to scaffolding, form work, fences, shoring, hoarding, falsework and temporary buildings
 - Offsite Storage
 - Portions of the work in transit
 - Debris removal
 - Extra Expense
 - Expediting Expenses
 - Demolition and Increased Cost of Construction
 - Pollutant Clean-Up and Removal
 - Trees, Shrubs, Plants, Lawns and Landscaping (if applicable)
 - Errors & Omissions (applicable to purchase of Builders Risk policy only)
- 5.2.2.1.5.5 This insurance shall not contain an occupancy clause suspending or reducing coverage should the Owner occupy, or begin beneficial occupancy before the Owner has accepted final completion.
- 5.2.2.1.5.6 This insurance shall be specific as to coverage and shall be primary to any permanent insurance or self-insurance that may be maintained on the property by Owner.
- 5.2.2.1.5.7 This insurance shall include a waiver of subrogation in favor of Owner, the Contractor, and all subcontractors and sub-subcontractors in the work.
- 5.2.2.1.5.8 As applicable, Flood deductible shall not exceed \$250,000 for Zone A, \$100,000 for Zone B and \$50,000 for all other Zones. For Tier 1 and Tier 2, Named Windstorm deductible shall not exceed 2% of the project values in place at the time of the loss.

- 5.2.2.1.5.9 Before the commencement of the work, Contractor shall provide to Owner an accurate certificate of insurance that provides specific evidence of all requirements outlined in Section 5.2.2.1.5. A copy of the policy itself shall be provided to Owner within 30 days after Notice to Proceed.
- 5.2.2.1.5.10 Refer to Owner's Special Conditions for possible additional Builders Risk insurance requirements.

BUILDERS RISK REQUIREMENT FOR PROJECTS WITH A CONTRACT SUM ≥\$20 MILLION

- 5.2.2.1.5.1 Contractor shall purchase and maintain in force builders risk insurance on the entire Work. Such insurance shall be written in the amount of the original contract, plus any subsequent change orders and plus the cost of materials supplied or installed by others, comprising Total Value for the entire Project at the site. The insurance shall apply on a replacement cost basis with no coinsurance provision and shall include a margin clause of plus/minus 10% on project value. A sublimit may be applicable to flood coverage, but sublimit must be at least 20% of the Total Value of the Project. A sublimit of \$50 million or the Total Value of the Project, whichever is less, is acceptable for Earthquake. The limit for all other perils, including Named Windstorm, Wind, and Hail, must be equal to the Total Value for the entire Project at the site. (If Installation Floater, limit shall be equal to 100 percent of the contract cost.)
- 5.2.2.1.5.2 This insurance shall name as insureds the Owner, the Contractor, and all subcontractors and sub-subcontractors in the Work.
- 5.2.2.1.5.3 Builders risk insurance shall be on an "all risk" or equivalent policy form and shall include, without limitation, insurance against fire and extended coverage perils, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, boiler and machinery/mechanical breakdown, testing and startup, and terrorism.
- 5.2.2.1.5.4 This insurance shall cover the entire work at the site as required in 5.2.2.1.5.1, including, but not limited to, the following:

| Coverage | Minimum Limit Required |
|---|--|
| Temporary works including but not limited to scaffolding, form work, fences, shoring, hoarding, falsework and temporary buildings | \$1 million |
| Offsite Storage | Sufficient to cover the anticipated maximum values stored offsite |
| Portions of the work in Transit | Sufficient to cover the anticipated maximum values in transit |
| Debris Removal | 25% of Physical damage amount subject to maximum of \$5 million or 25% of Total Value of Project whichever is higher |
| Expediting Expenses | \$1 million |
| Extra Expense | \$5 million |
| Demolition and Increased Cost of Construction | \$2 million or 10% of Total Value of Project whichever is higher |
| Pollutant Clean-Up and Removal | \$250,000 |
| Trees, Shrubs, Plants, Lawns and Landscaping (if applicable) | \$2,500 per item subject to a maximum of \$1 million |
| Errors & Omissions (applicable to purchase of Builders Risk policy only) | \$2.5 million |

- 5.2.2.1.5.5 This insurance shall not contain an occupancy clause suspending or reducing coverage should the Owner occupy, or begin beneficial occupancy before the Owner has accepted final completion.
- 5.2.2.1.5.6 This insurance shall be specific as to coverage and shall be primary to any permanent insurance or

self-insurance that may be maintained on the property by Owner.

- 5.2.2.1.5.7 This insurance shall include a waiver of subrogation in favor of Owner, the Contractor, and all subcontractors and sub-subcontractors in the work.
- 5.2.2.1.5.8 As applicable, Flood deductible shall not exceed \$250,000 for Zone A, \$100,000 for Zone B and \$50,000 for all other Zones. For Tier 1 and Tier 2, Named Windstorm deductible shall not exceed 2% of the project values in place at the time of the loss.
- 5.2.2.1.5.9 Before the commencement of the work, Contractor shall provide to Owner an accurate certificate of insurance that provides specific evidence of all requirements outlined in Section 5.2.2.1.5. A copy of the policy itself shall be provided to Owner within 30 days after Notice to Proceed.
- 5.2.2.1.5.10 Refer to Owner's Special Conditions for possible additional Builders Risk insurance requirements.

5.2.2.1.6 "Umbrella" Liability Insurance. On Projects that are not insured under the Owner's Revolving Owner Controlled Insurance Program (ROCIP) or any project requiring demolition services, Contractor shall obtain, pay for and maintain umbrella liability insurance during the Contract term, insuring Contractor (or Subcontractor) that provides coverage at least as broad as and applies in excess and follows form of the primary liability coverages required above. The policy shall provide "drop down" coverage where underlying primary insurance coverage limits are insufficient or exhausted.

5.2.2.1.7 "Umbrella" Liability Insurance coverage shall be in the following amounts:

- If Contract sum is \$1,000,000 or less:
No Umbrella Required
- If Contract Sum is greater than \$1,000,000 up to \$3,000,000:
\$1,000,000 each occurrence and \$2,000,000 annual aggregate
- If Contract Sum is greater than \$3,000,000 up to \$5,000,000:
\$5,000,000 each occurrence and \$5,000,000 annual aggregate
- If Contract Sum is greater than \$5,000,000:
\$10,000,000 each occurrence and \$10,000,000 annual aggregate

5.2.3 All Policies must include the following clauses, as applicable:

- 5.2.3.1 Contractor must provide to Owner immediate notice of cancellation, material change, or non-renewal to any insurance coverages required herein above. This requirement may be satisfied by the Contractor providing a copy of the notice received by the insurer to Owner within two business days of date of receipt or by Endorsement of the policies that require Insurer to provide notice to Owner.
- 5.2.3.2 It is agreed that Contractor's insurance shall be deemed primary with respect to any insurance or self-insurance carried by Owner for liability arising out of operations under the Contract with Owner.
- 5.2.3.3 Owner, its officials, directors, employees, representatives, and volunteers are added as additional insureds as respects operations and activities of, or on behalf of the named insured performed under Contract with Owner. The additional insured status must cover completed operations as well. This is not applicable to workers' compensation policies.
- 5.2.3.4 A waiver of subrogation in favor of Owner shall be provided in all policies.

- 5.2.3.5 If Owner is damaged by the failure of Contractor (or Subcontractor) to maintain insurance as required herein and/or as further described in Owner's Special Conditions, then Contractor shall bear all reasonable costs properly attributable to that failure.
- 5.2.4 Without limiting any of the other obligations or liabilities of Contractor, Contractor shall require each Subcontractor performing work under the Contract, at Subcontractor's own expense, to maintain during the term of the Contract, the same stipulated minimum insurance including the required provisions and additional policy conditions as shown above. As an alternative, Contractor may include its Subcontractors as additional insureds on its own coverage as prescribed under these requirements. Contractor's certificate of insurance shall note in such event that Subcontractors are included as additional insureds and that Contractor agrees to provide workers' compensation for Subcontractors and their employees. Contractor shall obtain and monitor the certificates of insurance from each Subcontractor in order to assure compliance with the insurance requirements. Contractor must retain the certificates of insurance for the duration of the Contract plus five (5) years and shall have the responsibility of enforcing these insurance requirements among its Subcontractors. Owner shall be entitled, upon request and without expense, to receive copies of these certificates.
- 5.2.5 Workers' compensation insurance coverage must meet the statutory requirements of Tex. Lab. Code § 401.011(44) and specific to construction projects for public entities as required by Tex. Lab. Code § 406.096.
 - 5.2.5.1 Definitions:
 - 5.2.5.1.1 Certificate of coverage ("certificate")- A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement (DWC-81, DWC-82, DWC-83, or DWC-84), showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.
 - 5.2.5.1.2 Duration of the project - includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.
 - 5.2.5.1.3 Persons providing services on the project ("subcontractor" in §406.096) – includes all persons or entities performing all or part of the services the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractors, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" include, without limitation, providing, hauling, or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.
 - 5.2.5.2 The contractor shall provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.
 - 5.2.5.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

- 5.2.5.4 If the coverage period shown on the contractor's current certificate of coverage ends during the duration of the project, the contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.
- 5.2.5.5 The contractor shall obtain from each person providing services on a project, and provide to the governmental entity:
- (1) a certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and
 - (2) no later than seven days after receipt by the contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.
- 5.2.5.6 The contractor shall retain all required certificates of coverage for the duration of the project and for one year thereafter.
- 5.2.5.7 The contractor shall notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.
- 5.2.5.8 The contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Insurance Division of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.
- 5.2.5.9 The contractor shall contractually require each person with whom it contracts to provide services on a project, to:
- (1) provide coverage, based on proper reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all of its employees providing services on the project, for the duration of the project;
 - (2) provide to the contractor, prior to that person beginning work on the project, a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project;
 - (3) provide the contractor, prior to the end of the coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - (4) obtain from each other person with whom it contracts, and provide to the contractor:
 - (a) a certificate of coverage, prior to the other person beginning work on the project; and
 - (b) a new certificate of coverage showing extension of coverage, prior to the end of the coverage period, if the coverage period shown on the current certificate of coverage ends during the duration of the project;
 - (5) retain all required certificates of coverage on file for the duration of the project and for one year thereafter;

- (6) notify the governmental entity in writing by certified mail or personal delivery, within 10 days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and
 - (7) contractually require each person with whom it contracts, to perform as required by paragraphs (1) - (7), with the certificates of coverage to be provided to the person for whom they are providing services.
- 5.2.5.10 By signing this contract or providing or causing to be provided a certificate of coverage, the contractor is representing to the governmental entity that all employees of the contractor who will provide services on the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.
- 5.2.5.11 The contractor's failure to comply with any of these provisions is a breach of contract by the contractor which entitles the governmental entity to declare the contract void if the contractor does not remedy the breach within ten days after receipt of notice of breach from the governmental entity.

Article 6. Construction Documents, Coordination Documents, and Record Documents

6.1 Drawings and Specifications.

- 6.1.1 Copies Furnished. Contractor will be furnished, free of charge, the number of complete sets of the Drawings, Specifications, and addenda as provided in the Agreement or the Owner's Special Conditions. Additional complete sets of Drawings and Specifications, if requested, will be furnished at reproduction cost to the entity requesting such additional sets. Electronic copies of such documents will be provided to Contractor without charge.
- 6.1.2 Ownership of Drawings and Specifications. All Drawings, Specifications and copies thereof furnished by A/E are to remain A/E's property. These documents are not to be used on any other project, and with the exception of the Contract record set and electronic versions needed for warranty operations, are to be returned to the A/E, upon request, following completion of the Work.
- 6.1.3 Interrelation of Documents. The Contract Documents as referenced in the Contract between Owner and Contractor are complementary, and what is required by one shall be as binding as if required by all.
- 6.1.4 Resolution of Conflicts in Documents. Where conflicts may exist within the Contract Documents, the documents shall govern in the following order: (a) Change Orders, addenda, and written amendments to the Contract; (b) the Contract; (c) Drawings; (d) Specifications (but Specifications shall control over Drawings as to quality of materials and installation); and (e) other Contract Documents. Among other categories of documents having the same order of precedence, the term or provision that includes the latest date shall control. Contractor shall notify A/E and ODR for resolution of the issue prior to executing the Work in question.
- 6.1.5 Contractor's Duty to Review Contract Documents. In order to facilitate its responsibilities for completion of the Work in accordance with and as reasonably inferable from the Contract Documents, prior to commencing the Work, Contractor shall examine and compare the Contract

Documents, information furnished by Owner, relevant field measurements made by Contractor and any visible or reasonably anticipated conditions at the Site affecting the Work. This duty extends throughout the construction phase prior to commencing each particular work activity and/or system installation.

6.1.6 Discrepancies and Omissions in Drawings and Specifications.

- 6.1.6.1 Promptly report to ODR and to A/E the discovery of any apparent error, omission or inconsistency in the Contract Documents prior to execution of the Work.
- 6.1.6.2 It is recognized that Contractor is not acting in the capacity of a licensed design professional, unless it is performing as a Design-Build firm.
- 6.1.6.3 It is further recognized that Contractor's examination of Contract Documents is to facilitate construction and does not create an affirmative responsibility to detect errors, omissions or inconsistencies or to ascertain compliance with applicable laws, building codes or regulations, unless it is performing as a Design-Build firm or a Construction Manager-at-Risk.
- 6.1.6.4 When performing as a Design-Build firm, Contractor has sole responsibility for discrepancies, errors, and omissions in the Drawings and Specifications.
- 6.1.6.5 When performing as a Construction Manager-at-Risk, Contractor has a shared responsibility with A/E for discovery and resolution of discrepancies, errors, and omissions in the Contract Documents. In such case, Contractor's responsibility pertains to review, coordination, and recommendation of resolution strategies within budget constraints.
- 6.1.6.6 Contractor has no liability for errors, omissions, or inconsistencies unless Contractor knowingly failed to report a recognized problem to Owner or the Work is executed under a Design-Build or Construction Manager-at-Risk Contract as outlined above. Should Contractor fail to perform the examination and reporting obligations of these provisions, Contractor is responsible for avoidable costs and direct and/or consequential damages.
- 6.1.6.7 Owner does not warrant or make any representations as to the accuracy, suitability or completeness of any information furnished to Contractor by Owner or its representatives.

6.2 Requirements for Record Documents. Contractor shall:

- 6.2.1 Maintain at the Site one copy of all Drawings, Specifications, addenda, approved submittals, Contract modifications, and all Project correspondence. Keep current and maintain Drawings and Specifications in good order with postings and markings to record actual conditions of Work and show and reference all changes made during construction. Provide Owner and A/E access to these documents.
- 6.2.2 Maintain the Record Documents which reflect the actual field conditions and representations of the Work performed, whether it be directed by addendum, Change Order or otherwise. Make available the Record Documents and all records prescribed herein for reference and examination by Owner and its representatives and agents.
- 6.2.3 Update the Record Documents at least monthly prior to submission of periodic partial pay estimates. Failure to maintain current Record Documents constitutes cause for denial of a progress payment otherwise due.

- 6.2.4 Prior to requesting Substantial Completion inspection Contractor shall furnish a copy of its marked-up Record Documents and a preliminary copy of each instructional manual, maintenance and operating manual, parts catalog, wiring diagrams, spare parts, specified written warranties and like publications, or parts for all installed equipment, systems, and like items and as described in the Contract Documents.
- 6.2.5 Once determined acceptable by ODR with input from A/E, provide one (1) reproducible copy and one (1) electronic media copy in a format acceptable to the ODR of all Record Documents, unless otherwise required by the Owner's Special Conditions.
- 6.2.6 Contractor shall be responsible for updating the Record Documents for all Contractor initiated documents and changes to the Contract Documents due to coordination and actual field conditions, including RFIs.
- 6.2.7 A/E shall be responsible for updating the Record Documents for any addenda, Change Orders, A/E supplemental instructions and any other alterations to the Contract Documents generated by A/E or Owner.

Article 7. Construction Safety

- 7.1 General. It is the duty and responsibility of Contractor and all of its Subcontractors to be familiar with, enforce and comply with all requirements of Public Law No. 91-596, 29 U.S.C. § 651 et. seq., the Occupational Safety and Health Act of 1970, (OSHA) and all amendments thereto. Contractor shall prepare a safety plan specific to the Project and submit it to ODR and A/E prior to commencing Work. In addition, Contractor and all of its Subcontractors shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property to protect them from damage, injury or loss and erect and maintain all necessary safeguards for such safety and protection.
- 7.2 Notices. Contractor shall provide notices as follows:
 - 7.2.1 Notify owners of adjacent property including those that own or operate utility services and/or underground facilities, and utility owners, when prosecution of the Work may affect them or their facilities, and cooperate with them in the protection, removal, relocation and replacement, and access to their facilities and/or utilities.
 - 7.2.2 Coordinate the exchange of material safety data sheets (MSDSs) or other hazard communication information required to be made available to or exchanged between or among employers at the site in connection with laws and regulations. Maintain a complete file of MSDSs for all materials in use on site throughout the construction phase and make such file available to Owner and its agents as requested.
- 7.3 Emergencies. In any emergency affecting the safety of persons or property, Contractor shall act to minimize, mitigate, and prevent threatened damage, injury or loss.
 - 7.3.1 Have authorized agents of Contractor respond immediately upon call at any time of day or night when circumstances warrant the presence of Contractor to protect the Work or adjacent property from damage or to take such action pertaining to the Work as may be necessary to provide for the safety of the public.
 - 7.3.2 Give ODR and A/E prompt notice of all such events.
 - 7.3.3 If Contractor believes that any changes in the Work or variations from Contract Documents have been caused by its emergency response, promptly notify Owner within seventy-two (72) hours of the emergency response event.

- 7.3.4 Should Contractor fail to respond, Owner is authorized to direct other forces to take action as necessary and Owner may deduct any cost of remedial action from funds otherwise due Contractor.
- 7.4 Injuries. In the event of an incident or accident involving outside medical care for an individual on or near the Work, Contractor shall notify ODR and other parties as may be directed promptly, but no later than twenty-four (24) hours after Contractor learns that an event required medical care.
 - 7.4.1 Record the location of the event and the circumstances surrounding it, by using photography or other means, and gather witness statements and other documentation which describes the event.
 - 7.4.2 Supply ODR and A/E with an incident report no later than thirty-six (36) hours after the occurrence of the event. In the event of a catastrophic incident (one (1) fatality or three (3) workers hospitalized), barricade and leave intact the scene of the incident until all investigations are complete. A full set of incident investigation documents, including facts, finding of cause, and remedial plans shall be provided within one (1) week after occurrence, unless otherwise directed by legal counsel. Contractor shall provide ODR with written notification within one week of such catastrophic event if legal counsel delays submission of full report.
- 7.5 Environmental Safety. Upon encountering any previously unknown potentially hazardous material, or other materials potentially contaminated by hazardous material, Contractor shall immediately stop work activities impacted by the discovery, secure the affected area, and notify ODR immediately.
 - 7.5.1 Bind all Subcontractors to the same duty.
 - 7.5.2 Upon receiving such notice, ODR will promptly engage qualified experts to make such investigations and conduct such tests as may be reasonably necessary to determine the existence or extent of any environmental hazard. Upon completion of this investigation, ODR will issue a written report to Contractor identifying the material(s) found and indicate any necessary steps to be taken to treat, handle, transport or dispose of the material.
 - 7.5.3 Owner may hire third-party contractors to perform any or all such steps.
 - 7.5.4 Should compliance with ODR's instructions result in an increase in Contractor's cost of performance, or delay the Work, Owner will make an equitable adjustment to the Contract Sum and/or the time of completion, and modify the Contract in writing accordingly.
- 7.6 Trenching Plan. When the project requires excavation which either exceeds a depth of four (4) feet, or results in any worker's upper body being positioned below grade level, Contractor is required to submit a trenching plan to ODR prior to commencing trenching operations unless an engineered plan is part of the Contract Documents. The plan is required to be prepared and sealed by a professional engineer registered in the State of Texas, and hired or employed by Contractor or Subcontractor to perform the work. Said engineer cannot be anyone who is otherwise either directly or indirectly engaged on this project.

Article 8. Quality Control

- 8.1 Materials & Workmanship. Contractor shall execute Work in a good and workmanlike matter in accordance with the Contract Documents. Contractor shall develop and provide a quality control plan specific to this Project and acceptable to Owner. Where Contract Documents do not specify quality standards, complete and construct all Work in compliance with generally accepted construction industry standards. Unless otherwise specified, incorporate all new materials and equipment into the Work under the Contract.
- 8.2 Testing.

- 8.2.1 Owner is responsible for coordinating and paying for routine and special tests required to confirm compliance with quality and performance requirements, except as stated below or otherwise required by the Contract Documents.
- 8.2.2 Contractor shall provide the following testing as well as any other testing required of Contractor by the Specifications:
 - 8.2. 2.1 Any test of basic material or fabricated equipment included as part of a submittal for a required item in order to establish compliance with the Contract Documents.
 - 8.2. 2.2 Any test of basic material or fabricated equipment offered as a substitute for a specified item on which a test may be required in order to establish compliance with the Contract Documents.
 - 8.2. 2.3 Preliminary, start-up, pre-functional and operational testing of building equipment and systems as necessary to confirm operational compliance with requirements of the Contract Documents.
 - 8.2. 2.4 All subsequent tests on original or replaced materials conducted as a result of prior testing failure.
- 8.2. 3 All testing shall be performed in accordance with standard test procedures by an accredited laboratory, or special consultant as appropriate, acceptable to Owner. Results of all tests shall be provided promptly to ODR, A/E, and Contractor.
- 8.2. 4 Non-Compliance (Test Results). Should any of the tests indicate that a material and/or system does not comply with the Contract requirements, the burden of proof remains with Contractor, subject to:
 - 8.2. 4.1 Contractor selection and submission of the laboratory for Owner acceptance.
 - 8.2. 4.2 Acceptance by Owner of the quality and nature of tests.
 - 8.2. 4.3 All tests taken in the presence of A/E and/or ODR, or their representatives.
 - 8.2. 4.4 If tests confirm that the material/systems comply with Contract Documents, Owner will pay the cost of the test.
 - 8.2. 4.5 If tests reveal noncompliance, Contractor will pay those laboratory fees and costs of that particular test and all future tests, of that failing Work, necessary to eventually confirm compliance with Contract Documents.
 - 8.2. 4.6 Proof of noncompliance with the Contract Documents will make Contractor liable for any corrective action which ODR determines appropriate, including complete removal and replacement of non-compliant work or material.
- 8.2. 5 Notice of Testing. Contractor shall give ODR and A/E timely notice of its readiness and the date arranged so ODR and A/E may observe such inspection, testing, or approval.
- 8.2. 6 Test Samples. Contractor is responsible for providing Samples of sufficient size for test purposes and for coordinating such tests with their Work Progress Schedule to avoid delay.
- 8.2. 7 Covering Up Work. If Contractor covers up any Work without providing Owner an opportunity to inspect, Contractor shall, if requested by ODR, uncover and recover the work at Contractor's expense.

8.3 Submittals.

- 8.3.1 Contractor's Submittals. Contractor shall submit with reasonable promptness consistent with the Project schedule and in orderly sequence all Shop Drawings, Samples, or other information required by the Contract Documents, or subsequently required by Change Order. Prior to submitting, Contractor shall review each submittal for general compliance with Contract Documents and approve submittals for review by A/E and Owner by an approval stamp affixed to each copy. Submittal data presented without Contractor's stamp of approval will be returned without review or comment. Any delay resulting from Contractor's failure to certify approval of the Submittal is Contractor's responsibility.
- 8.3.1.1 Contractor shall within twenty-one (21) days of the effective date of the Notice To Proceed with construction, submit to ODR and A/E, a submittal schedule/register, organized by specification section, listing all items to be furnished for review and approval by A/E and Owner. The list shall include Shop Drawings, manufacturer's literature, certificates of compliance, materials Samples, materials colors, guarantees, and all other items identified throughout the Specifications.
- 8.3.1.2 Contractor shall indicate the type of item, Contract requirements reference, and Contractor's scheduled dates for submitting the item along with the requested dates for approval answers from A/E and Owner. The submittal register shall indicate the projected dates for procurement of all included items and shall be updated at least monthly with actual approval and procurement dates. Contractor's Submittal Register must be reasonable in terms of the review time for complex submittals. Contractor's submittal schedule must be consistent with the Work Progress Schedule and identify critical submittals. Show and allow a minimum of fifteen (15) days duration after receipt by A/E and ODR for review and approval. If re-submittal required, allow a minimum of an additional fifteen (15) days for review. Submit the updated Submittal Register with each request for progress payment. Owner may establish routine review procedures and schedules for submittals at the preconstruction conference and/or elsewhere in the Contract Documents. If Contractor fails to update and provide the Submittal Register as required, Owner may, after seven (7) days notice to Contractor withhold a reasonable sum of money that would otherwise be due Contractor.
- 8.3.1.3 Contractor shall coordinate the Submittal Register with the Work Progress Schedule. Do not schedule Work requiring a submittal to begin prior to scheduling review and approval of the related submittal. Revise and/or update both schedules monthly to ensure consistency and current project data. Provide to ODR the updated Submittal Register and schedule with each application for progress payment. Refer to requirements for the Work Progress Schedule for inclusion of procurement activities therein. Regardless, the Submittal Register shall identify dates submitted and returned and shall be used to confirm status and disposition of particular items submitted, including approval or other action taken and other information not conveniently tracked through the Work Progress Schedule.
- 8.3.1.4 By submitting Shop Drawings, Samples or other required information, Contractor represents that it has determined and verified all applicable field measurements, field construction criteria, materials, catalog numbers and similar data; and has checked and coordinated each Shop Drawing and Sample with the requirements of the Work and the Contract Documents.
- 8.3.2 Review of Submittals. A/E and ODR review is only for conformance with the design concept and the information provided in the Contract Documents. Responses to submittals will be in writing. The approval of a separate item does not indicate approval of an assembly in which

the item functions. The approval of a submittal does not relieve Contractor of responsibility for any deviation from the requirements of the Contract unless Contractor informs A/E and ODR of such deviation in a clear, conspicuous, and written manner on the submittal transmittal and at the time of submission, and obtains Owner's written specific approval of the particular deviation.

- 8.3.3 Correction and Resubmission. Contractor shall make any corrections required to a submittal and resubmit the required number of corrected copies promptly so as to avoid delay, until submittal approval. Direct attention in writing to A/E and ODR, when applicable, to any new revisions other than the corrections requested on previous submissions.
- 8.3.4 Limits on Shop Drawing Review. Contractor shall not commence any Work requiring a submittal until review of the submittal under Subsection 8.3.2. Construct all such work in accordance with reviewed submittals. Comments incorporated as part of the review in Subsection 8.3.2 of Shop Drawings and Samples is not authorization to Contractor to perform extra work or changed work unless authorized through a Change Order. A/E's and ODR's review, if any, does not relieve Contractor from responsibility for defects in the Work resulting from errors or omissions of any kind on the submittal, regardless of any approval action.
- 8.3.5 No Substitutions Without Approval. ODR and A/E may receive and consider Contractor's request for substitution when Contractor agrees to reimburse Owner for review costs and satisfies the requirements of this section. If Contractor does not satisfy these conditions, ODR and A/E will return the request without action except to record noncompliance with these requirements. Owner will not consider the request if Contractor cannot provide the product or method because of failure to pursue the Work promptly or coordinate activities properly. Contractor's request for a substitution may be considered by ODR and A/E when:
- 8.3.5.1 The Contract Documents do not require extensive revisions; and
 - 8.3.5.2 Proposed changes are in keeping with the general intent of the Contract Documents and the design intent of A/E and do not result in an increase in cost to Owner; and
 - 8.3.5.3 The request is timely, fully documented, properly submitted and one or more of the following apply:
 - 8.3.5.3.1 Contractor cannot provide the specified product, assembly or method of construction within the Contract Time;
 - 8.3.5.3.2 The request directly relates to an "or-equal" clause or similar language in the Contract Documents;
 - 8.3.5.3.3 The request directly relates to a "product design standard" or "performance standard" clause in the Contract Documents;
 - 8.3.5.3.4 The requested substitution offers Owner a substantial advantage in cost, time, energy conservation or other considerations, after deducting additional responsibilities Owner must assume;
 - 8.3.5.3.5 The specified product or method of construction cannot receive necessary approval by an authority having jurisdiction, and ODR can approve the requested substitution;
 - 8.3.5.3.6 Contractor cannot provide the specified product, assembly or method of construction in a manner that is compatible with other materials and where Contractor certifies that the substitution will overcome the incompatibility;

8.3.5.3.7 Contractor cannot coordinate the specified product, assembly or method of construction with other materials and where Contractor certifies they can coordinate the proposed substitution; or

8.3.5.3.8 The specified product, assembly or method of construction cannot provide a warranty required by the Contract Documents and where Contractor certifies that the proposed substitution provides the required warranty.

8.3.6 Unauthorized Substitutions at Contractor's Risk. Contractor is financially responsible for any additional costs or delays resulting from unauthorized substitution of materials, equipment or fixtures other than those specified. Contractor shall reimburse Owner for any increased design or contract administration costs resulting from such unauthorized substitutions.

8.4 Field Mock-up.

8.4.1 Mock-ups shall be constructed prior to commencement of a specified scope of work to confirm acceptable workmanship.

8.4.1.1 As a minimum, field mock-ups shall be constructed for roofing systems, exterior veneer / finish systems, glazing systems, and any other Work requiring a mock-up as identified throughout the Contract Documents. Mock-ups for systems not part of the Project scope shall not be required.

8.4.1.2 Mock-ups may be incorporated into the Work if allowed by the Contract Documents and if acceptable to ODR. If mock-ups are freestanding, they shall remain in place until otherwise directed by Owner.

8.4.1.3 Contractor shall include field mock-ups in their Work Progress Schedule and shall notify ODR and A/E of readiness for review sufficiently in advance to coordinate review without delay.

8.5 Inspection During Construction.

8.5.1 Contractor shall provide sufficient, safe, and proper facilities, including equipment as necessary for safe access, at all reasonable times for observation and/or inspection of the Work by Owner and its agents.

8.5.2 Contractor shall not cover up any Work with finishing materials or other building components prior to providing Owner and its agents an opportunity to perform an inspection of the Work.

8.5.2.1 Should corrections of the Work be required for approval, Contractor shall not cover up corrected Work until Owner indicates approval.

8.5.2.2 Contractor shall provide notification of at least five (5) working days or otherwise as mutually agreed, to ODR of the anticipated need for a cover-up inspection. Should ODR fail to make the necessary inspection within the agreed period, Contractor may proceed with cover-up Work, but is not relieved of responsibility for Work to comply with requirements of the Contract Documents.

Article 9. Construction Schedules

9.1 Contract Time. **TIME IS AN ESSENTIAL ELEMENT OF THE CONTRACT.** The Contract Time is the time between the dates indicated in the Notice to Proceed for commencement of the Work and for achieving Substantial Completion. The Contract Time can be modified only by Change Order. Failure

to achieve Substantial Completion within the Contract Time or as otherwise agreed to in writing will cause damage to Owner and may subject Contractor to liquidated damages as provided in the Contract Documents. If Contractor fails to achieve Final Completion in a reasonable time after Substantial Completion, Contractor shall be responsible for Owner's damages including, but not limited to, additional inspection, project management, and maintenance cost to the extent caused by Contractor's failure to achieve Final Completion.

9.2 Notice to Proceed. Owner will issue a Notice to Proceed which shall state the dates for beginning Work and for achieving Substantial Completion of the Work.

9.3 Work Progress Schedule. Refer to Owner's Special Conditions and Division 1 of the Specifications for additional schedule requirements. Unless indicated otherwise in those documents, Contractor shall submit their initial Work Progress Schedule for the Work in relation to the entire Project not later than twenty-one (21) calendar days after the effective date of the Notice to Proceed to ODR and A/E. Unless otherwise indicated in the Contract Documents, the Work Progress Schedule shall be computerized Critical Path Method (CPM) with fully editable logic. This initial schedule shall indicate the dates for starting and completing the various aspects required to complete the Work, including mobilization, procurement, installation, testing, inspection, delivery of Close-out Documents and acceptance of all the Work of the Contract. When acceptable to Owner, the initially accepted schedule shall be the Baseline Schedule for comparison to actual conditions throughout the Contract duration.

Note: This article pertains to construction phase schedules. Additional requirements for design phase scheduling for Construction Manager-at-Risk and Design-Build contracts are outlined in Division 1 Project Planning and Scheduling Specifications.

9.3.1 Schedule Requirements. Contractor shall submit electronic and paper copy of the initial Work Progress Schedule reflecting accurate and reliable representations of the planned progress of the Work, the Work to date if any, and of Contractor's actual plans for its completion. Contractor shall organize and provide adequate detail so the schedule is capable of measuring and forecasting the effect of delaying events on completed and uncompleted activities.

9.3.1.1 Contractor shall re-submit initial schedule as required to address review comments from A/E and ODR until such schedule is accepted as the Baseline Schedule.

9.3.1.2 Submittal of a schedule, schedule revision or schedule update constitutes Contractor's representation to Owner of the accurate depiction of all progress to date and that Contractor will follow the schedule as submitted in performing the Work.

9.3.2 Schedule Updates. Contractor shall update the Work Progress Schedule and the Submittal Register monthly, as a minimum, to reflect progress to date and current plans for completing the Work, while maintaining original schedule as Baseline Schedule and submit paper and electronic copies of the update to A/E and ODR as directed, but as a minimum with each request for payment. Owner has no duty to make progress payments unless accompanied by the updated Work Progress Schedule. Show the anticipated date of completion reflecting all extensions of time granted through Change Order as of the date of the update. Contractor may revise the Work Progress Schedule when in Contractor's judgment it becomes necessary for the management of the Work. Contractor shall identify all proposed changes to schedule logic to Owner and to A/E via an executive summary accompanying the updated schedule for review prior to final implementation of revisions into a revised Baseline Schedule. Schedule changes that materially impact Owner's operations shall be communicated promptly to ODR and shall not be incorporated into the revised Baseline Schedule without ODR's consent.

9.3.3 The Work Progress Schedule is for Contractor's use in managing the Work and submittal of the schedule, and successive updates or revisions, is for the information of Owner and to demonstrate that Contractor has complied with requirements for planning the Work. Owner's acceptance of a schedule, schedule update or revision constitutes Owner's agreement to coordinate its own activities with Contractor's activities as shown on the schedule.

- 9.3.3.1 Acceptance of the Work Progress Schedule, or update and/or revision thereto does not indicate any approval of Contractor's proposed sequences and duration.
 - 9.3.3.2 Acceptance of a Work Progress Schedule update or revision indicating early or late completion does not constitute Owner's consent, alter the terms of the Contract, or waive either Contractor's responsibility for timely completion or Owner's right to damages for Contractor's failure to do so.
 - 9.3.3.3 Contractor's scheduled dates for completion of any activity or the entire Work do not constitute a change in terms of the Contract. Change Orders are the only method of modifying the Substantial Completion Date(s) and Contract Time.
- 9.4 Ownership of Float. Unless indicated otherwise in the Contract Documents, Contractor shall develop its schedule, pricing, and execution plan to provide a minimum of ten (10) percent total float at acceptance of the Baseline Schedule. Float time contained in the Work Progress Schedule is not for the exclusive benefit of Contractor or Owner, but belongs to the Project and may be consumed by either party. Before Contractor uses any portion of the float Contractor must submit a written request to do so to the Owner and receive Owner's written authorization to use the float. Owner's approval shall not be unreasonably withheld.
- 9.5 Completion of Work. Contractor is accountable for completing the Work within the Contract Time stated in the Contract, or as otherwise amended by Change Order.
 - 9.5.1 If, in the judgment of Owner, the work is behind schedule and the rate of placement of work is inadequate to regain scheduled progress to insure timely completion of the entire work or a separable portion thereof, Contractor, when so informed by Owner, shall immediately take action to increase the rate of work placement by:
 - 9.5.1.1 An increase in working forces.
 - 9.5.1.2 An increase in equipment or tools.
 - 9.5.1.3 An increase in hours of work or number of shifts.
 - 9.5.1.4 Expedite delivery of materials.
 - 9.5.1.5 Other action proposed if acceptable to Owner.
 - 9.5.2 Within ten (10) days after such notice from ODR, Contractor shall notify ODR in writing of the specific measures taken and/or planned to increase the rate of progress. Contractor shall include an estimate as to the date of scheduled progress recovery and an updated Work Progress Schedule illustrating Contractor's plan for achieving timely completion of the Project. Should ODR deem the plan of action inadequate, Contractor shall take additional steps or make adjustments as necessary to its plan of action until it meets with ODR's approval.
- 9.6 Modification of the Contract Time.
 - 9.6.1 Delays and extension of time as hereinafter described are valid only if executed in accordance with provisions set forth in Article 11.
 - 9.6.2 When a delay defined herein as excusable prevents Contractor from completing the Work within the Contract Time, Contractor is entitled to an extension of time. Owner will make an equitable adjustment and extend the number of days lost because of excusable delay or Weather Days, as measured by Contractor's progress schedule. All extensions of time will be granted in calendar days. In no event, however, will an extension of time be granted for delays that

merely extend the duration of non-critical activities, or which only consume float without delaying the project Substantial Completion date(s).

9.6.2.1 A “Weather Day” is a day on which Contractor’s current schedule indicates Work is to be done, and on which inclement weather and related site conditions prevent Contractor from performing seven (7) hours of Work between the hours of 7:00 a.m. and 6:00 p.m. Weather days are excusable delays. When weather conditions at the site prevent work from proceeding, Contractor shall immediately notify ODR for confirmation of the conditions. At the end of each calendar month, Contractor shall submit to ODR and A/E a list of Weather Days occurring in that month along with documentation of the impact on critical activities. Based on confirmation by ODR, any time extension granted will be issued by Change Order. If Contractor and Owner cannot agree on the time extension, Owner may issue a ULCO for fair and reasonable time extension.

9.6.2.2 Excusable Delay. Contractor is entitled to an equitable adjustment of the Contract Time, issued via change order, for delays caused by the following:

9.6.2.2.1 Errors, omissions and imperfections in design, which A/E corrects by means of changes in the Drawings and Specifications.

9.6.2.2.2 Unanticipated physical conditions at the Site, which A/E corrects by means of changes to the Drawings and Specifications or for which ODR directs changes in the Work identified in the Contract Documents.

9.6.2.2.3 Changes in the Work that effect activities identified in Contractor’s schedule as “critical” to completion of the entire Work, if such changes are ordered by ODR or recommended by A/E and ordered by ODR.

9.6.2.2.4 Suspension of Work for unexpected natural events (sometimes called “acts of God”), civil unrest, strikes or other events which are not within the reasonable control of Contractor.

9.6.2.2.5 Suspension of Work for convenience of ODR, which prevents Contractor from completing the Work within the Contract Time.

9.6.3 Contractor’s relief in the event of such delays is the time impact to the critical path as determined by analysis of Contractor’s schedule. In the event that Contractor incurs additional direct costs because of the excusable delays other than described in Subparagraph 9.6.2.2.4 and within the reasonable control of Owner, the Contract price and Contract Time are to be equitably adjusted by Owner pursuant to the provisions of Article 11.

9.7 No Damages for Delay. An extension of the Contract Time shall be the sole remedy of Contractor for delays in performance of the Work, whether or not such delays are foreseeable, except for delays caused solely by acts of Owner that constitute intentional interference with Contractor’s performance of the Work and then only to the extent such acts continue after Contractor notifies Owner in writing of such interference. For delays caused by any act(s) other than the sole intentional interference of Owner, Contractor shall not be entitled to any compensation or recovery of any damages including, without limitation, consequential damages, lost opportunity costs, impact damages, loss of productivity, or other similar damages. Owner’s exercise of any of its rights or remedies under the Contract including, without limitation, ordering changes in the Work or directing suspension, rescheduling, or correction of the Work, shall not be construed as intentional interference with Contractor’s performance of the Work regardless of the extent or frequency of Owner’s exercise of such rights or remedies.

9.8 Concurrent Delay. When the completion of the Work is simultaneously delayed by an excusable delay

and a delay arising from a cause not designated as excusable, Contractor may not be entitled to a time extension for the period of concurrent delay.

- 9.9 Other Time Extension Requests. Time extensions requested in association with changes to the Work directed or requested by Owner shall be included with Contractor's proposed costs for such change. Time extensions requested for inclement weather are covered by Paragraph 9.6.2.1 above. If Contractor believes that the completion of the Work is delayed by a circumstance other than for changes directed to the Work or weather, they shall give ODR written notice, stating the nature of the delay and the activities potentially affected, within five (5) days after the onset of the event or circumstance giving rise to the excusable delay. Contractor shall provide sufficient written evidence to document the delay. In the case of a continuing cause of delay, only one notice of claim is necessary. State claims for extensions of time in numbers of whole or half days.
- 9.9.1 Within ten (10) days after the cessation of the delay, Contractor shall formalize its request for extension of time in writing to include a full analysis of the schedule impact of the delay and substantiation of the excusable nature of the delay. All changes to the Contract Time or made as a result of such claims is by Change Order, as set forth in Article 11.
- 9.9.2 No extension of time releases Contractor or the Surety furnishing a performance or payment bond from any obligations under the Contract or such a bond. Those obligations remain in full force until the discharge of the Contract.
- 9.9.3 Contents of Time Extension Requests. Contractor shall provide with each Time Extension Request a quantitative demonstration of the impact of the delay on project completion time, based on the Work Progress Schedule. Contractor shall include with Time Extension Requests a reasonably detailed narrative setting forth:
- 9.9.3.1 The nature of the delay and its cause; the basis of Contractor's claim of entitlement to a time extension.
- 9.9.3.2 Documentation of the actual impacts of the claimed delay on the critical path indicated in Contractor's Work Progress Schedule, and any concurrent delays.
- 9.9.3.3 Description and documentation of steps taken by Contractor to mitigate the effect of the claimed delay, including, when appropriate, the modification of the Work Progress Schedule.
- 9.9.4 Owner's Response. Owner will respond to the Time Extension Request by providing to Contractor written notice of the number of days granted, if any, and giving its reason if this number differs from the number of days requested by Contractor.
- 9.9.4.1 Owner will not grant time extensions for delays that do not affect the Contract Substantial Completion date.
- 9.9.4.2 Owner will respond to each properly submitted Time Extension Request within fifteen (15) days following receipt. If Owner cannot reasonably make a determination about Contractor's entitlement to a time extension within that time, Owner will notify Contractor in writing. Unless otherwise agreed by Contractor, Owner has no more than fifteen (15) additional days to prepare a final response. If Owner fails to respond within forty-five (45) days from the date the Time Extension Request is received, Contractor's request for a time extension shall be deemed rejected by Owner.
- 9.10 Failure to Complete Work Within the Contract Time. TIME IS AN ESSENTIAL ELEMENT OF THE CONTRACT. Contractor's failure to substantially complete the Work within the Contract Time or to achieve Substantial Completion as required will cause damage to Owner. These damages may be

liquidated by agreement of Contractor and Owner, in the amount per day as set forth in the Contract Documents.

- 9.11 Liquidated Damages. Owner may collect liquidated damages due from Contractor directly or indirectly by reducing the Contract Sum in the amount of liquidated damages stated in the Agreement or the Owner's Special Conditions.

Article 10. Payments

- 10.1 Schedule of Values. Contractor shall submit to ODR and A/E for acceptance a Schedule of Values accurately itemizing material and labor for the various classifications of the Work based on the organization of the specification sections and of sufficient detail acceptable to ODR. The accepted Schedule of Values will be the basis for the progress payments under the Contract.

10.1.1 No progress payments will be made prior to receipt and acceptance of the Schedule of Values, provided in such detail as required by ODR, and submitted not less than twenty-one (21) days prior to the first request for payment. The Schedule of Values shall follow the order of trade divisions of the Specifications and include itemized costs for general conditions, costs for preparing Close-Out documents, fees, contingencies, and Owner cash allowances, if applicable, so that the sum of the items will equal the Contract price. As appropriate, assign each item labor and/or material values, the subtotal thereof equaling the value of the work in place when complete.

10.1.1.1 Owner requires that the Work items be inclusive of the cost of the Work items only. Any contract markups for overhead and profit, general conditions, etc., shall be contained within separate line items for those specific purposes which shall be divided into at least two (2) lines, one (1) for labor and one (1) for materials.

10.1.2 Contractor shall retain a copy of all worksheets used in preparation of its bid or proposal, supported by a notarized statement that the worksheets are true and complete copies of the documents used to prepare the bid or proposal. Make the worksheets available to ODR at the time of Contract execution. Thereafter Contractor shall grant Owner during normal business hours access to said copy of worksheets at any time during the period commencing upon execution of the Contract and ending one year after final payment.

- 10.2. Progress Payments. Contractor will receive periodic progress payments for Work performed, materials in place, suitably stored on Site, or as otherwise agreed to by Owner and Contractor. Payment is not due until receipt by ODR or his designee of a correct and complete Pay Application in electronic and/or hard copy format as set forth in the Agreement or the Owner's Special Conditions, and certified by A/E. Progress payments are made provisionally and do not constitute acceptance of work not in accordance with the Contract Documents. Owner will not process progress payment applications for Change Order Work until all parties execute the Change Order.

10.2.1 Preliminary Pay Worksheet. Once each month that a progress payment is to be requested, the Contractor shall submit to A/E and ODR a complete, clean copy of a preliminary pay worksheet or preliminary pay application, to include the following:

10.2.1.1 Contractor's estimate of the amount of Work performed, labor furnished and materials incorporated into the Work, using the established Schedule of Values;

10.2.1.2 An updated Work Progress Schedule including the executive summary and all required schedule reports;

10.2.1.3 HUB subcontracting plan Progress Assessment Report as required in Paragraph 4.2.5.1;

10.2.1.4 Such additional documentation as Owner may require as set forth in the elsewhere

in the Contract Documents; and

10.2.1.5 Construction payment affidavit.

10.2.2 Contractor's Application for Payment. As soon as practicable, but in no event later than seven (7) days after receipt of the preliminary pay worksheet, A/E and ODR will meet with Contractor to review the preliminary pay worksheet and to observe the condition of the Work. Based on this review, ODR and A/E may require modifications to the preliminary pay worksheet prior to the submittal of an Application for Payment, and will promptly notify Contractor of revisions necessary for approval. As soon as practicable, Contractor shall submit its Application for Payment on the appropriate and completed form, reflecting the required modifications to the Schedule of Values required by A/E and/or ODR. Attach all additional documentation required by ODR and/or A/E, as well as an affidavit affirming that all payrolls, bills for labor, materials, equipment, subcontracted work and other indebtedness connected with Contractor's Application for Payment are paid or will be paid within the time specified in Tex. Gov't Code, Chapter 2251. No Application for Payment is complete unless it fully reflects all required modifications, and attaches all required documentation including Contractor's affidavit.

10.2.3 Certification by Architect/Engineer. Within five (5) days or earlier following A/E's receipt of Contractor's formal Application for Payment, A/E will review the Application for Payment for completeness, and forward it to ODR. A/E will certify that the application is complete and payable, or that it is incomplete, stating in particular what is missing. If the Application for Payment is incomplete, Contractor shall make the required corrections and resubmit the Application for Payment for processing.

10.3 Owner's Duty to Pay. Owner has no duty to pay the Contractor except on receipt by ODR of: 1) a complete Application for Payment certified by A/E; 2) Contractor's updated Work Progress Schedule; and 3) confirmation that Contractor has maintained and updated the Record Documents kept at the Site.

10.3.1 Payment for stored materials and/or equipment confirmed by Owner and A/E to be on-site or otherwise properly stored is limited to eighty-five (85) percent of the invoice price or eighty-five (85) percent of the scheduled value for the materials or equipment, whichever is less.

10.3.2 Retainage. Owner will withhold from each progress payment, as retainage, five (5) percent of the total earned amount, the amount authorized by law, or as otherwise set forth in the Owner's Special Conditions. Retainage is managed in conformance with Tex. Gov't Code, Chapter 2252, Subchapter B.

10.3.2.1 Contractor shall provide written consent of its surety for any request for reduction or release of retainage.

10.3.2.2 At least sixty-five (65) percent of the Contract, or such other discrete Work phase as set forth in Subsection 12.1.6 or Work package delineated in the Contract Documents, must be completed before Owner can consider a retainage reduction or release.

10.3.2.3 Contractor shall not withhold retainage from their Subcontractors and suppliers in amounts that are any percentage greater than that withheld in its Contract with Owner under this subsection, unless otherwise acceptable to Owner.

10.3.3 Price Reduction to Cover Loss. Owner may reduce any Application for Payment, prior to payment to the extent necessary to protect Owner from loss on account of actions of Contractor including, but not limited to, the following:

10.3.3.1 Defective or incomplete Work not remedied;

- 10.3.3.2 Damage to Work of a separate Contractor;
- 10.3.3.3 Failure to maintain scheduled progress or reasonable evidence that the Work will not be completed within the Contract Time;
- 10.3.3.4 Persistent failure to carry out the Work in accordance with the Contract Documents;
- 10.3.3.5 Reasonable evidence that the Work cannot be completed for the unpaid portion of the Contract Sum;
- 10.3.3.6 Assessment of fines for violations of prevailing wage rate law; or
- 10.3.3.7 Failure to include the appropriate amount of retainage for that periodic progress payment.
- 10.3.4 Title to all material and Work covered by progress payments transfers to Owner upon payment.
 - 10.3.4.1 Transfer of title to Owner does not relieve Contractor and its Subcontractors of the sole responsibility for the care and protection of materials and Work upon which payments have been made until final acceptance, or the restoration of any damaged Work, or waive the right of Owner to require the fulfillment of all the terms of the Contract.
- 10.4 Progress Payments. Progress payments to Contractor do not release Contractor or its surety from any obligations under the Contract.
 - 10.4.1 Upon Owner's request, Contractor shall furnish manifest proof of the status of Subcontractor's accounts in a form acceptable to Owner.
 - 10.4.2 Pay estimate certificates must be signed by a corporate officer or a representative duly authorized by Contractor.
 - 10.4.3 Provide copies of bills of lading, invoices, delivery receipts or other evidence of the location and value of such materials in requesting payment for materials.
 - 10.4.4 For purposes of Tex. Gov't Code § 2251.021(a)(2), the date the performance of service is complete is the date when ODR approves the Application for Payment.
- 10.5 Off-Site Storage. With prior approval by Owner and in the event Contractor elects to store materials at an off-site location, abide by the following conditions, unless otherwise agreed to in writing by Owner.
 - 10.5.1 Store materials in a commercial warehouse meeting the criteria stated below.
 - 10.5.2 Provide insurance coverage adequate not only to cover materials while in storage, but also in transit from the off-site storage areas to the Project Site. Copies of duly authenticated certificates of insurance, made out to insure the State agency which is signatory to the Contract, must be filed with Owner's representative.
 - 10.5.3 Inspection by Owner's representative is allowed at any time. Owner's inspectors must be satisfied with the security, control, maintenance, and preservation measures.
 - 10.5.4 Materials for this Project are physically separated and marked for the Project in a sectioned-off area. Only materials which have been approved through the submittal process are to be considered for payment.
 - 10.5.5 Owner reserves the right to reject materials at any time prior to final acceptance of the complete

Contract if they do not meet Contract requirements regardless of any previous progress payment made.

- 10.5.6 With each monthly payment estimate, submit a report to ODR and A/E listing the quantities of materials already paid for and still stored in the off-site location.
- 10.5.7 Make warehouse records, receipts and invoices available to Owner's representatives, upon request, to verify the quantities and their disposition.
- 10.5.8 In the event of Contract termination or default by Contractor, the items in storage off-site, upon which payment has been made, will be promptly turned over to Owner or Owner's agents at a location near the jobsite as directed by ODR. The full provisions of performance and payment bonds on this Project cover the materials off-site in every respect as though they were stored on the Project Site.

10.6 Time for Payment by Contractor Pursuant to Tex. Gov't Code § 2255.022.

- 10.6.1 Contractor who receives a payment from a governmental entity shall pay Subcontractor the appropriate share of the payment not later than the tenth (10th) day after the date Contractor receives the payment.
- 10.6.2 The appropriate share is overdue on the eleventh (11th) day after the date Contractor receives the payment.

Article 11. Changes

- 11.1 **Change Orders.** A Change Order issued after execution of the Contract is a written order to Contractor, signed by ODR, Contractor, and A/E, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time can only be changed by Change Order. A Change Order signed by Contractor indicates his agreement therewith, including the adjustment in the Contract Sum and/or the Contract Time. ODR may issue a written authorization for Contractor to proceed with Work of a Change Order in advance of final execution by all parties in accordance with Section 11.9.
 - 11.1.1 Owner, without invalidating the Contract and without approval of Contractor's Surety, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, and the Contract Sum and the Contract Time will be adjusted accordingly. All such changes in the Work shall be authorized by Change Order or ULCO, and shall be performed under the applicable conditions of the Contract Documents. If such changes cause an increase or decrease in Contractor's cost of, or time required for, performance of the Contract, an equitable adjustment shall be made and confirmed in writing in a Change Order or a ULCO.
 - 11.1.2 Owner and Contractor acknowledge and agree that the Specifications and Drawings may not be complete or free from errors, omissions and imperfections and that they may require changes or additions in order for the Work to be completed to the satisfaction of Owner. Therefore, any minor errors, omissions or imperfections in the Specifications or Drawings, or any changes in or additions to the Specifications or Drawings to correct minor errors or omissions or to the Work ordered by Owner shall not constitute or give rise to any claim, demand or cause of action of any nature whatsoever in favor of Contractor, whether for breach of Contract, or otherwise. However, should the nature of the errors or omissions necessitate substantial changes in the Work such that a Change Order is appropriate, Owner shall be liable to Contractor for the sum stated to be due Contractor in any Change Order approved and signed by both parties. The sum established in any Change Order, together with any extension of time contained in said Change Order, shall constitute full compensation to Contractor for all costs, expenses and damages to Contractor for the changes in the Work described in the Change Order, as permitted under Tex.

Gov't Code, Chapter 2260.

- 11.1.3 Procedures for administration of Change Orders shall be established by Owner and stated in the Owner's Special Conditions, or elsewhere in the Contract Documents.
- 11.1.4 No verbal order, verbal statement, or verbal direction of Owner or his duly appointed representative shall be treated as a change under this article or entitle Contractor to an adjustment.
- 11.1.5 Contractor agrees that Owner or any of its duly authorized representatives shall have access and the right to examine any directly pertinent books, documents, papers, and records of Contractor. Further, Contractor agrees to include in all its subcontracts a provision to the effect that Subcontractor agrees that Owner or any of its duly authorized representatives shall have access to and the right to examine any directly pertinent books, documents, papers and records of such Subcontractor relating to any claim arising from the Contract, whether or not the Subcontractor is a party to the claim. The period of access and examination described herein which relates to appeals under the Disputes article of the Contract, litigation, or the settlement of claims arising out of the performance of the Contract shall continue until final disposition of such claims, appeals or litigation.
- 11.2 Unit Prices. If unit prices are stated in the Contract Documents or subsequently agreed upon and if the quantities originally contemplated in setting the unit prices are so changed in a Proposed Change Order that application of the agreed unit prices to the quantities of work proposed will cause substantial inequity to Owner or Contractor, the applicable unit prices shall be equitably adjusted as provided in the Owner's Special Conditions or as agreed to by the parties and incorporated into a Change Order.
- 11.3 Claims for Additional Costs.
 - 11.3.1 If Contractor wishes to make a claim for an increase in the Contract Sum not related to a requested change, it shall give Owner and A/E written notice thereof within twenty-one (21) days after the occurrence of the event or discovery of any conditions giving rise to such claim. Contractor must notify Owner and A/E before proceeding to execute any Work considered to add additional cost or time, except in an emergency endangering life or property in which case Contractor shall act in accordance with Subsection 7.2.1., and failure to provide the required notice will invalidate any subsequent notice or claim for additional cost or time for the Work. If Owner and Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined as set forth under Article 15. Any change in the Contract Sum resulting from such claim shall be authorized by a Change Order or a ULCO.
 - 11.3.2 If Contractor claims that additional cost is involved because of, but not limited to, 1) any written interpretation of the Contract Documents, 2) any order by Owner to stop the Work pursuant to Article 14 where Contractor was not at fault, or 3) any written order for a minor change in the Work issued pursuant to Section 11.4, Contractor shall make such claim as provided in Subsection 11.3.1.
 - 11.3.3 Should Contractor or his Subcontractors fail to call attention of A/E to discrepancies or omissions in the Contract Documents, but claim additional costs for corrective Work after Contract award, Owner may assume intent to circumvent competitive bidding for necessary corrective Work. In such case, Owner may choose to let a separate Contract for the corrective Work, or issue a ULCO to require performance by Contractor. Claims for time extensions or for extra cost resulting from delayed notice of patent Contract Document discrepancies or omissions will not be considered by Owner.
- 11.4 Minor Changes. A/E, with concurrence of ODR, will have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or an extension of the Contract Time. Such changes shall be effected by written order which Contractor shall carry out promptly and record on the Record

Documents.

- 11.5 Concealed Site Conditions. Contractor is responsible for visiting the Site and being familiar with local conditions such as the location, accessibility, and general character of the Site and/or building. If, in the performance of the Contract, subsurface, latent, or concealed conditions at the Site are found to be materially different from the information included in the Contract Documents, or if unknown conditions of an unusual nature are disclosed differing materially from the conditions usually inherent in Work of the character shown and specified, ODR and A/E shall be notified in writing of such conditions before they are disturbed. Upon such notice, or upon its own observation of such conditions, A/E, with the approval of ODR, will promptly make such changes in the Drawings and Specifications as they deem necessary to conform to the different conditions, and any increase or decrease in the cost of the Work, or in the time within which the Work is to be completed, resulting from such changes will be adjusted by Change Order, subject to the prior approval of ODR.
- 11.6 Extension of Time. All changes to the Contract Time shall be made as a consequence of requests as required under Section 9.6, and as documented by Change Order as provided under Section 11.1.
- 11.7 Administration of Change Order Requests. All changes in the Contract shall be administered in accordance with procedures approved by Owner, and when required, make use of such electronic information management system(s) as Owner may employ.
- 11.7.1 Routine changes in the construction Contract shall be formally initiated by A/E by means of a PCO form detailing requirements of the proposed change for pricing by Contractor. This action may be preceded by communications between Contractor, A/E and ODR concerning the need and nature of the change, but such communications shall not constitute a basis for beginning the proposed Work by Contractor. Except for emergency conditions described below, approval of Contractor's cost proposal by A/E and ODR will be required for authorization to proceed with the Work being changed. Owner will not be responsible for the cost of Work changed without prior approval and Contractor may be required to remove Work so installed.
- 11.7.2 All proposed costs for change order Work must be supported by itemized accounting of material, equipment and associated itemized installation costs in sufficient detail, following the outline and organization of the established Schedule of Values, to permit analysis by A/E and ODR using current estimating guides and/or practices. Photocopies of Subcontractor and vendor proposals shall be furnished unless specifically waived by ODR. Contractor shall provide written response to a change request within twenty-one (21) days of receipt.
- 11.7.3 Any unexpected circumstance which necessitates an immediate change in order to avoid a delay in progress of the Work may be expedited by verbal communication and authorization between Contractor and Owner, with written confirmation following within twenty-four (24) hours. A limited scope not-to-exceed estimate of cost and time will be requested prior to authorizing Work to proceed. Should the estimate be impractical for any reason, ODR may authorize the use of detailed cost records of such work to establish and confirm the actual costs and time for documentation in a formal Change Order.
- 11.7.4 Emergency changes to save life or property may be initiated by Contractor alone (see Section 7.3) with the claimed cost and/or time of such work to be fully documented as to necessity and detail of the reported costs and/or time.
- 11.7.5 The method of incorporating approved Change Orders into the parameters of the accepted Schedule of Values must be coordinated and administered in a manner acceptable to ODR.
- 11.8 Pricing Change Order Work. The amounts that Contractor and/or its Subcontractor adds to a Change Order for profit and overhead will also be considered by Owner before approval is given. The amounts established hereinafter are the maximums that are acceptable to Owner.

- 11.8.1 For Work performed by its forces, Contractor will be allowed its actual costs paid for materials, the total amount of its actual wages paid for labor, plus its actual cost paid for ~~of~~ State and Federal payroll taxes and for ~~of~~ worker's compensation and comprehensive general liability insurance, plus its actual additional bond and builders risk insurance cost if the change results in an increase in the premium paid by Contractor. To the total of the above costs, Contractor will be allowed to add a percentage as noted below to cover overhead and profit combined. Overhead shall be considered to include insurance other than mentioned above, field and office supervisors and assistants, including safety and scheduling personnel, use of small tools, incidental job burdens and general Home Office expenses, and no separate allowance will be made therefore.
- Allowable percentages for overhead and profit on changes will not exceed 15 percent if the total of self-performed work is less than or equal to \$10,000, 10 percent if the total of self-performed work is between \$10,000 and \$20,000 and 7.5 percent if the total of self-performed work is over \$20,000, for any specific change priced.
- 11.8.2 For subcontracted Work each affected Subcontractor shall figure its costs, overhead and profit as described above for Contractor's Work, all Subcontractor costs shall be combined, and to that total Subcontractor cost Contractor will be allowed to add a maximum mark-up of ten (10) percent if the total of all subcontracted work is less than or equal to \$10,000, seven and half (7.5) percent if the total of all subcontracted work is between \$10,000 and \$20,000 and five (5) percent if the total of all subcontractor work is over \$20,000.
- 11.8.3 On changes involving both additions and deletions, percentages for overhead and profit will be allowed only on the net addition. Owner does not accept and will not pay for additional Contract cost identified as indirect or consequential damages or as damages caused by delay.
- 11.8.4 For Contracts based on a Guaranteed Maximum Price (GMP), the Construction Manager-at-Risk or Design Builder shall NOT be entitled to a percentage mark-up on any Change Order Work unless the Change Order increases the Guaranteed Maximum Price.
- 11.9 Unilateral Change Order (ULCO). Owner may issue a written ULCO directing a change in the Work prior to reaching agreement with Contractor on the adjustment, if any, in the Contract price and/or the Contract Time.
- 11.9.1 Owner and Contractor shall negotiate for appropriate adjustments, as applicable, to the Contract Sum or the Contract Time arising out of a ULCO. As the changed Work is performed, Contractor shall submit its costs for such Work with its Application for Payment beginning with the next Application for Payment within thirty (30) days of the issuance of the ULCO. The Parties reserve their rights to dispute the ULCO amount, subject to Article 15.
- 11.10 Finality of Changes—Contractor. Upon execution of a Change Order and /or a ULCO by Owner, Contractor and A/E, all costs and time issues claimed by Contractor regarding that change are final and not subject to increase.
- 11.11 Audit of Changes—Owner. All Changes Orders are subject to audit by Owner or its representative at any time in accordance with Article 17.4 and Change Order amounts may be adjusted lower as a result of such audit.

Article 12. Project Completion and Acceptance

- 12.1 Closing Inspections.
- 12.1.1 Substantial Completion Inspection. When Contractor considers the entire Work or part thereof Substantially Complete, it shall notify ODR in writing that the Work will be ready for

Substantial Completion inspection on a specific date. Contractor shall include with this notice Contractor's Punchlist to indicate that it has previously inspected all the Work associated with the request for inspection, noting items it has corrected and included all remaining work items with date scheduled for completion or correction prior to final inspection. The failure to include any items on this list does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents. If any of the items on this list prevents the Project from being used as intended, Contractor shall not request a Substantial Completion Inspection. Owner and its representatives will review the list of items and schedule the requested inspection, or inform Contractor in writing that such an inspection is premature because the Work is not sufficiently advanced or conditions are not as represented on Contractor's list.

- 12.1.1.1 Prior to the Substantial Completion inspection, Contractor shall furnish a copy of its marked-up Record Documents and a preliminary copy of each instructional manual, maintenance and operating manual, parts catalog, wiring diagrams, spare parts, specified written warranties, and like publications or parts for all installed equipment, systems, and like items as described in the Contract Documents. Delivery of these items is a prerequisite for requesting the Substantial Completion inspection.
- 12.1.1.2 On the date requested by Contractor, or as mutually agreed upon pending the status of the Open Items List, A/E, ODR, Contractor, and other Owner representatives as determined by Owner will jointly attend the Substantial Completion inspection, which shall be conducted by ODR or their delegate. If ODR concurs with the determination of Contractor and A/E that the Work is Substantially Complete, ODR will issue a Certificate of Substantial Completion to be signed by A/E, Owner, and Contractor establishing the date of Substantial Completion and identifying responsibilities for security, insurance and maintenance. A/E will provide with this certificate a list of Punchlist items (the pre-final Punchlist) for completion prior to final inspection. This list may include items in addition to those on Contractor's Punchlist, which the inspection team deems necessary to correct or complete prior to final inspection. If Owner occupies the Project upon determination of Substantial Completion, Contractor shall complete all corrective Work at the convenience of Owner, without disruption to Owner's use of the Project for its intended purposes.
- 12.1.2 Final Inspection. Contractor shall complete the list of items identified on the pre-final Punchlist prior to requesting a final inspection. Unless otherwise specified, or otherwise agreed in writing by the parties as documented on the Certificate of Substantial Completion, Contractor shall complete and/or correct all Work within thirty (30) days of the Substantial Completion date. Upon completion of the pre-final Punchlist work, Contractor shall give written notice to ODR and A/E that the Work will be ready for final inspection on a specific date. Contractor shall accompany this notice with a copy of the updated pre-final Punchlist indicating resolution of all items. On the date specified or as soon thereafter as is practicable, ODR, A/E and Contractor will inspect the Work. A/E will submit to Contractor a final Punchlist of open items that the inspection team requires corrected or completed before final acceptance of the Work.
 - 12.1.2.1 Correct or complete all items on the final Punchlist before requesting Final Payment. Unless otherwise agreed to in writing by the parties, complete this work within seven (7) days of receiving the final Punchlist. Upon completion of the final Punchlist, notify A/E and ODR in writing stating the disposition of each final Punchlist item. A/E, Owner, and Contractor shall promptly inspect the completed items. When the final Punchlist is complete, and the Contract is fully satisfied according to the Contract Documents ODR will issue a certificate establishing the date of Final Completion. Completion of all Work is a condition precedent to Contractor's right to receive Final Payment.
- 12.1.3 Annotation. Any Certificate issued under this Article may be annotated to indicate that it is not

applicable to specified portions of the Work, or that it is subject to any limitation as determined by Owner.

- 12.1.4 Purpose of Inspection. Inspection is for determining the completion of the Work, and does not relieve Contractor of its overall responsibility for completing the Work in a good and competent fashion, in compliance with the Contract. Work accepted with incomplete Punchlist items or failure of Owner or other parties to identify Work that does not comply with the Contract Documents or is defective in operation or workmanship does not constitute a waiver of Owner's rights under the Contract or relieve Contractor of its responsibility for performance or warranties.

12.1.5 Additional Inspections.

12.1.5.1 If Owner's inspection team determines that the Work is not substantially complete at the Substantial Completion inspection, ODR or A/E will give Contractor written notice listing cause(s) of the rejection. Contractor will set a time for completion of incomplete or defective work acceptable to ODR. Contractor shall complete or correct all work so designated prior to requesting a second Substantial Completion inspection.

12.1.5.2 If Owner's inspection team determines that the Work is not complete at the final inspection, ODR or A/E will give Contractor written notice listing the cause(s) of the rejection. Contractor will set a time for completion of incomplete or defective work acceptable to ODR. Contractor shall complete or correct all Work so designated prior to again requesting a final inspection.

12.1.5.3 The Contract contemplates three (3) comprehensive inspections: the Substantial Completion inspection, the Final Completion inspection, and the inspection of completed final Punchlist items. The cost to Owner of additional inspections resulting from the Work not being ready for one or more of these inspections is the responsibility of Contractor. Owner may issue a ULCO deducting these costs from Final Payment. Upon Contractor's written request, Owner will furnish documentation of any costs so deducted. Work added to the Contract by Change Order after Substantial Completion inspection is not corrective Work for purposes of determining timely completion, or assessing the cost of additional inspections.

- 12.1.6 Phased Completion. The Contract may provide, or Project conditions may warrant, as determined by ODR, that designated elements or parts of the Work be completed in phases. Where phased completion is required or specifically agreed to by the parties, the provisions of the Contract related to closing inspections, occupancy, and acceptance apply independently to each designated element or part of the Work. For all other purposes, unless otherwise agreed by the parties in writing, Substantial Completion of the Work as a whole is the date on which the last element or part of the Work completed receives a Substantial Completion certificate. Final Completion of the Work as a whole is the date on which the last element or part of the Work completed receives a Final Completion certificate or notice.

- 12.2 Owner's Right of Occupancy. Owner may occupy or use all or any portion of the Work following Substantial Completion, or at any earlier stage of completion. Should Owner wish to use or occupy the Work, or part thereof, prior to Substantial Completion, ODR will notify Contractor in writing and identify responsibilities for security, insurance and maintenance Work performed on the premises by third parties on Owner's behalf does not constitute occupation or use of the Work by Owner for purposes of this Article. All Work performed by Contractor after occupancy, whether in part or in whole, shall be at the convenience of Owner so as to not disrupt Owner's use of, or access to occupied areas of the Project.

12.3 Acceptance and Payment

- 12.3.1 Request for Final Payment. Following the certified completion of all work, including all final Punchlist items, cleanup, and the delivery of record documents, Contractor shall submit a certified Application for Final Payment and include all sums held as retainage and forward to A/E and ODR for review and approval.
- 12.3.2 Final Payment Documentation. Contractor shall submit, prior to or with the Application for Final Payment, final copies of all Close-Out documents, maintenance and operating instructions, guarantees and warranties, certificates, Record Documents and all other items required by the Contract. Contractor shall submit evidence of return of access keys and cards, evidence of delivery to Owner of attic stock, spare parts, and other specified materials. Contractor shall submit consent of surety to Final Payment form and an affidavit that all payrolls, bills for materials and equipment, subcontracted work and other indebtedness connected with the Work, except as specifically noted, are paid, will be paid, after payment from Owner or otherwise satisfied within the period of time required by Tex. Gov't Code, Chapter 2251. Contractor shall furnish documentation establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of claims and liens arising out of the Contract. Contractor may not subsequently submit a claim on behalf of Subcontractor or vendor unless Contractor's affidavit notes that claim as an exception.
- 12.3.3 Architect/Engineer Approval. A/E will review a submitted Application for Final Payment promptly but in no event later than ten (10) days after its receipt. Prior to the expiration of this deadline, A/E will either: 1) return the Application for Final Payment to Contractor with corrections for action and resubmission; or 2) accept it, note their approval, and send to Owner.
- 12.3.4 Offsets and Deductions. Owner may deduct from the Final Payment all sums due from Contractor. If the Certificate of Final Completion notes any Work remaining, incomplete, or defects not remedied, Owner may deduct the cost of remedying such deficiencies from the Final Payment. On such deductions, Owner will identify each deduction, the amount, and the explanation of the deduction on or by the twenty-first (21st) day after Owner's receipt of an approved Application for Final Payment. Such offsets and deductions shall be incorporated via a final Change Order, including a ULCO as may be applicable.
- 12.3.5 Final Payment Due. Final Payment is due and payable by Owner, subject to all allowable offsets and deductions, on the thirtieth (30th) day following Owner's approval of the Application for Payment. If Contractor disputes any amount deducted by Owner, Contractor shall give notice of the dispute on or before the thirtieth (30th) day following receipt of Final Payment. Failure to do so will bar any subsequent claim for payment of amounts deducted.
- 12.3.6 Effect of Final Payment. Final Payment constitutes a waiver of all claims by Owner, relating to the condition of the Work except those arising from:
- 12.3.6.1 Faulty or defective Work appearing after Substantial Completion (latent defects);
 - 12.3.6.2 Failure of the Work to comply with the requirements of the Contract Documents;
 - 12.3.6.3 Terms of any warranties required by the Contract, or implied by law; or
 - 12.3.6.4 Claims arising from personal injury or property damage to third parties.
- 12.3.7 Waiver of Claims. Final payment constitutes a waiver of all claims and liens by Contractor except those specifically identified in writing and submitted to ODR prior to the application for Final Payment.
- 12.3.8 Effect on Warranty. Regardless of approval and issuance of Final Payment, the Contract is not deemed fully performed by Contractor and closed until the expiration of all warranty periods.

Article 13. Warranty and Guarantee

- 13.1 Contractor's General Warranty and Guarantee. Contractor warrants to Owner that all Work is executed in accordance with the Contract, complete in all parts and in accordance with approved practices and customs, and of the required finish and workmanship. Contractor further warrants that unless otherwise specified, all materials and equipment incorporated in the Work under the Contract are new. Owner may, at its option, agree in writing to waive any failure of the Work to conform to the Contract, and to accept a reduction in the Contract price for the cost of repair or diminution in value of the Work by reason of such defect. Absent such a written agreement, Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute and is not waived by any inspection or observation by Owner, A/E or others, by making any progress payment or final payment, by the use or occupancy of the Work or any portion thereof by Owner, at any time, or by any repair or correction of such defect made by Owner.
- 13.2 Warranty Period. Except as may be otherwise specified or agreed, Contractor shall repair all defects in materials, equipment, or workmanship appearing within one year from the date of Substantial Completion of the Work. If Substantial Completion occurs by phase, then the warranty period for ~~that~~ the Work performed for each phase begins on the date of Substantial Completion of that phase, or as otherwise stipulated on the Certificate of Substantial Completion for the particular phase.
- 13.3 Limits on Warranty. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
- 13.3.1 Modification or improper maintenance or operation by persons other than Contractor, Subcontractors, or any other individual or entity for whom Contractor is not responsible, unless Owner is compelled to undertake maintenance or operation due to the neglect of Contractor.
- 13.3.2 Normal wear and tear under normal usage after acceptance of the Work by Owner.
- 13.4 Events Not Affecting Warranty. Contractor's obligation to perform and complete the Work in a good and workmanlike manner in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or relieve the Contractor from its obligation to perform the Work in accordance with the Contract Documents:
- 13.4.1 Observations by Owner and/or A/E;
- 13.4.2 Recommendation to pay any progress or final payment by A/E;
- 13.4.3 The issuance of a certificate of Substantial Completion or any payment by Owner to Contractor under the Contract Documents;
- 13.4.4 Use or occupancy of the Work or any part thereof by Owner;
- 13.4.5 Any acceptance by Owner or any failure to do so;
- 13.4.6 Any review of a Shop Drawing or sample submittal; or
- 13.4.7 Any inspection, test or approval by others.
- 13.5 Separate Warranties. If a particular piece of equipment or component of the Work for which the Contract requires a separate warranty is placed in continuous service before Substantial Completion, the warranty period for that equipment or component will not begin until Substantial Completion, regardless of any warranty agreements in place between suppliers and/or Subcontractors and Contractor. ODR will certify the date of service commencement in the Substantial Completion certificate.

- 13.5.1 In addition to Contractor's warranty and duty to repair, Contractor expressly assumes all warranty obligations required under the Contract for specific building components, systems and equipment.
- 13.5.2 Contractor may satisfy any such obligation by obtaining and assigning to Owner a complying warranty from a manufacturer, supplier, or Subcontractor. Where an assigned warranty is tendered and accepted by Owner which does not fully comply with the requirements of the Contract, Contractor remains liable to Owner on all elements of the required warranty not provided by the assigned warranty.
- 13.6 Correction of Defects. Upon receipt of written notice from Owner, or any agent of Owner designated as responsible for management of the warranty period, of the discovery of a defect, Contractor shall promptly remedy the defect(s), and provide written notice to Owner and designated agent indicating action taken. In case of emergency where delay would cause serious risk of loss or damage to Owner, or if Contractor fails to remedy within thirty (30) days, or within another period agreed to in writing, Owner may correct the defect and be reimbursed the cost of remedying the defect from Contractor or its surety.

Article 14. Suspension and Termination

- 14.1 Suspension of Work for Cause. Owner may, at any time without prior notice, suspend all or any part of the Work if, after reasonable observation and/or investigation, Owner determines it is necessary to do so to prevent or correct any condition of the Work which constitutes an immediate safety hazard or which may reasonably be expected to impair the integrity, usefulness or longevity of the Work when completed.
 - 14.1.1 Owner will give Contractor a written notice of suspension for cause, setting forth the reason for the suspension and identifying the Work suspended. Upon receipt of such notice, Contractor shall immediately stop the Work so identified. As soon as practicable following the issuance of such a notice, Owner will initiate and complete a further investigation of the circumstances giving rise to the suspension, and issue a written determination of the findings.
 - 14.1.2 If it is confirmed that the cause was within the control of Contractor, Contractor will not be entitled to an extension of time for delay resulting from the suspension. If the cause is determined not to have been within the control of Contractor, and the suspension has prevented Contractor from completing the Work within the Contract Time, the suspension is an excusable delay and a time extension will be granted through a Change Order.
 - 14.1.3 Suspension of Work under this provision will be no longer than is reasonably necessary to remedy the conditions giving rise to the suspension.
- 14.2 Suspension of Work for Owner's Convenience. Upon seven (7) days written notice to Contractor, Owner may at any time without breach of the Contract suspend all or any portion of the Work for a period of up to sixty (60) days for its own convenience. Owner will give Contractor a written notice of suspension for convenience, which sets forth the number of suspension days for which the Work, or any portion of it, and the date on which the suspension of Work will cease. When such a suspension prevents Contractor from completing the Work within the Contract Time, it is an excusable delay. A notice of suspension for convenience may be modified by Owner at any time on seven (7) days written notice to Contractor. If Owner suspends the Work for its convenience for more than sixty (60) consecutive days, Contractor may elect to terminate the Contract pursuant to the provisions of the Contract.
- 14.3 Termination by Owner for Cause.
 - 14.3.1 Upon thirty (30) days written notice to Contractor and its surety, Owner may, without prejudice to any right or remedy, terminate the Contract and take possession of the Site and of all materials, equipment, tools, construction equipment, and machinery thereon owned by Contractor under any of the following circumstances:

- 14.3.1.1 Persistent or repeated failure or refusal, except during complete or partial suspensions of work authorized under the Contract, to supply enough properly skilled workmen or proper materials;
- 14.3.1.2 Persistent disregard of laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, including ODR;
- 14.3.1.3 Persistent failure to prosecute the Work in accordance with the Contract, and to ensure its completion within the time, or any approved extension thereof, specified in the Contract;
- 14.3.1.4 Failure to remedy defective work condemned by ODR;
- 14.3.1.5 Failure to pay Subcontractors, laborers, and material suppliers pursuant to Tex. Gov't Code, Chapter 2251;
- 14.3.1.6 Persistent endangerment to the safety of labor or of the Work;
- 14.3.1.7 Failure to supply or maintain statutory bonds or to maintain required insurance, pursuant to the Contract;
- 14.3.1.8 Any material breach of the Contract; or
- 14.3.1.9 Contractor's insolvency, bankruptcy, or demonstrated financial inability to perform the Work.
- 14.3.2 Failure by Owner to exercise the right to terminate in any instance is not a waiver of the right to do so in any other instance.
- 14.3.3 Upon receipt of a termination notice, the Contractor or its Surety has thirty (30) days to cure the reasons for the termination or demonstrate to the satisfaction of the Owner that it is prepared to remedy to the condition(s) upon which the notice of termination was based with diligence and promptness. If the Owner is satisfied that the Contractor or its Surety can remedy the reasons for the termination and complete the Work as required, the notice of termination shall be rescinded in writing by the Owner and the Work shall continue without an extension of time.
- 14.3.4 If at the conclusion of the thirty (30) day cure period the Contractor or its Surety is unable to demonstrate to the satisfaction of the Owner its ability to remedy the reasons for termination, the Owner may immediately terminate the employment of the Contractor, make alternative arrangements for completion of the Work and deduct the cost of completion from the unpaid Contract Sum.
 - 14.3.4.1 Owners cost to complete the Work includes, but is not limited to, fees for additional services by A/E and other consultants, and additional contract administration costs.
 - 14.3.4.2 Owner will make no further payment to Contractor or its surety unless the costs to complete the Work are less than the Contract balance, then the difference shall be paid to Contractor or its surety. If such costs exceed the unpaid balance, Contractor or its surety will pay the difference to Owner.
 - 14.3.4.3 This obligation for payment survives the termination of the Contract.
 - 14.3.4.4 Owner reserves the right in termination for cause to take assignment of all the Contracts between Contractor and its Subcontractors, vendors, and suppliers. ODR will promptly notify Contractor of the contracts Owner elects to assume. Upon

receipt of such notice, Contractor shall promptly take all steps necessary to effect such assignment.

- 14.4 Conversion to Termination for Convenience. In the event that any termination of Contractor for cause under Section 14.3 is later determined to have been improper, the termination shall automatically convert to a termination for convenience under Section 14.5 and Contractor's recovery for termination shall be strictly limited to the payments allowable under Section 14.5.
- 14.5 Termination for Convenience of Owner. Owner reserves the right, without breach, to terminate the Contract prior to, or during the performance of the Work, for any reason. Upon such an occurrence, the following shall apply:
- 14.5.1 Owner will notify Contractor and A/E in writing specifying the reason for and the effective date of the Contract termination. The notice may also contain instructions necessary for the protection, storage or decommissioning of incomplete work or systems, and for safety.
- 14.5.2 Upon receipt of the notice of termination, Contractor shall immediately proceed with the following obligations, regardless of any dispute in determining or adjusting any amounts due at that point in the Contract:
- 14.5.2.1 Stop all work.
- 14.5.2.2 Place no further subcontracts or orders for materials or services.
- 14.5.2.3 Terminate all subcontracts for convenience.
- 14.5.2.4 Cancel all materials and equipment orders as applicable.
- 14.5.2.5 Take appropriate action that is necessary to protect and preserve all property related to the Contract which is in the possession of Contractor.
- 14.5.3 When the Contract is terminated for Owner's convenience, Contractor may recover from Owner payment for all Work executed. Contractor may not claim lost profits or lost business opportunities.
- 14.6 Termination By Contractor. If the Work is stopped for a period of ninety (90) days under an order of any court or other public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of Contractor or Subcontractor or their agents or employees or any other persons performing any of the Work under a contract with Contractor, then Contractor may, upon thirty (30) additional days written notice to ODR, terminate the Contract and recover from Owner payment for all Work executed, but not lost profits or lost business opportunities. If the cause of the Work stoppage is removed prior to the end of the thirty (30) day notice period, Contractor may not terminate the Contract.
- 14.7 Settlement on Termination. When the Contract is terminated for any reason, at any time prior to one hundred eighty (180) days after the effective date of termination, Contractor shall submit a final termination settlement proposal to Owner based upon recoverable costs as provided under the Contract. If Contractor fails to submit the proposal within the time allowed, Owner may unilaterally determine the amount due to Contractor because of the termination and pay the determined amount to Contractor.

Article 15. Dispute Resolution

- 15.1 Unresolved Contractor Disputes. To the extent that it is applicable, the dispute resolution process provided for in Tex. Gov't Code, Chapter 2260, shall be used by Contractor to resolve any claim for breach of Contract made by Contractor that is not resolved under procedures described in these Uniform General Conditions or Owner's Special Conditions of the Contract.

- 15.2 Alternative Dispute Resolution Process. Owner may establish a dispute resolution process to be utilized in advance of that outlined in Tex. Gov't Code, Chapter 2260.
- 15.3 Nothing herein shall hinder, prevent, or be construed as a waiver of Owner's right to seek redress on any disputed matter in a court of competent jurisdiction.
- 15.4 In any litigation between the Owner and the Contractor arising from this Contract or this Project, neither party will be entitled to an award of legal fees or costs in any judgment regardless which one is deemed the prevailing party.
- 15.5 Nothing herein shall waive or be construed as a waiver of the State's sovereign immunity.

Article 16. Certification of No Asbestos Containing Material or Work

- 16.1 Contractor shall insure that Texas Department of State Health Services licensed individuals, consultants or companies are used for any required asbestos work including asbestos inspection, asbestos abatement plans/specifications, asbestos abatement, asbestos project management and third-party asbestos monitoring.
- 16.2 Contractor shall provide a notarized certification to Owner that all equipment and materials used in fulfillment of its Contract responsibilities are non-Asbestos Containing Building Materials (ACBM). This certification must be provided no later than Contractor's application for Final Payment.
- 16.3 The Contractor shall insure compliance with the following acts from all of his subcontractors and assigns:
- Asbestos Hazard Emergency Response Act (AHERA—40 CFR 763-99 (7));
 - National Emission Standards for Hazardous Air Pollutants (NESHAP—EPA 40 CFR 61, Subpart M—National Emission Standard for Asbestos;
 - Texas Asbestos Health Protection Rules (TAHPR—Tex. Admin. Code Title 25, Part 1, Ch. 295C, Asbestos Health Protection

Article 17. Miscellaneous

- 17.1 Owner's Special Conditions. When the Work contemplated by Owner is of such a character that the foregoing Uniform General Conditions of the Contract cannot adequately cover necessary and additional contractual relationships, the Contract may include Owner's Special Conditions that relate to the Project. In the event of a conflict between the UTUGCs and the Owner's Special Conditions, the Owner's Special Conditions will govern.
- 17.2 Federally Funded Projects. On Federally funded projects, Owner may waive, suspend or modify any Article in these Uniform General Conditions which conflicts with any Federal statute, rule, regulation or procedure, where such waiver, suspension or modification is essential to receipt by Owner of such Federal funds for the Project. In the case of any Project wholly financed by Federal funds, any standards required by the enabling Federal statute, or any Federal rules, regulations or procedures adopted pursuant thereto, shall be controlling.
- 17.3 Internet-based Project Management Systems. At its option, Owner may administer its design and construction management through an Internet-based management system. In such cases, Contractor shall conduct communication through this media and perform all Project related functions utilizing this database system. This includes correspondence, submittals, Requests for Information, vouchers or payment requests and processing, amendment, Change Orders and other administrative activities.
- 17.3.1 Accessibility and Administration.
- 17.3.1.1 When used, Owner will make the software accessible via the Internet to all Project

team members.

17.3.1.2 Owner shall administer the software.

17.3.2 Training. When used, Owner shall provide training to the Project team members.

17.4 Right to Audit.

17.4.1 Contractor understands that acceptance of funds under this Contract acts as acceptance of the authority of the State Auditor's Office, Owner, any successor agency and their representatives, including independent auditors, to conduct an audit or investigation in connection with those funds. Contractor further agrees to cooperate fully with any party conducting the audit or investigation, including providing all records requested.

17.4.2 Contractor shall maintain and retain supporting fiscal and any other documents relevant to showing that any payments under this Contract funds were expended in accordance with the terms of this Contract, the requirements of Owner, and with the laws and regulations of the State of Texas including, but not limited to, requirements of the Comptroller of the State of Texas and the State Auditor. Contractor shall maintain all such documents and other records relating to this Contract and Owner's property for a period of four (4) years after the date of submission of a request for Final Payment or until a resolution of all billing questions, whichever is later. Contractor shall make available at reasonable times and upon reasonable notice and for reasonable periods all documents and other information related to the Work of this Contract.

17.4.3 Contractor shall ensure that this clause concerning the authority to audit funds received indirectly by subcontractors through the Contractor and the requirement to cooperate is included in any subcontract it awards.

17.5 179 D Benefit Allocation. Owner may decide to seek the allocation of certain tax benefits pursuant to Section 179D of the Internal Revenue Code of 1986, as amended, (the "Code") through its Agreement with Contractor

If the Owner and the Internal Revenue Service (IRS) determine that the Contractor is eligible to receive the 179D deduction allocation as a "Designer" for the purposes of Section 179D of the Code or that Contractor could otherwise profit financially from the monetization of the benefit (separately and collectively, the "Rebate"), Contractor hereby agrees to allocate to the Owner a portion of the Rebate in an amount to be determined and contracted for on mutually agreeable terms when the value of the Rebate becomes ascertainable, net of associated costs realized by the Owner and Project Architect. At its sole discretion, the Owner shall determine whether to receive its portion of the Rebate in cash, discounted Contractor fees or both.

Owner reserves the right to retain a third-party consultant (the "Consultant") to manage and administer the process of obtaining and monetizing the Rebate derived from the Project(s).

Contractor agrees to cooperate in all reasonable respects with the Consultant's efforts to obtain and monetize any such Rebates derived from the Project(s) on behalf of the Owner. Certification of eligibility and negotiation of the Rebates should be facilitated by the Owner's 179D Consultant.

17.6 Force Majeure. Neither Owner nor Contractor will be liable or responsible to the other for any loss or damage or for any delays or failure to perform due to causes beyond its reasonable control including acts of God, strikes, epidemics, war, riots, flood, fire, sabotage, or any other circumstances of like character.

17.7 Confidentiality and Safeguarding of Owner Records; Press Releases; Public Information. Under the Contract, Contractor may (1) create, (2) receive from or on behalf of Owner, or (3) have access to, Owner records or record systems (collectively, "Owner Records"). Contractor represents, warrants, and agrees that it will: (1) hold all Owner Records in strict confidence and will not use or disclose Owner Records except as (a) permitted or required by the Contract, (b) required by Applicable Laws, or (c) otherwise

authorized by Owner in writing; (2) safeguard Owner Records according to reasonable administrative, physical and technical standards that are no less rigorous than the standards by which Contractor protects its own confidential information; and (3) comply with the Owner's rules, policies, and procedures regarding access to and use of Owner's computer systems. At the request of Owner, Contractor agrees to provide a written summary of the procedures Contractor uses to safeguard and maintain the confidentiality of Owner Records.

- 17.7.1 Notice of Impermissible Use. If an impermissible use or disclosure of any Owner Records occurs, Contractor will provide written notice to University within one (1) business day after Contractor's discovery of that use or disclosure. Contractor will promptly provide Owner with all information requested by University regarding the impermissible use or disclosure.
- 17.7.2 Return of University Records. Contractor agrees that within thirty (30) days after the expiration or termination of the Contract, for any reason, all Owner Records created or received from or on behalf of University will be (1) returned to Owner, with no copies retained by Contractor; or (2) if return is not feasible, destroyed following twenty (20) days written notice to the Owner. Contractor will confirm in writing the destruction of any Owner Records.
- 17.7.3 Disclosure. If Contractor discloses any Owner Records to a subcontractor or agent, Contractor will require the subcontractor or agent to comply with the same restrictions and obligations as are imposed on Contractor by this Section.
- 17.7.4 Press Releases. Except as required by the Contract, Contractor will not make any press releases, public statements, or advertisement referring to the Project or the engagement of Contractor as an independent contractor of Owner in connection with the Project or release any information relative to the Project for publication, advertisement or any other purpose without the prior written approval of Owner.
- 17.7.5 Public Information. Owner strictly adheres to all statutes, court decisions and the opinions of the Texas Attorney General with respect to disclosure of public information under the *Texas Public Information Act* ("TPIA"), Chapter 552, *Texas Government Code*. In accordance with Section 552.002 of TPIA and Section 2252.907, *Texas Government Code*, and at no additional charge to Owner, Contractor will make any information created or exchanged with Owner pursuant to this Contract that is not otherwise exempt from disclosure under TPIA available in a format reasonably requested by Owner that is accessible by the public.
- 17.8 **Domestic Iron and Steel Requirement.** Pursuant to Sections 2252.201-2252.205 of the Government Code, Contractor shall require that any iron or steel product produced through a manufacturing process and used in the Project is produced in the United States will require that the bid documents provided to all bidders and the contract include this same requirement.

End of U.T. System Uniform General Conditions

MD Anderson Agreement No. _____

MD Anderson Project No. _____

EXHIBIT B

Owner's Division 00 (Conditions of the Contract)
And
Division 01 (General Requirements) and Specifications

| | |
|--|---|
| Section 00 25 00 Attachment A Attachment B | Owner's Special Conditions Prevailing Wage Determination Facilities Planned Utility Outage Policy |
| Section 01 31 00 | Project Administration |
| Section 01 32 00 | Project Planning and Scheduling |
| Section 01 35 16 | Alteration Project Procedures |
| Section 01 35 25 | Owner Safety Requirements |
| Section 01 45 00 | Project Quality Control |
| Section 01 77 00 | Project Close-out Procedures |
| Section 01 78 39 | Project Record Documents |
| Section 01 78 46 | Maintenance Materials |
| Section 01 79 00 | Demonstration and Training |
| Section 01 91 00 | General Commissioning Requirements |

Exhibit B

00-25-00 Owner's Special Conditions

SECTION 00 25 00 – OWNER’S SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.
- C. The Contractor's attention is specifically directed, but not limited, to the Uniform General and Supplementary General Conditions for University of Texas System Building Construction Contracts (UGC) for other requirements.
- D. Attachment "A" (To Owner's Special Conditions) – Minimum Wage Rate Determination. Pursuant to the UGC, the attached schedule identifies the Prevailing Wage Rate determination as applicable to the Project location.
- E. Attachment "B" (To Owner's Special Conditions) – Facilities Planned Utility Outages Policy.

1.02 SUMMARY

- A. Terms and conditions set forth in this document are for the Contractor only, and are valid regardless of the project delivery method. For Construction Manager at Risk or Design/Build, the final version of the document shall be confirmed by the Owner, and included by the Construction Manager or Design/Build Contractor in the Guaranteed Maximum Price Proposal. For projects for which the construction phase is divided into multiple stages, these Owner's Special Conditions shall be reviewed, updated as warranted, and resubmitted with GMP Proposal associated with that stage of the construction work.

1.03 REFERENCE STANDARDS

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.
- C. All materials, installation and workmanship shall comply with all applicable requirements and standards.
 - 1. Texas Medical Center Architectural Standards and Texas Medical Center Stormwater Management Design Guidelines are applicable to all Projects located within the Texas Medical Center.
 - 2. Owner's underwriter requirements are applicable to all Projects.

1.04 DEFINITIONS

- A. The term "Owner's Project Manager" as used throughout the Contract Documents means an individual authorized by the Owner to administer the Project.

- B. Outage - A temporary disruption of normal operation or use of utilities, sidewalks, parking areas, driveways or facility access.
- C. Planned Utility Outage - An event that can be foreseen and has a plan of action in place to accomplish specific tasks during a utility outage.
- D. Utility - Any service provided by an outside source or manufactured in house (gas, water, electricity, fire suppression water, telecommunications, data systems, building automation systems, fire alarm systems, etc.) which facilitates building operations.
- E. The terms "outage" and "shutdown" are used interchangeably throughout the Contract Documents.
- F. Work Day - A day in which work is planned, excluding weekends and holidays.
- G. The terms "work day" and "business day" are used interchangeably throughout the Contract Documents.
- H. Normal working hours are considered as work being performed between 6:00 A.M. and 6:00 P.M. Monday through Friday, excluding holidays.
- I. The terms "normal hours" and "regular hours" are used interchangeably throughout the Contract Documents.
- J. Weather Day – A "weather day" is a day on which the Contractor's current schedule indicates Work is to be done, and on which inclement weather occurs and resultant site conditions or inaccessibility to the site prevent the Contractor from performing five hours of Work associated with the Project's critical activities during normal working hours.

1.05 OWNER'S RIGHT OF OCCUPANCY

- A. The Owner may occupy or use all or any portion of the Work following Substantial Completion, or at any earlier stage of completion. Should the Owner wish to use or occupy the Work, or part thereof, prior to Substantial Completion, the Owner's Project Manager will notify the Contractor in writing and identify responsibilities for security, maintenance, and insurance.
- B. Work performed on the premises by third parties on the Owner's behalf does not constitute occupation or use of the Work by the Owner for purposes of this Article.
- C. All Work performed by the Contractor after occupancy, whether in part or in whole, shall be at the convenience of the Owner so as to not disrupt Owner's use of, or access to occupied areas of the project.
- D. Contractor shall follow the Planned Utility Outage Procedure specified within this section when performing Work affecting any occupied facility.

1.06 MINIMUM WAGE RATE DETERMINATION

- A. The Contractor shall comply with all requirements of Texas Government Code Chapter 2258, Prevailing Wage Rates.
- B. Wage rates identified in Attachment "A" (To Owner's Special Conditions) are titled "Prevailing Wage Determination, dated December 31, 2009."

- C. The Owner may verify wage rate compliance in the field by interviewing workers. The Contractor shall assist the Construction Inspector (CI) with this task, including providing translation for non-English speaking workers.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

2.02 BUILDERS RISK ENDORSEMENTS

A. For Coverage of Existing Building Structures:

1. Contractor shall include an endorsement on the Builders Risk Insurance policy to provide coverage for the existing building structure(s), including its/their contents, as described below. Coverage shall be in the amount equal to either \$5 million or the estimated replacement value of the existing building structure and its contents, whichever is less.
2. The purpose of this coverage is to fund the \$5 million deductible under the Owner's existing property insurance policy which addresses the risk and possible cost of claims to repair damage to existing structure(s) (this purpose should be explained to the Builders Risk Insurance carrier when requesting the quote). The existing building structure(s) to be covered is the **R. LEE CLARK CLINIC** building, and its estimated building replacement value is **\$321,218,751.77**. Its estimated contents value is **\$44,795,308.11**.

B. Soft Costs, Loss of Rents, Gross Earnings:

1. Contractor shall provide an alternate price to include an endorsement on the Builders Risk Insurance policy to provide the following additional coverage:
 - a. Maximum Deductible: 14 Days

C. Umbrella Liability Limits:

1. For Non-ROCIP Projects, Limits as follows:
 - a. No Umbrella Required
2. If Contract Sum is greater than \$1,000,000 up to \$3,000,000:
 - a. \$1,000,000 each occurrence and \$2,000,000 annual aggregate
3. If Contract Sum is greater than \$3,000,000 up to \$5,000,000:
 - a. \$5,000,000 each occurrence and \$5,000,000 annual aggregate
4. If Contract Sum is greater than \$5,000,000:
 - a. \$10,000,000 each occurrence and \$10,000,000 annual aggregate

D. Builder's Risk Limits

1. For purpose of purchasing builder's risk insurance on the entire Work, the cost of materials supplied or installed by others is currently estimated to be **\$1,500,000**.

2.03 PROJECT COMMUNICATIONS PLAN

- A. Depending upon the project, the Owner may develop a Project Communications Plan to inform the Owner's faculty, employees, patients, visitors, and others concerning construction activities affecting them. Contractor shall participate and support this effort as required by Owner. Typical support by Contractor may include attendance at communications meetings, preparation of graphic and narrative construction impact updates, and the furnishing of targeted signage.

2.04 PROJECT SIGNAGE

- A. For new construction, the Contractor shall provide signage in accordance with the Project Communications Plan and construct and erect one (1) Project sign on the Site in a location designated by the Owner. The sign shall be constructed as instructed by the Owner. Refer to Attachment "B" (To Owner's Special Conditions).
- B. The Contractor shall submit a one-quarter-scale shop drawing of the sign, including all lettering, to the Owner for approval prior to installation. The sign shall remain the property of the Owner, and upon Final Completion, the Contractor shall remove the sign and deliver it to a location designated by the Owner.
- C. For renovation projects, signage shall be in accordance with the Project Communications Plan or as directed by the Owner.
- D. All hazard warning signage shall be OSHA 29 CFR Part 1926 compliant. All signs shall be prominently displayed at all entrances to the Site. Postings must be constructed of a durable material that will resist wear and damage.
- E. Additional Contractor or Subcontractor signs or advertisements shall not be erected without the Owner's written approval.

2.05 TEMPORARY MECHANICAL SERVICES

- A. If temporary heating, cooling, ventilation or humidity control equipment is required for protection of the Work or for implementation of indoor air quality measures, the Contractor shall provide Owner-approved equipment and proper operation such that no Work shall be damaged or life safety compromised.
- B. All equipment and filters shall be maintained in good operation and all filters and controls shall be changed as a result of damage or expiration to ensure acceptable air quality. If necessary, all equipment must have current certifications.
- C. After the permanent mechanical equipment has been installed and connected to the local chilled water and steam distribution systems, the equipment may be operated by the Contractor to heat or cool the building if acceptable to the Owner. Contractor must flush and clean all new mechanical piping systems before connecting to local systems.

- D. During operation of the mechanical equipment, prior to achieving Substantial Completion, the Contractor shall keep the mechanical equipment in good operating condition, properly maintained, including cleaning and changing of all filters. New, non-construction filters shall be installed prior to the Owner's acceptance of the mechanical equipment. The warranty period shall start for the respective equipment as delineated in the UGC.

2.06 REMOVAL OF TEMPORARY FACILITY

- A. When a temporary facility is no longer needed for the proper conduct of the Work, the Contractor shall completely remove it from the Project and shall repair or replace any material, equipment, or finished surface damaged in doing so.

2.07 PROJECT PARKING

- A. Contractor is responsible for securing adequate parking for Contractor's employees. Parking of Contractor's vehicles at the Site shall be as approved by the Owner. Contractor shall maintain at least two (2) marked parking spaces at the Site for the Owner's representatives.
 - 1. **ZERO (0)** remote parking spaces may be provided on the campus. Such parking shall require permits, issued by the campus police department, for all vehicles. Such remote parking is provided for the convenience of the Contractor with the understanding that the Contractor is responsible for all workers and vehicles while they are on the campus. The Owner may remove such parking convenience at Owner's sole discretion.

PART 3 - EXECUTION

3.01 PARTNERING

- A. The Owner desires to create a cohesive team for this project, to include all primary parties. The Contractor and its primary Subcontractors shall join the Owner and the rest of the Project Team in project "Partnering" as a means of achieving success. The Partnering process is entirely voluntary and the Owner and Contractor shall equally share all costs with no impact to the Construction Contract price. The results of the workshop are not legally binding, but do represent a commitment by the parties to work together cooperatively toward common goals.

3.02 CONTRACTOR SITE ACCESS AND LIMITS OF CONSTRUCTION

- A. Upon authorization to mobilize, the Contractor shall submit a plan layout showing location of field offices, size and arrangement of spaces, fencing, site control points, and utility tie-in locations for Owner review.
- B. All Project personnel shall confine and limit their work and use of the Site to those areas within the defined limits of construction. All public and University rules, laws and requirements shall be obeyed and enforced by the Contractor. No tools, construction vehicles, or construction material other than those in transit, shall be permitted beyond the Site limits of construction, including Owner's existing mechanical, plumbing, and electrical rooms, equipment rooms, and storage rooms.

- C. All campus roads, drives, and fire lanes as well as all sidewalks and pedestrian routes, other than those specifically indicated to be in the Contractor's area of control, must be kept open at all times. The Contractor shall proactively schedule and obtain security clearance for all significant material deliveries, vehicle traffic, street closures, cranes, concrete trucks, etc., through and around the campus and Site.

3.03 ON-GOING CAMPUS OPERATIONS

- A. The Project is surrounded by and/or adjacent to continuously functioning campus facilities, including patient care, academic, and research efforts. The Contractor shall make every effort to avoid disruptions to ongoing campus activities and to maintain a safe environment for patients, students, faculty, and staff in the areas adjacent to the Project.
- B. The Contractor shall obtain all Owner's in-house approvals and permits. Operation of utilities and building systems must not be interrupted except when scheduled and approved in advance through established channels. The Contractor should be always mindful and proactive with regard to containment of noise, fumes, dust and debris.

3.04 CONTRACTOR'S RESPONSIBILITY OF THE PROJECT WORKFORCE

- A. The Contractor is responsible for the actions of the entire Project workforce, including, but not limited to, subcontractors' and suppliers' employees, whenever they are on the campus. The Contractor shall submit a plan for identifying and controlling all workers, and for management of personnel records, including payroll records. Identification badges for workers, busing of workers from remote parking lot(s), written and verbal reminders to workforce of appropriate behavior and avoidance of campus facilities, and publishing of established access and egress routes for vehicular and pedestrian traffic are required, as a minimum, in order to maintain control of the work force.
 - 1. Unacceptable behavior on the part of a worker anywhere on campus, including parking lots, the Site, and the accessing route(s) through the Site and through the campus, or failure to obtain parking permits, or traffic violations while on campus may lead to cancellation of any Owner provided parking. Identifiable offending worker(s) shall be permanently removed from the Project.
 - 2. Harassment of any person, whether a patient, student, faculty, staff, or visitor to the campus, is strictly forbidden. Harassment includes any action such as jeering, whistling, calling-out, staring, snickering, making rude or questionable comments, or similar behavior. Identifiable offending worker(s) will be removed from the Project.

3.05 PROTECTION OF WORK

- A. The Contractor shall properly and effectively protect all materials and equipment furnished during and after installation. Building materials, Contractor's equipment, etc., may be stored on the premises, but the placing of it shall be within the construction fence. When any room in the building is used as a shop, store room, etc., the Contractor shall be held responsible for any repairs, patching, or cleaning arising from such use. Contractor shall protect and be responsible for any damage to Contractor's Work or material, from the date of the agreement until the final payment is made, and shall make good without cost to the Owner, any damage or loss that may occur during this period. The Contractor shall handle all material as directed, so that the Architect/Engineer's representative may inspect it. All material affected by weather shall be covered and protected to keep it free from damage while being transported to the Site and while stored on the Site.
1. During the execution of the Work, open ends of all piping and conduit, and all openings in equipment shall be closed when Work is not in progress, and shall be capped and sealed prior to completion of final connections, so as to prevent the entrance of foreign matter.
 2. All heating, ventilating, plumbing and electrical equipment shall be protected during the execution of the Work. All ductwork and equipment shall be sealed with heavy plastic and tape to prevent build-up of items such as dust, mold, and debris.
 3. All ductwork and air handling mechanical equipment shall be wiped down with a damp cloth immediately before installation to ensure complete removal of accumulated dusts and foreign matter.
 4. All plumbing fixtures shall be protected and covered so that no one can use them. All drains shall be covered until placed in service to prevent the entrance of foreign matter.
 5. Contractor shall protect trees and shrubs within the Site assigned to be saved and maintained, with strong open slat fences at least six (6) feet high, completely surrounding them, all maintained in sound condition until the Owner gives the Contractor permission for removal. Contractor shall not remove, cut, or trim any trees or shrubs without the Owner's written approval, unless specifically identified on the approved Construction Documents.

3.06 PLANNED UTILITY OUTAGE PROCEDURE

- A. The Contractor shall not activate or de-activate any campus system, or component of any such system, without express written direction from the Owner.
- B. Contractor shall schedule and obtain facilities approval for any necessary outage of campus utilities planning for a minimum of fifteen (15) work days in advance through the Owner's Project Manager, using the Owner provided "Contractor's Request for Utility Shutdown" form and process. All outages shall be performed outside the normal working hours or as determined by the Owner.

3.07 NOISE CONTROL

- A. Contractor shall coordinate equipment locations and timing or sequence of work operations so as to avoid conflict with the Owner's continuing use of adjacent buildings and/or avoid any interference with Owner's scheduled meetings, events, or business activities.

3.08 CUTTING, PATCHING, AND INSTALLATION OF SLEEVES

- A. If cutting and/or patching of holes or openings is required for the execution of the Work, the Contractor shall consult with the Architect/Engineer prior to the commencement of any cutting and/or patching. Contractor shall leave all chases, holes, or openings straight, true, and of proper size as may be necessary for the proper installation of Work.
1. No excessive cutting of the structure shall be permitted, nor shall any piers or other structural members be cut without the written approval of the Architect/Engineer. After such Work has been installed, the Contractor shall carefully fit around, close up, repair, patch, and point-up as directed to the entire satisfaction of the Architect/Engineer.
 2. All cutting and patching for utility penetrations shall be done carefully, with proper tools by qualified workers, without additional cost to the Owner. The Contractor shall build into the Work, as indicated on the Plans and/or Specifications, any and all items furnished by others. Cutting and repairing of work in place, as a result of negligence by the Contractor, shall be paid for by the party at fault.
 3. The Work performed within each Section of the Specifications, unless otherwise indicated in the Plans and/or Specifications, includes all cutting, patching, and digging for work in that trade section required for proper accommodations of work of other trades. Execute such work with competent workers skilled in trade required for restoration. Contractor shall arrange and pay for cutting and patching required for installation of Contractor's Work.
 4. Contractor shall seal penetrations through all rated partitions, walls and floors with U.L. tested assemblies to provide and maintain a rating equal to or greater than the partition, wall or floor. In addition, Contractor shall seal penetrations through all floors to provide and maintain a watertight installation.

3.09 ASBESTOS ABATEMENT

- A. In the event the Contractor encounters material reasonably believed to be asbestos at the Site, the Contractor shall immediately stop work in the area affected and report the condition to the Owner. If in fact the material is asbestos and has not been abated, the Contractor shall not resume the non-asbestos-related Work in the affected area until the asbestos has been abated.
- B. The abatement action may be performed in any of three ways, as the Owner may decide. The Owner may perform the abatement by Owner's own forces, or the Owner may contract with a third party to perform the abatement, or the Contractor may perform the abatement by an appropriate means acceptable to the Owner such as performing the Work through Contractor's own employees if they are appropriately certified or by hiring an abatement subcontractor.
- C. If the Contractor is to perform the abatement, the Owner and the Contractor will negotiate a change order in accordance with the contract terms relative to extra work. In such a case, the Owner specifically agrees that the cost of any special comprehensive general liability insurance that may be required relative to the abatement Work will be considered a direct cost of the extra work, on which, like the other direct costs, the Contractor will be allowed to add the applicable markup per the UGC.

3.10 CONTRACTOR LICENSURE

- A. Contractor shall ensure that a Master Plumber licensed with the State of Texas directly supervises all plumbing Work. At least one plumber holding a State of Texas journeyman license shall be present at each Site during any plumbing Work.
- B. Contractor shall ensure that Contractor's mechanical subcontractor is licensed with the State of Texas to install all HVAC Work.
- C. Contractor shall ensure that a Master Electrician licensed with the State of Texas directly supervises all electrical Work. At least one electrician holding a State of Texas journeyman license shall be present at each Site involving Electrical Work.

3.11 SAFETY PRECAUTIONS AND PROGRAMS

- A. MD Anderson Environmental Health and Safety (EH&S) has the authority to take intervening action in the event it deems patient, visitor, or staff of MD Anderson are in danger. Contractor shall adhere to requirements stated in Section 01 35 25 - Owner Safety Requirements.
- B. Contractors shall familiarize themselves with, receive required training on, and abide by all policies and procedures of MD Anderson and any governmental body [i.e. NFPA, OSHA, EPA, TDLR (Texas Department of Licensing and Regulation), TCEQ (Texas Commission on Environmental Quality), etc.] having authority to control the manner and/or methods of completing the tasks contained in the Contract.

3.12 TEST, ADJUST, AND BALANCE

- A. Owner may hire a Test, Adjust, and Balance firm. If Owner directly hires a Test, Adjust, and Balance firm, Contractor shall support the firm's efforts to perform work as required.

3.13 MISCELLANEOUS

- A. All gas lines that are involved with the Project must have ends capped with proper cap and sealant, even if valves are locked off.
- B. Contractor shall install temporary equipment in such a manner that finish work will not be damaged by smoke, falling mortar, concrete, or other causes. Location and arrangement of temporary equipment shall be subject to the approval of the Owner's Project Manager.
- C. Change Room Facilities:
 - 1. Where workers are required to change clothes and wear special protective clothing to work with toxic or dangerous substances, an appropriate facility for decontamination, separate from other sanitary and washing accommodations shall be provided. In these cases, change room facilities shall be duplicated and storage shall be provided for protective clothing in one room and for personal clothing in the other.
 - 2. Protective clothing and personal clothing shall not come into contact with each other or be stored in the same facilities. Protective clothing and work clothing, which may have become wet by the process of decontamination, must be stored in a separate, well-ventilated area.

3. Change rooms shall be gender separated and provided with inside and outside locking mechanisms.

3.14 SITE AND AREA MAINTENANCE

- A. A thorough cleanup of the Site and the Site's surroundings is required no less than once per week or more often as directed by the Owner. Contractor shall be responsible to ensure that the debris and trash resulting from site operations are removed from the building and the property on a daily basis. Solid debris, such as brick bats, mortar and plaster droppings, may not be dumped on the grounds about the Site. All combustible material including scrap from lumber, crating, excelsior, paper, and similar types of trash shall be removed from the building site on a daily basis. Trash shall not to be allowed to accumulate.
- B. The Contractor shall not allow food to be consumed or food wastes to accumulate at the Site in an effort to eliminate pests and insects.
- C. Contractor shall be required to clean all streets of mud, dirt, dust, debris, and construction material produced during Contractor's construction activities on a daily basis. Contractor shall repair any damage to existing streets, parking, facilities, and any other area of the Site, including areas used for lay down or storage.

3.15 OPERATING AND MAINTENANCE MANUALS

- A. Certain requirements of the UGC are supplemented by Section 01 77 00 – Project Closeout Procedures.

3.16 RECORD DOCUMENTS

- A. Certain requirements of the UGC are supplemented by Section 01 77 00 – Project Closeout Procedures.

3.17 SHOP DRAWINGS AND SUBMITTALS

- A. Certain requirements of the UGC are supplemented by Section 01 31 00 – Project Administration.

END OF SECTION 00 25 00

ATTACHMENT "A"
(to Owner's Special Conditions)
MINIMUM WAGE RATE DETERMINATION

The University of Texas System is the contracting agency for this construction project. The following statute requires the contracting agency to specify the generally minimum rates of wages in contracts that are bid.

Government Code 2258
"Construction of Public Works in State and
Municipal or Political Subdivisions; Prevailing
Wage Rates to be maintained"
and
The Uniform General Conditions
for University of Texas System Building Construction Contracts

Pursuant to the requirements of this statute, we have determined that the following rates of wages are paid to various classifications of workers in the locality of this project.

Total hourly compensations to each worker must equal or exceed the minimum wage rates stated in the following attachment. Contributions by a worker toward health, pension, vacation, and the like are part of the worker's pay; contributions by the employer are not. Any dollar amounts shown in columns for health, pension, and vacation may be paid either in cash or in kind. Workers in classifications where rates are not identified shall be paid not less than the general minimum rate of "laborer" for the various classifications of work therein listed.

All hours of work over 40 hours per week are overtime and will be compensated at the rate of 1 and ½ times the regular wage.

Trainees/helpers, where not otherwise specified above, may be compensated at a rate determined mutually by the worker and employer, commensurate with the experience and skill of the worker but a rate not less than 60% of the journeyman's wage or less than the Laborers (General) rate. At no time shall a journeyman supervise more than two of apprentices, trainees or helpers. All apprentices/trainees/helpers shall be under the direct supervision of a journeyman working as a crew.

ATTACHMENT "A"
PREVAILING WAGE DETERMINATION
HOUSTON-GALVESTON AREA

The University of Texas System
Office of Facilities Planning and Construction

Date: December 31, 2009
Construction Type: Building
Area: Houston-Galveston

| Building Construction Trade Classification | Prevailing Wage Rate (1) |
|---|---------------------------------|
| Carpenter | \$14.38 |
| Concrete Finisher | \$14.63 |
| Drywall/Ceiling Installer | \$14.00 |
| Electrician | \$16.00 |
| Elevator Mechanic | \$23.61 |
| Fire Proofing Installer | \$13.88 |
| Flooring Installer | \$13.63 |
| Glazier | \$9.00 |
| Heavy Equipment Operator | \$13.25 |
| Ironworker | \$17.00 |
| Laborer | \$10.00 |
| Light Equip Operator/Driver | \$13.88 |
| Mason/Bricklayer | \$18.00 |
| Painter | \$14.25 |
| Pipefitter | \$14.87 |
| Piping/Ductwork Insulator | \$15.00 |
| Plumber | \$18.06 |
| Roofer | \$11.00 |
| Sheetmetal Worker | \$17.75 |
| Sprinkler Fitter | \$15.40 |
| Tile Setter | \$13.50 |
| Waterproofer | \$13.63 |

- (1) Wages shown are for entry level, minimum wages for each classification and do not include fringe benefits**

Unlisted classifications needed for work not included within the scope of the classifications listed may not be added after award. The job classifications are not inclusive of all possible trades on the construction project.

It is the responsibility of the contractor to classify the worker in accordance with the published classifications, and demonstrate that workers are paid commensurate with determined rates.

THE UNIVERSITY OF TEXAS

MD Anderson
Cancer Center

Making Cancer History®

UTMDACC INSTITUTIONAL POLICY # ADM1131

**FACILITIES PLANNED UTILITY OUTAGES
POLICY**

PURPOSE

The purpose of the policy is to define roles and responsibilities for requesting, coordinating, scheduling, and executing Planned Utility Outages.

POLICY STATEMENT

It is the policy of The University of Texas MD Anderson Cancer Center (MD Anderson) to establish and maintain a consistent process for requesting, coordinating, and executing Planned Utility Outages.

SCOPE

This policy applies to all faculty, trainees/students, and other members of MD Anderson's workforce and addresses MD Anderson-owned campus utilities systems and Utility systems in rented or leased property under the responsibility of MD Anderson (e.g., life safety, fire alarm systems).

Compliance with this policy is the responsibility of all faculty, trainees/students, and other members of MD Anderson's workforce.

TARGET AUDIENCE

The target audience for this policy includes, but is not limited to, all faculty, trainees/students, and other members of MD Anderson's workforce, including Facilities Management (FM) Project Managers, FM Operations and Maintenance (O&M) Staff, Contractors, and Stakeholders who request a Scheduled Utility Outage for:

- New construction.
- Renovation.
- Maintenance.

DEFINITIONS

Business Day: First full day of outage starts the clock for the timeline.

Contractor/Vendor: An individual or company hired to perform tasks on MD Anderson campuses but who does not receive wages directly from MD Anderson payroll.

Customer: Any faculty member, trainee/student, or other member of MD Anderson's workforce or any Contractor who may be affected by the Utility outage.

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, thermal, or other energy.

Facilities Work Notification: A notification associated with Utility work or work in an area that customer operations will not be impacted by. Customers will notice fire alarm strobes and audible alarms.

FM Director: Facilities staff member responsible for managing a property/building and approving Utility outages affecting its operations, excluding fire detection and fire suppression outages.

FM Onsite Outage Manager: Facilities personnel responsible for managing the Planned Utility Outage execution. This person must be listed in the official outage e-mail notification.

FM Project Manager: Facilities personnel who manage construction/renovation projects.

FOC Outage Coordination Group: Facilities Management personnel responsible for guiding MD Anderson-approved personnel through the procedures outlined in this policy.

Hours of Operation: Outage coordinators will process Outage Requests from 6:30 a.m. - 3:30 p.m.

Large Project: A project that is estimated to have a significant number of outages during the course of the project.

Mission Area: Groups within Facilities Management that conducts technical investigations in clinical, research and administrative facilities spaces.

Outage Coordinator: Coordinates the FOC Outage Coordination Group.

Outage Request: A form that is used to collect pertinent information and to initiate the process for a planned/unplanned interruption of the normal/expected operation environment of the facility.

Outage Request System: A system that is used to collect and capture all data associated with the requisition and completion of a Planned/Unplanned Utility Outage.

Planned Utility Outage: A foreseen interruption of a Utility flow to an end user. Planned Utility Outages have a plan of action to accomplish specific tasks during the event and all parties have outlined end user affects.

Requestor: An MD Anderson workforce member or his/her approved designee who is authorized to input or generate Utility Outage Requests in the Utility outage system.

Scheduled Outage: An outage is considered "scheduled" whenever the outage coordinator sends the final e-mail notification of approval (e-mail includes the outage date/time and pertinent details).

Shop Response: An outage system document completed by the Technical Investigator that documents the impact and further defines the scope of the Utility outage.

Stakeholders: Facilities Management staff/clients/end users, including Contractors/Vendors, who have participated in the planning, implementation, and execution of a Utility outage or will be affected by the event.

Technical Investigator: A Facilities Management staff member who is responsible for investigating the impact of the Outage Request and preparing the Shop Response.

Unplanned Utility Outage: An unforeseen interruption that has occurred or is currently in progress relative to a Utility failure or building component breakdown. Unplanned outages are by nature urgent. There is no timeline compliance.

Utility: Any service provided by an outside source or manufactured in-house that facilitates building operations (e.g., gas, water, electricity, fire suppression water, fire alarm systems).

Work Notification: An Outage Request that is downgraded that should not affect end users. Work Notifications could also function as a form of communication to inform end users and O&M of work going on in their areas.

PROCEDURE

1.0 Request Outage

- 1.1 The Requestor will submit a completed Outage Request form through the Outage Request System.

Note: Refer to the [Appendix A - Summary of Outage Schedule Procedure Timeline](#) for typical timelines for executing outages in all MD Anderson buildings based on the scope of the outage, as determined by the request description (initial level) and Shop Response (final level).

- 1.2 The Outage Coordinator will accept an Outage Request Form and ensure that it is forwarded to a Technical Investigator.

Note: A returned/rejected Outage Request Form must be re-submitted.

- 1.3 Mission Areas must generate a work order in the computerized maintenance management system (CMMS) and indicate "outage" as the Work Type, along with the most appropriate Asset Number for the associated equipment involved in the outage.

Note: Time and expenses must be assigned, as appropriate, to the work order.

- 1.4 Outage Requests received after 3:00 p.m. will be processed the next Business Day.
- 1.5 All unplanned outages must be captured in the outage database and have an associated work order.
- 1.6 All floor plans and drawings should be attached by Requestor if traffic flows are affected. Drawing will be required for Interim Life Safety Measures (ILSM) investigations.

2.0 Evaluate Outage

- 2.1 The Technical Investigator will determine the scope and impact of the Outage Request and make note if another craft / Shop Response is required for the outage in the Shop Response form.
- 2.2 The Technical Investigator will review historical outages for the affected equipment before the field investigation and will validate current conditions.
- 2.3 The Technical Investigator will complete and submit the Shop Response in the Outage Request System.

- 2.4 Environmental Health and Safety (EH&S) will review and respond to all Outage Requests that may impact life safety systems (e.g., sprinkler, fire alarm, egress paths) and perform an ILSM evaluation.
- 2.5 The Outage Coordinator will perform an initial review for the terms "fire," "emergency," "egress," and "life safety systems." If any of these terms are present, the Outage Request will be forwarded to EH&S. The final ILSM assessment and plan will be determined by EH&S.
- 2.6 Project management is encouraged to provide dedicated contract staff for Large Projects to investigate (e.g., Shop Responses) to expedite outages.
- 2.7 Work Notifications will be handled as follows:
- A. The Outage Request will be turned into a Work Notification if the potential for impact to stakeholders or building tenants is non-existent.
 - B. The mission area's Technical Investigator will complete an assessment of impacts on the Customer and building before indicating "No Impact" as a response to the Outage Coordinator.
 - C. If the Work Notification requires an interruption of Utility service, an outage will be implemented, per the proper procedure, to reduce risk to the Stakeholders and operations.

Examples of Utility Work Notifications include but are not limited to:

- Hot Taps (e.g., domestic water).
 - Turning off Energy Source to equipment that is not in service.
 - "Hot" Electrical Work (e.g., installing breakers or bus plugs in a hot panel or riser).
 - Utilities that have redundant sources (e.g., domestic water tanks, pumps, heat exchangers).
 - Testing of systems (e.g., fire detection systems, fire pump tests, fire alarm function testing).
 - Load shed testing.
 - Uninterrupted Power Supply (UPS) and equipment on UPS.
 - Corridors.
 - Driveways.
- 2.8 The Shop Response must include the possible impact description as well as a timeframe for restoration of Utility or work area. End users and O&M must be made aware of the possible impact in case of failure of redundant system/equipment. End user(s) and O&M must have some say of the date and time it may take place.
- 2.9 Lockout/tag-out and/or live work must be indicated in a check box on the Shop Response form.

3.0 Coordinate Outage

3.1 The Outage Coordinator will review the Shop Response(s) and establish the final level of the outage as well as the date and time for the outage after communicating and coordinating with the personnel impacted by the outage and consulting with group requesting the outage.

3.2 The Outage Coordinator will obtain approval from the FM Property Manager / Director for the final scheduled date and time of the outage.

Note: EH&S will approve fire alarms and fire sprinkler systems.

3.3 The Outage Coordinator will send the final Facility Outage Notification via e-mail of the approved outage to Stakeholders and Customers.

Note: This Facility Outage Notification e-mail makes the outage an officially Scheduled Utility Outage. The FM Onsite Outage Manager and their one up, FM PM and Contractor PM must be listed with proper contact information if applicable.

3.4 The Requestor will notify Contractors/Vendors when the outage schedule is official and will provide them with all the pertinent information.

For a complex outage, it is recommended that the Requestor and Contractor do a pre-outage walk-through to confirm that the outage will occur as scheduled.

3.5 The Outage Coordinator(s), Mission Area, and Stakeholders will meet, as needed, to discuss outages, review requested and Scheduled Utility Outages, and review the status of all Shop Response requests.

3.6 The Outage Coordinator schedules and executes a Planned Utility Outage.

3.7 FM and/or designated Contractor personnel will execute the outage.

3.8 The FM Director, and/or his/her designee, will approve the cancellation of the outage prior to the execution of the outage or the extension of the outage if appropriate.

3.9 The FM Onsite Outage Manager will notify the Facility Operations Center (FOC) (Monitoring Services) via radio or e-mail if the work has been completed.

3.10 The FOC or the Outage Coordinator will notify Stakeholders if an outage has been cancelled or extended.

3.11 The FOC will log completed and cancelled outages in the Outage Request system.

3.12 Outage coordinator will schedule outage only after all EH&S actions are completed. See Utility Outage Process Flow.

3.13 Fire and life Safety outages:

ILSM Shop Responses will not be required if the words "commission," "inspection," or "testing" are part of the description in the Outage Request. A new ILSM Shop Response will be required if the date and or time changes for the outage.

3.14 Pre-construction meetings should be held with O&M and Outage Coordination ASAP to assure that any predetermined outages list be communicated so that these outages may fall within Outage Scheduling Procedure Timeline.

3.15 A project event that affects Facility operations or an event that was not forecasted but still must be completed immediately to keep the project moving towards completion requires an

Outage Request. Some of these outages may be requested on short notice, but will be tracked and reflected in the monthly metrics report. (See [Appendix A - Summary of Outage Schedule Procedure Timeline](#).)

4.0 Cancellations

4.1 If situations require the outage to be cancelled or rescheduled, the FM Project Manager / FM Director / FM on-site manager and/or their designee are responsible for cancelling an outage after it has been approved and before it is executed.

4.2 The FOC and Outage Coordinators will communicate cancellations as follows:

A. During normal Hours of Operation:

Outage Coordinator issues a cancellation notice under the direction of the FM Project Manager / FM Director or on-site manager one-up.

B. After normal Hours of Operation:

The FOC issues a cancellation notice under the direction of the FM Project Manager / FM Director / on-site manager one up.

Note: If outage is executed by a Contractor and the PM is not available, the Contractor should call the FOC with the outage number so the FOC may contact the affected parties.

C. All Stakeholders will be notified of the cancellation.

4.3 Reasons for cancellations:

A. Outage scope of work change after request has been submitted.

B. Incorrect information found on the original request. Location/Utility etc.

C. Operational need to cancel the outage.

D. Date or time change.

E. Weather.

Outage cancellation approval must be given by a one-up staff member, so the loss of time and preparation are considered for each outage.

4.4 ILSM-related Outages:

If a change in scope, date, time, Contractor, etc. is needed before the outage notification is e-mailed, the Outage Coordinator:

A. In the existing software:

- Makes changes to existing outage.
- Informs all who submitted Shop Response of the changes and asks if their Shop Response is still valid.
- Requests new ILSM (24-hour turn around).

B. In new software:

- Cancels existing outage.
- Informs all who submitted Shop Responses and asks if existing Shop Response is still valid. If so, copies and pastes form old outage to new outage. If not, requests new Shop Responses.
- Notifies FLSPM of original ILSM and requests new ILSM (24-hour turn around).

If a change in scope, date, time, Contractor, etc. is needed after the outage notification is e-mailed and:

C. Change was made by Contractor (e.g., no show, late, wrong equipment):

The outage is cancelled, and a new outage must be requested according to policy timeframes as related to outage complexity.

D. Change was made by MDACC personnel (e.g., O&M unavailable due to emergency):

The outage is cancelled, and a new outage must be requested with a three-day turnaround time.

4.5 Outage extensions:

Outage extensions must be verbally communicated to the FOC/Outage coordinators by the appropriate mission area or department authorized outage approver. The FOC/Outage coordinators will then notify all groups associated with this outage (via e-mail).

5.0 Unplanned Utility Outages

5.1 Requests and Shop Responses are requested immediately or soon after (when appropriate).

5.2 Life safety measures must be considered very early in this process, as soon as the FOC/Outage coordinators are contacted, so that they can send out an official notification to building tenants and EH&S for ILSM.

5.3 All unplanned outages must have a work order associated with them. Samples of unplanned outages include, but are not limited to:

- A. A city-related Utility failure that affects MDACC facility(ies).
- B. An unforeseen equipment failure that affects one or more building systems.

ATTACHMENTS/LINKS

[Appendix A - Summary of Outage Schedule Procedure Timeline \(Attachment # ATT1769\).](#)

[Utility Outage Process Flow.](#)

RELATED POLICIES

[Interim Life Safety Measures Policy \(UTMDACC Institutional Policy # ADM0210\).](#)

[Lockout/Tagout of Energized Equipment Policy \(UTMDACC Institutional Policy # ADM0229\).](#)

JOINT COMMISSION STANDARDS / NATIONAL PATIENT SAFETY GOALS

EC.02.05.01;

"The hospital manages risks associated with Utility systems." *Comprehensive Accreditation Manual for Hospitals (CAMH)*, 2015.

LS.01.02.01;

The hospital protects occupants during periods when the Life Safety Code is not met or during periods of construction." *Comprehensive Accreditation Manual for Hospitals (CAMH)*, 2015.

OTHER RELATED ACCREDITATION / REGULATORY STANDARDS

None.

REFERENCES

None.

POLICY APPROVAL

Approved With Revisions Date: 12/01/2015

Approved Without Revisions Date:

Implementation Date: 12/01/2015

Version: 12.0

RESPONSIBLE DEPARTMENT(S)

Environmental Health & Safety

Appendix A

SUMMARY OF OUTAGE SCHEDULING PROCEDURE TIMELINE

REF, PCPF, AFCO, FPDC, IT/Telecomm

This document illustrates a summary of the flow of action and a *typical* timeframe for executing outages in buildings with critical research, patient care, or administrative functions based on the level and scope of the outage.

| | | | | | |
|--|--|--|---------------------------------|---------|---------|
| 1. Request Outage → 2. Evaluate Outage → 3. Coordinate Outage → 4. Schedule and Execute Outage → Complete Post Outage Activities | | | | | |
| Level 1 – Impacts ranging from “No effects to normal operations”, to less than one-half of a building floor. Level 2 – Impacts ranging from one-half of a building floor to less than one-half of a building. Level 3 – Impacts ranging from one-half of a building, up to an entire / multiple buildings. | | | LEVEL 1 | LEVEL 2 | LEVEL 3 |
| Step 1. REQUEST OUTAGE | | WHO TAKES ACTION | BUSINESS DAYS FOR MOST OUTAGES. | | |
| Complete, submit Utilities Outage Shutdown request. | | Requestor | 0 | 0 | 0 |
| Accept outage, or return outage to requestor. | | AFCO Outage Coordinator | 1 | 1 | 1 |
| Step 2. EVALUATE OUTAGE: Multiple crafts and possibly multiple Departments. | | | | | |
| Complete shop response. The shop response is used by the outage coordinator to determine the scope of outage impact. | | Technical Investigator #1 | 2 | 3 | 5 |
| Complete shop response. The shop response is used by the outage coordinator to determine the scope of outage impact. | | Technical Investigator # 2 | 1 | 2 | 4 |
| Complete shop response ILSM. The shop response is used by the outage coordinator to determine the scope of outage impact. | | | 1 | 2 | 2 |
| Complete shop response by the IT Information Technology. The shop response is used by the outage coordinator to determine the scope of outage impact. | | | 1 | 2 | 2 |
| Assign outage level based on the outage impact as determined in the shop response. | | AFCO Outage Coordinator | 0 | 0 | 0 |
| Step 3. COORDINATE OUTAGE | | | | | |
| Determine preliminary outage scheduled date using shop response and negotiate preliminary outage date with key stakeholders. | | AFCO Outage Coordinator | 3 | 2 | 3 |
| Additional time may be required to: 1) obtain a consensus from key stakeholders who do not agree with requested outage date; 2) escalate to the FM property manager / director and/or FM AVP; and 3) receive final approval from FM property manager / director. | | | | | |
| Step 4. SCHEDULE AND EXECUTE OUTAGE | | | | | |
| Notify all impacted personnel of approved outages via email with lead time for preparation of the outage. Conduct walk through of impacted area within 48 hours of outage, if feasible. Execute the outage. | | AFCO Outage Coordinator, Requestor, Contractor or FM Onsite Outage Manager | 1 | 3 | 3 |
| ELAPSED BUSINESS DAYS for STEP 1 - REQUEST OUTAGE TO STEP 4 - SCHEDULE AND EXECUTION UTILITY OUTAGE. Note: See step # 3 as additional time may be required if key stakeholders require a 7-10 day notice if their area is affected. | | | 10 | 15 | 20 |
| COMPLETE POST OUTAGE ACTIVITIES | | | | | |
| * Monitoring Services is notified about early, extended, cancelled and/or completed outages by FM onsite manager. * Monitoring Services notifies via email all impacted customers and key stakeholders about early, extended, and/or cancelled outages. * Monitoring Services updates shift log with outage complete after FM onsite manager notifies FOC-Monitoring Services. | | FM Onsite Outage Manager, Monitoring Services | | | |

SECTION 01 31 00 - PROJECT ADMINISTRATION

PART 1 - GENERAL

1.1. RELATED DOCUMENTS

- 1.1.1. The Contractor's attention is specifically directed, but not limited, to the Uniform General Conditions for University of Texas System Building Construction Contracts (UGC) for other requirements.

1.2. SUMMARY

- 1.2.1. This Section provides Project administrative and procedural requirements for the Contractor to supplement requirements defined in the UGC.

1.3. DEFINITIONS

- 1.3.1. Refer to the UGC for Contract definitions used throughout the Contract Documents.

1.4. SUBCONTRACTS

- 1.4.1. Refer to the UGC for requirements not identified in this Section. Contractor shall furnish to the Owner a list of all first tier subcontractors to the Owner as subcontracts are executed.

1.5. PREVAILING WAGE RATE

- 1.5.1. The Contractor must comply with all aspects of the UGC. Contractor shall require all workers to complete a "Worker Wage Rate Notification Form" before starting Work on the Project. The Contractor shall maintain certified payrolls, for the Contractor and all subcontractors, at the jobsite throughout construction.
- 1.5.2. The Owner's Project Manager may verify wage rate compliance in the field by interviewing workers, or otherwise. The Contractor shall assist the Owner's Project Manager with verification of wage rate compliance, including provisions for non-English speaking workers.

1.6. FLOW OF COMMUNICATIONS

- 1.6.1. Refer to the UGC for requirements not identified in this Section.
- 1.6.2. The Architect/Engineer is responsible for document control and general Project administration and is the key contact for written communications. The Owner's written instructions to the Contractor will generally be issued through the Architect/Engineer. On Design/Build projects, the construction management staff may provide this service if approved by the Owner.
- 1.6.3. All subcontractor correspondence shall be routed through the Contractor. All written Contractor correspondence shall be directed to the Architect/Engineer, with simultaneous copies to the Owner's Project Manager and Owner's Construction Inspector. The actual parties for this Project will be confirmed at the Pre-Construction Conference.
- 1.6.4. The Owner's Project Manager and the Owner's Construction Inspector are the Owner's primary representatives for the Project. The Owner's Construction Inspector is the key contact for verbal communications and Site issue coordination.

1.6.5. The Owner's Project Manager and the Owner's Construction Inspector are the only parties authorized to direct changes in the Work, and issue written and/or oral instructions directly to the Contractor.

1.6.5.1. All verbal instructions must be issued by the Owner's Construction Inspector and/or the Owner's Project Manager, or in their presence, and shall be promptly confirmed in writing by the Contractor. Any verbal instructions or discussions with subcontractors in the absence of the Contractor are not contractual and are not binding on either party.

1.6.6. Per the UGC, the Architect/Engineer may issue clarification and other information not affecting the Contract cost or time by means of an Architect/Engineer's Supplemental Instruction form, (ASI), or similar clarification form, which will be sequentially numbered. Both the Architect/Engineer and the Contractor shall maintain a separate ASI register.

1.6.7. All subcontractor Requests for Information (RFI) shall be submitted by and under cover of the Contractor, who is to carefully review and ensure the completeness and appropriateness of the question, sequentially number each, and submit to the Architect/Engineer with copies to the Owner's Project Manager and Owner's Construction Inspector. The Contractor and Architect/Engineer may maintain separate RFI logs.

1.6.8. All Project correspondence shall include the University of Texas MD Anderson Cancer Center (MD Anderson) Project Number and Project Name in the title or reference.

1.6.9. Contractor shall process Application for Payments, Requests for Information, Changes, and Submittals as shown in the Owner's Pre-Construction Brochure.

1.7. CHANGED CONDITIONS

1.7.1. Refer to the UGC for requirements not identified in this Section. If the Contractor finds conditions at the Site to be materially different from that indicated in the Contract Documents, Contractor shall notify the Architect/Engineer, the Owner's Construction Inspector, and the Owner's Project Manager immediately in writing and prior to disturbing such conditions.

1.8. PROJECT CHANGES

1.8.1. All changes shall be administered per the UGC.

1.8.2. Upon authorization by the Owner, the Owner or Architect/Engineer will prepare and issue all changes to the Contract affecting cost, scope and/or time as a formal Change Order to the Contract on the standard University of Texas MD Anderson Cancer Center Change Order form. The Change Order may include separate change issues, identified as Change Proposals and field orders.

1.8.3. Upon authorization by the Owner, Change Proposals may be issued to the Architect/Engineer for pricing by the Contractor. Contractor shall submit pricing to the Owner within twenty-one (21) days and pricing shall be indicated on the standard Owner "Change in Work Cost Analysis" ("Cost Analysis") form provided in the Pre-Construction Conference Brochure. Contractor may not include a Change Proposal within a Change Order unless the Owner has accepted the Change Proposal.

1.8.3.1. The Contractor shall summarize all costs for each change at each level of subcontractor and supplier by preparing the "Cost Analysis" form, and shall provide each subcontractor's cost summary on separate "Cost Analysis" forms as backup. Additional support documentation from both the Contractor and Contractor's subcontractors is encouraged, but such will not replace use of the standard form.

1.8.3.2. When the Contractor believes it is entitled to a time extension, Contractor shall so state as part of Contractor's response to the Change Proposal, including a justification for a time extension. Owner may grant time extensions only if a Change Proposal affects the activities on the Longest Path of an Owner approved Work Progress Schedule; i.e., when the Work impacts the "Contract Substantial Completion Date".

1.8.3.3. If the Owner's Project Manager and Contractor cannot mutually agree upon a fair and reasonable cost and time settlement, the Owner's Project Manager may: 1) Reject the quotation and void the Change Proposal, 2) Issue instructions 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.

1.8.3.4. The Owner's Construction Inspector and/or Owner's Project Manager may issue field orders directly to the Contractor for minor changes to the Contract, which can be negotiated in the field. Pricing backup is at the discretion of the Owner's Construction Inspector, but pricing backup is required for any field order, the pricing backup is to be outlined on the "Cost Analysis" form. When the Owner and Contractor have signed the field order, the Work is authorized and the field order may be included in the next Change Order.

1.8.4. Request for payment for Change Order work may be submitted only after the Change Order has been fully executed.

1.9. CLAIMS FOR ADDITIONAL COST

1.9.1. Contractor shall timely and officially certify all claims for additional cost and shall specifically comply with all provisions of the UGC to be considered valid. Note that only the Contractor can make a claim for additional cost under the terms of the Contract Documents.

1.10. LIQUIDATED DAMAGES

1.10.1. If assessed, Owner may withhold liquidated damages from progress payments beginning with the first payment after the adjusted Contract completion date and continuing through any subsequent progress payments until all Work of the Contract is complete. Owner may assess liquidated damages by deducting the liquidated damages from the Contract price or Guaranteed Maximum Price (GMP) Proposal through a unilaterally written deductive Change Order.

1.11. SITE USE ISSUES

1.11.1. Refer to the UGC and to Owner's Special Conditions for site use requirements not identified in this Section. The Contractor shall manage, coordinate, and direct the Work from the Site.

1.11.2. The Contractor is responsible for actions of the entire workforce whenever the workforce is at the Site, or passing through campus to the Site. Harassment of any kind toward any person will not be tolerated; offending workers will be removed from the Project immediately and permanently.

1.11.3. The Contractor shall provide and submit a program plan for worker orientation, identification of workers, and control of access to the Site. Any and all workers on the Project shall participate in this program before beginning Work on the Project. The program plan shall include, as a minimum:

- 1.11.3.1. An overview of the Contractor's plan for instruction of Site rules and regulations to all employees who participate on the Project, including but not limited to safety, restricted use of Owner's facilities, parking conduct/behavior, dress, sanitary facilities, security, etc.
- 1.11.3.2. Employee identification badges with a photograph of the employee, the employer, and employee's 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 Site. Lack of an authorized identification badge shall be grounds for removal from the Site.
- 1.11.3.3. A detailed written plan indicating how the Contractor proposes to control pedestrian and vehicular traffic into and out of the Site. Contractor shall provide a separate plan for normal working hours, nights, after normal hours, weekends, holidays, etc. This plan may be incorporated into the Contractor's staging plan.

1.12. HISTORICALLY UNDERUTILIZED BUSINESS (HUB) PLAN

- 1.12.1. Refer to the UGC and Exhibit H of the Agreement for HUB requirements not identified in this Section.
- 1.12.2. The Contractor agrees to the Good Faith Effort procurement of historically underutilized businesses in accordance with the Historically Underutilized Business Plan (HUB) included in the Contract.
- 1.12.3. No subcontractor may be changed or added without the Owner's written consent.

PART 2 - PRODUCTS

2.1 SCHEDULING REQUIREMENTS

- 2.1.1 Refer to the UGC and Section 01 32 00 – Project Planning and Scheduling for detailed scheduling requirements not identified in this Section.

2.2 SHOP DRAWINGS AND SUBMITTALS

- 2.2.1 Refer to the UGC for requirements not identified in this Section.
- 2.2.2 Submittal Procedures: Contractor shall transmit each item using Owner's standard format. Contractor shall identify the project by Owner's assigned project number, Contractor, Subcontractor and supplier. Contractor shall identify pertinent drawing sheet and detail number and specification section number as appropriate. Contractor shall transmit submittals to Owner and Architect/Engineer as determined in the Pre-Construction Conference.
- 2.2.3 The Contractor shall include a Material Safety Data Sheet (MSDS) for any and all materials incorporated into the Project. Attach one (1) copy of the MSDS to the submittal and keep one copy in a file of MSDS's for all materials at the Site. Contractor shall organize the file by the appropriate technical specification section.
- 2.2.4 If Owner does not assign a submittal tracking number through Owner's internet-based project management system, Contractor shall assign a tracking number to each submittal following a format to be established at the Pre-Construction Conference. The same tracking number with a numerical or alphabetical suffix will be used to identify re-submittals.
- 2.2.5 Submittal Product Data: Contractor shall collect and organize manufacturer's product data into a single submittal for each element of construction or system. Contractor shall include

printed product data such as manufacturer's installation instructions, compliance with recognized trade association standards and testing agency standards, catalog data sheets, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where product data must be specially prepared because standard printed data is not suitable for use, Contractor shall submit as Shop Drawings.

2.2.6 Shop Drawings: Contractor shall submit newly prepared information that is drawn to accurate scale. Contractor shall highlight, encircle, or otherwise indicate deviations from the Contract Documents. Contractor shall not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is acceptable as Shop Drawings.

2.2.6.1 Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Contractor shall include at least the following information:

2.2.6.1.1 Dimensions.

2.2.6.1.2 Equipment service access area.

2.2.6.1.3 Identification of products and materials included.

2.2.6.1.4 Compliance with specified standards.

2.2.6.1.5 Notation of coordination requirements.

2.2.6.1.6 Notation of dimensions established by field measurement.

2.2.7 The burden of timeliness to complete the submittal process is on the Contractor. The Contractor shall allow sufficient time within the Work Progress Schedule for the Architect/Engineer and Owner to review all submittals, including time for all re-submittals on any unaccepted/rejected submittals, as identified in the UGC.

2.2.8 The Contractor shall carefully examine all data submitted for approval and shall certify that the data has been carefully reviewed and found to be correct with respect to the Contract Documents.

2.2.8.1 Any deviation from the Contract Documents and the reason for the deviation shall be conspicuously noted on the submittal and the transmittal cover sheet. Contractor's failure to conspicuously note deviations and the reason for the deviation will void any action taken on the submittal.

2.2.8.2 All manufacturer's 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.

2.2.8.3 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, operation, and maintenance.

2.2.8.4 Should the Architect/Engineer, on initiating Architect/Engineer's review, find the submittal unstamped or uncertified, non-responsive and/or incomplete, Architect/Engineer shall return the submittal to the Contractor immediately. Such returned documents will not be recognized as having been an official submittal.

2.2.9 The Owner will not be responsible for payment of any item that has not been submitted and approved through the established submittal process.

2.2.10 The Contractor should anticipate transmitting submittals electronically to Owner and Architect/Engineer. Owner's internet-based project management system may be used for transmitting submittals; confirm with Owner's Project Manager. Paper hardcopies of submittals may be required; the exact number of paper hardcopies for distribution will be determined at the Pre-Construction Conference. Refer to Section 01 77 00 – Project Close-out Procedures for submission of approved submittals at Project close-out.

2.2.11 Samples: As required by individual Sections of the Contract Documents, Contractor shall submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples shall include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.

2.2.11.1 Contractor shall mount, display, or package Samples in the manner specified to facilitate review by Owner and Architect/Engineer. Contractor shall prepare samples to match the Architect/Engineer's Sample, which shall include at least the following information:

2.2.11.1.1 Generic description of the Sample.

2.2.11.1.2 Sample source.

2.2.11.1.3 Product name or name of manufacturer.

2.2.11.1.4 Compliance with recognized standards.

2.2.11.1.5 Availability and delivery time.

2.2.11.2 Contractor shall submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual product delivered and installed.

2.2.11.3 When variation in color, pattern, texture or other characteristics are inherent in the material or product represented, Contractor shall submit no less than three (3) multiple units that show approximate limits of the variations.

2.2.12 Refer to individual Technical Specification Sections for additional submittal requirements.

2.3 SUBSTITUTION PROCEDURES

2.3.1 Refer to the UGC for requirements not identified in this Section.

2.3.2 The specified products used in preparing the Contract Documents establish minimum qualities. Substitutions must be at least equal to the minimum qualities for consideration by Owner as an acceptable substitution. The burden of proof of equality rests with the Contractor. The Owner retains sole authority for acceptance of substitutions.

2.3.3 Contractor shall submit all substitution requests within sixty (60) days of the Notice to Proceed for Construction and shall allow a minimum of twenty-one (21) days for review of each substitution by the Architect/Engineer and Owner in addition to the requirements identified in Section 2.2 above. Contractor is solely responsible for allowing sufficient time for substitutions to be considered without affecting Contract Time.

2.3.4 Substitution requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution, including drawings, performance and test data, and other information necessary for an evaluation.

Documentation for substitution requests shall show compliance with the following, as applicable:

- 2.3.4.1 Statement indicating why specified product or fabrication or installation cannot be provided,
 - 2.3.4.2 Coordination information, including a list of changes or modifications needed to other parts of the Work that will be necessary to accommodate proposed substitution.
 - 2.3.4.3 Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - 2.3.4.4 Product data, including drawings and descriptions of products and fabrication and installation procedures.
 - 2.3.4.5 Samples, where applicable or requested. Owner may require Contractor to provide Samples of both the specified item and the proposed item for comparison.
 - 2.3.4.6 Certificates and qualification data, where applicable or requested.
 - 2.3.4.7 List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - 2.3.4.8 Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - 2.3.4.9 Cost information, including a proposal of change, if any, in the Contract Sum.
 - 2.3.4.10 Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in the substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - 2.3.4.11 Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
- 2.3.5 Owner may base acceptance of materials and equipment on the supplier and/or manufacturer's published data and may be provisional subject to the submission of complete shop drawings and/or specifications indicating compliance with the Contract Documents. Owner's acceptance of materials and/or equipment under this provision shall not be construed as authorizing any deviation from the Contract Documents, unless specifically directed in writing from the Owner and/or Architect/Engineer.
- 2.3.5.1 Contractor shall be solely responsible for all additional costs resulting from the review of any substitution. Additional costs include direct and indirect costs that are not presented at the time of the substitution request and costs that become known after the review and approval of the substitution.
- 2.3.6 Should the Owner accept a substitution and should the substitute prove defective or otherwise unsatisfactory for the service intended within the guarantee period, Contractor shall replace the substitute with the material or equipment specified in the Contract Documents at no additional cost to the Owner.

2.4 INITIAL APPLICATION FOR PROGRESS PAYMENT

- 2.4.1 Refer to the UGC and Section 01 32 00 – Project Planning and Scheduling for requirements not identified in this Section.
- 2.4.2 The Contractor may submit a request for a progress payment once per month. Such request shall be presented on the University of Texas MD Anderson Cancer Center Application for Payment and Schedule of Values (refer to Attachment No. 1 and No. 2) forms supplemented by columnar continuation sheets, which represent updates to the original Contract price or GMP Schedule of Values.
- 2.4.3 The Contractor shall keep Project accounting records 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 Application for Payment period.
- 2.4.4 Prior to the submission of the first Application for Payment and within twenty-one (21) days of issuance of the Notice to Proceed with Construction, the Contractor shall submit the following documents to the Architect/Engineer, Owner's Project Manager, and Owner's Construction Inspector for review, using the Owner's Standard Schedule of Values format.
 - 2.4.4.1 Contract Price or GMP Schedule of Values: Contractor shall submit a single document itemizing the breakdown of the Contract price or GMP, including general conditions, contingencies and allowances using the Owner Standard Schedule of Values format. The Contractor shall submit a draft breakdown at least twenty-one (21) days prior to the initial Application for Payment and such submittal shall be a condition precedent to the processing of the first payment application. The Contractor shall submit subsequent draft copies of the Schedule of Values at least seven (7) days prior to formal submission of each monthly payment.
 - 2.4.4.1.1 The Schedule of Values breakdown shall follow the trade divisions of the specifications and shall be itemized by submittal, floor, area, elevation or other building systems, as a minimum. The breakdown shall include a labor and material breakdown for each line item and be of such detail as may be required by the Owner and/or Architect/Engineer, but in general shall limit each line item to less than \$100,000.
 - 2.4.4.1.2 Commissioning activities shall be identified as a line item on the Schedule of Values in sufficient detail to allow for Owner's monthly review of progress.
 - 2.4.4.1.3 No adjustment to the original detailed breakdown of a Contract line item shall be made once accepted by the Owner and Architect/Engineer. Once accepted, the breakdown will form the basis for all periodic payments.
 - 2.4.4.1.4 Contracts with Construction Manager-at-Risk or Design-Build Agreements may adjust the detailed breakdown of a General Conditions line item if the total amount for a General Conditions line item exceeds one hundred percent (100%). A corresponding amount shall be deducted from another General Condition line item(s) or the Construction Phase Fee to pay for the General Conditions' line item overage.
 - 2.4.4.1.5 Contractor shall not use subcontractor invoices/pay applications in lieu of a single Schedule of Values from the Contractor.
 - 2.4.4.1.6 The breakdown shall anticipate future Change Orders and make provisions for incorporating all changes into the Schedule of Values 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 as required by this section.

- 2.4.4.1.6.1 Payments shall not be made for work contained in unexecuted Change Orders.
- 2.4.4.1.7 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.
- 2.4.4.2 Work Progress Schedule: Refer to Section 01 32 00 – Project Planning and Scheduling for all Work Progress Schedule requirements.
- 2.4.4.3 Submittal Register: Contractor shall provide the Owner and Architect/Engineer with a Submittal Register of all items requiring submittal review showing the items' anticipated submission dates and late finish dates for completion of the review process. The Submittal Register shall be incorporated with the Work Progress Schedule, and each shall be updated monthly and submitted to the Architect/Engineer and Owner with each Application for Payment.
- 2.4.4.4 Equipment Matrix: Section 01 91 00 – General Commissioning Requirements requires a matrix of all operable devices and building system components be submitted to the Owner. This matrix may be incorporated into equipment documentation required in Operating and Maintenance Manuals as indicated in Section 01 77 00 – Project Closeout Procedures.
- 2.4.4.5 The Contractor is encouraged to integrate these documents to the extent practical to avoid duplication, both in initial setup and ongoing updates to each.
- 2.4.5 When the Owner and Contractor agree to the Schedule of Values line item amounts, the Contractor shall submit four (4) copies of the formal Application for Payment to the Architect/Engineer, utilizing the University of Texas MD Anderson Cancer Center form, with original signatures of an officer of the contracting firm and original notarization. The Contractor shall furnish a certificate designating a person(s) who has authority to sign pay applications on behalf of the firm if such is not an officer of the firm.
 - 2.4.5.1 The Contractor shall provide attachments to each month's payment request per the UGC. Contractor should verify the number of copies of each attachment with Owner prior to submission.
 - 2.4.5.1.1 Monthly HUB Progress Assessment report (Attachment H to Exhibit H).
 - 2.4.5.1.2 Updated Submittal Register.
 - 2.4.5.1.3 Application for Payments required by the Contract.
 - 2.4.5.1.4 Wage rate notification form for each member of the workforce not previously submitted.
 - 2.4.5.1.5 Updated Work Progress Schedule as specified in Section 01 32 00 – Project Planning and Scheduling.
 - 2.4.5.1.6 Documentation of partial Release of Liens and Claims in accordance with the value of the monthly Application for Payment.
 - 2.4.5.1.7 Confirmation that Contractor has maintained and updated the Record Documents kept at the Site.
- 2.4.6 The formal monthly Application for Payments shall be first certified by the Architect/Engineer and then submitted to the Owner's Project Manager for signature and

processing. The Contractor may expect receipt of payment within thirty (30) days after the Owner's Project Manager receives the formal Application for Payment.

2.5 MONTHLY APPLICATION FOR PROGRESS PAYMENTS

- 2.5.1 Refer to the UGC and Section 01 77 00 – Project Closeout Procedures, for requirements not identified in this Section.
- 2.5.2 For regular monthly Applications for Payment, the Contractor shall submit for review and approval a draft payment request to the Owner's Project Manager and the Architect/Engineer no less than seven (7) days prior to formal submission. The Contractor shall be prepared to review the draft copy with the Owner and the Architect/Engineer. Failure to comply with the requirements outlined in Section 2.4 above shall relieve the Owner from Owner's obligation to make payments on any and all line items until the Contractor meets all requirements.
 - 2.5.2.1 Payments cannot exceed the Contract, work in-place, or subcontract amounts as depicted on Schedule of Values line items.
 - 2.5.2.2 Retainage shall not be used to cover Punchlist items.
- 2.5.3 Requests for payments in association with release of, or reduction in, retainage or completion of Work have additional requirements as outlined in the UGC and Section 01 77 00 – Project Closeout Procedures.

2.6 PROCUREMENT OF SUBCONTRACTS – CM-R AND DB AGREEMENTS ONLY

- 2.6.1 The Construction Manager-at-Risk (CM-R) or Design-Build Contractor (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 (20) days prior to the first advertisement for proposals. The B/PPS shall be a written plan submitted to and reviewed by the Owner and the Architect/Engineer.
 - 2.6.1.1 The plan shall identify bid packages that are most advantageous to the Project and align with the CM-R/DB's HUB Good Faith Effort (Exhibit H) by providing at least three (3) qualified respondents (including the CM-R/DB). Each bid package shall include the UGC, Owner's Special Conditions, the Owner's Division 1 Specifications, Drawings and Specifications and any other Owner requirements included in the CM-R/DB Agreement pertaining to the scope of work covered in the packages.
 - 2.6.1.2 The B/PPS shall conspicuously identify any and all work that the CM-R/DB will submit a bid/proposal for, but will not perform with CM-R/DB's own forces (i.e. subcontract to someone else if determined to be "best value").
 - 2.6.1.3 The B/PPS shall include the following for each bid package contemplated:
 - 2.6.1.3.1 Anticipated scope of work to be procured.
 - 2.6.1.3.2 Anticipated selection criteria and questions.
 - 2.6.1.3.3 Self-perform work proposals to be submitted by the CM-R/DB.
 - 2.6.1.3.4 Proposed advertising dates.
 - 2.6.1.3.5 Proposed pre-proposal/HUB/ROCIP meetings.

- 2.6.1.3.6 Proposed Receipt, review and award dates.
- 2.6.1.3.7 Anticipated notice to proceed dates.
- 2.6.1.4 The CM-R/DB shall update the B/PPS monthly as a minimum or whenever conditions change or proposed dates are revised.
- 2.6.2 For CM-R contracts, Texas Education Code 51.782 mandates: "A construction manager-at-risk shall publicly advertise, in the manner prescribed by the institution, and receive bids or proposals from trade contractors or subcontractors for the performance of all major elements of the work other than general conditions work. A construction manager-at-risk may seek to perform major elements of the work itself if the construction manager-at-risk submits its bid or proposal for that work in the same manner as all other trade contractors or subcontractors and if the board determines that the construction manager-at-risk's bid or proposal provides the best value for the institution."
- 2.6.3 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-R/DB, with Owner approval, for procurement of work:
 - 2.6.3.1 Less than \$15,000.00: No requirements
 - 2.6.3.2 Between \$15,000.01 and \$50,000.00: Obtain three (3) informal proposals
 - 2.6.3.3 Greater than \$50,000.00: Advertised competitive proposals
- 2.6.4 This specification does not pertain to Change Orders to existing subcontracts.
- 2.6.5 Work may be divided into reasonable lots; however, material or labor acquired through purchase order/vendor type agreements are subject to the entire Project (i.e. concrete material shall be procured as a unit price times an estimated total project quantity provided by the CM-R/DB to equal a total construction cost). Work shall not be incrementally divided for the purpose of circumventing the procurement guidelines.
- 2.6.6 The CM-R/DB may establish selection criteria for each phase of work for review by the Project Team. Criteria shall be qualifications based and consistent with the information needed by the CM-R/DB to make a proper evaluation and selection. The CM-R/DB shall establish a selection matrix including cost, criteria, weighting and ranking procedures for evaluation. The CM-R/DB shall work with the Project Team to tailor the selection criteria to be project and scope specific, and ensure that the questions are proper and relevant to the goals of the Project. The CM-R/DB shall follow the Good Faith Effort (HUB) requirements identified in Exhibit H of the Agreement, including attachments to be completed by first tier subcontractors. However, HUB participation/status cannot be used as criteria for determining "best value", only for determining if the respondent is responsive.
 - 2.6.6.1 The CM-R/DB shall establish clear criteria and questions so that those reading the Request for Proposals will understand how they will be evaluated.
 - 2.6.6.2 If criteria are not included in the advertisement for proposals, the proposal shall be considered a lump sum bid, and the CM-R/DB shall award the work to the lowest qualified, responsive bidder.
 - 2.6.6.3 After selection criteria have been established, the CM-R/DB shall publicly advertise the work in general circulations and trade associations in accordance with Texas Education Code 51.782 for CM-R, Article 5 of the current Agreement for DB and Texas

Administrative Code 111.14 – “HUB” for both CM-R and DB. This advertisement shall include, at a minimum, the following:

- 2.6.6.3.1 Owner Project Number and Owner Project Name.
 - 2.6.6.3.2 Institution/Campus name.
 - 2.6.6.3.3 CM-R/DB name and address.
 - 2.6.6.3.4 CM-R/DB contact name and phone number.
 - 2.6.6.3.5 Location for viewing plans and specifications.
 - 2.6.6.3.6 Date, time and location of Pre-proposal/HUB/ROCIP meeting.
 - 2.6.6.3.7 Date, time deadline(s), and location for receiving proposals.
 - 2.6.6.3.8 Instructions to respondents for submitting proposals.
 - 2.6.6.3.9 Selection criteria, questions and submittal requirements.
- 2.6.7 At the time and location identified in the advertisement, the CM-R/DB shall hold a Pre-proposal/HUB/ROCIP meeting for all potential subcontractors with the Project Team and Owner's HUB Coordinator. The CM-R/DB shall review as a minimum:
- 2.6.7.1 The general scope of the Project and the specific scope of work included in this package.
 - 2.6.7.2 Instructions to respondents for submitting proposals.
 - 2.6.7.3 Selection criteria and questions.
 - 2.6.7.4 HUB Good Faith Effort requirements (Exhibit H).
 - 2.6.7.5 Project Safety requirements.
 - 2.6.7.6 OCIP requirements (if applicable).
 - 2.6.7.7 Work Progress Schedule requirements.
 - 2.6.7.8 Payment procedures and requirements, including retainage.
 - 2.6.7.9 Commissioning and Close-out requirements.
- 2.6.8 If the CM-R/DB identifies any self-performance in the B/PPS (work to be performed by CM-R/DB's own employees), the CM-R/DB shall submit a proposal to the Owner at the advertised time and location in a manner so as not to compromise the competitive process.
- 2.6.8.1 Regardless of the work or method of accepting proposals, all CM/DB self-performance proposals shall be:
- 2.6.8.1.1 Estimated and submitted by a separate estimating team that is not associated with the CM/DB's pre-construction and/or construction team;
 - 2.6.8.1.2 Submitted in a sealed envelope;

- 2.6.8.1.3 The final proposal price and not subject to change for any reason prior to recommendation of subcontract award.
- 2.6.9 The CM-R/DB shall accept all proposals at the advertised location until the advertised deadline. Upon receipt, the Owner's Project Manager will initial the proposal to indicate the time and date received. Any proposals received after the deadline shall not be considered by the CM-R/DB, and shall be returned to the respondent unopened.
- 2.6.9.1 Fax proposals will not be accepted unless the Owner, prior to the initial advertisement for proposals, approves a detailed plan by the CM-R/DB of care and custody.
- 2.6.10 After compiling, reviewing and verifying the costs and scope associated with all proposals, the CM-R/DB shall provide a "bid tabulation" matrix and a proposed Schedule of Values (refer to Attachment No. 2) for review by the Project Team.
- 2.6.10.1 The "bid tabulation" matrix shall compare all equivalent scope proposals to the CM-R/DB's estimate.
- 2.6.10.2 Each matrix shall indicate the CM-R/DB estimate(s) for each scope of work and identify the respective cost savings/over-runs.
- 2.6.10.3 The CM-R/DB may use values/quantities from CM-R/DB's 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 the various proposals.
- 2.6.10.4 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.
- 2.6.10.5 Once the proposals are compiled into a "bid tabulation" matrix and the proposed Schedule of Values has been updated, the CM-R/DB shall request a meeting with the Project Team to review the proposals.
- 2.6.11 The CM-R/DB shall lead the proposal review meeting by reviewing the scope of work, the proposals received, any exclusions or conditions, identify any non-qualified respondents and any other problems that may have occurred during the process.
- 2.6.11.1 The CM-R/DB shall confirm that the respondents are qualified, meet the established selection criteria (if applicable), and identify the amount of the proposals.
- 2.6.11.2 The CM-R/DB shall identify the "best value" and the current status of the buy-out savings to the Project Team. If the "best value" causes the CM-R/DB to exceed the Cost of Work line item, including contingencies in the GMP the CM-R/DB shall acknowledge that the overage will be deducted from the CM-R/DB's Construction Phase Fee.
- 2.6.12 Once the "best value" respondent has been identified by the CM-R/DB, without exception by the Owner, the CM-R/DB shall finalize negotiations with the selected "best value" respondent.
- 2.6.12.1 The CM-R/DB shall identify and confirm with the Owner's Project Manager the competitive proposal "plug" numbers CM-R/DB intends to use in CM-R/DB's negotiations. "Plug" numbers may be established through the CM-R/DB's own estimate (if submitted to the Owner's Project Manager before the advertised deadline) or values included in other non-selected respondent competitive sealed proposals.

2.6.12.2 If the CM-R/DB cannot reach an agreement with the selected respondent, the CM-R/DB shall notify the Owner's Project Manager that CM-R/DB intends to begin negotiations with the second "best value" respondent.

2.6.12.3 The CM-R/DB shall issue a letter to the Owner indicating that CM-R/DB intends to write a subcontract to the selected "best value" respondent (including self-perform work), identifying the following:

2.6.12.3.1 The bid package number.

2.6.12.3.2 The base bid from the selected respondent and any alternates included in the proposal.

2.6.12.3.3 The total value of the proposed subcontract with a description of any changes from bid day values.

2.6.12.3.4 Drawings and/or specifications related to the subcontract.

2.6.12.3.5 Additional scope items added to the subcontract (as previously agreed to by the Owner) and their value.

2.6.12.3.6 Current status of the GMP identifying current savings/overages.

2.6.12.3.7 A copy of the bid tabulation matrix.

2.6.12.3.8 A copy of the executed subcontract or purchase order, etc. is required prior to any request for payment by the CM-R/DB for applicable work.

2.6.12.4 If the Owner objects to the "best value" identified by the CM-R/DB, the Owner may conduct an evaluation of the selection process and/or results.

2.6.12.4.1 If, after evaluation, the Owner disagrees with the CM-R/DB "best value" recommendation, the Owner may instruct the CM-R/DB to either re-bid the scope of work or use the Owner's "best value" selection.

2.6.12.4.2 If the value of the Owner's selection causes an increase in the Contract Sum, the increase will be the responsibility of the Owner.

2.6.12.5 The CM-R/DB shall provide one (1) complete copy of all recommendation letters and proposals to the Owner's Project Manager for record, as they occur until Final Payment.

2.6.13 For additional bid packages, the CM-R/DB shall repeat the steps identified in this section as many times as identified in the current B/PPS for the entire Project.

2.7 DAILY REPORT

2.7.1 The Contractor shall provide on a daily basis, the Architect/Engineer, Owner's Project Manager and Owner's Construction Inspector with a report detailing Contractor's daily activities on the Project using a format acceptable to Owner. All tests that Contractor performs and all work reports required of subcontractors shall be attached to the Contractor's daily report.

2.7.2 The report shall include, as a minimum, the following information as it relates to the day's activities on the Site:

- 2.7.2.1 Total number of employees on the Site (including total number of employees for Contractor and each subcontractor); any change in personnel;
- 2.7.2.2 Equipment;
- 2.7.2.3 Areas of work and type of work performed;
- 2.7.2.4 Material received;
- 2.7.2.5 Tests performed;
- 2.7.2.6 Any injuries and/or accidents;
- 2.7.2.7 Any oral instructions received;
- 2.7.2.8 Any material damage; and anything else that might impact quality or schedule.

PART 3 – EXECUTION

3.1 PRE-CONSTRUCTION CONFERENCE (WITH OR WITHOUT A PARTNERING WORKSHOP)

- 3.1.1 Owner may provide a Pre-Construction Brochure, as an overview of administrative procedures for the Project. A review of the Brochure, identification of key Project personnel, Owner's sample administrative forms, and other information will be conducted at the Pre-Construction Conference.
- 3.1.2 Upon mutual agreement, a Partnering Workshop may be held with or near the time of the Pre-Construction Conference. The Contractor shall pay for the Pre-Construction Conference and/or Partnering Workshop in total and the Owner will reimburse the Contractor for fifty percent (50%) of the mutually agreed-upon costs (100% of the costs will be reimbursed to the Contractor as part of the General Conditions in the GMP for CM-R and DB contracts).
 - 3.1.2.1 The Pre-Construction Conference and/or Partnering Workshop is intended to provide further understanding among the parties, to establish mutual goals for the Project, and to develop strategies for achieving those goals.
- 3.1.3 The Owner will schedule a Pre-Construction Conference to generally coincide with issuance of Notice to Proceed with Construction. The Pre-Construction Conference agenda will cover broad Project issues followed by detail review of administrative procedures.
 - 3.1.3.1 The UGC requires the Contractor to comply with the Owner's administrative requirements as outlined herein and as reviewed at the Pre-Construction Conference.
 - 3.1.3.1.1 For projects with Guaranteed Maximum Price contracts the Owner may require a Pre-Construction meeting prior to Notice to Proceed with Construction.
 - 3.1.3.1.2 For projects with Guaranteed Maximum Price contracts and multiple bid packages, the Owner may schedule additional Pre-Construction Conferences to include any subcontractors added to the Project after the initial Pre-Construction Conference.
- 3.1.4 Attendance is required at the conference by all appropriate representatives of the Contractor, mechanical, electrical, plumbing subcontractors, and any additional

subcontractors (proposed or engaged), whose scope of work represents five percent (5%) or more of the total construction cost. The Contractor shall request all HUB subcontractors also be represented. Each firm is to be represented by personnel directly involved in the Project, including Project Managers and Project Superintendents or labor foremen, as a minimum.

3.1.4.1 Project representatives of the Contractor and all other parties directly involved with the processing or executing of Project submittals, changes and/or payments should attend the Pre-Construction Conference.

3.1.5 Prior to the scheduled time of the Pre-Construction Conference, the Contractor shall provide the Owner a written outline of all involved firms, Contractor's key personnel, including mailing address and phone numbers to be incorporated into a Project Directory.

3.2 OWNER'S MONTHLY PROJECT PROGRESS MEETINGS

3.2.1 In addition to specific coordination meetings, pre-installation contractor meetings for each element of Work, and other Project meetings for other purposes, the Owner may schedule and conduct a Project Progress Meeting at least once each month with the timing generally coinciding with preparation of payment request and submission of the updated Work Progress Schedule.

3.2.2 The Contractor shall coordinate with Contractor's subcontractors so that each entity then involved in planning, coordination, or performance of Work will be properly represented at each meeting.

3.2.2.1 Prior to the monthly Project Progress Meeting, the Contractor shall convene a similar progress meeting with Contractor's subcontractors to review each of the subcontractor's present and future needs including interface requirements, utility outages required, sequences, deliveries, access, Site utilization, temporary facilities and services, hours of work, hazards and risks, housekeeping, change orders, and documentation of information for payment requests in order to be fully prepared to discuss all pertinent issues with the Owner. The Contractor shall notify the Owner and Architect/Engineer in advance of such meetings with subcontractors.

3.2.3 Owner's monthly Project Progress Meetings may include review of Contractor's updated Work Progress Schedule and forecast of operations for the coming period, coordination issues, anticipated utility outages, status of requested change proposals and other cost impact issues, status of the commissioning process, status of the HUB Plan, and other Project issues.

3.2.4 The Contractor and Architect/Engineer shall provide separate tracking logs for submittals, RFIs, ASIs, and changes in a package for each primary meeting participant. On Design-Build contracts, a single set of tracking logs may be utilized if accepted in advance by the Owner.

3.2.5 The Owner's Project Manager will chair the Project Progress Meetings. The Contractor shall be specifically prepared to discuss the following at each Project Progress Meeting:

3.2.5.1 Work Progress Schedule Update Reports as required in Section 01 32 00 – Project Planning and Scheduling.

3.2.5.2 Status of "action" items from the previous Project Progress Meeting.

3.2.5.3 Status of buyout on Guaranteed Maximum Price projects.

- 3.2.5.4 Current status of product submittals and shop drawings, requests for information (RFI), and Architect/Engineer's clarifications (ASI).
- 3.2.5.5 Status of Project changes and other items of significance, which could affect progress.
- 3.2.5.6 Status of the commissioning process for the Project.
- 3.2.6 In addition to the monthly Project Progress Meeting, the Owner may also schedule bi-monthly, weekly, or other Project meetings at various stages of the Project as conditions may dictate. However, the complete report requirements noted above will apply only to the monthly Project Progress Meetings.

3.3 UTILITY OUTAGES

- 3.3.1 The Contractor shall notify the Owner's Construction Inspector and the Owner's Project Manager, in writing, of any planned utility outages in accordance with Owner's Special Conditions.
- 3.3.2 The Owner will provide a standard form for processing a request for utility shutdown or any other campus disruption. The Contractor shall utilize this form, Utilities Outage Shutdown Request Form, with attachments as necessary, in requesting an outage. Refer also to Section 00 25 00 - Owner's Special Conditions for Owner's Policy for Planned Utility Outages.
- 3.3.3 The Contractor shall not turn services on or off, without prior written authorization from Owner. Unless directed otherwise, the Owner will turn services on and off.

3.4 TESTING

- 3.4.1 Refer to the UGC and Section 01 45 00 – Project Quality Control for additional requirements.
- 3.4.2 Where specific testing is specified in a technical section of the Specifications or indicated in the Contract Documents, the Contractor shall bear the costs of all tests unless the Contract specifically states that it is to be paid for by the Owner.

3.5 INSPECTIONS

- 3.5.1 Refer to the UGC and Section 01 45 00 – Project Quality Control for inspection requirements not identified in this Section.
- 3.5.2 The Contractor shall provide sufficient, safe and proper facilities at all reasonable times for observation and/or inspection of the Work by the Owner and Owner's consultants. This shall include any and all equipment necessary for access to various aspects of the Work.

3.6 ONE-YEAR WARRANTY

- 3.6.1 If informed of a defect, the Contractor shall remedy the defect at Contractor's own cost and respond in writing to the Owner's Project Manager and the notifying party within ten (10) days indicating the action taken to resolve the defect. Refer to the UGC.
- 3.6.2 The Contractor shall attend any and all meetings to resolve warranty issues. The Contractor will provide a tracking log of all warranty issues and Contractor's resolution.

- 3.6.3 The Contractor shall participate in an end-of-warranty Project review with the Owner, as scheduled by the Owner's Project Manager, at a time prior to termination of the warranty period.
- 3.6.4 Per the UGC, unless directed otherwise in writing by the Owner, all warranties shall use the date of Substantial Completion as the start date for that particular warranty.
- 3.6.4.1 If any equipment and/or system is placed into continuous service prior to the date of Substantial Completion, Contractor shall provide, at Contractor's own cost, for the necessary warranty extension, as required by the UGC.
- 3.6.4.2 Contractor shall deliver all equipment to the Owner in an "as-new" condition. If equipment is put into service for the convenience of the Contractor, the Contractor shall, at Contractor's own expense, maintain, service and refurbish the equipment to "as-new" condition prior to delivery to the Owner.
- 3.6.5 Provisions described herein shall also apply to those items having warranties greater than one-year.

END OF SECTION 01 31 00

Attachment No. 1 – Application for Payment Example
(Obtain an Electronic Version of This Form From Owner's Project Manager)

☐ PDF ☐ Doc

**THE UNIVERSITY OF TEXAS
M.D. ANDERSON CANCER CENTER**

APPLICATION FOR PAYMENT - CONSTRUCTION MANAGER AT RISK

APPLICATION FOR PARTIAL PAYMENT No. (ENTER No.) PROJECT No. (ENTER No.)

FOR THE PERIOD: (ENTER BEGINNING DATE) TO: (ENTER ENDING DATE) INCLUSIVE.

NAME OF PROJECT: (ENTER PROJECT NAME)

CM-R NAME & ADDRESS: (ENTER CM-R NAME & ADDRESS)

TO BE COMPLETED BY THE CONSTRUCTION MANAGER AT RISK

| | PRE-CONSTRUCTION SERVICES | + | CONSTRUCTION SERVICES (GMP) | = | TOTAL CONTRACT AMOUNT |
|--|------------------------------|---|--------------------------------|---|--------------------------|
| 1 Original Contract Amount: | \$ 0 | | \$ 0 | | \$ 0 |
| 2 Approved Change Order Extras: | \$ 0 | | \$ 0 | | \$ 0 |
| 3 Accepted Change Order Deductions: | \$ 0 | | \$ 0 | | \$ 0 |
| 4 Current Contract Amount: | \$ 0 | | \$ 0 | | \$ 0 |
| 5 Total Completed To Date: | \$ 0 | | \$ 0 | | \$ 0 |
| 6 Less Total Retainage Held To Date: | N/A | | \$ 0 | | \$ 0 |
| 7 Total Net Earned Amount: | \$ 0 | | \$ 0 | | \$ 0 |
| 8 Less Previous Payments: | \$ 0 | | \$ 0 | | \$ 0 |
| 9 Current Payment Due For Each Part: | \$ 0 | | \$ 0 | | \$ 0 |
| 10 Balance To Finish, Including Retainage: (line 4 less line 7) | \$ 0 | | \$ 0 | | \$ 0 |

AFFIDAVIT

Insurance: I, agent for the Construction Manager-at-Risk, do hereby certify that all insurances as required by law, and by the specifications, are in full force and effect as of this date.

Claims & Liability: I, agent for the Construction Manager-at-Risk, do furthermore certify that all current invoices and obligations have been paid in full, and there are no claims or liabilities against this contract.

Signature of CM-R

CONSTRUCTION MANAGER AT RISK'S NOTARIZED SIGNATURE

STATE OF TEXAS
COUNTY OF _____

Personally before me, the undersigned authority, this day appeared (PRINTED NAME OF CM-R AGENT) who being by me duly sworn, on his oath says that the account hereto attached, in the amount of (ENTER AMOUNT) in favor of (PRINTED NAME OF CONTRACTOR FIRM) against The Board of Regents of the University of Texas System and M.D. Anderson Cancer Center, is, within the knowledge of affiant, just true, and correct; that it is due and that all just and lawful offsets, payments, and credits have been allowed.

(STAMP SEAL BELOW)

Sworn to and subscribed before me, (CONTRACTOR SIGNATURE) this _____ day of _____, 20____.

Signature of CONTRACTOR

Notary Public

(NOTARY SIGNATURE)

Signature of Notary

(ENTER NAME OF COUNTY) County, Texas

**CONSTRUCTION SERVICES CERTIFICATE: TO BE COMPLETED BY THE PROJECT ARCHITECT/ENGINEER
TO THE BOARD OF REGENTS OF THE UNIVERSITY OF TEXAS SYSTEM, AUSTIN, TEXAS and the M.D. Anderson Cancer Center, Houston Texas**

This is to certify that _____, Construction Manager-at-Risk
for the Project _____ is entitled to payment
for Construction Services of this Certificate in the amount of \$ _____

Architect/Engineer _____

Reviewed and Approved on _____ By: _____

Date

Signature of AE

PRE-CONSTRUCTION SERVICES : TO BE COMPLETED BY THE UTMACC PROJECT MANAGER

Current Payment For Pre-Construction Services \$ _____

Reviewed and Approved on _____ By: _____

Date

Signature of PM

CONSTRUCTION SERVICES : TO BE COMPLETED BY THE UTMACC PROJECT MANAGER

CM-at-Risk has submitted an updated Project Schedule:

CM-at-Risk has updated the Record Drawings:

This Pay Application includes a current Release of Retainage:

if "Yes", CM-at-Risk has included a "Consent of Surety":

Current Payment For Construction Services \$ _____

Reviewed and Approved on _____ By: _____

Date

Signature of PM

Attachment No. 2 – Schedule of Values Example
(Obtain an Electronic Version of This Form From Owner's Project Manager)

| The U.T.M.D.A.C.C. Schedule of Values - Contractor's Estimate Continuation Sheet (8 1/2" x 11" Sheet ONLY) | | | | | | | | | | | | | | | |
|--|---|-----------------------------------|---|-------------------------------------|----------------------------|---|---|---|-------|------------------------------------|-------|--|----------------|--------|---|
| Project No.: | | | | | | | Project Address: | | | | | | | | |
| Project Name: | | | | | | | Application For Payment Number: | | | | | | | | |
| Construction Manager Name: | | | | | | | Application Period: From _____ To _____ | | | | | | | | |
| A | B | C | | D | E | F | G | H | I | J | | K | L | M | N |
| Spec. Section / Bid Package | Description of Work / Subcontractor / Supplier / Vendor / Specification Section | Initial Proposed Line Item Values | Additional Services / GMP Change Order Values | Actual Subcontract Amount at Buyout | Delta (Proposed to Actual) | Subcontract, Purchase Order or Vendor No. | Detailed Breakdown of Contract Line Items | Total Amount Previously Requested & Percent | | Current Application | | Total Amount Completed To Date & Percent | Retainage (5%) | | |
| | | | | | | | | | | Total Amount This Period & Percent | | | | | |
| Column Equations | | | | C' | C - D | | D' | L' | H / G | L - H | J / G | H + J | L / G | L x 5% | |
| Pre-Construction Services | | | | | | | | | | | | | | | |
| Programming (20% If Applicable) | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | N/A | |
| Schematic Design (20%) | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | | |
| Design Development (20%) | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | | |
| GMP Development (10%) | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | | |
| Construction Documents (20%) | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | | |
| Bidding/Proposals (10%) | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | | |
| Additional Services | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | | |
| Pre-Construction Services Subtotal | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | | |
| Construction Services | | | | | | | | | | | | | | | |
| General Conditions | | | | | | | | | | | | | | | |
| On-Site Project Management Staff | | | | | | | | | | | | | | | |
| Project Scheduler | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Project Executive | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Superintendent(s) | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Office Engineer(s) | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Project Manager(s) | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Project Expeditor(s) | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Project Support Staff | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Assistant Superintendent(s) | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Safety Coordinator/Assistant(s) | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Out-of-State Project Specific Travel* | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Bonds and Insurance | | | | | | | | | | | | | | | |
| Builder's Risk Insurance | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| General Liability Insurance | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Payment and Performance Bonds | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Other Project Insurance as Required by Contract | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Temporary Project Utilities | | | | | | | | | | | | | | | |
| Dumpsters | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Project Water | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Project Electricity | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Temporary Toilets | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Monthly Telephone / Internet Service | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Temporary Fire Protection | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Street Rental and Barricades | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Telephone / Internet System Installation | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Fencing and Covered Walkways | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Temporary Water Distribution and Meters | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Temporary Electrical Distribution and Meters | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Site Erosion Control (BMP) and Project Entrance(s) | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Field Offices & Office Supplies | | | | | | | | | | | | | | | |
| Partnering Costs | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| First Aid Supplies | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Job Photos/Videos | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Reproduction Services | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |

SECTION 01 32 00 - PROJECT PLANNING AND SCHEDULING

PART 1 - GENERAL

1.1. RELATED DOCUMENTS

- 1.1.1. The Contractor's attention is specifically directed, but not limited, to the Uniform General Conditions for University of Texas System Building Construction Contracts (UGC) for other requirements.

1.2. SUMMARY

- 1.2.1 **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.**
- 1.2.2 Contractor must develop the Project Schedule to allow for a minimum amount of Float for the Project during Pre-Construction and/or Construction Services. Contractor must format the Project Schedule in a manner that facilitates reporting of progress and trends, identification of all critical paths, identification of each activity's predecessor(s) and successor(s), risks and opportunities, projection of upcoming activities, and forecasting of Project milestones.
- 1.2.3 The Owner must be able to reasonably rely on the Contractor's Project Schedule for projected activity dates in order to make accurate commitments to design professionals, contractors, vendors, user group(s), campus administration, and other parties as necessary.
- 1.2.4 **Owner's acceptance of the Project Schedule and any subsequent update of the Project Schedule are acceptance of the format and extent of detail of the Project Schedule only. Owner's 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 Milestone Activities.**
- 1.2.5 This Specification applies to all Project delivery methods, regardless of contract type, whether the contracting firm, referred to as the Contractor, is a General Contractor, Construction Manager-at-Risk (CM-R), or Design/Build (DB) Contractor.
 - 1.2.5.1 All references to Pre-Construction Services in this Specification shall apply to requirements for CM-R and DB contract types only.

1.3. DEFINITIONS

- 1.3.1. The term "Project Schedule", as used throughout the Contract Documents, shall refer to the schedule for the Project as developed, monitored, and maintained, by the Contractor's Project Scheduler, and as used by the Project Team during Pre-Construction and/or Construction Services.
- 1.3.2. The term "Project Team", as used throughout the Contract Documents, shall refer to the Owner, Architect, Design Consultants, Engineer, User, Contractor, Owner's Service Providers, and Subcontractors (as applicable) that are contracted and/or specifically assigned to the Project.
- 1.3.3. The term "Owner's Planning and Scheduling Specialist", as used throughout the Contract Documents, shall refer to the Owner's scheduling specialist representative, with all correspondence to be addressed to:

MD Anderson Cancer Center
Facilities Planning, Design and Construction, Mail Box 703
1515 Holcombe Boulevard, Suite 1010

- 1.3.4. The term "Data Date", as used throughout the Contract Documents, shall refer to the date of the Project Schedule update.
- 1.3.5. The term "Total Float" (Float), as used throughout the Contract Documents, shall refer to the number of calendar days an activity on the Longest Path can be delayed without delaying the Substantial Completion date.
 - 1.3.5.1. Negative Float indicates that the Project is late, while Positive Float is the property of the Project and does not belong to any one party (Refer to the UGC).
- 1.3.6. The term "Longest Path", as used throughout the Contract Documents, shall refer to the sequence of activities that determines the longest duration for the Project when the Float is greater than zero.
 - 1.3.6.1. The term "Critical Path", as used throughout the Contract Documents, shall refer to the sequence of activities that determines the longest duration for the Project when the Float is equal to or less than zero.

1.4. CONTRACTOR RESPONSIBILITY

- 1.4.1. The Contractor is responsible for planning, management, coordination, and scheduling of all activities from a Notice to Proceed for Pre-Construction and Construction to Final Completion of the Project within the time allotted by the Agreement.
- 1.4.2. The Contractor is responsible for keeping the Owner and the Project Team fully informed of schedule status and upcoming activities throughout the Project via the Project Schedule.
- 1.4.3. The Contractor is solely responsible for the schedule and status of all activities related to Pre-Construction, procurement of materials and subcontractors, construction, testing, inspection, commissioning, and Project turnover to the Owner. The Contractor shall integrate the schedule and status of Owner furnished services such as test, adjust, and balance. Contractor shall schedule completion of activities and proactively submit for Owner's review and approval, all documentation related to commissioning, including, but not limited to, the following. (Refer to Section 01 91 00 – Project Commissioning and Section 01 77 00 – Project Closeout Procedures for additional requirements.)
 - 1.4.3.1. Commissioning Plan.
 - 1.4.3.2. Equipment Matrix.
 - 1.4.3.3. Submittal Schedule.
 - 1.4.3.4. Format, content, and tab structure for Operating and Maintenance Manuals and submittal of binders.
 - 1.4.3.5. Request for Start-Up/Functional Performance Test Form.
 - 1.4.3.6. Prefunctional Checklists.
 - 1.4.3.7. Functional Performance Test Procedures.
 - 1.4.3.8. Integrated System Test Procedures.
 - 1.4.3.9. Additional Commissioning and Closeout Manual documentation.

- 1.4.4. The Contractor shall provide adequate and reasonable Project planning in sufficient detail throughout all Project phases, as applicable for all aspects of Contractor's Work, to ensure completion of all activities within the Contract Time.
- 1.4.5. 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, Architect/Engineer, and any other members of the Project Team so that the planned sequences and procedures are clearly understood by all parties.
- 1.4.6. The Contractor shall plan for appropriate activity durations to allow for thorough review, procurement, submittal, installation, inspection, testing, and commissioning, of all Work and/or systems in order to confirm Contract compliance, including Work relying on Owner participation or coordination.

PART 2 – PRODUCTS

2.1 QUALIFICATIONS OF THE PROJECT SCHEDULER

- 2.1.1 The Contractor shall assign a Project Scheduler who shall be responsible for the Project Schedule throughout Pre-Construction and Construction Services.
- 2.1.2 The Contractor's Project Scheduler shall have at least an undergraduate degree in a construction related field, and continuous experience on similar size and type of project(s) within the past five (5) years, including at least two (2) years with the specified scheduling software.
 - 2.1.2.1 In lieu of a degree, the Contractor's Project Scheduler may have at least five (5) years continuous experience on similar size and type of project(s) with the specified scheduling software.
- 2.1.3 The Contractor's Project Scheduler shall be an integral part of the Project Team during Pre-Construction Services and shall be on-site full-time for Construction Services until at least Substantial Completion of the Work.
 - 2.1.3.1 The Contractor's Project Scheduler may have additional responsibilities such as Senior Project Manager, Project Manager, Superintendent, Assistant Project Manager, Assistant Superintendent, Project Engineer, etc.
 - 2.1.3.2 If the Contractor's Project Scheduler is outsourced, the Contractor shall assign an on-site contact for all Project Schedule related issues.
- 2.1.4 All Contractor personnel involved in the preparation, updating, and reporting of the Project Schedule shall possess adequate construction scheduling knowledge related to the Project, Critical Path Method (CPM) knowledge, and a general understanding of the specified software.

2.2 REQUIRED SCHEDULING SOFTWARE

- 2.2.1 Regardless of Project size or type, Contractor shall develop and maintain the Project Schedule using the latest version of Microsoft Project available as of the effective date of the Contract.

2.3 NAMING THE PROJECT SCHEDULE

2.3.1 The Contractor shall title the initial Owner approved Project Schedule, the Baseline Project Schedule: BPS1. Contractor may not “reset” the Baseline Project Schedule unless the Owner approves the reset.

2.3.1.1 If the Owner approves the Contractor’s request to “reset” the Baseline Project Schedule, the new Baseline Project Schedule shall be titled sequentially (i.e. BPS1, BPS2, BPS3, etc.).

2.3.2 Subsequent updates to the Baseline Project Schedule shall be named by the last two (2) digits of the year and the month (Example: a March 2004 Baseline Project Schedule title would be “BPS2-0403”).

2.4 PROJECT SCHEDULE DEVELOPMENT REQUIREMENTS

2.4.1 The Contractor shall assign a standard “Activity Code” using a custom field, to every activity or task; organized by at least the Project phase, stage, location, building, floor, area, elevation, or system, etc., (i.e. work breakdown structure) including the following primary Activity Codes:

| <u>Activity Code & Description</u> | |
|---|-------------------------------------|
| CP | Contract Procurement |
| PP | Programming/Pre-Project Planning |
| SD | Schematic Design |
| DD | Design Development |
| CD | Construction Documents |
| BOR | U.T. System Board of Regents |
| GMP | Guaranteed Maximum Price |
| TH | THECB Approval |
| SP | Subcontractor Bidding / Procurement |

| <u>Activity Code & Description</u> | |
|---|---------------------------------------|
| C | Construction |
| GC | General Conditions |
| SU | Submittals |
| FD | Fabricate and Delivery |
| CI | Contractor Inspections |
| OI | Owner Inspections |
| Cx | Commissioning |
| TAB | Test, Adjust, and Balance |
| OP | Owner Provided - Contractor Installed |

2.4.2 The Contractor shall assign a standard “Resource Code” to every Contractor, Subcontractor, Supplier, Fabricator, Installer, Design Consultant, Owner, and any other party responsible for the accomplishment of an activity, including, but not limited to, the following primary Resource Codes (as applicable):

| <u>Resource Code & Description</u> | |
|---|--------------------------------------|
| A/E | Architect / Engineer |
| Carp | Carpet |
| Casf | Casework Fabricator |
| Casi | Casework Installer |
| Cocw | Concrete Formwork |
| Conf | Concrete Finishing |
| Ctil | Ceiling / Acoustical Tile |
| Door | Doors & Frames |
| Dryw | Drywall / Light Gauge Stud Installer |
| Elec | Electrical |
| Elev | Elevator |
| Falm | Fire Alarm Systems |
| Fire | Fire Protection Systems |
| Ftil | Floor Tile |
| Furn | Furnishings |
| Glas | Glass / Glazing |

| <u>Resource Code & Description</u> | |
|---|------------------------------------|
| Omat | Owner's Material Testing Firm |
| Otab | Owner's Air Testing & Balance Firm |
| Ownr | Owner |
| Pain | Paint & Wall Coverings |
| Pier | Piers / Piles / Caissons |
| Plas | Plaster / EIFS |
| Plum | Plum |
| Rebf | Reinforcing Steel Fabricator |
| Rebi | Reinforcing Steel Installer |
| Roof | Roofing |
| Sign | Signs |
| Site | Sitework |
| Stee | Steel Erector |
| Stef | Steel Fabricator |
| Mstf | Miscellaneous Steel Fabricator |
| Msti | Miscellaneous Steel Installer |

| <u>Resource Code & Description</u> | |
|--|--------------------------------|
| Hard | Hardware |
| Hvac | HVAC |
| Insu | Insulator |
| Irri | Irrigation & Landscaping |
| Labc | Laboratory Casework Fabricator |
| Labi | Laboratory Casework Installer |
| Lbeq | Laboratory Equipment |
| Masn | Masonry |

| <u>Resource Code & Description</u> | |
|--|-----------------------------------|
| Stut | Site Utilities |
| Tele | Telephone / Communication Systems |
| Terz | Terrazzo |
| Toia | Toilet Accessories |
| Toip | Toilet Partitions |
| Watp | Waterproofing / Damp proofing |
| Wodf | Wood Framer |
| Wods | Wood Framing Supplier |

2.4.2.1 The Contractor shall use additional Owner approved Resource Codes, as applicable.

2.4.3 The Contractor shall use additional Secondary Task and Resource Codes, as necessary, to monitor, provide status, and report the Project Schedule.

2.4.4 The Contractor shall assign a unique "Work Breakdown Structure" (WBS Code) and "Task Name" to every activity. The WBS Code and Task Name must be meaningful, easily understandable by the Project Team, similar to like activities at differing locations, and as shown on the Contractor's Schedule of Values.

2.4.4.1 A Task Name shall start with a verb to indicate what is to be done and shall end with a location (Example: Install metal studs - 3rd floor Bldg B).

2.4.4.2 A "Milestone" Task shall refer to any major event or phase, or any other important point in the Project, including the following Tasks:

| <u>Milestone Task & Description</u> |
|--|
| <ul style="list-style-type: none"> • NTP for Pre-Construction Services • Authorize Architect/Engineer Start • Submit for Owner Review • Joint Review for Owner Comments • Approve Schematic Design • Authorize Architect/Engineer Start • Submit for Owner Review • Joint Review for Owner Comments • Approve Design Development • FPCC Meeting Deadline • BOR Approval • Submit Construction Application • Approve Construction Application • Submit GMP • Approve GMP |

| <u>Milestone Task & Description</u> |
|---|
| <ul style="list-style-type: none"> • Authorize Architect/Engineer Start • Submit for Owner Review(s) • Joint Review(s) for Owner Comments • Approve Construction Documents • NTP for Construction Services • Partnering/Preconstruction Meeting • Establish Site Controls /Mobilize • Complete Primary Foundations • Structural Top-Out • Building Dry-In • Systems Commissioning • Substantial Completion • Final Completion • Operational Occupancy |

2.4.4.3 A "Detailed" Task shall refer to a single Work event in the Project. The following table contains examples of Detailed Tasks for scheduling:

| <u>Detailed Task - Example</u> | <u>Detailed Task - Example</u> |
|--|---|
| <ul style="list-style-type: none"> • Site Mobilization <p>Material</p> <p>Approval/Procurement</p> <ul style="list-style-type: none"> • Door Frames Shop Drawings • Contractor/A/E review • Fabrication • Door Frame Delivery • Light Fixtures Submittal • Contractor/Architect/Engineer Review • Fabrication • Light Fixture Delivery • Sprinkler Shop Drawings/Calculations • Contractor/Architect/Engineer Review • Fabrication • Initial Equipment Delivery • Millwork Shop Drawings/Laminate Samples • Contractor/Architect/Engineer Review • Fabrication • Initial Millwork Delivery <p>Construction</p> <ul style="list-style-type: none"> • Layout/Top Track • MEP/Sprinkler Overhead Rough-In • Door Frames/Wall Framing • MEP In-Wall Rough-In • In-Wall Inspection • Corrections • Cover Walls • Tape and Float • Frame Ceilings • Furr-Downs/Recessed Light Coves • Furr Down/Ceiling Drywall Cover • Ceramic Tile • Plumbing Fixtures - Toilet Rooms • Prime/One-Coat Paint | <ul style="list-style-type: none"> • Toilet Partitions • Ceiling Grid • Curtaintrack Blocking • Light Fixtures/Grilles/Sprinkler Drops/Smoke Detectors • Overhead Inspections • Overhead Corrections • Ceiling Cover • Light Coves • Sheet Vinyl Flooring • Millwork • Cast Plastic • Toilet Accessories • Dark Room Equipment • Plumbing Fixtures - Millwork • Doors • Hardware • Glass & Glazing/Blinds • Curtaintrack • Biosafety Cabinets/Fume Hoods • Darkroom Equipment • Lockers • Final Paint Coat/Wallcovering • MEP Trim • Film Illuminators • TV Support Brackets • Appliances • Carpet Flooring • Resilient Base • Wall Protection • Final Clean • Pre-Final Inspections • TAB • Start-up and Testing • Corrections |

2.4.4.4 A “Summary” Task (i.e. Hammock) shall refer to a grouping (or a summary) of Milestone and/or Detailed Tasks in the Project Schedule.

2.5 PROJECT SCHEDULING METHOD REQUIREMENTS

2.5.1 "Retained Logic" is the required mode of Project Schedule processing.

2.5.2 The estimated Activity Duration of an activity shall be expressed in calendar days.

2.5.2.1 During Pre-Construction Services and Construction Services, the Project Team shall determine the maximum duration for any activity.

2.5.2.2 During Construction, the minimum duration for any Owner milestone inspection activity (i.e. concealed space, above ceiling, substantial and final completion) shall be at least three (3) work days per inspection and re-inspection, or as approved by the Project Team.

2.5.2.3 Estimated remaining Activity Durations shall be stated in work days, as of the Data Date of every Project Schedule update.

2.5.3 Except for the Notice to Proceed for Construction (Preconstruction for CM-R and DB contracts) and the Final Completion Date Milestone, activities shall not have "open ends".

2.6 PROJECT SCHEDULE ANALYSIS REQUIREMENTS

2.6.1 The Contractor shall use the CPM technique to determine the overall Project duration through the analysis of the durations of each of the activities, their schedule dependencies, and their resultant Float.

2.6.2 For CM-R and DB contracts, the Project Schedule shall include at least **20%** Float from the Notice To Proceed for Pre-Construction Services to the Substantial Completion date.

2.6.3 The Project Schedule shall include at least **10%** Float from the Notice To Proceed for Construction Services to the Substantial Completion date as identified by the Owner in the Notice To Proceed.

2.6.4 Float shall be shown as an activity within the Project Schedule. It should be the last activity prior to the Substantial Completion date Milestone.

2.7 COORDINATION WITH OTHER DOCUMENTS AND WORK

2.7.1 The Contractor shall coordinate the Project Schedule with the Contractor's Submittal Schedule and Schedule of Values, as required by the UGC and Section 01 31 00 - Project Administration (i.e. the Work breakdown structure shall be arranged, numbered, and described consistently across the various documents).

2.7.1.1 Cost and/or resource loading of the Project Schedule are allowed.

2.7.1.1.1 If the Contractor elects to cost-load the Project Schedule, the Contractor shall provide a separate Schedule of Values in the format required by the Owner in Section 01 31 00 - Project Administration.

PART 3 – EXECUTION

3.1 PLANNING AND SCHEDULING WORKSHOP

3.1.1 Within thirty (30) calendar days after a Notice To Proceed, the Contractor shall schedule and conduct a Planning and Scheduling Workshop with at least the Contractor's Project Scheduler, Project Manager, Superintendent, the Owner's Project Manager and Owner's Planning and Scheduling Specialist (if applicable), the Architect/Engineer, Owner's representatives, and any available Subcontractors prior to submitting the Project Schedule to the Owner.

- 3.1.1.1 The Contractor shall schedule and coordinate the workshop with the Owner at least ten (10) calendar days prior to the Planning and Scheduling Workshop. The Contractor shall submit a complete draft Project Schedule to the Owner at least five (5) calendar days prior to the Planning and Scheduling Workshop.
- 3.1.1.2 The Contractor shall review the draft Project Schedule with the Project Team, including a verbal description of the logic and sequencing of activities, method for determining estimated Activity Durations and corresponding resources required, and any activities involving Owner participation and/or approval.
- 3.1.2 For CM-R and DB projects, Contractor shall schedule and conduct at least two (2) Planning and Scheduling Workshops. The first shall be within thirty (30) calendar days after a Notice to Proceed with Pre-Construction Services and the second shall be within thirty (30) calendar days after a Notice to Proceed with Construction Services for each "major" Guaranteed Maximum Price (GMP) Proposal executed.
- 3.1.3 Contractor's attendance at the Planning and Scheduling Workshop(s) and Owner's acceptance of the Baseline Project Schedule is a condition precedent to the Contractor submitting initial and any subsequent progress payments.
- 3.2 BASELINE PROJECT SCHEDULE SUBMITTAL
 - 3.2.1 The Baseline Project Schedule shall be submitted to the Owner with the required Float within sixty (60) calendar days from the effective date of the Notice To Proceed for Pre-Construction and/or Construction Services (or as approved by the Owner in the Project Planning Scheduling Workshop).
 - 3.2.1.1 A Baseline Project Schedule that does not have at least the minimum amount of Float at submission will result in the Contractor forfeiting all claims to Project Schedule extensions and/or delays as a result of Contract changes and/or excusable delays as described in the UGC.
 - 3.2.1.1.1 If conditions arise prior to submission of the Baseline Project Schedule that are beyond the Contractor's control, the Contractor shall include an Executive Summary with the Baseline Project Schedule to justify the reduction in Float.
 - 3.2.1.2 For CM-R and DB projects, the Baseline Project Schedule shall include identified Milestone and/or Summary Tasks for the remaining Work that has not been approved in an executed GMP Proposal for Construction Services.
 - 3.2.1.2.1 When the Owner has approved the "full" scope of the Project (i.e. the last GMP Change Order has been executed), the Contractor shall coordinate with the Owner to "reset" the Baseline Project Schedule.
 - 3.2.2 The Contractor shall submit one (1) electronic copy of the entire Baseline Project Schedule and one (1) paper copy of the following Baseline Project Schedule reports to the Owner within ten (10) calendar days when the "full" scope of the Project as been approved:
 - 3.2.2.1 Graphic Time-Scaled Report or Gantt Chart: A graphic time-scaled view including all activities, early start and finish dates, estimated durations and Float sorted by Activity Code.
 - 3.2.2.2 Milestone Activity Report: A listing of every Milestone Task and critical path sorted by early start date.
 - 3.2.2.3 Detailed Activity Report: A listing of every Detailed Task sorted by early start date including a fully completed predecessor and successor column.

3.2.3 When the Owner has approved the initial Project Schedule, it shall be referred to as the Baseline Project Schedule, and shall be used for all future Project Schedule updates and reports as "BPS1."

3.2.3.1 For CM-R and DB projects, the Project Schedule shall include Milestone and Summary Tasks until thirty (30) calendar days prior to the submittal of a GMP Proposal for Construction Services. The Project Schedule shall also include Detailed Tasks for at least the first ninety (90) calendar days of Construction Services when submitted with the GMP Proposal.

3.3 UPDATING THE PROJECT SCHEDULE

3.3.1 When the Owner has approved the Baseline Project Schedule, the Contractor shall update the Project Schedule for Pre-Construction and Construction Services at least once per calendar month and submit reports at least seven (7) calendar days prior to the Owner's monthly Project Progress Meeting.

3.3.1.1 Project Schedule updates shall be based on actual Work progress, current logic, and remaining durations.

3.3.1.2 The Owner will determine which meeting will be designated as the Owner's monthly Project Progress Meeting.

3.4 MONTHLY PROJECT SCHEDULE REPORTS

3.4.1 The Data Date for all Project Schedule Update Reports shall be current within five (5) calendar days of submission to the Owner.

3.4.2 Contractor shall submit a Total Float usage log with Contractor's monthly Project Schedule Update Reports that identifies the number of days lost or gained each month.

3.4.3 Owner retains the authority, which shall not be unreasonably withheld, to approve or reject Contractor's utilization of Total Float. If Contractor desires to utilize a portion or all of the Total Float, Contractor must submit a written request with its monthly Total Float usage log to the Owner seeking Owner's written approval of utilization of Total Float.

3.5 SUBMITTING MONTHLY PROJECT SCHEDULE REPORTS

3.5.1 The Contractor shall submit one (1) electronic schedule back-up in ".mpp" format and one (1) paper copy of the Project Schedule to the Owner.

3.6 FORMATING PROJECT SCHEDULE REPORTS

3.6.1 Electronic copies shall be submitted on compact discs and as attachments to electronic mail.

3.6.1.1 All electronic Project Schedule submittals shall be "backups" created in the specified software and included on the website if required, within one (1) calendar day of required completion.

3.7 PROJECT SCHEDULE SLIPPAGE

3.7.1 If the Project Schedule indicates schedule slippage for two (2) consecutive calendar months or if the Owner notifies the Contractor of a determination that the Work is behind schedule, the Contractor shall develop a "Recovery Plan" to make immediate revisions to the work force, work-hours, shifts, material deliveries, or any other aspects of the Work.

3.7.2 The Contractor shall submit the "Recovery Plan" to the Owner, as required in the UGC, clearly describing all changes in the Project Schedule or work enacted and/or planned in order to ensure completion by the Contract Substantial Completion date.

3.7.2.1 The Owner has the right to review and comment on any "Recovery Plan" activities that include Owner participation or affect any Owner consultants or outside contractors.

3.7.3 When the Owner approves the "Recovery Plan", the Contractor shall incorporate the proposed revision into the Baseline Project Schedule.

3.8 PROJECT SCHEDULE CHANGES

3.8.1 If the Owner or Architect/Engineer issues a Change Proposal, the Contractor shall submit a proposed revision for all proposed Contract changes that affect the Substantial Completion date or remaining Float with the Change in Work Cost Analysis Form.

3.8.1.1 Proposed revisions shall be accompanied by a narrative listing of the affected activities including a statement of the expected overall impact of the change proposed.

3.9 EXCUSABLE DELAYS AND TIME EXTENSIONS

3.9.1 Excusable delays shall be administered per the UGC.

3.9.2 If an excusable delay extends the Contract Substantial Completion date, the Owner may extend the Contract time by the number of excusable calendar days lost on the Project Schedule or take other actions as appropriate under terms of the Agreement.

3.9.2.1 Change Proposal pricing that does not impact the Substantial Completion date or does not include a proposed revision prior to approval by the Owner shall not include a time extension.

3.9.3 Once the Owner accepts a time extension and authorizes the Contractor to proceed with the Contract change, the proposed revision shall be incorporated into the Baseline Project Schedule.

END OF SECTION 01 32 00

SECTION 01 35 16 – ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.

1.02 SUMMARY

- A. Basic and supplemental requirements for Work that alters existing facility components, systems or equipment.

1.03 REFERENCE STANDARDS

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.
- C. All materials, installation and workmanship shall comply with the applicable requirements and standards addressed within the Contract Documents.

1.04 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.
- C. Demolish: Completely remove and legally dispose of off-site.
- D. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- E. Remove and Salvage: Detach items from existing construction and deliver them to Owner [ready for reuse].
- F. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- G. Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner [ready for reuse]. Include fasteners or brackets needed for reattachment elsewhere.
- H. Recycle: Recovery of demolition waste for subsequent processing in preparation for reuse.
- I. Existing to Remain: Existing functional items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

J. Sensitive Area: The following areas are considered "Sensitive" by MD Anderson Cancer Center:

1. Sensitive Areas listed apply to human and animal occupancies.
2. Additional areas may also be considered Sensitive as determined by MD Anderson Cancer Center for a particular project. The Contractor shall coordinate with the Owner's Project Manager prior to any installation Work to identify Sensitive Areas not listed.
 - a. Operating Rooms
 - b. Invasive Procedure Rooms
 - c. Bone Marrow Transplant / Protective Environment Areas
 - d. Intravenous Procedure Rooms (Chemotherapy)
 - e. Intensive Care
 - f. Inpatient Recovery Rooms
 - g. Sterile Supply Storage
 - h. Sterile Processing
 - i. Pharmacy I V Admixture
 - j. Pharmacy Drug Preparation
 - k. Pharmacy Drug Storage
 - l. Food Preparation, Storage, Serving
 - m. Data Centers
 - n. Electrical Equipment Rooms
 - o. Telecommunication Rooms
 - p. Potable Water Storage Tanks
 - q. Any Room Containing Imaging Equipment that May be Damaged Due to Water Leakage (MRI, Cat Scan, Etc.)
 - r. Animal Holding Rooms
 - s. Animal Procedure Rooms
 - t. Laboratory Clean Rooms

1.05 QUALITY ASSURANCE

- A. Perform remodeling, alteration, demolition, cutting, patching, removal, refinishing, relocation, and disposal work in accordance with Federal, State, and local health and safety standards, codes, ordinances, and the University of Texas MD Anderson Cancer Center Institutional Safety Policies. Where conflicts occur, comply with the more restrictive requirements.

- B. Perform remodeling, alteration, demolition, cutting, patching, removal, refinishing, and relocation work in such a manner as to preserve the aesthetic and structural integrity of materials and construction.
- C. When the Contractor determines that it is unavoidable to locate new fan coil units, drainage piping, or waste piping above a Sensitive Area, the Contractor shall notify the Owner's Project Manager in writing and obtain a clear direction to proceed prior to any installation of Work.
- D. When the Contractor determines that an existing penetration cannot be sealed due to accessibility, constructability or any other condition, the Contractor shall notify the Owner's Project Manager in writing and obtain a clear direction to proceed prior to any installation of Work.
- E. When the Contractor determines that an existing fan coil unit cannot be relocated beyond the perimeter of a Sensitive Area, the Contractor shall notify the Owner's Project Manager in writing and obtain a clear direction to proceed prior to any installation of Work.
- F. Portions of the existing remaining medical vacuum and gas systems affected by Work within this Project shall be re-certified in strict accordance with NFPA 99.

1.06 SUBMITTALS

- A. Submit schedule for all proposed shut-downs prior to start of Work. The Contractor shall notify the Owner's Construction Inspector and the Owner's Project Manager, in writing, of any planned utility outages in accordance with Owner's Special Conditions.
- B. Work with noise-producing equipment is subject, at all times, to Owner's approval of entire procedure. Submit a schedule of all such operations to the Owner's Project Manager at least two weeks in advance of need and secure approval of the Owner before proceeding.

1.07 NEW AND EXISTING PENETRATIONS

- A. All new and existing penetrations through rated partitions and floor slabs within the Project boundary shall be sealed to provide a fire/smoke rating equal to or greater than the rating of the floor slab.
- B. All new and existing penetrations through floor slabs within the Project boundary shall be sealed watertight.

1.08 EXISTING COMPONENTS ABOVE SENSITIVE AREAS

- A. All existing sanitary waste, sanitary vent and storm drainage piping located within the ceiling or exposed above a Sensitive Area shall be provided with heavy-duty joint connections having a minimum 15 psi pressure rating and meeting the performance criteria of Factory Mutual 1680.3.
- B. All existing piping located within the ceilings or exposed above a Sensitive Area receiving cooling coil condensate, ice machine drainage or conveying contents having temperatures below 55 degrees F shall be insulated and vapor sealed to prevent condensation.
- C. Existing fan coil units located within the ceiling or exposed above a Sensitive Area shall be relocated to a position beyond the Sensitive Area.

1.09 JOB CONDITIONS

- A. Visit the Project Site to determine by inspection all existing conditions, including access to the Site, the nature of structures, objects, and materials to be encountered, and all other facts concerning or affecting the Work. Information on the Drawings showing existing conditions does not constitute a guarantee that other items may not be found or encountered.
- B. Obvious existing conditions, installations, and obstructions affecting work of this Section shall be taken into consideration as necessary work and included as part of work of this Section, the same as though completely shown or described.
- C. Seal off areas in which work is in progress from the occupied portions of the building to prevent entry of dust and noise into occupied portions of the building. Take all necessary measures to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level.
 - 1. Where Work occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of nominal 3-5/8 inch metal studs with 5/8-inch Type X drywall, full height on both sides. Tape joints on the occupied side at non-fire rated partitions. Tape both sides full height at fire rated partitions. Fill partition cavity with sound-deadening insulation.
 - 2. Equip partitions with dustproof doors and security locks.
- D. If temporary closures block required exits, provide closures with acceptable openings equipped with gasketed, self-closing doors that open in the direction of exit as approved by authorities having jurisdiction.
- E. Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to remodeling work.
 - 1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied portions of building.
 - 2. Erect temporary covered passageways as required by authorities having jurisdiction.
 - 3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain.
 - 4. Protect from damage existing finish work that is to remain in place and becomes exposed during remodeling operations.
 - 5. Protect floors with suitable coverings when necessary.
 - 6. Cover and protect furniture, equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed.
 - 7. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
 - 8. Remove protections at completion of work.

- F. Furnish and maintain temporary types of protection as necessary to adequately protect and prevent accidental injury to the public, Owner's personnel and personnel employed at the work. Take all necessary precautions to keep trespassers out of work areas. Properly secure work areas from entry when work is not in progress.
- G. Conduct demolition and removal operations and the removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

1.10 TEMPORARY ELEVATOR USE

- A. Designated existing elevators may be used by construction personnel and for materials. Coordinate use with Owner. Provide protective coverings for finish surfaces of cars and entrances.

1.11 EXISTING UTILITIES AND CONDITIONS

- A. The location and description of utilities and conditions shown on Drawings are indicated from information available and are approximate only. Verify existing utilities and conditions.
- B. Protect existing utilities and conditions from damage. Repairs to utilities and conditions damaged during the Work shall be the responsibility of the Contractor and shall be made promptly at no additional cost to the Owner.
- C. Maintain existing utilities in operation at all times except where specific permission is given by Owner's Project Manager. Support and protect all exposed piping and utilities during demolition and utility rough-in.
- D. All outages of utilities, sidewalks, parking areas, driveways or facility access shall be scheduled in advance with Owner in accordance with Owner's Planned Utility Outage Procedure as specified within Section 00 25 00 – Owner's Special Conditions.
- E. Notify the Owner's Project Manager and all concerned parties prior to disconnecting and terminating abandoned utilities.

1.12 REMOVAL OF EXISTING CONSTRUCTION

- A. Where permanently disconnecting domestic water, medical vacuum, medical gas, natural gas, treated water, drainage, vent, or other piping serving removed fixtures, inlets, outlets or equipment, remove all associated piping back to remaining active mains.
- B. All existing floor drains that will not remain in service after Project completion shall be isolated from the remaining active building drainage and vent system. Floor drain bodies remaining within slabs shall be sealed watertight. Slab shall be finished to allow specified application of flooring or to match surface of the adjacent finished area. Completed patching of the slab shall prevent the passage of water and provide a structural integrity and fire rating equal to or greater than the existing slab. Remove all associated piping serving decommissioned floor drains located in suspended slabs back to remaining active mains.
- C. All existing wall penetrations that will be unused due to removal of piping shall be permanently sealed to maintain the fire rating of the wall or floor.
- D. All existing floor penetrations that will be unused due to removal of piping shall be permanently sealed to maintain the fire rating of the floor and to provide a watertight seal.

- E. All existing supports serving removed piping, duct, conduit and equipment shall be removed.
- F. Carefully remove and store all items indicated or required to be reused.
- G. Perform demolition and removal work completely and remove debris from the Site. Use such methods as required to complete the Work within the limitations of governing regulations.
 - 1. Proceed with demolition and removal work in a systematic manner, from the top to the bottom in areas indicated.
 - 2. Remove debris in covered carts to limit air pollution.
 - 3. Locate demolition equipment throughout the structure and remove materials so as to not impose excessive loads to supporting walls, floors, or framing.
 - 4. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- H. Fire, Smoke and Fire/Smoke Dampers
 - 1. Contact and coordinate with Owner's Environmental Health and Safety (EH&S) Department to identify existing dampers within the Project Boundary that are not indicated within Construction Documents and to determine acceptable actions to be taken.
 - 2. When the Engineer and Owner's Environmental Health and Safety (EH&S) Department have determined that an existing fire, smoke, or fire/smoke damper is no longer required, the damper shall be decommissioned and removed from the Project site.
 - a. Disconnect operational and monitoring services and associated accessories.
 - b. Record and submit to Owner the device location, identification information, and monitoring connections.
 - 3. Where complete removal is not an option, Contractor shall propose an alternate method of decommissioning, to be approved by EH&S. Such dampers shall be physically tagged stating that they have been decommissioned.
- I. Cutting:
 - 1. Structural Elements: If not specifically shown, but removal or alteration is required, perform such removal or alteration only upon written approval of the Architect/Structural Engineer. Do not damage or alter any structural element of the existing building. Where drilling or fastening to post-tensioned reinforced concrete construction is required, X-ray existing structure to determine tendon locations and potential for tendon tension release before proceeding. Notify Architect/Structural Engineer in each instance when conflict occurs. Architect/Structural Engineer will determine corrective action required. Do not proceed until corrective action has been received.
 - 2. Concrete: Saw cut where exposed to view. Jack hammering with electric or pneumatic equipment is acceptable only with scheduled approval of Owner.
 - 3. Masonry: Cut back masonry to joint lines and remove old mortar allowing space for repairs.
 - 4. Ceramic, Structural Clay Tile, and Quarry Tile: Saw cut to natural joint lines; remove so that repairs or continuations of new work will be relatively imperceptible.

5. Resilient Tiles: Remove in whole units to natural breaking points and/or straight joint lines with no damaged or defective existing tiles remaining where joining new construction.
 6. Plaster: Cut back to sound plaster on straight lines, and back bevel edges of remaining plaster. Trim and prepare existing lath for tying of new lath.
 7. Woodwork: Cut back to a joint or panel line.
 8. Existing Doors, Frames, and Sash: Remove in such manner as to facilitate filling in of openings or installation of new work, as required by the Drawings.
 9. Cutting for Access to Mechanical and Electrical Systems: Removal of existing ceilings and the removal, cutting, and patching and replacement of existing walls and floors as may be necessary for access to valves, piping, conduit, and tubing by mechanical and electrical trades shall be included and performed as an obligation of, and as directed by the Contractor and accepted by the Owner.
- J. Patching, Repairing, and Finishing Existing Work:
1. Perform in compliance with the applicable requirements of the Specification technical Section covering the work to be performed and the requirements of this Section.
 - a. All holes and damaged areas exposed to view in ceilings, walls, and floors of all finished spaces shall be repaired. Repaired construction shall match existing adjacent construction and finish, unless otherwise indicated or specified.
 - b. Minor surface abrasions, small nail holes, cracks, aged checked natural wood finish and other similar deterioration not visible, when viewed under finished lighting conditions, from a distance of 6 inches will not be required to be repaired if the base material is sound and suitable to receive the scheduled finishes, if any.
 - c. Interior penetration holes in walls and ceilings of unfinished spaces and spaces not exposed to view shall be grouted and sealed with accepted materials to equal the sound seal and fire resistance rating of original construction.
 - d. Penetration holes through exterior walls above grade shall be grouted and sealed as required to produce a weather tight seal.
 - e. Penetration holes through exterior walls below grade shall be grouted and sealed to produce a watertight seal.
 2. Concrete: Edges of existing concrete shall be kept damp for 24 hours and scrubbed with neat portland cement grout just before new concrete is placed; in lieu thereof, an accepted epoxy concrete adhesive may be used. Finish shall match existing adjoining work. Unless otherwise specified, all concrete for patching shall be 3,000 psi concrete. Reinforcing bars and dowels shall be provided where required. Where installation of concrete is impracticable, the openings shall be filled with dry packed non-shrink grout as directed.
 3. Masonry: Patch with sound whole units to match existing. Joints shall match adjoining surfaces.
 4. Lath: Lath areas to be patched as required, install as required for new lath, and wire-tie to existing lath at edges at 6 inch (15.2 cm) intervals. Lap lath 3 inch (7.6 cm) minimum.

5. Plaster: Dampen edges of existing plaster. Plaster patching shall be 3 coat work of type, thickness, and finish to match the existing work.
6. Damages: Promptly repair damages to adjacent facilities caused by demolition and removal operations at no additional cost to the Owner.
7. Painting and Finishing:
 - a. Preparation: Prepare patched areas as required for new work. Wash areas to be repainted with neutral soap or detergent, thoroughly rinse, and sand when dry. Feather remaining paint edges smooth with sandpaper.
 - b. Painting and Finishing: Conform to the applicable provisions of Painting Section. Prepare and build up bare areas and patches in existing painted surfaces with proper primer and intermediate coats, sand smooth and flush with adjoining surfaces. Paint all areas scheduled to be painted and/or repainted as specified in Painting Section of the Specifications, except the first or primer coat may be omitted on existing painted surfaces.
- K. Disposal of Debris: Clean up all material, debris, and rubbish resulting from remodeling work, remove from the building and Site, and legally dispose of. Leave all areas of work in "broom clean" condition.
 1. All debris shall be transported out of the building in covered carts with no materials extending above the cart rim.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.
- B. Matching Existing Work: Except where otherwise specifically indicated or specified as a definite change, the finish materials and appearance of the new work shall match the existing contiguous materials and finishes in all respects. Repairs and/or continuations of existing work shall be relatively imperceptible in the finished work when viewed under finished lighting conditions from a distance of 6 feet (1.8 meters).

PART 3 - EXECUTION

3.01 SEQUENCING AND SCHEDULING

- A. Schedule Work so as to impose a minimum of hardship on the present operation of the facilities and the performance of the work of other trades.
- B. Maintain existing utilities indicated to remain; keep in service and protect against damage during demolition and removal operations.
- C. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by Owner. Provide temporary services during interruptions to existing utilities, as acceptable to the governing authorities.

3.02 POST DEMOLITION CONFERENCE

- A. Coordinate, schedule and conduct post demolition meetings prior to installation of new Work.
 - 1. Purpose: Communicate existing conditions revealed by demolition that are not identified on Contract Drawings. Determine scope, cost and schedule impacts and obtain a clear direction to proceed.
 - 2. Attendees: Contractor, Owner's Project Manager, Owner's EH&S Representative, Architect/Engineer.

3.03 INSTALLATION

- A. Check Drawings carefully and thoroughly investigate existing building construction.
- B. Protect work to remain from damage. Use barricades, tarpaulins, temporary walls, plywood, planking, masking, and other suitable means and methods as accepted.
 - 1. Restore accidental or careless damage to work to remain in place to a condition as good as or better than existed before work was commenced and at no additional cost to the Owner.
- C. Provide all shoring and bracing necessary to positively protect existing elements of the building. Use material adequate to support anticipated loads with a properly calculated margin of safety. Provide for transfer of stresses to successively lower construction.
- D. All work must be staged and performed so that disruption to occupied areas is minimized and so that these areas are available and suitable for their intended use during normal hours of operation. Any work that would incur excessive noise, dust, or disruption must be scheduled in advance with the Owner's Project Manager.
- E. Carefully remove and replace items of existing construction indicated to remain upon completion of the Contract, but which require removal to complete the work. Match condition of construction prior to the start of the Work unless otherwise required. Carefully remove items indicated for relocations in new Work, or to be retained by Owner, to avoid damage, thoroughly clean, and reinstall as indicated or store as directed.
- F. Items of salvable value to the Contractor may be removed from the structure as the work progresses. Salvaged items must be transported from the Project Site as they are removed. Storage or sale of removed items on the Project Site will not be permitted.
 - 1. Remove and dispose of all demolition materials, equipment and debris off premises, unless identified for salvage on the drawings. Deliver salvaged items to a location within a 5 mile radius of MD Anderson as directed by the Owner's Project Manager. Protect and store all items identified for reuse. Contractor assumes no salvage value for items removed and not reused in the Project.

END OF SECTION 01 35 16

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SECTION 01 35 25 – OWNER SAFETY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.
- C. For projects enrolled under the Owner Controlled Insurance Program (OCIP), this Section supplements Section 01 35 23 Project Safety Requirements, with additional Owner requirements for work within existing facilities or for work in areas controlled by the Owner.

1.02 SUMMARY

- A. The control of Project Safety by the Contractor is an essential element of performing work at The University of Texas MD Anderson Cancer Center (MD Anderson). The Contractor shall, at all times, provide adequate resources, equipment, training, and documentation to assure a safe work environment at the Project site and to instill a culture for safety in the behavior of all supervisors and workers. Every worker shall understand that safety and health issues always take precedence over all other considerations, and that identifying, reporting, and correcting unsafe acts and conditions are the responsibility of everyone at the Project site.
- B. MD Anderson is dedicated to providing a safe healing and work environment for all patients, visitors, staff, students, guests, and Contractors.
- C. The details of this document should be considered as supplemental requirements. The Contractor shall develop, implement, maintain, and submit to the Owner a written Project Safety Program that meets or exceeds all Federal, State, and Local standards and regulations pertaining to construction activities. The Contractor and every Subcontractor shall comply with the rules and guidelines outlined in this guideline. In any circumstances where this section differs with or conflicts with any standard or statutory requirement, the more stringent requirement shall apply. Contractors may use a company-wide safety program in lieu of the Project specific safety program as long as it meets or exceeds the requirements listed in these guidelines.
- D. The Owner reserves the right to have any manager, supervisor or worker employed by the Contractor or Subcontractor removed from the Project for disregard of Project Safety requirements.
- E. 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, disregard for Project safety.

1.03 REFERENCE STANDARDS

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

1.04 DEFINITIONS

- A. The term "Owner's Designated Representative" or "MD Anderson Representative", as used throughout the document, shall refer any of the Owner's Project management team, insurance carrier representative(s), Owner's designated agent, or campus representative(s).
- B. The term "Contractor" as used throughout the Contract Documents shall refer to the party having a direct contractual agreement with the Owner to provide services. This term is to apply whether Contractor is known as a Prime Contractor, General Contractor, Construction Manager, or Design/Build Contractor.
- C. The term "Subcontractor" as used throughout the Contract Documents shall refer to any on-site Subcontractor, regardless of tier.

1.05 EMERGENCY / IMPORTANT CONTACT INFORMATION

- A. Consult with your MD Anderson Representative regarding the correct emergency contact information for the facility in which you are working. Each facility may have a different emergency call procedure.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

PART 3 - EXECUTION

3.01 ASBESTOS CONTAINING MATERIAL

- A. Environmental Health and Safety must review all Job sites prior to the start of a Project to determine the presence of Asbestos Containing Material (ACM).
- B. All suspect materials shall be considered asbestos-containing material until identified otherwise by an EPA approved method of analysis for identifying asbestos-containing material.
- C. Any Contractor personnel needing to disturb any suspected asbestos containing building materials shall first contact their MD Anderson Representative. It is then the responsibility of the MD Anderson Representative to contact Environmental Health and Safety to determine if there is any Asbestos Containing Materials present.
- D. Contract personnel coming into contact with known or suspected asbestos containing materials (ACM) will:
 - 1. Avoid any physical contact or other actions that may damage or otherwise disturb the material.
 - 2. Submit all requests for sampling suspected asbestos containing materials through your MD Anderson Representative. If the material has not been previously identified as containing asbestos, Environmental Health & Safety personnel will sample the materials, obtain analysis, and report results to the requester.

3.02 BLOODBORNE PATHOGENS

- A. Contractors shall instruct their employees in the concept of Standard Precautions and document training in accordance with OSHA 29 CFR Section 1910.1030.
- B. The Contractor must take every effort to prevent exposure to blood and/or body fluids while in the hospital.

- C. Patient care and research areas are considered to have the potential for exposure and special instructions may be given by the nursing or research staff on how to avoid potential contamination. Contact your MD Anderson Representative to determine if an exposure potential exists for all areas in which you will be working.
- D. Contractors shall not handle bags or containers identified as containing potentially infectious materials. Contractors may contact Environmental Health and Safety at 713-792-2888 for additional questions.
- E. For Smithville / Bastrop, Contractors may contact Environmental Health and Safety with additional questions at:
 - 1. Smithville Office Phone: 512-237-9522, 9536
 - 2. Bastrop Office Phone: 512-332-5232

3.03 CELLULAR PHONE AND RADIO USE

- A. The use of the following devices in PMA locations should be used with caution (beyond six feet of physiological monitoring systems):
 - 1. Cellular Phones
 - 2. Computers with wireless capabilities
 - 3. Two-way pagers
 - 4. Wireless handheld devices
- B. Definitions:
 - 1. Cellular Phone – Telephone that uses a frequency range of 800 - 1910 MHz to transmit voice and data to a remote cell and up to 625mW of power.
 - 2. Close Proximity - within twenty (20) feet for two-way radios and within three (3) feet for cell phones and others of a physiological monitoring system.
 - 3. Non PMA Area - an area of M.D. Anderson facility outside of the defined PMA Areas.
 - 4. Physiological monitoring area (PMA)- An area of M.D. Anderson facility where patients are likely to require the use of a physiological monitoring (e.g., Electrocardiograph, electroencephalographs, pulse oximetry, cardiac output, invasive pressure, etc) for care or treatment.
 - 5. PMA Locations: Bone Marrow Unit (G11), Cardiac Unit (P12), Cardio-Pulmonary Clinic (R8), Diagnostic Imaging (G3, R3, B3, ACB4-ACB7), Emergency Center (R1, P1, P2), Endoscopy Clinic (R5), Intensive Care Unit (G7), Operating Rooms (G5, ACB4), Pediatric Unit (G9, R7), Post Anesthesia Care Unit (G3, G5, ACB4, P3 Pod B), Rehab and Patient Therapy (P8), and the Telemetry Unit (P7).
 - 6. Wireless Communication Devices - Cellular telephones and two way radios are the only devices currently defined as having caused interference to medical devices.
 - 7. Two Way Radios – “Walkie-talkies” which use a frequency range of 29 - 1000 MHz to transmit voice between two locations up to 5 watts of power.
 - 8. Wireless Handheld Devices – Commonly known as PDA (Personal Digital Assistant). Devices that provide a range of personal information management, voice communication, data communication, and computing capabilities, that relies on wireless technology to transfer or retrieve data. May include Palm Pilot, Pocket PC, Blackberry, Smartphone, or similar devices with operating frequency of 800 to 1900 MHz.

- C. If allowed to be turned on, the volume of radios and cellular telephones must be turned down to minimize disruption to patients and operations.

3.04 CONDUCT

- A. The use or consumption of alcoholic beverages or controlled substances is strictly forbidden on any Institution owned or controlled property.
- B. Contractor shall not permit any person to operate a motor vehicle or heavy equipment while taking prescription or non-prescription medication that may impair their ability to operate safely.
- C. MD Anderson is a NO SMOKING Institution. No smoking or use of tobacco products is allowed on any Institutional property. There are no designated smoking areas. Anyone found smoking will be immediately removed from the jobsite.
- D. Contractor personnel shall be courteous to all tenants, business invitees, patients, visitors, and employees.
- E. Unacceptable behavior on the part of the workers anywhere on campus, including parking lots, the project site, the accessible route(s) through the site or through the campus may lead to the identifiable Contractors being removed from the project.
- F. Personal grooming, personal hygiene and language by Contractors must be constructed in a professional manner at all times. Use of foul and off-color language will not be tolerated and can result in Contractor removal from jobsite.
- G. Shirts must have sleeves of at least 3 inches, measured from the armpit seam. All buttoned shirts must be buttoned to at least the third button from the top. T-shirt styles may be approved if they are part of a company uniform or contain no political or offensive language or images. For additional guidance, see Section 3.26 Personal Protective Equipment.
- H. Pants that are excessively loose, torn, ragged or with dragging cuffs will not be permitted. Shorts are not allowed.
- I. No clothing, accessories, or hardhat stickers that display offensive, derogatory or inflammatory wording or graphics shall be worn on the worksite.
- J. All clothing must be in good repair and free of any large holes or major damage. All clothing must be clean and sanitary at the start of each work shift and periodically cleaned to prevent tracking dust and debris out of the construction area.
- K. Workers clothing must be clean of visible dusts and dirt when outside of the Project site.
- L. No radios or music shall be allowed on the Project including headphone systems. Personnel must be able to hear alarms and warnings in the immediate area. (This does not pertain to the use of two-way hand held communication equipment or phones).
- M. No tools or equipment will be loaned by Owner to Contractors to assist them in completing Projects.
- N. Contractor personnel shall not tape back lock/latch mechanisms nor prop open any exterior door, security door, stairwell door, or fire / smoke door. Personnel may not disconnect any electronic security device or defeat lock systems.

3.05 CONFINED SPACES

- A. MD Anderson does not provide any confined space entry support such as sampling, entry permits, rescue personnel, rescue equipment, etc., for contractor personnel.

- B. Contractors are responsible for ensuring all of their employees are trained on the recognition and significance of confined space entry procedures in accordance with 29 CFR 1910.146.
- C. It will be the responsibility of the Contractor performing the work inside the confined space to provide the necessary equipment to assess the hazards within the space and prepare the space for entry and to meet the precautions of the entry permit.
- D. Contractor shall provide all emergency rescue equipment and personnel as required by 29 CFR 1910.146, as applicable.
- E. The Contractor conducting the work inside a permit-required confined space shall follow, at a minimum, all applicable OSHA requirements.

3.06 CONSTRUCTION SAFETY SITE INSPECTIONS

- A. All construction sites will be subject to periodic inspections by Environmental Health and Safety representatives. The inspector(s) will be looking for life safety, environmental, construction safety, and indoor air quality deficiencies. Once noted, the inspector will notify the MD Anderson Representative responsible for the site. The inspector may also notify the Contractor Representative on site.
- B. All noted deficiencies shall be immediately corrected.
- C. The inspector will be enforcing IAQ measures found in the "Maintaining Indoor Air Quality During Construction and Renovation" policy / procedures and other requirements set forth in the MD Anderson construction specifications for that Project. (See Attachment A).
- D. A job or activity will be suspended if an imminent danger to patients, animals, visitors, employees, Contractor personnel or facilities is observed.

3.07 CONTRACTOR DAILY SIGN-IN AND WORK NOTIFICATION - HOUSTON

- A. Contractors must follow any specific check-in procedures for the facilities in which they will be working. Your MD Anderson representative will inform you of these procedures.
- B. All Contractors/vendors must wear an MD Anderson-issued ID badge at all times while on property owned or under the control of the Institution. Badge must be worn and be visible at all times. Contact your MD Anderson Representative for assistance in obtaining an ID badge.

3.08 CONTRACTOR DAILY SIGN-IN AND WORK NOTIFICATION – SMITHVILLE / BASTROP

- A. Contractors/Vendors hired by the Facilities Management Division must register their activities with Facilities Management before commencing work.
- B. Contractors coordinate with Project Managers for access to the campus. Contractors must submit a Construction Schedule to Physical Plant Management.
- C. Physical Plant informs Facilities Management of contractors schedule as well as the badge numbers issued to that contractor. Facilities Management will issue badges to contractor for their use while on the property. Contractors are responsible for distributing the badges as needed.
- D. Contractor/vendor registration is performed in the Physical Plant Building.
- E. All Contractors/vendors must wear an MD Anderson-issued ID badge at all times while on property owned or under the control of the Institution.
- F. Contractors/vendors who fail to register with Physical Plant Management are subject to removal from the property by the UT Police.

3.09 CONTRACTOR INJURIES AND INCIDENTS

- A. Contractors shall make prior provisions for the treatment of minor injuries.
- B. Contractor is responsible for cleaning up all blood and body fluids and debris from accidents.
- C. Contractor employees requiring immediate medical treatment should be taken to the emergency room of a local hospital. MD Anderson does not provide medical treatment to Contractors engaged in projects.
- D. If an injured worker cannot be moved and assistance is needed, contact the Houston or local Fire Department (911) for an ambulance.
- E. An injury requiring treatment beyond minor Job Site First Aid, shall be reported immediately to your MD Anderson Representative or Designee and Monitoring Services 713-792-2888 (All Houston Locations) and UTPD Smithville/Bastrop at 512-332-5371 or 512-237-9411
- F. A copy of the incident / accident report must be provided in a timely manner to your MD Anderson Representative. A preliminary report must be made within 24 hours of the end of the next working day.
- G. All incidents that result in property damage must be reported to your MD Anderson Representative.

3.10 CONTRACTOR SAFETY ORIENTATION

- A. All Contractor personnel are required to complete the MD Anderson Construction Safety and Infection Control Orientation Training given by the Environmental Health and Safety Office before beginning work at the Institution. This training may be in the form of videos or an in-class presentation. Videos can be requested through the EH&S department or your MD Anderson Representative and are available in both English and Spanish.
- B. Completion of orientation is required to obtain an MD Anderson hardhat sticker and emergency contact card.
- C. The Contractor may be required to attend orientation again for refresher, and review any changes if deemed necessary by the Owner.
- D. The Contractor's MD Anderson Representative must contact the Environmental Health and Safety Office to make arrangements for the orientation session.
- E. It is the responsibility of the Contractor to ensure that the information given in the orientation session is understood by all workers (i.e., Spanish or other language translation).

3.11 ELECTRICAL SAFETY

- A. Refer to Section 3.24 on Lock Out / Tag Out requirements.
- B. All electrical power tools, equipment and extension cords shall be inspected daily before use. Defective items shall be immediately removed from service for repair or replacement.
- C. NOTICE: RED OUTLETS are for power requirements provided by the Emergency Generator System and shall NOT be used by Contractor personnel.
- D. Ground Fault Circuit Interrupters (GFI's) shall be in use between any permanent receptacle and any Contractor equipment.
- E. Temporary power panels shall have GFI protected circuits built into the panel.
- F. The GFI shall be tested for function before plugging in any Contractor equipment.

- G. Electrical power tools shall be grounded, or double insulated, or battery powered. The cord on the tool must be free of defects.
- H. Battery powered portable hand tool battery charging stations are not to be plugged into hallway or exit stairs outlets or other areas so as not to create a trip hazard.
- I. Extension cord sets shall be the "heavy duty" three-wire grounded type (14 gauge or larger), and must be rated for the particular application in which it is to be used.
- J. Three-wire flat type extension cords are NOT permitted.
- K. Defective cord ends must be replaced with a UL rated repair end; Contractor must follow the manufacturer instructions for repair installation.
- L. Damage to the cord jacket shall not be taped over and must be repaired per manufacturer's recommendations.
- M. Extension cords shall be routed overhead whenever possible or otherwise protected against damage or tripping hazard by being securely taped to the floor or secured by other acceptable means and approved by the MD Anderson Representative.
- N. Running/hanging extension cords through ceiling spaces is not permitted. Special permission from Environmental Health and Safety is required for any variation from this requirement.
- O. Extension cords must be used as designed by the manufacturer. Avoid using extension cords in a manner to cause damage to the electrical system or cause personal injury.
- P. All electrical shutdowns and electrical "taps" must be coordinated through the Project Manager or MD Anderson Representative for that Project.
- Q. Contractors are absolutely not allowed to turn on/off any electrical source breakers or switches without permission from the respective MD Anderson Facilities Management representative for that building/space. This should be accomplished through a Utility Shutdown Request submitted by the Project Manager or MD Anderson Representative.
- R. Existing and new electrical equipment must be protected at all times from humidity, liquid material splashes, activities inducing to vapor formation and condensation.
- S. No liquid materials shall be handled in electrical rooms, electrical equipment areas or areas adjacent to electrical equipment locations.
- T. In the event that the Contractor must handle liquid materials in the vicinity of electrical equipment locations, the Contractor must inform the Owner and seek written approval, prior to bringing those liquid materials to the above-mentioned locations.

3.12 EXCAVATIONS

- A. All excavation shall have the following prerequisites:
 - 1. Discussion with the appropriate MD Anderson Representative or site owner/property manager of as-built locations of all underground utilities in the vicinity;
 - 2. Where applicable, a phone call for utility "locates" shall be completed seventy-two (72) hours in advance. "Potholing" and hand excavation shall be required within three horizontal feet of "located" centerlines.
 - 3. All excavations must follow the applicable OSHA guidelines and requirements as related to design and protection of excavations.
 - 4. All trench excavations should be backfilled or plated at the end of each shift.

5. When an excavation cannot be backfilled or plated in the same day it is created, a highly visible hard and sturdy barricade such as a wooden fence or wooden railings shall be erected. Excavation protections in areas of traffic must comply with local, state, or federal safety standards.
 6. Means of access into excavations shall be removed or physically barricaded at the end of each workday.
 7. Excavations in areas of public access shall be secured with a temporary "hard" barricade such as solid fencing or wooden railings to prevent entry. These excavations and protection plans must be approved by the Environmental Health and Safety Office.
- B. Where applicable, all required engineer stamped excavation plans must be readily available at all excavations for review by MD Anderson Representative(s). Certificates of soil testing shall also be made available.

3.13 FALL PROTECTION AND PREVENTION

- A. Work in areas not protected by a standard guardrail system OR present a fall hazard greater than six (6) feet shall require compliance with all current applicable OSHA Fall Protection requirements and/or ANSI/WCA I-14.1 Window Cleaning Safety Standard.
- B. The Contractor shall ensure that all workers exposed to fall hazards have been properly trained and equipped by their employer.
- C. No worker or equipment shall be allowed to perform work directly above another worker unless adequate overhead protection is provided.
- D. Covers or fencing of sufficient design shall be placed over holes, roof and floor openings or drop offs to prevent personnel or equipment from penetrating the opening.
- E. Covers or fencing shall be physically secured and clearly marked with warning message, such as "Danger", "Hole", or "Cover! Do Not Remove".
- F. If a cover is too small for a warning message, it shall be painted bright orange or red.
- G. All puncture and impalement exposures shall be covered or eliminated as soon as they are created. Exposed ends of rebar are to be covered with material that is designed to prevent impalement of a 250-pound body from a fall of four (4) feet.

3.14 FIRE PREVENTION

- A. All combustible materials shall only be stored in approved areas as designated by the MD Anderson Representative.
- B. MD Anderson is a NO SMOKING facility. No smoking or use of tobacco products is allowed on any Institutional property. There are no designated smoking areas. Anyone found smoking will be immediately removed from the jobsite.
- C. Contractor shall coordinate the covering and uncovering of smoke/heat detectors with Owner's Environmental Health and Safety Department (713-792-2888) prior to starting work or upon discovery of such devices as work progresses. Covering smoke detectors with tape, rubber gloves, or any other method that can agitate or damage a detector is prohibited.
- D. Contractor is subject to fines by the Cities of Houston, Bastrop/Smithville Fire Marshal or Fire Department Inspector if they are found to negligently activate fire alarm devices.

- E. For large or high dust generating Projects, the Contractor shall coordinate with their Project Manager or MD Anderson Representative to arrange for the replacement of smoke detectors with heat detectors. Environmental Health and Safety must approve all changes to any fire alarm or suppression systems.
- F. Combustible scrap, trash, and debris shall be removed from the Project site on a daily basis, or, more frequently as required.
- G. Contractor shall not tape back door lock/latch mechanisms nor prop open any exterior door, security door, stairwell door, or fire / smoke door. Lock cores shall not be removed. Coordinate changing lock cores to the designated construction core lock with your MD Anderson Representative.
- H. Flammable products shall be limited to one days supply inside the building. Flammable products shall be stored outside the building or in approved UL Rated flammable storage cabinets. Flammable liquids shall be in approved safety cans or cans designed for their use.
- I. No internal combustion engines or portable propane heating devices are allowed in any Institutional buildings unless approved by the Owner. Coordination of how gasoline will be transported through buildings and stairwells must be coordinated with your MD Anderson Representative.
- J. Absolutely no gasoline will be allowed inside MD Anderson owned buildings. For temporary use outdoors, only approved metal safety cans will be permitted.
- K. Compressed flammable gas cylinders (i.e acetylene) shall not remain inside the building overnight and must be removed from the premises at the conclusion of each workday. Oxygen cylinders must also be removed from the premises at the end of each workday. Gas bottles are not allowed to be stored in areas that are used as Contractor offices.
- L. The Contractor shall also have the Material Safety Data Sheets (MSDS) for each gas used available within 15 minutes when requested. .
- M. Compressed flammable gas cylinders, while on the project site, shall be secured by chain or other suitable method to prevent tipping or falling over. All safety caps shall be securely installed when tanks are not in use.
- N. When working in the ceiling space or on rated fire/smoke rated walls and structures, all holes and penetrations for wires, conduits, piping, etc. shall be sleeved and sealed with a UL approved fire caulking / sealing compound at the end of each workday. Any holes that must remain overnight must be sealed with an equivalent temporary fire proofing material as approved by the MD Anderson Representative.
- O. Work on fire sprinkler and detection systems shall continue until the system operation is fully restored. No impairments will be allowed to extend beyond approved periods of time or during times when the site is unattended.
- P. Shutdown of any fire suppression or detection systems/devices shall be coordinated through the Owner's Designated Representative. Unauthorized shutdown or disabling of life safety systems shall be grounds for immediate removal from the jobsite.
- Q. All Contractors are required to supply and maintain a minimum of one currently tagged ABC fire extinguisher, 10 pound (Class 2-A) or greater. The use of a M. D. Anderson owned fire extinguisher will not be permitted. Requirements are as follows:
 - 1. Indoors - Within 100 feet of any Class-A hazard, within 25 feet of any hot work and one for every 3000 square feet of floor space.
 - 2. Outdoors – between 25 - 50 feet of any hot work.

- R. All Contractor employees shall be trained on the proper use and handling of fire extinguishers.
- S. If a Project involves multiple locations on a single floor or on multiple floors, additional multi-purpose fire extinguishers are required.
- T. The Owner may require additional extinguishers as dictated by the risk of each project or project area.

3.15 FIRE REPORTING AND EVACUATION PLAN

- A. Contractor shall establish a designated emergency evacuation assembly area for all Projects prior to starting work. Contractor shall train all employees on assembly area locations and how to get to each area.
- B. For areas that do not allow a clear view of egress route, the Contractor must post easy to understand maps, that are clearly visible to all workers and visitors, of the proper exit paths as required by OSHA and NFPA.
- C. In the event of a fire alarm, all work is to stop, all sources of ignition or hazardous work shall be immediately halted and all personnel are to proceed to the door of the construction site and wait for further instructions.
- D. In the event of a smoke, fire, or emergency incident the following procedures should be followed:
 - 1. RACE – Rescue, Alarm, Confine, Evacuate/Extinguish
 - a. Rescue: rescue Patients, Visitors, Employees
 - b. Alarm: a fire alarm pull station should be activated as quickly as possible or call 911.
 - c. Confine: confine the fire or smoke by closing all doors to the area.
 - d. Evacuate/Extinguish: extinguish the fire after you have performed the above operations but only if you can do it safely.
- E. When reporting a fire by phone:
 - 1. The caller should provide their name, the location of the fire, and a brief description of the incident. The caller should not hang up until emergency services personnel instruct them to do so.
 - 2. The caller should be prepared to guide the Fire Alarm Response Team and Emergency Responders to the fire location.
- F. All Contractor personnel shall report to their designated assembly area immediately. Contractor must coordinate the Designated Assembly Area with their MD Anderson Representative prior to the beginning of the project.

3.16 GENERAL SITE CONDITIONS – LIFE SAFETY

- A. Contractors will comply with all OSHA and NFPA life safety requirements as related to emergency exiting and lighting for construction areas.
- B. For areas that do not allow a clear view of egress route, the Contractor must post easy to understand maps, that are clearly visible to all workers and visitors, of the proper exit paths as required by OSHA and NFPA. Contractor should coordinate the creation of these maps with their MD Anderson Representative.

- C. Contractors are required to maintain any required temporary signs directing to exit routes. These signs shall be externally or internally illuminated by lighting that is either on emergency power or of the luminescent "glow-in-the dark" type.
- D. All temporary lighting and bulb protective devices shall be maintained and in good working condition. Wiring for temporary lighting shall be removed at the conclusion of the Project scope.
- E. All emergency exit doors must be maintained and in good working order. Paths to exits must remain clear at all times.
- F. Depending on the size of the project site and number of Contractors working in the site, a Contractor may be required to maintain at least two clearly marked exits per NFPA 101 and 241 requirements.
- G. All exits must be clearly marked with the words "EXIT" or "EMERGENCY EXIT". Doors that the Contractor does not want to use for daily access may be marked with the words "EMERGENCY EXIT ONLY".
- H. Lock all entry doors/gates to the project site. Due to life safety requirements, chains and/or pad locks will not be permitted on any door. Contact your M.D. Anderson Representative for the proper lock cores and keys.
- I. If a combination key pad is installed on a jobsite, the door must also be equipped with a construction core to ensure emergency personnel maintain access to the site. Key pads without a construction core will not be permitted. Contractor must also ensure that the combination to the key pad is not posted on the wall or door of the site. If this occurs, the combination must be changed immediately.

3.17 HAZARD COMMUNICATION (HAZCOM)

- A. The Contractor shall provide training and maintain documentation that their personnel and Subcontractors have received proper training in Hazard Communications under the provisions of OSHA's requirements in 29 CFR 1910.1200 and/or 1926.59.
- B. A printed, legible copy of the Material Safety Data Sheet (MSDS) shall be made available within 15 minutes of a request for each chemical used on the job site.

3.18 HAZARDOUS WASTE AND WORK IN HAZARDOUS LOCATIONS

- A. Owner chemical, biological or radioactive materials (hazardous substances and equipment) must be moved or secured prior to beginning work in any area. Contractor shall coordinate the removal of these items with their MD Anderson Representative.
- B. The Contractor's MD Anderson Representative will coordinate any pre-site assessments with Environmental Health and Safety, the laboratory principle investigator, clinic representative or laboratory manager to prevent disturbing experiments/animals or creating accidents.
- C. All Contractors must have permission from their MD Anderson Representative and the laboratory manager or clinic representative before entering laboratory or hospital clinical work areas.
- D. Disposal of all hazardous wastes generated by Contractor activities is the responsibility of the Contractor. All wastes must be removed from the premises.
- E. Absolutely no chemicals, trash, paint, paint brush rinse, shop vacuum contents, excess materials, sand, dirt, etc. may be disposed of in storm sewers/drains or sanitary drains.
- F. Contractor must prevent dirt from entering exterior storm drains by adding appropriate silt protection screen material to all exterior drains that may be impacted by the project.

- G. Contractor must follow all requirements set forth in the Storm Water Pollution Prevention Plan (SWPPP) as indicated in the appropriate Project Specification (Section 01 57 23). Consult the Environmental Health and Safety Office (713-792-2888) for questions regarding environmental permitting and plans.
- H. All hazardous waste, fuel, oils, and chemicals stored outdoors must have adequate secondary containment to prevent discharge onto the ground or in storm or sanitary sewer drains. All containers must be stored to prevent theft or unauthorized access. All containers outdoors must also be protected from weather elements and secured from public access.
- I. Contractor shall ensure that adequate spill protection equipment and supplies are readily available during all equipment refueling activities.

3.19 HOT WORK PERMITS

- A. A valid and signed Hot Work Permit must be obtained anytime work being implemented involves the use of any incendiary or heating devices such as:
 - 1. Electric Arc Welding
 - 2. Oxygen Acetylene Welding
 - 3. Tig/Mig Welding
 - 4. Cutting/Soldering
 - 5. Propane Torch
 - 6. High Heat Producing Sources
 - 7. Spark Producing Activities
 - 8. Gasoline, diesel, or propane powered equipment used indoors, on roof surfaces, or within distances that could pose a threat of fire to facilities.
- B. Determination of Contractor Hot Work Permit Process or UTMDACC Hot Work Process to be used made prior to beginning of project work.
- C. All Smithville/Bastrop hot work applicants must go to Research and Education Facilities (REF) office and fill out a blank Hot Work Permit. Instructions on how to properly fill out the permit are available.
- D. Permits to work on ANY medical gas systems must be obtained from the Facilities Department responsible for that area prior to work.
- E. Hot Work Permits shall be approved on and for the day of work and posted in the vicinity of any burning or welding operations that are to be completed inside or near a building or enclosure. Permits are issued for day of work only.
- F. Hot work applicants must call 713-563-5000 to obtain the appropriate Facility Representative to issue a Hot Work permit for the facility in which they are working.
- G. Responsibilities:
 - 1. It is the responsibility of the contractor, vendor, and/or MD Anderson workforce members to read, understand, and acknowledge sections I, II, and III of the Hot Work Permit.
 - 2. It is the responsibility of the facilities representative to complete Section IV and sign on the day of work.

3. Contractors are responsible for ensuring all of their authorized and affected employees are trained on the significance of Welding, Cutting, and Brazing procedures in accordance with OSHA regulations 29 CFR 1910.252 - 1910.255.
4. At the end of any cutting operation or at the end of the day, all fuel gas cylinders must be removed from the facility. Fuel gas cylinders WILL NOT be allowed to remain in the facility overnight.
5. Anti-flashback arrestors shall be installed at the base of all Oxy-Acetylene cutting torches or at the pressure regulator gauges where the hoses are attached, unless the torch is equipped with a built-in arrestor. Only friction strikers shall be used to light and re-light Oxy-Acetylene torches.
6. Fire watch personnel shall be posted at every operation that produces sparks, flames or sufficient heat to create an ignition. Upon request for a hot work permit, fire watch personnel shall provide verification of successful Fire Watch training by the Houston Area Safety Council (HASC) or similar entity. Failure to provide current documentation will result in a denial of the hot work permit. Additional fire watch personnel shall be posted in all areas in which hot work sparks, slag, heat, etc. go beyond the sight of the primary fire watch.
7. Except in a fabrication shop or in front of a properly guarded grinding wheel, the person performing the work may not act as a fire watch personnel. When sparks, slag, or fire may fall to a different level, separate fire watch personnel shall monitor each level directly below the work (including exterior locations).
8. Heaters for welding electrodes shall have a manufacturer's label that certifies the purpose of the unit. Job-built heaters shall be prohibited.
9. The remains of welding electrodes shall be picked up and disposed of as soon as each electrode is expended. No welding electrode shall be permitted to fall and remain in the work area.
10. All temporary fabrication areas shall be approved by the facilities representative prior to starting work.

3.20 HURRICANE / SEVERE WEATHER PLANS FOR CONSTRUCTION SITES

- A. Construction sites may be required to have a Hurricane/Severe Weather Plan special to that site. Consult with your MD Anderson Representative for applicability, as some departments may require this Plan for small projects.
- B. A copy of the Hurricane/Severe Weather Plan must be submitted to your respective MD Anderson Representative prior to starting work.
- C. The Texas Medical Center (TMC) Emergency Preparedness Office or Campus Director (Smithville/Bastrop) will issue warning levels in the event of possible flooding or hurricanes. Contractors are urged to learn more about the TMC warning system by contacting their MD Anderson Representatives.

3.21 IDENTIFICATION (ID) BADGES

- A. It is the policy of The University of Texas MD Anderson Cancer Center to issue an identification (ID) badge to each employee and to all Temporary Agency and Contractor personnel.
- B. All badge requests must be processed by the MD Anderson department (i.e., PCF, REF, CPM, AFCO, etc.) that is issuing the contract for work.

- C. ID badges must be worn at all times in a highly visible manner while on property owned or under the control of the Institution.
- D. Contractors are responsible for returning any badges for personnel that will no longer be providing services to the Institution within one week after termination or conclusion of Project.
- E. The badge must be clearly visible to someone facing the wearer.
- F. A fee may be required to replace a lost Contractor badge. Lost identification badges that have programmed electronic access must be reported to the contracting department representative (i.e. Project Manager) immediately.
- G. Personnel not wearing proper identification may be subject to immediate removal from the jobsite.

3.22 INTERIM LIFE SAFETY MEASURES (ILSM) GUIDELINE

- A. Interim Life Safety Measures (ILSM) – Is a series of administrative actions required to temporarily compensate for significant hazards posed by existing National Fire Protection Association 101, as cited in UT MD Anderson Design Guide Element Z2005 Life Safety Code (LSC) deficiencies or construction activities.
- B. All Contractors are required to abide by any ILSM requirements that may be implemented by the Owner due to a temporary deficiency/hazardous condition and must be continuously enforced through Project completion or until the deficiency is corrected. Each Contractor shall be responsible for ensuring all personnel on site are aware of the Interim Life Safety Measures implemented.
- C. Contractors may be required to keep daily logs of the condition of their jobsites.

3.23 LADDER SAFETY

- A. Ladders must be inspected prior to each use. Defective ladders shall be immediately removed from service and removed from the job site.
- B. Ladders shall be used only in accordance with the manufacturer's labeled instructions.
- C. Stepladders shall be used only in the fully open position with spreaders locked in place. Using a folded stepladder leaned against a support is prohibited.
- D. Employees shall not stand on the top platform, the step below the top platform or the back stretchers.
- E. Do not sit on, or straddle the top platform.
- F. Stepladders shall not be used for access to platforms or other elevated areas – an extension ladder is required.
- G. Extension ladders must be properly positioned and locked in place.
- H. Extension ladders used for access to elevated areas shall extend at least three feet beyond the supporting structure.
- I. Extension ladders must be secured to the supporting structure or be held at the base by another employee.
- J. Job built ladders shall conform to applicable ANSI Standards AND shall be limited to use in excavations or concrete form work only. These types of ladders must be inspected daily.

- K. At the end of each workday, remove and store, or secure from use all portable and job-built ladders that provide ground access to any elevated platform or structure so as to prevent unauthorized access.
- L. Chaining ladders to equipment or mechanical, electrical, or plumbing fixtures or piping is prohibited. Ladders must be stored in a manner to prevent blocked fire exits or escape routes. Ladders must not block access to equipment or facilities.
- M. Portable stepladders and extension ladders shall be rated class I-A.
- N. Ladders that have multiple sections that can be manipulated to form multiple surfaces and angles are not allowed.
- O. Aluminum ladders are prohibited.
- P. All exceptions to these requirements must be approved by MD Anderson Environmental Health and Safety.

3.24 LOCK OUT / TAG OUT

- A. It is the policy of The University of Texas MD Anderson Cancer Center that its employees and Contractors are protected from all energy sources during maintenance and repair activities.
- B. Each facility has a Lock Out/Tag Out program. Contractors whose work will involve the Lock Out/Tag Out process shall comply with the provisions of the respective Facilities Management program and procedures. If there is a difference between the Contractor's program and the Institution's program, the more stringent procedure shall prevail.
- C. Lock Out/Tag Out procedures may be specific to each type of equipment or device. Consult with the Facility Maintenance Department for specific procedures.
- D. Contractors are responsible for ensuring all of their authorized and affected employees are trained on the significance of Lock Out/Tag Out procedures in accordance with 29 CFR 1910.147 and must follow these requirements.
- E. Only the authorized employee or Contractor who applied a device is allowed to remove his/her lock out or tag out device from each energy-isolating device so energy can be restored to the equipment. MD Anderson personnel may add locks or tags to tagged-out devices – Contractors are not allowed to remove these locks or tags.
- F. Never remove another person's tag/lock. Unauthorized removal of tags/locks will be grounds for immediate and permanent removal from the jobsite.
- G. If tags/locks remain on equipment, contact the appropriate personnel or department for resolution to the removal process.

3.25 MAINTAINING INDOOR AIR QUALITY (IAQ) DURING CONSTRUCTION AND RENOVATION ACTIVITIES

- A. It is critical to our patient's health that proper controls are in place to ensure indoor air quality is maintained during construction and renovation activities. These activities disturb existing dust and/or create new dust, which causes the release of Aspergillus and other mold spores into the air. These spores can result in serious complications, and potentially death, for immuno-compromised individuals.
- B. The guideline covers all Contractors involved in building maintenance, construction, renovation and/or repair and applies to all areas of the Institution.

- C. An Indoor Air Quality (IAQ) Permit may be required for every Project, no matter the duration. The permit explains the requirements needed to maintain the best possible air quality outside the work site.
- D. This permit shall be posted at the site and shall remain posted until the completion of the Project.
- E. EH&S will perform periodic inspections, verify that the proper controls are in place and will periodically monitor sites with instruments used to measure applicable indoor air quality (IAQ) parameters.
- F. Contractor must follow the requirements of the Indoor Air Quality Permit and the Maintaining Indoor Air Quality During Construction and Renovation Policy.
- G. See Attachment A for the "Maintaining Indoor Air Quality During Construction and Renovation Policy" for the requirements that must be followed for each Project. This policy is a guide to the minimum protective measures that are to be in place prior to start of all Projects.

3.26 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- A. The minimum OSHA requirements for Personal Protective Equipment (PPE) shall be required of ALL persons on the Project site. Each Contractor/Subcontractor shall provide their workers with all required PPE. The Contractor is responsible to ensure that PPE is inspected and maintained in proper condition.
- B. Safety Hard Hats: When required, every person in the Project shall wear a hard hat that meets the minimum OSHA requirements.
- C. When required, hardhats are to be worn and maintained in accordance with the manufacturer's recommendations. "Cowboy" style hard hats shall not be allowed, including ANSI approved hats. Hard hats that display noticeable wear or damage shall be replaced or repaired per manufacturer's specifications.
- D. Eye Protection: When required, every person on the Project shall wear eye protection. Additional face protection may be required when work operations create airborne particles, chips, or sparks. Eye protection and face protection shall meet the minimum OSHA requirements.
- E. Shoes: When required, every worker on the Project shall wear shoes that have soles with a resistance to punctures, leather or leather equivalent uppers that cover the entire foot and ankle and offer resistance to scrapes and cuts. Sandals, open-toed shoes, dress loafers, high-heels, fabric shoes and all athletic style shoes (including those with ANSI markings) are prohibited.
- F. When required, exterior toe and metatarsal cover shall be used when activities involve impact exposures to the feet (ie; jackhammering, water blasting, concrete demolition etc), unless the shoe has this protection built into the footwear.
- G. Clothing: When required, sleeve length shall cover the ball of the shoulder. Shirts shall not have noticeable holes, be long enough to be tucked into pants and be free of profanity, objectionable, or obscene messages. Pants shall be full length and without excessive holes.
- H. Hearing Protection: When required, employees shall be provided with hearing protection against the effects of noise exposures from machines, equipment or surrounding operations generating sound levels that exceed OSHA hearing protection requirements. Employees required to use hearing protection shall be tested and trained in the use and limitations of such protection.
- I. Hand Protection: When required, employees handling materials or equipment with potential hand injury hazards shall be provided with appropriate hand protection.

- J. Harnesses, Lifelines, and Lanyards: When required, employees working in areas where there is an exposure to falls of heights greater than six (6) feet, regardless of work activities (i.e. steel erection, leading edge work, scaffold use, and brick masonry) shall be protected by measures that comply with the ANSI/ASSE Z359 Fall Protection Standard.
- K. Respiratory Protection: When required, employees shall be provided with respirators when it is necessary to protect them from inhalation of toxic or harmful gases, vapors, mists, fumes, and dust.
- L. When required, employees required to use respiratory protective equipment shall be medically qualified and thoroughly trained in the use and limitations of such equipment. Employer must demonstrate compliance with OSHA 29 CFR 1910.134.
- M. Other PPE: When required, employees working in areas where there is a possible danger to other parts of the body not listed above shall be protected by the appropriate PPE for that body part.

3.27 ROOF WORK

- A. All roof work must be approved by the Administrative Facilities Campus Operations (AFCO) - Chief Engineer at the campus you are working at prior to project start.
- B. All roof access to T. Boone Pickens Tower must be approved prior to access. This area contains multiple radio transmitters and receivers that emit harmful radio and microwaves. All personnel accessing this area must have attended the required training. Contact the building owner for training requirements.
- C. Contractor is responsible for ensuring that they are able to immediately contact emergency forces during an emergency event by providing cell phones, radios, or access to working phones within MD Anderson facilities. Contractor shall ensure personnel working on the jobsite know the address of the building.
- D. Any roof repairs that are performed around fresh air intakes shall be scheduled with Facilities Operations Group (713-563-9977) prior to any planned work. Contractor is required to provide fume control devices when performing roof repair, replacement, or installation to prevent odors from being transmitted inside the facility.
- E. Some areas of roofs may be restricted due to potentially hazardous exhaust from laboratories or processes. Contractor must obtain approval from their MD Anderson Representative before proceeding with entering any roof areas.
- F. Contractors are required to comply with all applicable OSHA and ANSI Fall Protection requirements.
- G. Contact Facilities Operations Group Campus Operations (713-563-9977 or 713-563-1143) regarding proper davit use and tie-off areas.
- H. All roof work involving heated materials or open flames must have a valid hot work permit.
- I. The Contractor shall have a 20 pound ABC Fire Extinguisher on the roof and immediately available for use. Institutional fire extinguishers will not be loaned. Additional extinguishers must be provided as needed.
- J. All fire extinguishers must have current annual certification tags and in working order.
- K. All open flames must be continuously supervised.

- L. A 1-hour fire watch must be provided after any heated materials or open flames have been used during roof work. Fire watch personnel must perform a "touch test" to determine any residual hot spots. A laser thermometer is recommended. Fire watches could be up to two hours in duration.
- M. All propane bottles must be removed from the premises daily. Do not store propane cylinders in mechanical or roof spaces.
- N. All roofing materials shall be secured at the end of each workday to prevent disruption by wind and rain.

3.28 SANITATION AND HOUSEKEEPING

- A. Contractors and Subcontractors are responsible for ensuring that Project sites are effectively cleaned.
- B. "Effectively Cleaned" shall address all of the following issues:
 1. Place all construction waste, trash, and debris in a designated receptacle. Glass bottles shall not be permitted in the Project site. Trash must be removed on a daily basis as to prevent accumulation and attraction for pests. Contractor must have an approved method for removing trash from the jobsite (i.e., dumpsters, trucks, etc.) before starting work.
 2. Eating is not allowed on the jobsite. Limited amounts of soft drinks and water will be allowed but must be removed on a daily basis as to prevent attraction of insects or rodents.
 3. Contractor may only use PUBLIC restroom facilities assigned by their MD Anderson Representative. Contractors may not use staff restrooms.
 4. Any waste, trash, and/or debris created by the Contractor shall be cleaned (ie; sweeping, vacuuming, dust mopping, large debris removal etc.) at the end of the day to prevent accumulation of dirt and combustibles on the jobsite.
 5. Contractors are NOT allowed to use sinks or drains to clean materials or paint brushes.
 6. All holes and penetrations to the outside of the building must be sealed with an appropriate material as to prevent water, insects and rodents from entering the building.
 7. All windows must remain closed unless permission is granted by Environmental Health and Safety. All windows or penetrations used for ventilation purposes shall be protected from water, insect/rodent, and dust intrusion by use of protective covers and screen wire materials.
 8. Stack (or restack) all whole and scrap materials in locations that do not obstruct a clear pathway nor create a risk for toppling onto a person passing by the area.
 9. Place all hoses, cords, cables, and wires in locations that prevent them from damage and do not create tripping hazards.
 10. Restore all signs, barricades, fire extinguishers, guardrails, gates, etc. to proper locations and condition.
 11. Properly store and secure all flammable and combustible liquids and gases in proper containment or flammable storage cabinets.
 12. Collect and place all cut-off or waste pieces of rolling stock, as they are created, into waste or scrap containers. No rolling stock shall be permitted to fall and remain in the work area.

13. Used shot strips from powder-actuated tools shall be properly maintained and disposed of in accordance with manufacturer's recommendations.
14. All puncture and impalement exposures shall be covered or eliminated as soon as they are created. Exposed ends of rebar are to be covered with material that is designed to prevent impalement of a 250-pound body from a fall of four (4) feet.
15. All work surfaces shall be maintained in level and smooth condition as to prevent rolling carts from catching and possibly falling over while in transit. Appropriate temporary fill materials shall be installed as warranted.
16. All wheeled equipment shall have non-marking wheels or tape shall be used over wheels when moving through non-project areas to prevent marking and damage to floor surfaces. Tape should be removed if adequate traction is required to perform a task. Tape can be removed once in job-site area.
17. Contractors shall only use their trash dumpsters or dumpsters designated by their MD Anderson Representative.

3.29 SITE POSTINGS

- A. Contractor shall securely post the required warning signs (as required by the Owner and OSHA) for the Project area(s).
- B. All signs must be approved by your MD Anderson Representative. Consult your MD Anderson representative regarding facility specific informational signs.
 1. Signs that warn of impending danger (i.e., CONSTRUCTION AREA – DO NOT ENTER)
 2. Signs that communicate the level of personal protective equipment that is required (i.e., HARD HATS AND SAFETY GLASSES REQUIRED)
 3. All necessary permits (i.e., Hot Work Permits, Indoor Air Quality Permit, ILSM and/or other State/Local Regulatory Agency Permits as required by law).
- C. These postings must consist of the required color, size, and character size lettering and/or symbols as required by OSHA and/or State/Local regulations.
- D. Signs must be made from a sturdy material that resists tearing and fading. Laminated signs are acceptable for indoor postings.
- E. All exterior Projects must contain the above noted required postings in all locations that warrant these warning signs and postings.
- F. A single location such as a plywood Project board is acceptable for posting required permits and project information signage. Any required permits should be protected from the elements by covering them in a laminate or waterproof material.
- G. Contractor shall install and maintain any additional signs, barricades, warning devices, and traffic warnings.

3.30 SCAFFOLDING

- A. All scaffold systems (any temporary elevated platform (supported or suspended) and its supporting structure (including its point of anchorage), used for supporting employees or materials or both) - shall follow the manufacturer instructions and adhere to all applicable OSHA requirements per each type of scaffolding device.

- B. Contractor shall be required to receive permission from MD Anderson Facility – Administrative Facilities and Campus Operations before erecting any suspension or stationary scaffolding system on roofs or attaching lines to roof davits. Consult with the MD Anderson Representative for approval before beginning any work.
- C. All ground-supported scaffolds shall bear a safety tag that indicates the safety status of the scaffold. The Contractor shall designate a universal Project system for tagging scaffolding that is to be used by any or all personnel.
- D. Training and documentation shall be required for all workers on the Project who will erect, maintain, dismantle, or use the scaffolding. A designated competent person must ensure scaffold use requirements are maintained and inspected at the beginning of each work shift as per OSHA requirements. Contractor shall maintain documentation to support this requirement.
- E. Contractor will ensure proper fall protection for employees is required and followed per OSHA requirements when using scaffolding and aerial lift.
- F. Mudsills and surrounding areas at the base of ground-supported scaffolds shall be maintained in a well-dressed and level condition. Scaffold feet shall be installed on all legs and the maximum number of diagonal braces shall be included in every scaffold section.
- G. Every work level shall be fully planked and toe board shall be included along open sides. Overhead protection shall be constructed where walk-through passages are allowed.
- H. Brakes shall be secure at all times on rolling scaffolds, except when being moved. Workers shall not be allowed on the platform when the scaffold is being moved.
- I. Rolling scaffolds shall not be used on uneven or unstable surfaces. Wheels shall be non-marking or temporarily covered with tape to prevent damage to floor surfaces when being moved through non-project areas.

ATTACHMENTS

“A” - Maintaining Indoor Air Quality During Construction and Renovation Activities Policy

END OF SECTION 01 35 25

ATTACHMENT "A"

MAINTAINING INDOOR AIR QUALITY DURING CONSTRUCTION AND RENOVATION ACTIVITIES POLICY

Policy Number ADM0175

Last Revised by EH&S: 11/26/2013

| | | |
|---------------------------|---|---|
| PURPOSE | The purpose of this policy is to provide guidance for maintaining indoor air quality during activities such as construction, renovation, modernization, and structural repairs - particularly, to prevent Aspergillus and other mold spores from being generated or released into the air. These spores can result in serious complications, and potentially death, for immunocompromised individuals. | |
| POLICY STATEMENT | It is the policy of The University of Texas MD Anderson Cancer Center (MD Anderson) to manage all construction, renovation, modernization, and structural repairs in a manner designed to minimize the potential for the spread of infections due to degraded air quality or environmental contamination. | |
| SCOPE | <p>This policy applies to all workforce members and contractors involved in construction, renovation, modernization, structural repairs, and/or repair. This policy applies to all areas of the institution.</p> <p>Compliance with this policy is the responsibility of all MD Anderson workforce members.</p> | |
| TARGET AUDIENCE | The target audience for this policy includes, but is not limited to, all MD Anderson workforce members. | |
| STRATEGIC VISION | <p>Strategic Goal 1: Patient Care</p> <p>Enhance the quality and value of our patient care throughout the cancer care cycle.</p> | |
| DEFINITIONS | <p>Bioaerosols: Microscopic live particulates such as spores, pollen, bacteria, and viruses.</p> <p>Construction, Renovation, Modernization, and Structural Repair Activities: Activities that disturb existing building features, which can cause or create the release of potentially harmful dusts or bioaerosols.</p> <p>Designee: Person(s) appropriately trained and able to demonstrate competency in assessing and determining appropriate infection control requirements.</p> <p>HEPA Filter: High-Efficiency Particulate Air (HEPA) filter.</p> <p>Infection Control Risk Assessment (ICRA): A risk assessment tool to determine the minimum level of controls used during a project to control potentially harmful dusts and bioaerosols.</p> <p>Pre-Construction Risk Assessment (PCRA): A comprehensive risk assessment tool that must be completed before a project begins. Major areas of review are Infection Control, Interim Life Safety Measures (ILSM), Utility Disruptions, Asbestos Containing Materials and Noise and Vibration.</p> | |
| PROCEDURE | | |
| 1.0 Responsibility | | |
| | 1.1 | It is the responsibility of all MD Anderson personnel, contractors, and |

ATTACHMENT "A"

MAINTAINING INDOOR AIR QUALITY DURING CONSTRUCTION AND RENOVATION ACTIVITIES POLICY

| | | |
|---|-----|--|
| | | vendors to abide by the requirements of this policy to maintain a safe patient care, research, and work environment. Corrective actions shall be taken immediately when deficiencies are discovered. |
| | 1.2 | The Environmental Health and Safety (EH&S) department, Infection Control, or a designee may perform periodic inspections of the work site to monitor compliance with this policy. |
| | 1.3 | Air sampling strategies shall be determined during the PCRA evaluation addressed in Section 2.2 and will continue throughout project inspections. |
| 2.0 Performance Requirements | | |
| | 2.1 | Activities that disturb existing building features, possibly causing or creating the release of potentially harmful dusts or Bioaerosols, must be conducted in accordance with the required precautions listed in the implementation section of this policy. |
| | 2.2 | Prior to beginning Construction, Renovation, Modernization, and Structural Repair Activities, a Pre-Construction Risk Assessment (PCRA) must be obtained from the Environmental Health and Safety department or Designee. |
| | 2.3 | Project management shall provide personnel and equipment at all times while working on site for the purpose of containment and clean-up of dust and particulates in and around the work area. Equipment may include dust mops, wet mops, adhesive walk-off (tacky) mats, mop buckets, HEPA-filtered vacuums, and clean rags for removing fine dust inside and outside the site and from equipment. |
| | 2.4 | Projects issued Construction Safety Specifications by UTMDACC shall comply with IAQ requirements within those specifications. |
| 3.0 Implementation (See Matrix within this attachment) | | |
| | | Use the infection control risk assessment (ICRA) matrix to determine the appropriate precautions that must be used. |
| 4.0 Exceptions | | |
| | | Any exception to this established policy is at the discretion of the Institutional Safety Committee. Procedural exceptions may be granted through Environmental Health and Safety or Infection Control. |

JOINT COMMISSION STANDARDS / NATIONAL PATIENT SAFETY GOALS:

The hospital manages its environment during demolition, renovation, or new construction to reduce risk to those in the organization. Standard: EC.02.06.05. Comprehensive Accreditation Manual for Hospitals (CAMH), July 2013.

OTHER RELATED ACCREDITATION / REGULATORY STANDARDS:

Centers for Disease Control and Prevention, Guidelines for Environmental Infection Control in Health Care Facilities.

ATTACHMENT "A"
**MAINTAINING INDOOR AIR QUALITY DURING CONSTRUCTION AND
RENOVATION ACTIVITIES POLICY**

Approved With Revisions and Implementation Date: 11/26/2013

Governors

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**MAINTAINING INDOOR AIR QUALITY DURING CONSTRUCTION AND
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INFECTION CONTROL RISK ASSESSMENT MATRIX

| Instructions on how to determine the appropriate indoor air quality measures for your project/activity | |
|---|--|
| Step 1 | Determine the Risk Area using the Risk Areas Defined table (TABLE A) |
| Step 2 | Determine the Activity Type on the left side of the Matrix table (ie, small, medium, large; TABLE B), then compare the project activity type to the risk area to determine the Class of Indoor Air Quality controls that are to be implemented |
| Step 3 | Then select the appropriate Class of controls to be used on the project (LIST C) |

*****Note: The current nature, adjacency to other areas, and use of a space may change the risk group determination and should be reviewed prior to start of planning and work.**

| TABLE -A- | | | |
|---|--------------------------|--|--|
| Risk Areas Defined | | | |
| RISK AREA 1 | RISK AREA 2 | RISK AREA 3 | |
| <u>LOW RISK</u> | <u>MEDIUM RISK</u> | <u>HIGH RISK</u> | |
| Office areas not adjacent to high risk areas | Cancer Prevention Center | Admissions areas | Operating rooms |
| Dock and Service Corridors | Place of Wellness | Inpatient units | Intensive Care units (ICU, SICU, PACU & MICU) |
| Physical Plant spaces – maintenance rooms, etc. not adjacent to high risk areas | Kitchen(s) | Emergency Center | Sterile Processing |
| Boiler room | | Mays Clinic – (Ambulatory Care Building) | Pharmacy |
| Interstitial spaces | | Cafeteria | Research labs |
| | | Laboratory Medicine | Laboratories involved with production of products for patient infusion |
| | | Rehabilitation Therapy areas | Diagnostic laboratories |
| | | Regional Care Centers | Patient waiting areas |
| | | All Outpatient Clinics | Proton Therapy Center |
| | | Office or other areas adjacent to high risk areas that by nature of the proposed work could pose a threat to patient safety) | Radiation Oncology |
| | | Sterile animal areas | Animal Operating rooms |

ATTACHMENT "A"
**MAINTAINING INDOOR AIR QUALITY DURING CONSTRUCTION AND
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INFECTION CONTROL RISK ASSESSMENT MATRIX

| TABLE -B- | | | |
|---|--|--|---|
| Indoor Air Quality Matrix | | | |
| Project Activity Types: | RISK AREA I <u>Low Risk Areas</u> <i>See risk area definition</i> | RISK AREA II <u>Medium Risk Areas</u> <i>See risk area definition</i> | RISK AREA III <u>High/Extreme Risk Areas</u> <i>See risk area definition</i> |
| <u>Small/Minor:</u> Inspections above ceiling that create minimal to no dust, minor repair, painting, (no patching), minor electrical work, plumbing, similar work with little or no drilling, cutting, or other dust-raising activity, opening into chases and concealed spaces. Normal maintenance activity. | Class I Precautions <input type="checkbox"/> | Class I Precautions <input type="checkbox"/> | Class I Precautions <input type="checkbox"/> |
| <u>Medium Scale Projects:</u> Installation of electrical and computer cabling, working in chases and concealed spaces, working above ceiling, replacing finishes, carpet removal, wall covering removal, cutting plaster and drywall, sanding and other dust making activity within a room or other controlled area, opening ceiling tiles (more than 16 ft ² square feet consecutive). Usually one to three shifts. | Class I Precautions <input type="checkbox"/> | Class II Precautions <input type="checkbox"/> | Class III Precautions <input type="checkbox"/> |
| <u>Large/Major Scale Projects:</u> Removing floor coverings, sanding plaster walls, wall demolition and construction, duct work, major ceiling work, major demolition of areas, particularly those open to patient care areas, work on HVAC systems that release dust. Usually more than three days work. | Class II Precautions <input type="checkbox"/> | Class III Precautions <input type="checkbox"/> | Class III Precautions <input type="checkbox"/> |

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Infection Control Risk Assessment Matrix

| LIST -C- |
|---|
| Required Infection Control Precautions, by Class |

Class I Precautions

- Indoor air quality permit posted at jobsite entrance.
- Control of debris: use covered container to remove debris through internal hospital paths.
- Cover must be dust tight and secured to prevent dusts from escaping. Use of clean plastic and elastic bungee cords is recommended. Hard tops are acceptable.
- Containers must be clean before leaving jobsite and before traveling back to jobsite from dumpster.
- All carts and equipment and their wheels must be kept clean at all times.
- Replace ceiling tiles promptly – minimize the removal of ceiling tiles when working above ceiling.
- Keep doors closed and locked at all times.
- Clean areas periodically during work to minimize dust and debris buildup.
- Vacuum with HEPA filter type vacuum.
- Schedule Housekeeping to perform a terminal clean of the area prior to occupancy.
- Direct questions about work to Environmental Health and Safety.
- Other precautions as assigned.

Class II Precautions

- Indoor air quality permit required and posted at jobsite entrance
- Debris and supply routing must be pre-determined prior to any construction activities. Use covered container to remove debris through internal hospital paths.
- Cover must be dust tight and secured to container, not just laid on top. Use clean plastic and elastic bungee cords to cover waste containers. Hard tops are acceptable as well.
- Containers and their wheels must be clean before leaving jobsite and before traveling back to jobsite from dumpster. Use "clean demolition" methods such as immediately removing ceiling tiles and drywall and place in debris removal containers prior to landing on the ground. This will help limit the amount of dust created from drywall and other such building materials.
- Use water spray mist to minimize dust when applicable (ie, cutting sheetrock).
- Replace ceiling tiles promptly – minimize the removal of ceiling tiles when working above ceiling.
- A dust containment cube must be used when opening ceiling tiles or working above ceiling in any area where patients are present and make sure containment cube is in serviceable condition and is properly placed before opening ceiling tiles.
- Protect patient care areas from activity by closing doors, or enclosing area with approved (6 mil minimum) fire retardant polyethylene plastic or equivalent. Replace ceiling tiles prior to removal of enclosures. Note: follow the conditions set forth in the Interim Life Safety Measures permit. ILSM requirements will have priority over the general indoor air quality requirements found in this policy and may be more restrictive (i.e., fire rated drywall barrier, etc.).
- Keep doors closed and locked at all times.
- Clean areas periodically during work to minimize dust and debris buildup.
- Vacuum with HEPA filter type vacuum.
- Close off HVAC system openings (exhaust and supply) with plastic or equivalent. If exhaust must be maintained, use a "clean air" machine (HEPA-filter equipped), or powered HEPA filters and exhaust directly to outside.
- A pressure negative to the air in the patient care units must be maintained at all times (24/7) during construction activity. At no such time should the jobsite go positive or neutral to the

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surrounding spaces.

- Use dust mats or tacky mats at entrances inside site (not to be used in public access hallways because of trip hazard). Wet mop areas during and after construction to remove and control dust and dirt with suitable cleaning agents.
- Use protective shoe covers while inside site to prevent accumulation of dirt on shoes. Remove shoe covers prior to exiting the construction area.
- Visual or quantitative air flow indicators at entrance(s) to jobsite. Airflow indicators may be visual ball-type or electronic gauges that show the status of the air flow into the jobsite. Airflow Direction Incorporated www.airflowdirection.com “Ball-In-The-Wall”.
- If work is being done in public areas, use a mobile control unit technology and “clean air” machines to maintain a pressure in the enclosure that is negative to the air outside the enclosure, with the exhaust going through a HEPA filter prior to releasing into the air in the patient care area. Control units must be used for all work outside the jobsite that does not have a semi-permanent barrier already installed for the project.
- Other precautions as assigned.
- Direct questions about work to Environmental Health and Safety.

Class II Precautions: At Job Completion

- Replace all ceiling tiles, or re-close ceiling.
- Wipe down all horizontal surfaces – including ceilings.
- Wet mop or extract floor with hospital approved disinfectant. If appropriate, vacuum all areas with HEPA filtered vacuums.
- Maintain all enclosures as practical until post-job cleaning is complete. Use vacuums with HEPA filters during removal of barriers.
- Clean the HVAC system diffusers as the construction barriers are removed, and operate system for 24 hours prior to final cleaning of job site.
- Schedule final terminal cleaning of area by MD Anderson Housekeeping.
- Other precautions as assigned.

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Infection Control Risk Assessment Matrix

| LIST -C- |
|--|
| Recommended Infection Control Precautions, by Class |

Class III Precautions

- Indoor air quality permit required and posted at jobsite entrance
- Isolate the HVAC systems to minimize a route for dust movement. If exhaust is used to maintain the area negative in pressure to outside areas, the exhaust must go to the outside of the building whenever possible. If existing exhaust systems are to be used, they must be non-recirculating exhausts.
- On every jobsite there will be a visual or quantitative air flow indicators at entrance(s) to the jobsite. Airflow indicators may be visual ball-type or electronic gauges that show the status of the air flow into the jobsite. Airflow Direction Incorporated www.airflowdirection.com “Ball-In-The-Wall”. The placement and quantity of these units will be determined during the Pre-Construction Risk Assessment (PCRA) prior to the start of construction or erection of barriers.
- Use “clean demolition” methods such as immediately removing ceiling tiles and drywall and place in debris removal containers prior to landing on the ground. This will help limit the amount of dust created from drywall and other such building materials.
- A pressure negative to the air in the patient care units must be maintained at all times (24/7) during construction activity. At no such time should the jobsite go positive or neutral to the surrounding spaces.
- Use a “clean air” machine (HEPA-filter equipped), both to re-circulate air in the job site to reduce airborne dust, and to exhaust air from the job site, to maintain a pressure negative to the air outside the job site, so leakage will be into the job site. The same machine may be used for both purposes, if it has suitable capacity.
- Filters for HEPA units must be maintained in good working order, with proper filters, per the manufacturer’s specifications.
- Provide construction separations that are fire resistive, and dust tight, constructed of sheet rock or limited combustion plywood. Note: follow the conditions set forth in the Interim Life Safety Measures permit. ILSM requirements will have priority over the general indoor air quality requirements found in this policy and may be more restrictive (i.e., fire rated drywall barrier, etc.).
- Enclose work areas prior to any demolition work or opening any walls or ceilings.
- If work is being done in public areas, use a mobile dust control unit technology and “clean air” (HEPA) machines to maintain a pressure in the enclosure that is negative to the air outside the enclosure, with the exhaust going through a HEPA filter prior to releasing into the air in the patient care area. Control units must be used for all work outside the jobsite that does not have a semi-permanent barrier already installed for the project.
- Debris must be removed in tightly closed containers, with solid lid, or plastic taped/bungee cord into place. The debris removal containers should be vacuumed or wet-wiped prior to removal from the site, to remove all surface dust and dirt.
- Create a construction ante-room where all clothing, tools, equipment, and other materials being removed are vacuumed or wet-wiped prior to being taken off site through the hospital patient care areas. The ante-room should be as clean as a patient care area. Cart wheels should also be cleaned, and run over a tacky mat, or similar method to assure no dust is tracked out via wheels. All persons must walk across the tacky mats to clean their feet. Any person who has dust, dirt, or materials on their clothing must remove it prior to leaving the ante-room areas. Tacky mats will be maintained to keep the surface tacky, and to replace or remove layers when they become dirty. The ante-room will be wet mopped frequently (several times a day in usual construction activity), or similar methods will be used to satisfy Environmental Health and Safety or Infection Control requirements.
- Use protective shoe covers while inside site to prevent accumulation of dirt on shoes. Remove

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shoe covers prior to exiting the construction area.

- Depending on the location of the project and risks involved, the use of protective Tyvek or equivalent suits may be required to enter and exit the sites (i.e., Operating Room suite).
- Seal all holes, penetrations, and openings in the construction barriers and walls which are part of the construction separation with appropriate materials. Sealed holes in fire rated separations must be equivalent in fire rating. Other holes must be sealed with tape and plastic, or similar materials which are strong enough to withstand the pressure differential without leakage.
- Direct questions about work to Environmental Health and Safety.
- Other precautions as assigned.

Class III Precautions: At Job Completion

- Maintain barriers and "clean air" machines (HEPA-filter equipped), in place until final cleaning is complete. Removal of barrier materials should be accompanied by vacuuming using a vacuum with HEPA filters.
- Clean HVAC system diffusers as closure being removed, and operate system for 24 hours prior to final cleaning of job and removal of barriers (to the extent practical based on the system). If necessary, allow the HVAC to blow into the site with the "clean air" machine catching the output of the supply, and the machine feeding the air to the returns.
- Site must be thoroughly cleaned by damp-wiping all horizontal surfaces with a hospital approved disinfectant.
- Schedule final cleaning of area by MD Anderson Housekeeping.
- Other precautions as assigned.

END OF ATTACHMENT "A"

SECTION 01 45 00 - PROJECT QUALITY CONTROL

PART 1- GENERAL

1.1. RELATED DOCUMENTS

- 1.1.1. The Contractor's attention is specifically directed, but not limited, to the Uniform General Conditions for University of Texas System Building Construction Contracts (UGC) for other requirements.

1.2. SUMMARY

- 1.2.1. This Section provides administrative and procedural requirements for Contractor quality control on the Project.
- 1.2.2. Specific quality-control requirements for individual construction activities are specified in the Sections that govern those activities. Requirements in those Sections may also cover production of manufactured products.
- 1.2.3. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures to fully comply with the Contract Document requirements in all regards.
- 1.2.4. Provisions of this Section do not limit the requirements for the Contractor to provide quality-control services required by the Contract Documents or the Authority Having Jurisdiction.
- 1.2.5. The following quality issues are addressed in detail in this Section:
 - 1.2.5.1. (1.3) Quality Control
 - 1.2.5.2. (1.4) Quality Assurance
 - 1.2.5.3. (1.5) Contractor Employed Testing Agency
 - 1.2.5.4. (1.6) Testing
 - 1.2.5.5. (1.7) Inspections
 - 1.2.5.6. (1.8) Preinstallation Meetings
 - 1.2.5.7. (1.9) Mock-ups

1.3. QUALITY CONTROL

- 1.3.1. 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, unless specifically noted otherwise. All costs for these services shall be included in the Contractor's cost of work.
- 1.3.2. The Contractor shall assign one employee to be responsible for Quality Control. This individual may have other responsibilities, but may not be the Contractor's Project superintendent or the Contractor's Project manager.

1.4. QUALITY ASSURANCE

- 1.4.1. The Owner or Owner's designated representative(s) will perform quality assurance. Owner's quality assurance procedures may include observations, inspections, testing, verification,

monitoring and any other procedures deemed necessary by the Owner to verify compliance with the Contract Documents.

1.4.1.1. The Owner's quality assurance testing and inspection program is separate from Owner's commissioning program, as defined in Section 01 91 00 –General Commissioning Requirements.

1.4.2. The Contractor shall cooperate with and provide assistance to the Owner related to Owner's quality assurance procedures. Contractor shall provide to Owner ladders, lifts, scaffolds, lighting, protection, safety equipment and any other devices and/or equipment (including operators if required) deemed necessary by the Owner to access the Work for observation/inspection.

1.4.3. Owner may employ independent testing agencies to perform certain specified testing, as Owner deems necessary. The Contractor shall integrate Owner's independent testing services within the Baseline Schedule and with other Project activities.

1.4.4. Owner's employment of an independent testing agency does not relieve the Contractor of the Contractor's obligation to perform the Work in strict accordance with requirements of the Contract Documents.

1.5. TESTING AGENCY

1.5.1. The Contractor shall employ and pay for services of an independent testing agency to perform all specified testing requiring an independent agency, unless specifically noted otherwise.

1.5.2. Contractor's employment of an independent testing agency does not relieve the Contractor of the Contractor's obligation to perform the Work in strict accordance with requirements of the Contract Documents.

1.5.3. The Contractor Employed Testing Agency:

1.5.3.1. The testing agency must have the experience and capability to conduct testing and inspecting indicated by ASTM standards and that specializes in the types of tests and inspections to be performed.

1.5.3.2. The testing agency shall comply with requirements of ASTM E 329, ASTM E 543, ASTM E 548, ASTM C 1021, ASTM C 1077, ASTM C 1093, and other relevant ASTM standards.

1.5.3.3. The testing agency's laboratory must maintain a fulltime engineer on staff to oversee and review the services. The engineer must be licensed in the State of Texas.

1.5.3.4. The testing agency must calibrate all testing equipment at reasonable intervals (minimum yearly) with accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

1.5.4. The Contractor shall not employ the same testing entity engaged by the Owner for the Project, without the Owner's written approval.

1.6. TESTING

1.6.1. Where specific testing is specified in a technical section of the Specifications or indicated in the Contract Documents, the Contractor shall bear all costs of such tests unless the Owner has expressly agreed in writing to pay for the tests.

- 1.6.2. Testing specifically identified to be conducted by Owner, will be performed by an independent entity and will be arranged and paid for by the Owner unless otherwise indicated in the Contract Documents. Should the test return unacceptable results, the Contractor shall bear all costs of retesting and reinspection as well as the cost of all material consumed by testing, and replacement of unsatisfactory material and/or workmanship.
- 1.6.3. The Contractor in cooperation with the Owner's Construction Inspector shall schedule the Owner's testing services.
- 1.6.4. The Owner may engage additional consultants for testing, air balancing, commissioning, or other special services. The activities of any such Owner consultants are in addition to Contractor testing of materials or systems necessary to prove that performance is in compliance with Contract requirements. The Contractor must cooperate with persons and firms engaged in these activities.
 - 1.6.4.1. The Contractor shall self-perform various tests to verify performance and/or operation of various systems. Test reports that document the tests shall be consecutively numbered and defined by scope and extent of the test. Copies of the test report forms can be obtained from the Owner. The following Owner test report forms are examples of forms that shall be used for this purpose and shall not be altered in any manner:
 - 1.6.4.1.1. Pipe Test Report.
 - 1.6.4.1.2. Duct Test Report.
 - 1.6.4.1.3. Equipment or System Start-up/Request for Inspection.
 - 1.6.4.1.4. Contractor's Request for Utility Shutdown.
 - 1.6.4.1.5. Domestic Water Sterilization and Flushing Report.

1.7. INSPECTIONS

- 1.7.1. All of the Work is subject to inspection and verification of correct operation prior to 100% payment of the line item(s) pertaining to that aspect of the Work.
- 1.7.2. The Contractor shall incorporate adequate time for performance of all inspections and correction of noted deficiencies into the Work Progress Schedule for the Project.
- 1.7.3. During the course of construction, the Owner, Architect/Engineer, and/or other Owner representatives may visit the Site for observation of the Work in place. The Contractor shall provide all necessary personnel and/or equipment for safe access to the Work to be inspected or observed, regardless of frequency. This requirement shall extend to all Owner personnel and their representatives. Some of these inspections will be informal and some will require formal notification by the Contractor.
- 1.7.4. For any requested inspection, the Contractor shall complete prior inspections to ensure that items are ready for inspection and acceptance by the Owner and/or Architect/Engineer. The Contractor shall be responsible for any and all costs incurred by Owner and/or Owner representatives, including consultants, resulting from a review or inspection that was scheduled prematurely.
- 1.7.5. The Contractor shall submit written notification to the Owner and Architect/Engineer a minimum of three (3) days and a maximum of eleven (11) days in advance of all requested inspections. Confirm advance notification time period with Owner for scheduling inspections.

- 1.7.6. The Contractor shall provide a system of tracking all field reports, describing items noted, and resolution of each item. The Owner will review reports on a monthly basis, or as necessary. Owner may require Contractor to track all inspection field reports within Owner's internet-based project management system.
- 1.7.7. The following are typical Project inspections:
- 1.7.7.1. Informal Daily Reviews of Project conditions by the Owner's Construction Inspector and/or members of the Project Team. When considered appropriate, results of these reviews will be documented via Observation Reports or Memorandum.
 - 1.7.7.2. Concealed Space Inspections for subject areas that include partitions, structural walls, chases, crawl spaces, ceiling spaces, and any other Work, which will be difficult or impossible to examine once concealed in the final construction.
 - 1.7.7.2.1. Contractor shall not enclose partitions, structural walls, chases, crawl spaces, ceiling spaces, and any other Work which will be difficult or impossible to examine once concealed in the final construction until Contractor has received written approval from Owner's Construction Inspector.
 - 1.7.7.3. Progress Inspections for piping, ductwork, and other systems shall be scheduled by the Contractor through the Owner's Construction Inspector as appropriate portions, or sections, of the Work are completed. This is in addition to "system-wide" performance verification and tests. The Contractor shall schedule and document the tests using the standard Owner Pipe Test and Duct Test report forms. The Contractor shall conduct the tests and the Owner's Construction Inspector will witness and approve the results.
 - 1.7.7.3.1. The Contractor shall coordinate their intended "apportioning" of systems tests with the Owner's Construction Inspector immediately following formal submission of their Work Progress Schedule so that all parties are aware of the intended Work and inspection sequence.
 - 1.7.7.4. Overhead and Above Ceiling Inspections are similar in nature and requirements to the Concealed Space Inspections. Ceilings that are fixed in place, such as gypsum board or plaster, constitute a Concealed Space Inspection. Ceilings that are of "lay-in" type or where no finish ceiling is scheduled are considered an "overhead" inspection. Contractor shall include Overhead and Above Ceiling Inspections on the Work Progress Schedule.
 - 1.7.7.4.1. No finish ceiling material shall be installed until all overhead Punchlist items have been resolved to the satisfaction of the Owner.
 - 1.7.7.4.2. Completed Work in place necessary for an Overhead Inspection shall include all required infrastructure and appurtenances, inclusive of, but not limited to the following.
 - 1.7.7.4.2.1. Installation of ceiling grid or framework.
 - 1.7.7.4.2.2. Installation and operation of all above ceiling electrical Work, including light fixtures.
 - 1.7.7.4.2.3. Installation of all HVAC and plumbing Work above ceiling with installation and connection of terminal units and air devices.
 - 1.7.7.4.2.4. Installation of fire sprinkler heads.

- 1.7.7.4.2.5. Completion and Owner approval of all required tests for above ceiling Work.
- 1.7.7.5. Inspections of Building Systems and Equipment are intended to confirm acceptable operation. Contractor shall formally schedule inspections through the Owner's Construction Inspector and Architect/Engineer utilizing Owner's Inspection Request Form. Refer to Section 01 91 00 – General Commissioning Requirements and to Technical Specifications for additional requirements pertaining to system start-up, commissioning, operation, demonstration, and acceptance.
- 1.7.7.5.1. The Contractor shall perform a thorough checkout of operations with the manufacturer's representatives prior to requesting the formal inspection by the Owner. Contractor must notify the Owner's Construction Inspector, in advance, as to when the manufacturer's representative is scheduled to arrive at the Site.
- 1.7.7.5.2. For "building-wide" and/or life safety systems, such as emergency lighting, emergency power, uninterruptible power supply systems, fire alarm, fire sprinkler systems, smoke evacuation systems, toxic gas monitoring, captured exhaust systems, etc., the formal start-up inspection shall be completed prior to requesting Substantial Completion Inspection for any area of the Project.
- 1.7.7.5.3. The manufacturer's representatives and the installing contractor shall demonstrate both operation and compliance to the Owner's agents and consultants. If coordinated and scheduled appropriately by the Contractor, these equipment and/or systems inspections may also serve to provide the required Owner training, if approved in advance by the Owner.
- 1.7.7.6. A building systems final inspection with documented approval of individual equipment and/or system(s) must be accomplished prior to requesting Substantial Completion Inspection for any area affected by said equipment and/or system.
- 1.7.8. The Contractor is responsible for requesting that the Owner's Construction Inspector and Architect/Engineer arrange for the inspection of materials, equipment, and Work prior to assembly or enclosure that would make the materials, equipment, or Work inaccessible for inspection and at other times as may be required.
- 1.7.9. The Contractor shall coordinate the Work and schedule all inspections in advance so as not to delay the Work. All major inspections shall be indicated on the Work Progress Schedule for advance planning. Contractor shall allow a minimum of five (5) calendar days to confirm schedule of requested inspections with Owner's representatives.
- 1.8. PREINSTALLATION MEETINGS
- 1.8.1. The Contractor shall coordinate and conduct meetings to review the installation of major systems/equipment on the Project. As a minimum, Contractor shall schedule and conduct the Preinstallation Meeting(s) for the Work of each major building system. The Preinstallation Meeting(s) shall be convened following approval of system submittals and prior to commencement of system installation Work.
- 1.8.2. The purpose of the Preinstallation Meeting(s) is for the Contractor and all applicable subcontractors and/or suppliers and/or factory representatives to discuss all aspects of the installation of the particular system. Contractor shall direct special attention to the scheduled order of Work and any impact on or by any other building systems. Contractor shall develop a strategy acceptable to the Owner for start-up, inspection and acceptance, based on Contractor's Prefunctional Checklists, so that all parties are aware of what is expected and/or acceptable.

- 1.8.3. The Contractor shall ensure attendance of the installing subcontractor, manufacturer and/or supplier (if appropriate), supporting subcontractors involved in the installation, and any other parties involved in the phase of Work to be reviewed. Contractor shall notify the Owner and Architect/Engineer in writing at least five (5) days in advance of the Preinstallation Meeting(s).
- 1.8.4. Each party shall be prepared to discuss in detail the staging, installation procedure, quality control, testing/inspection, safety and any other pertinent items relating to the Work being reviewed. Submittal approval shall be a prerequisite of the Preinstallation Meeting(s). At this meeting(s), Contractor shall review and discuss the Commissioning Plan, test procedures, scheduling, and logistics. Contractor shall bring the following to the Preinstallation Meeting(s), as a minimum, for review and discussion:
 - 1.8.4.1. Portion of the Initial Equipment Matrix applicable to the system under discussion.
 - 1.8.4.2. Draft of the Prefunctional Checklists.
 - 1.8.4.3. Current work schedule data pertaining to the beginning, start-up, inspection, and turnover phases anticipated for the particular system.
 - 1.8.4.4. Copy of all approved submittals for the system.
- 1.8.5. The Contractor shall take minutes of the Preinstallation Meeting(s) and distribute to all attending parties.
- 1.8.6. Whether required in the Technical Specifications or not, a Preinstallation Meeting(s) shall be conducted for the following Work, if included in the Project:
 - 1.8.6.1. Concrete.
 - 1.8.6.2. Masonry.
 - 1.8.6.3. Large Steel Fabrications.
 - 1.8.6.4. Waterproofing.
 - 1.8.6.5. Roofing.
 - 1.8.6.6. Exterior Glazing (including storefront and curtain wall).
 - 1.8.6.7. Door Hardware.
 - 1.8.6.8. Audio / Visual Equipment.
 - 1.8.6.9. Air Handling Units.
 - 1.8.6.10. Medical Gas Systems.
 - 1.8.6.11. All Other Mechanical and Electrical Systems.
- 1.9. MOCK-UPS
 - 1.9.1. Before installing portions of the Work requiring mock-ups, Contractor shall build mock-ups for each form of construction and finish required, using materials indicated for the completed Work.

- 1.9.2. Build mock-ups in location and of size indicated or, if not indicated, as directed by Architect/Engineer. The mock-up may be work in place that is intended to remain, unless otherwise directed by the Owner.
- 1.9.3. Notify Architect/Engineer and Owner five (5) days in advance of dates, times, and locations of when and where mock-ups will be constructed.
- 1.9.4. Demonstrate the proposed range of aesthetic effects and workmanship. Demonstrate anticipated repairs in the mock-up, such as for stone veneer.
- 1.9.5. Obtain Architect/Engineer's and Owner's approval of mock-ups before starting work, fabrication, or construction.
- 1.9.6. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed Work.
- 1.9.7. Demolish and remove mock-ups when directed by Owner, unless otherwise indicated.
- 1.9.8. As a minimum, Contractor shall prepare a mock-up for the following Work, if applicable to the Project. Owner may define additional mock-ups at the Pre-bid or Preconstruction Meeting.
 - 1.9.8.1. Exterior wall system to include: substructure, masonry/stone veneer, plaster, architectural concrete and windows.
 - 1.9.8.2. Roof system.
 - 1.9.8.3. Interior laboratory room; utilities serving laboratory casework.
 - 1.9.8.4. Interior patient care and prevention room.
 - 1.9.8.5. Interior wall finishes.
 - 1.9.8.6. Ceramic tile.
 - 1.9.8.7. Finished flooring.
 - 1.9.8.8. Plumbing battery for multiple-use toilet rooms.
 - 1.9.8.9. Medical gas headwalls.

PART 2- PRODUCTS (NOT USED)

PART 3- EXECUTION (NOT USED)

END OF SECTION 01 45 00

SECTION 01 77 00 - PROJECT CLOSE-OUT PROCEDURES

PART 1 - GENERAL

1.1. RELATED DOCUMENTS

- 1.1.1. The Contractor's attention is specifically directed, but not limited, to the Uniform General Conditions for University of Texas System Building Construction Contracts (UGC) for other requirements.

1.2. SUMMARY

- 1.2.1. The following Project Close-Out procedures are addressed in this Section:

- 1.2.1.1. Requirements for Substantial Completion
- 1.2.1.2. Provisions for Release of Retainage
- 1.2.1.3. Requirements for Final Acceptance
- 1.2.1.4. Requirements for Record Submittals and Samples
- 1.2.1.5. Requirements for Operating and Maintenance Manuals
- 1.2.1.6. Requirements for Commissioning and Close-out Manual
- 1.2.1.7. Requirements for Close-Out Document Submission
- 1.2.1.8. Project Cleaning

1.3. DEFINITIONS

- 1.3.1. The term "Project Close-Out" 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. Specific additional requirements for individual units of work are specified in the Technical Specifications.
- 1.3.2. The term "Time" of Close-Out is directly related to completion and acceptance, and therefore may be either a single time period for the entire Project, or a series of time periods for individual portions or phases of the Project that have been certified as substantially complete at different dates.
- 1.3.3. Refer to the UGC for Definitions used throughout the Contract Documents.

1.4. REQUIREMENTS FOR SUBSTANTIAL COMPLETION

- 1.4.1. In addition to items identified in the UGC, prior to requesting a Substantial Completion inspection (for either the entire Work or portions thereof as agreed to by the Owner and Contractor), Contractor shall complete and/or submit the following to the Owner and list known exceptions in the request.
 - 1.4.1.1. Contractor's Application for Payment that is coincident with the period of time anticipated for Substantial Completion shall reflect a minimum of 95% completion for all applicable Work.

- 1.4.1.2. Owner's acceptance of all building system installations. If Owner's Construction Inspectors are assigned to the Project, acceptance may be in the form of building system final inspection reports.
- 1.4.1.3. Record Documents: Up-to-date, marked-up drawings and specifications that record all changes made during construction.
- 1.4.1.4. Record Submittals and Samples.
- 1.4.1.5. Operating and Maintenance Manual(s).
- 1.4.1.6. Commissioning and Close-out Manual.
- 1.4.1.7. Completed Punchlists.
- 1.4.1.8. Certification statement that no asbestos containing materials have been used or incorporated into the Project per Texas Asbestos Health Protection Rules (TAHPR—Tex. Admin. Code Title 25, Part 1, Ch. 295C, Asbestos Health Protection.
- 1.4.1.9. Releases enabling Owner's full and unrestricted use of the Project and access to services and utilities, including (where applicable) operating certificates, and similar releases.
- 1.4.1.10. Deliver tools, spare parts, extra stock of materials, Samples, and similar physical items to Owner.
- 1.4.2. If Owner intends to occupy Project upon Substantial Completion acceptance, Contractor shall make provisions for final changeover of locks with the Owner's personnel. Upon written directive from Owner and for the convenience of the Contractor in completing Punchlist activity, Owner may waive the final changeover of locks until final acceptance.
- 1.4.3. Contractor shall complete instructing and training Owner's personnel for all systems and equipment serving the areas claimed as substantially complete, for which Owner training was not completed in association with system demonstrations and inspections. Refer also to Section 01 79 00 – Demonstration and Training.
- 1.4.4. Contractor shall complete the initial clean-up requirements as described in Part 3 of this Section for the entire portion of the Project claimed as substantially complete. Contractor shall touch-up and otherwise repair and restore marred exposed finishes.
- 1.4.5. SUBSTANTIAL COMPLETION INSPECTION PROCEDURE
 - 1.4.5.1. Refer to the UGC and Section 01 45 00 – Project Quality Control.
 - 1.4.5.2. The Contractor shall ensure the Work is ready for inspection and/or reinspection. If the Work is found not to be as stated in the Contractor's Punchlist or the items have not been substantially corrected and/or completed, the inspection will be terminated. All costs incurred by the Owner and Architect/Engineer for scheduling and attending the terminated inspection(s) shall be the responsibility of the Contractor and excluded from the Cost of Work.

1.5. PROVISIONS FOR RELEASE OF RETAINAGE

- 1.5.1. Refer to the UGC.

- 1.5.2. Release of any retainage, or reduction in amount of retainage withheld, is strictly at the discretion of the Owner, regardless of Contractor compliance with requirements. All of the requirements noted for Substantial Completion acceptance must be completed prior to application for final release of Contract retainage. In addition, Contractor shall meet the following requirements:

- 1.5.2.1. Submit affidavits of final release of claim and lien from each subcontractor and supplier who provided materials and/or labor to the Project.
- 1.5.2.2. Submit affidavit that all bills for the Project have been paid, or will be paid within thirty (30) days of Contractor's receipt of payment.
- 1.5.2.3. Submit Consent of Surety to Release of Retainage.

1.6. REQUIREMENTS FOR FINAL ACCEPTANCE

- 1.6.1. In addition to items identified in the UGC, prior to requesting a Final Completion inspection (for either the entire Work or portions thereof as agreed to by the Owner and Contractor), Contractor shall complete and/or submit the following to the Owner and list known exceptions in the request:

- 1.6.1.1. Draft Application for Final Payment showing 100% completion for each line item on the Schedule of Values. Contractor must submit with this draft, the final releases and supporting documentation not previously submitted and accepted. Contractor must include Certificates of Insurance when applicable. The Final Payment, including final release of retainage, will not be released until all Work (including Punchlist items) has been completed, all requirements met, a Project Close-Out audit performed (if deemed necessary) and a Final Change Order has been processed if required to resolve final cost or close-out audit issues, including deletion of any remaining Contract allowances.
- 1.6.1.2. Copy of Architect/Engineer's Substantial Completion Punchlist including evidence that each item has been completed or otherwise resolved.
- 1.6.1.3. Final meter readings for utilities, and similar data as of time of Substantial Completion or when Owner took possession of and responsibility for corresponding elements of the Work.
- 1.6.1.4. Final Record Documents see specification 07 78 39, Completed Commissioning and Close-Out Manual, acknowledging receipt of all attic stock, training/demonstration, test reports, and any other requirements of the Contract Documents.
- 1.6.1.5. Complete final cleaning requirements including touch-up of marred surfaces.
- 1.6.1.6. Evidence of final and continuing insurance coverage complying with applicable insurance requirements.

1.6.2. FINAL ACCEPTANCE INSPECTION PROCEDURE

- 1.6.2.1. When the Contractor has completed the Work required in the Final Completion inspection Punchlist and has complied with the Close-Out requirements in this Section and elsewhere in the Contract Documents, then the Contractor shall provide a minimum of ten (10) days written notice to the Architect/Engineer and Owner that the Project is ready for a final acceptance inspection for Final Completion. Refer to the UGC for additional requirements.

- 1.6.2.2. All Owner and Architect/Engineer costs for travel and time for additional inspections at either Substantial Completion or Final Acceptance which are required either by failure of the Contractor to complete the noted Punchlist items, or by erroneous notices that the Work is ready for such inspections, shall be the responsibility of the Contractor. Owner may issue a unilateral deductive Change Order for these costs.

1.6.3. FINAL PAYMENT REQUEST

- 1.6.3.1. Contractor shall submit the following documentation with the Application for Final Payment:
 - 1.6.3.1.1. Final Release of Liens and Claims.
 - 1.6.3.1.2. Affidavit of Payment of Debts and Claims.
 - 1.6.3.1.3. Consent of Surety.
 - 1.6.3.1.4. Completed SWPPP Documents and Notice of Termination.
 - 1.6.3.1.5. Final Historically Underutilized Business Plan.
 - 1.6.3.1.6. Completed and Signed Notice of Termination.
 - 1.6.3.1.7. Signed Final Completion Certificate.

PART 2- PRODUCTS

2.1. REQUIREMENTS FOR RECORD SAMPLES

2.1.1. RECORD SAMPLES

- 2.1.1.1. Prior to date(s) of Substantial Completion, Contractor shall arrange for Architect/Engineer and Owner's representative to meet with Contractor at the 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.
- 2.1.1.2. Contractor shall comply with Architect/Engineer's and/or Owner's instructions for packaging, identification marking, and delivery to Owner's designated location at the Site or other location as directed by Owner.
 - 2.1.1.2.1. Furnish two (2) binders of all record finishes Samples, bound in heavy-duty, 3-ring vinyl-covered binders including pocket folders for any folded sheet information. Binder content shall be divided with plastic-covered tabs for each section of each binder. Provide labels to identify binder content on both the front and spine of each binder.
 - 2.1.1.2.2. Samples shall be mounted to paper or heavy stock depending on type of sample, organized by finish type, with the following information: Type, Manufacturer, Product Number, Finish/Color, Description, Installed Location.
 - 2.1.1.2.3. Finishes Samples include, but are not limited to, the following as applicable to the Work: tile, VCT, terrazzo, stone, sheet vinyl, carpet, base, wall coverings, laminates, solid surface materials, decorative glass, paint, and wood.

- 2.1.1.3. Contractor shall dispose of other Samples in the manner specified for disposal of surplus and waste materials, unless otherwise indicated or directed by Architect/Engineer and/or Owner.

2.2. REQUIREMENTS FOR OPERATING AND MAINTENANCE MANUALS

- 2.2.1. Within thirty (30) days of the Notice to Proceed with Construction, Contractor shall submit to Owner the proposed format, content and organizational structure for Operating and Maintenance Manuals for Owner's review and approval. The organizational structure shall follow Owner's format for maintenance management; confirm structure with Owner.
- 2.2.2. Contractor shall make revisions and corrections to format and content as reasonably requested by Owner. After the Owner approves the proposed format, content, and organizational structure, Contractor shall create the file structure and update Operating and Maintenance Manual content as the Work progresses.
- 2.2.3. Product submittals, owner's manuals, manufacturer's printed instructions, parts lists, and other submittals required by other Sections of the Specifications shall be included in the Operating and Maintenance Manuals provided that they are approved and are formatted in a manner consistent with the requirements of this Section.
- 2.2.4. Test data and commissioning data included in the Operating and Maintenance Manuals need not be duplicated in the Commissioning and Close-Out Manual and vice versa. Test data not pertaining to a particular device or piece of equipment (such as domestic water pipe pressure test reports) must be inserted in the Commissioning and Close-Out Manual.
- 2.2.4.1. Equipment is defined as any mechanism, mechanical, electrical or electronic device, or any combination thereof, which is made up of two (2) or more working parts to perform a particular function.
- 2.2.4.2. When an item of equipment is a packaged unit furnished by one manufacturer and the package as furnished contains proprietary items of equipment obtained from other sources, Contractor shall include copies of equipment data for each item of such equipment as if each item of equipment had been separately furnished.
- 2.2.5. Manufacturers' standard printed data shall include only sheets pertinent to the product or component installed. Mark each sheet to identify each product or component incorporated into the Work. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- 2.2.6. Refer to individual Technical Specification Sections for additional operating and maintenance requirements.
- 2.2.7. Examples of equipment, material, and systems for which operating and maintenance data is required includes, but is not limited to, the following:

| Architectural / Miscellaneous | HVAC / Plumbing | Electrical / Life Safety |
|--------------------------------------|------------------------------|---------------------------------------|
| Doors and Windows | Piping, Valves, and Fittings | Cable, Wire, and Connectors, 600 Volt |
| Overhead Coiling Doors and Grilles | Motors | Wiring Devices |
| Automatic Door Openers | Fire Protection Systems | Motor Control Centers |
| Door Hardware | Plumbing Equipment | Distribution Panelboards |
| Wall Coverings | Plumbing Specialties | Panelboards |
| Paint | Liquid Nitrogen System | Emergency Generator |

| Architectural / Miscellaneous | HVAC / Plumbing | Electrical / Life Safety |
|--------------------------------------|--|------------------------------------|
| | | Paralleling Switchgear |
| Floor Coverings and Base | Gas Systems | Packaged Engine Generator Systems |
| Stone and Terrazzo | Fuel Oil Systems | Automatic Transfer Switches |
| Tile | Reverse Osmosis System | Standby Power Generator Switchgear |
| Acoustical Ceiling Tile | Hydronic Specialties | Fuses |
| Decorative Glass | Steam and Steam Condensate Specialties | Switchgear |
| Access Flooring | HVAC Pumps | Power Factor Correction Equipment |
| Demountable Partitions | Chemical Treatment Systems | Transformers |
| Folding Operable Partitions | Chillers | Busway – 600 Volt and Below |
| Loading Dock Equipment | Boilers | Surge Protective Devices |
| Laboratory Casework | DX Air-Conditioning Systems | Motor Starters |
| Fume Hoods | Heat Exchangers | Power Status and Monitoring System |
| Biological Safety Cabinets | Humidifiers | Lighting Fixtures |
| Environmental Rooms | Terminal Heat Transfer Units | Lighting Control Systems |
| Sterilizers, Washers and Dryers | Modular Air Handling Units | UPS Equipment |
| Audio-Visual Equipment | Custom Air Handling Units | Fire Alarm System |
| Window Treatment | Fans | Communication Systems |
| Radiation Protection | Filters | Security System |
| Conveying Systems | Ductwork | |
| Irrigation Systems | Air Terminal Units | |
| Window Washing Systems | Air Outlets and Inlets | |
| Pneumatic Tube Systems | Variable Speed Drives | |
| | Building Automation System | |

2.2.8. OPERATING AND MAINTENANCE DATA

2.2.8.1. Contractor shall furnish the following equipment data content to be Included in Operating and Maintenance Manuals:

- 2.2.8.1.1. Description of Equipment. Completed Equipment Matrix; refer to the Equipment Matrix requirements of Section 01 91 00 – General Commissioning Requirements.
- 2.2.8.1.2. Record Product Submittals. Clearly identify all options and accessories of actual installed product and variations in the actual Work in comparison with submitted information.
- 2.2.8.1.3. Parts List. Clearly identify every part in the item of equipment with the proper manufacturer's name, part nomenclature and number, local source, and list price.

- 2.2.8.1.4. Recommended Spare Parts List. For each equipment item that Owner will likely need within a 12-month period to support and operate that item of equipment. The quantities of spare parts recommended must be based upon the quantity of like equipment items installed under the Contract Documents.
- 2.2.8.1.5. Normal Operating Instructions. Detailed information to permit a journeyman mechanic to adjust, start-up, operate, and shut down the equipment. Special start-up precautions shall be noted as well as other action items required before the equipment is put into service.
- 2.2.8.1.6. Emergency Operating Procedures. Detailed description of the sequence of action to be taken in the event of a malfunction of the unit, either to permit a short period of continued operation or emergency shutdown to prevent further damage to the unit and to the system in which it is installed.
- 2.2.8.1.7. Preventive Maintenance. Detailed information to cover routine and special inspection requirements, including but not limited to, field adjustments, inspections for wear, adjustment changes, packing wear, lubrication points, frequency and specific lubrication type required, cleaning of the unit and type solvent to use, and such other measures as are applicable to preventive maintenance program.
- 2.2.8.1.8. Calibration. Detailed data on what to calibrate, how to calibrate, when to calibrate and procedures to enable checking the equipment for reliability or indications as well as data for test equipment, special tools and the location of test points.
- 2.2.8.1.9. Scale and Corrosion Control. Detailed information covering the prevention of and removal of scale and corrosion.
- 2.2.8.1.10. Trouble Shooting Procedures. Detailed information and procedures for detecting and isolating malfunctions and detailed information concerning probable causes and applicable remedies.
- 2.2.8.1.11. Removal and Installation Instructions. Detailed information concerning the logical sequence of steps required to remove and install the item including instructions for the use of special tools and equipment.
- 2.2.8.1.12. Disassembly and Assembly Instructions. Detailed illustrations and text to show the logical procedure and provide the instructions necessary to disassemble and assemble the unit properly. The text shall include all checks and special precautions as well as the use of special tools and equipment required to perform the assembly or disassembly.
- 2.2.8.1.13. Repair Instructions. Detailed repair procedures to bring the equipment up to the required operating standard including instruction for examining equipment and parts for needed repairs and adjustments, and tests or inspections required to determine whether old parts may be reused or must be replaced.
- 2.2.8.1.14. Special Tools and Test Equipment. Detailed list of the special tools and test equipment needed to perform repair and maintenance for each equipment item. The list shall contain the special tool and test equipment part number, size, quantity, price, manufacturer's name and address, and local supplier's name and address.

- 2.2.8.1.15. System Drawings. Contractor shall furnish detailed drawings, where applicable, that clearly show wiring diagrams, utility service diagrams, control diagrams, system schematics, pneumatic and fluid flow diagrams, etc., which pertain to the unit function. System drawings must show major pieces of equipment, such as chillers, boilers, heat exchangers, pumps, air handlers, tanks, switchgear, etc., as meaningful to the Project. Fluid flow and direction and valves with their valve tag identification numbers must be clearly noted on drawings. Drawings must show modifications to another manufacturer's standard unit when it is incorporated into the assembly or package unit.

2.2.9. WARRANTIES AND GUARANTEES

- 2.2.9.1. Contractor shall include, within the Operating and Maintenance Manual organizational structure for each system, equipment item, or material, an executed copy of the specified warranty/guarantee with warranty effective dates covering that particular system, equipment item, or material. Contractor shall include the manufacturer's warranty as specified and the installing subcontractor's and supplier's guarantee for workmanship and system operation.

2.3. REQUIREMENTS FOR COMMISSIONING AND CLOSE-OUT MANUAL

- 2.3.1. The Contractor shall incorporate all Commissioning and Close-Out documentation and/or verification documents not included in the Operating and Maintenance Manuals, into a separate Commissioning and Close-Out Manual for transmittal to the Owner at the conclusion of the Project. The Commissioning and Close-Out Manual is intended to be a consolidation of documentation/verification for the Project commissioning and close-out process. Update the Commissioning and Close-Out Manual throughout the Project, so that the documentation process can be expedited and monitored.
- 2.3.2. The Owner may provide a preliminary handbook with sample forms for use by the Contractor in development of the Commissioning and Close-Out Manual. Each Project may require the Contractor to revise and/or create forms for Project specific equipment. The Contractor shall review each form for approval with the Owner before using the Contractor's form.
- 2.3.3. The Commissioning and Close-Out Manual is not intended to impose duplication of Close-Out Documents. Those items and/or data that are incorporated into the Operating and Maintenance Manuals need not be included in the Commissioning and Close-Out Manual.
- 2.3.4. The Commissioning and Close-Out Manual shall include, but is not limited to, the following.
- 2.3.4.1. Commissioning documentation as described in Section 01 91 00 - General Commissioning Requirements.
- 2.3.4.2. Final air balance reports produced by the Test, Adjust, and Balance Firm.
- 2.3.4.3. Completed Valve Schedule and Fire, Fire/Smoke and Smoke Damper Schedule per Specification Section 20 05 53.
- 2.3.4.4. Owner Demonstration / Training Reports: Contractor shall furnish Training Plan and documentation of Owner's personnel training regarding operation of systems per Section 01 79 00 – Demonstration and Training and Technical Specification Sections. Contractor shall include identification of parties receiving training and date(s) of such training.
- 2.3.4.5. Paint/Finish Schedule: All paints, flooring, finishes, door hardware, used on the Project. Provide manufacturer, model number, color formula, location on Project,

purchase source, and any other information helpful to the Owner's maintenance personnel.

- 2.3.4.6. Extra Materials and Keys Checklists: Extra Materials shall be referenced to the Owner's Mainsaver Asset Number.
- 2.3.4.7. Elevator Checklist.
- 2.3.4.8. Electrical Test Reports (including factory tests and settings).
- 2.3.4.9. Miscellaneous Equipment Test Reports (including factory tests and settings).
- 2.3.4.10. HVAC Calibration Reports (including duct testing reports).
- 2.3.4.11. Fire Alarm Test Reports.
- 2.3.4.12. Piping Test Reports.
- 2.3.4.13. Sewer Video Log.
- 2.3.4.14. Code-required Certifications as described within Technical Specifications.
- 2.3.4.15. Material Safety Data Sheets (MSDS) for any and all products incorporated into the Project.
- 2.3.4.16. Miscellaneous Close-out Documents. Contractor shall provide categories of requirements resulting in miscellaneous work records including, but not be limited to, the following:
 - 2.3.4.16.1. Required field records on excavations, foundations, underground construction, wells and similar work.
 - 2.3.4.16.2. Accurate survey showing locations and elevations of underground lines, including invert elevations of drainage piping.
 - 2.3.4.16.3. Surveys establishing lines and levels of building.
 - 2.3.4.16.4. Planting material treatment records (wood, soil, etc).
 - 2.3.4.16.5. Certifications received in lieu of labels on products and similar record documentation.
 - 2.3.4.16.6. Concrete batch mixing and bulk delivery records.
 - 2.3.4.16.7. Testing and qualification of tradesmen.
 - 2.3.4.16.8. Documented qualification of installation firms.
 - 2.3.4.16.9. Materials testing reports.
 - 2.3.4.16.10. Final inspection Punchlist and deficiency corrections.
- 2.3.4.17. All original, signed Project warranties and guarantees.

PART 3- EXECUTION

3.1. REQUIREMENTS FOR CLOSE-OUT DOCUMENT SUBMISSION

3.1.1.1. Verify that all pages on every document have been scanned. All documents shall be scanned with optical character recognition (OCR) technology. Review each page to ensure that the scan captures original detail. If images appear too dark or too light, or smudged, rescan the page to ensure proper image quality and legibility. Color charts or other documents where color is required to convey full information shall be scanned in color.

3.1.2. .

3.1.3. .

3.2. PROJECT CLEANING AT SUBSTANTIAL COMPLETION

3.2.1. The Contractor shall maintain the Project and the Site in a clean and orderly condition throughout the course of construction. In addition to continuous Project cleaning, the following requirements are related to Project Close-Out. Special cleaning for specific units of Work may also be specified in other Sections of Project Specifications.

3.2.2. Contractor shall perform an initial cleaning of the Work consisting of cleaning each surface or unit of Work to normal "clean" condition expected for a first-class building cleaning and maintenance program.

3.2.3. Contractor shall comply with manufacturer's instructions for cleaning of all system components, equipment, and materials incorporated into the Project.

3.2.4. Contractor shall perform the following "initial" final cleaning immediately prior to the time the Contractor requests Substantial Completion inspection.

3.2.4.1. Remove labels that are not required as permanent labels.

3.2.4.2. Clean, according to manufacturer's recommendations, exposed hard-surfaced finishes, including glass, metals, stone, concrete, painted surfaces, plastics, tile, wood, special coatings, and similar surfaces, to a dirt-free condition, free of dust, stains, films and similar noticeable distracting substances. Restore reflective surfaces to original condition.

3.2.4.3. Remove debris and surface dust from limited-access spaces including plenums, shafts, and similar spaces.

3.2.4.4. Clean concrete floors in non-occupied spaces, wet-mop and broom clean.

3.2.4.5. Clean fixtures of all dust and debris. Replace lamps in accordance with Technical Specifications after final Project cleaning.

3.2.4.6. Remove crates, cartons and other flammable waste materials or trash from the Site. Provide Owner with a finished Project that is free of concealed garbage, trash and rodent infestation. If concealed garbage, trash and rodent infestation are revealed, or odors from them occur, Contractor shall remove and correct at the Contractor's expense. Restore property to its original condition where no improvements are shown.

3.2.4.7. Clean spaces such as elevator shafts, equipment rooms, pipe and duct chases, furred spaces, and other similar unfurnished space to leave free from rubbish, loose plaster, mortar drippings, extraneous construction materials, dirt, and dust.

3.2.4.8. Remove rubbish by way of chutes, taken down on hoists, or lowered in receptacles. Contractor shall not remove rubbish or waste by dropping or throwing from one level to another within or outside the building(s).

3.2.5. Contractor shall not mark, soil or otherwise deface finished surfaces. If Contractor marks, soils, or otherwise defaces finished surfaces, Contractor shall bear all costs for cleaning and restoring such surfaces to their originally intended condition.

3.3. PROJECT CLEANING AT FINAL ACCEPTANCE

3.3.1. Contractor shall complete the following "final" cleaning immediately prior requesting a Final Completion inspection:

3.3.1.1. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances that are noticeable as vision-obscuring materials.

3.3.1.2. Turn the work over in immaculate condition inside and outside the premises.

3.3.1.3. Clean all work on the premises including walks, drives, curbs, paving, fences, grounds and walls. Provide a clean shine on slick surfaces. Remove smudges, marks, stains, fingerprints, soil, dirt, paint, dust, lint, labels, discolorations and other foreign materials.

3.3.1.4. Clean all finished surfaces on interior and exterior of Project including floors, walls, ceilings, windows, glass, doors, fixtures, hardware and equipment. Final wax and polish all natural finish metal on interior or exterior surfaces. Clean and apply finish (including wax) to all floors as recommended by the manufacturer and accepted by Owner.

3.3.2. In addition to the cleaning specified above and more specific cleaning required in the various technical Specifications, Contractor shall prepare the building(s) for occupancy by a thorough cleaning throughout, including washing (or cleaning by approved methods) surfaces on which dirt or dust has collected, and by washing glass on both sides leaving a smear-free shine. Contractor shall wash exterior glass using a window-cleaning contractor specializing in such work.

3.3.3. Contractor shall remove temporary buildings and structures, fences, scaffolding, surplus materials and rubbish of every kind from the Site. Contractor shall repair these areas to be compatible with the surrounding construction finished condition.

END OF SECTION 01 77 00

SECTION 01 78 39 – PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. The Contractor's attention is specifically directed, but not limited, to the Uniform General Conditions for University of Texas System Building Construction Contracts (UTUGCs) for other requirements.
- B. Drawings and general provisions of the Contract, including Division 00 and other Division 01 Specification Sections, apply to this Section.
- C. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.
- D. General project closeout requirements are included in Section 01 77 00, Project Close-out Procedures.
- E. General requirements for submittal of Shop Drawings and Product Data are included in the UTUGCs and Section 01 31 00, Project Administration.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for Project Record Documents to be prepared and submitted by the Contractor and the Architect/Engineer, which include but are not limited to:
 - 1. Record Documents
 - 2. Record Drawings
 - 3. Record Specifications
 - 4. Final Drawings
 - 5. Final Specifications

1.03 REFERENCE STANDARDS

- A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.
- B. All reference amendments adopted prior to the Effective Date of this Agreement shall be applicable to this Project.

1.04 DEFINITIONS

- A. The following terms used within the Section are defined in the UTUGCs, unless otherwise defined herein:
 - 1. Contract Documents
 - 2. Construction Documents
 - 3. Drawings

4. Final Drawings: The Drawings from the Contract Documents that have been professionally electronically drafted reflecting the as-constructed conditions of the Work based upon the information provided by the Contractor as reflected in the Record Documents.
 5. Final Specifications: Specification section of the Project Manual compiled, and incorporating all additions and edits to the Specification issued to Contractor for construction.
 6. Project Workspace: Is the Owners Internet-based Project Management System
 7. Record Documents
 8. Records Document Edit Log: A log documenting all markings or information added to the Record Documents.
 9. Record Submittal: Approved product submittal and Shop Drawing, including documentation of all Architect/Engineer and Owner comments.
 10. Shop Drawings
 11. Specifications
 12. Submittals: Shop drawings, material data, samples, and product data to verify that the correct products and quantities will be installed on the project.
 13. Supplemental Documents: Examples of Supplemental Documents include, but are not limited to: HVAC ductwork, hydronic and plumbing piping, sprinkler piping, switchgear, and custom air handling units.
- B. Redline Documents: See Record Documents.
- C. As-Built Drawings: See Record Documents.
- D. Final Specifications – Specification section of the Project Manual compiled, incorporating all additions or edits to the specification issued to contractor for construction.
- E. Final Drawings: The Drawings from the Contract Documents that have been professionally electronically drafted reflecting the as-constructed conditions of the Work from the Record Documents.

PART 2 - PRODUCTS

2.01 REQUIREMENTS FOR RECORD DOCUMENTS

- A. During progress of the Work, Contractor shall maintain a set of Record Documents and Shop Drawings at the Site. Contractor must update these documents weekly, at a minimum, with mark-ups of actual installations that vary from the Work as originally shown. Contractor shall include all Drawings issued as addenda, clarifications, or Change Orders.
- B. Contractor shall maintain and have available for review in conjunction with project progress meetings, a current set of the marked-up Record Documents and Shop Drawings. Availability for review and acceptability of both the format and content are prerequisites for certification and acceptance of the Application for Payment by the Owner and Architect/Engineer.
- C. Contractor shall not use Record Documents for construction purposes. Contractor must protect Record Documents from deterioration and loss in a secure location.

2.02 RECORD DOCUMENTS EDIT LOG

- A. During progress of the Work, Contractor shall update the Record Documents Edit Log each time updates or edits are made, or information is added, to the Record Documents and shall review the log with the Owner prior to submitting each monthly Application for Payment.
- B. The Record Documents Edit Log shall include the following information as a minimum;
 - 1. Date Edited.
 - 2. Name and Company of Person Making Edit.
 - 3. Edit Type: RFI, Change Order/Request for Proposal, Field Change, Red Line, Supplemental Document, and Revision/ASI.
 - 4. Reference: name and number of the source document if applicable, such as Change Order or RFI number.
 - 5. Sheet(s) Edited.
 - 6. Description of Edit, unless documented by an RFI, Change Order, or Field Change.
- C. Refer to Attachment "A" for Owner's template for the Record Documents Edit Log

2.03 RECORD DRAWINGS

- A. Contractor must mark-up Drawings that are most compatible for showing actual physical condition, fully and accurately and must reference all other appearances of this Work to the updated sheet. Contractor must include cross-references to the Change Order number on the updated Drawing sheet and all additional sheets where the Work is shown.
 - 1. Contractor must mark-up with erasable colored pencil, in a legible and professional manner using separate colors where feasible, to distinguish between changes for different categories of Work at the same general location.
 - 2. Contractor must mark-up important additional information, which was either shown schematically only or omitted from the Construction Documents. Contractor must give particular attention to information on concealed work that would be difficult to identify or measure and record at a later date.
 - 3. Contractor must require each person preparing mark-ups to initial and date the mark-ups and indicate the name of their company
 - 4. If Supplemental Drawings are used, Contractor must follow the requirements below for Supplemental Drawings.
 - 5. In association with Contractor's request for Substantial Completion inspection, Contractor must submit one (1) copy of the marked-up record drawings to Project Workspace for Owner review. Drawings shall be scanned and indexed in Adobe PDF format.

2.04 SUPPLEMENTAL DOCUMENTS

- A. The use of Shop Drawings and/or fabrication drawings as supplements to the final record drawings is required for all items in which the larger scale employed on the Shop Drawings is needed to show the work in sufficient detail for Owner's future use. When marked-up Shop Drawings are included in the Record Documents, Contractor must mark-up and cross-reference on the Contract Drawings at the corresponding location.

- B. During maintenance and updating of the Record Drawings, the applicable Supplemental Documents must be placed in the set directly behind the Drawing that it supplements, with appropriate reference notes on both the applicable Record Drawing and all other affected drawings.
- C. The Supplemental Document must be identified as a Record Document and must be numbered with an extension to the Drawing it supplements in a manner acceptable to the Owner.

2.05 RECORD SPECIFICATIONS

- A. It is mandatory that all changes to specified materials, installation, warranty, etc. be clearly and fully marked within the applicable Specification section in a manner acceptable to the Architect/Engineer and the Owner. Contractor shall review with the Owner and document an acceptable procedure early in the construction phase.
- B. Contractor must give particular attention to substitutions, selection of options, and similar information on work where the exact products used are not clearly identified or readily discernible in the original Specifications. When applicable, Contractor must cross-reference related Record Drawing information and product data.
- C. Contractor must neatly transcribe and post all marked-up information to a "clean" copy of the Specifications, ensuring that similar types of information are annotated in like fashion throughout the Specifications.
- D. In association with Contractor's request for Substantial Completion inspection, Contractor must submit the marked-up Site copy of the Record Specifications to the Owner for review. Upon the Owner's acceptance that the Record Specifications are accurate and complete, the Architect/Engineer will proceed with preparation of Final Specifications.

2.06 RECORD SUBMITTALS

- A. During progress of the Work, Contractor shall maintain copies of each approved product submittal and Shop Drawing, including documentation of all Architect/Engineer and Owner comments. Contractor shall include variations in product as delivered to the Site and variations from manufacturer's instructions and recommendations for installation.
- B. Contractor shall give particular attention to concealed products and portions of the Work that are not clearly identified in the original Submittal or cannot otherwise be readily discerned at a later date by direct observation. Contractor shall cross reference to change orders and record drawings and specifications.
- C. These Record Submittal requirements are in addition to inclusion of similar material as Supplemental Drawings or data for Operating and Maintenance Manuals.

PART 3 - EXECUTION

3.01 SUBMISSION

- A. Prior to requesting Substantial Completion, Contractor shall submit all Record Documents via Project Workspace.
 - 1. Contractor is responsible for each Subcontractor submission and coordination of Record Documents.
 - 2. Contractor shall submit to the Owner and Architect/Engineer, a PDF indexed with scanned color copies of each Record Drawing.

3. Submit all Record Documents related to each Subcontractor's particular Work, whether or not changes and additional information were recorded.

END OF SECTION 01 78 39

ATTACHMENT "A" – RECORD DOCUMENTS EDIT LOG

Download an Electronic Version of the Record Documents Edit Log template at the following Internet Address

<http://www2.mdanderson.org/depts/cpm/standards/supp.html#templates>

RECORD DOCUMENTS EDIT LOG

This log is used to capture all edits and changes made to the record documents (drawings, specifications, approved submittals). When making ANY edit/change to the record documents, the person making the edit/change shall document it by making an entry in this log. By keeping this log, all project stakeholders can easily see what has been done to the record documents. This will help ensure a complete set of record documents, make it easier to coordinate record document maintenance between all parties, and improve the quality of the final product.

| Edit Types | | |
|--------------|--|--|
| Abbreviation | Edit Type | Example/Notes |
| RFI | Request for Information | Changes/clarifications made to the contract documents by RFI's. |
| CO/RFP | Change Order or Request for Proposal | The Change Order is the official change document, but reference to the RFP may be necessary if the CO is in process. |
| Field Change | Field Change | A change that was made without an initiating document that is within the allowable tolerances. If the change is followed up on with an RFI, RFP/CO then it is no longer a field change. |
| Red Line | Red Line, As-Constructed, Omitted or Not Shown in drawings | This is for work that is not specifically shown in the drawings. For example, the electrical circuit locations may not be shown in the design, but the electrical sub-contractor has drawn them on the contract drawing sheet. |
| Sup. Doc. | Supplemental Document | Shop Drawings, sketches, schematics that show the work in greater detail and are intended to be included with the final as-built documents. Could be issued by any party. MEP shop drawings are required to be included with the record documents. |
| Revision/ASI | Revisions or Architect's Supplemental Instructions | Changes/clarifications made to the contract documents by ASI's or revisions issued by A/E |
| Addendum | Addendum | Changes/clarifications made to the contract documents by Addenda. |

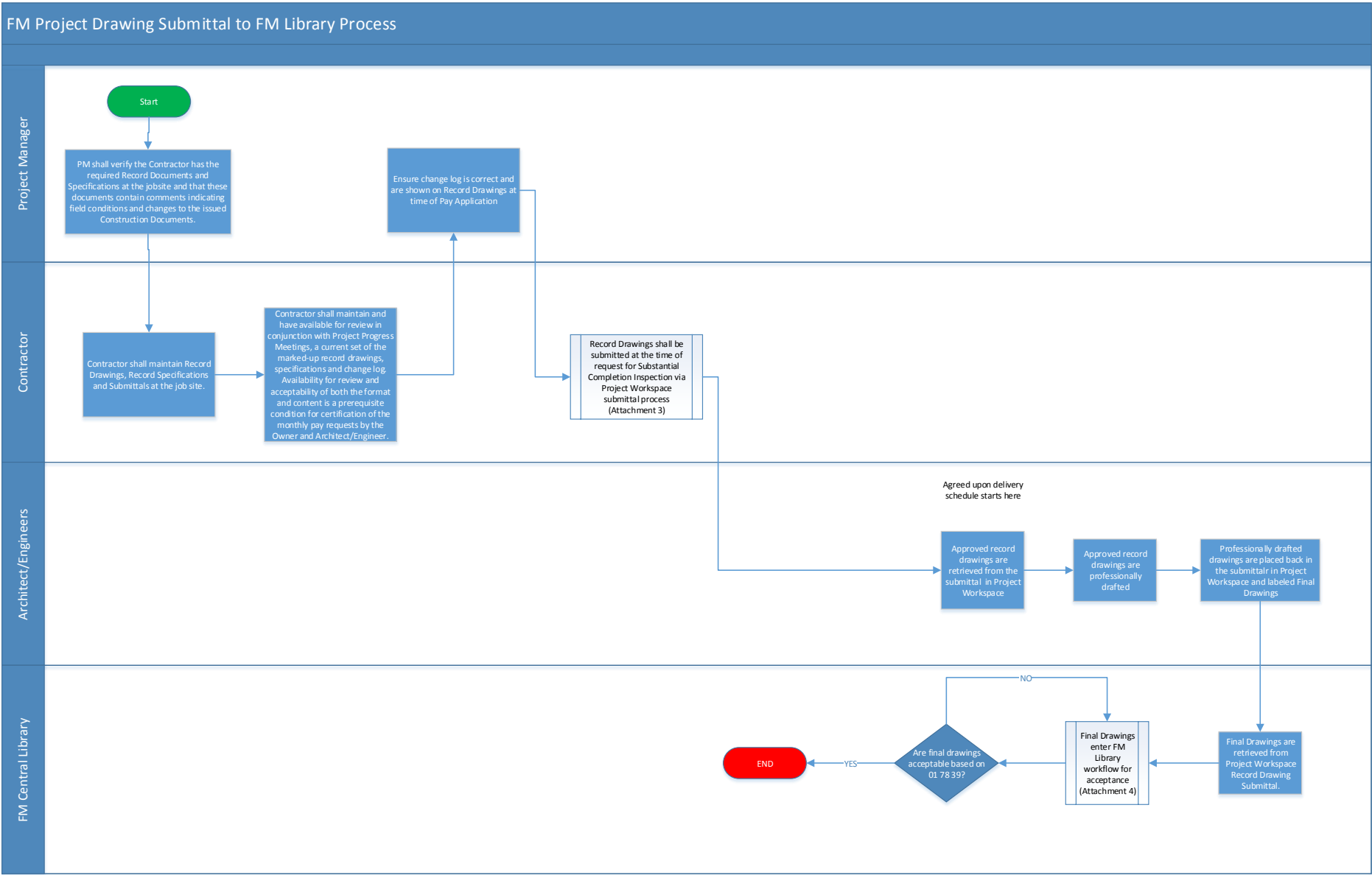
| Date Edited MM / DD / YYYY | Name and Company of Person Making Edit | Edit Type(s) Select all that apply | Reference Ex. RFI-123 | Sheet(s) Edited | Description of Edits |
|-------------------------------|---|--|------------------------------|-----------------|----------------------|
| / / 201 | | <input type="checkbox"/> RFI <input type="checkbox"/> CO/RFP <input type="checkbox"/> Field Change <input type="checkbox"/> Red Line <input type="checkbox"/> Sup. Doc. <input type="checkbox"/> Revision/ASI <input type="checkbox"/> Addendum <input type="checkbox"/> Other: | <input type="checkbox"/> N/A | | |
| / / 201 | | <input type="checkbox"/> RFI <input type="checkbox"/> CO/RFP <input type="checkbox"/> Field Change <input type="checkbox"/> Red Line <input type="checkbox"/> Sup. Doc. <input type="checkbox"/> Revision/ASI <input type="checkbox"/> Addendum <input type="checkbox"/> Other: | <input type="checkbox"/> N/A | | |

Project # and Name:

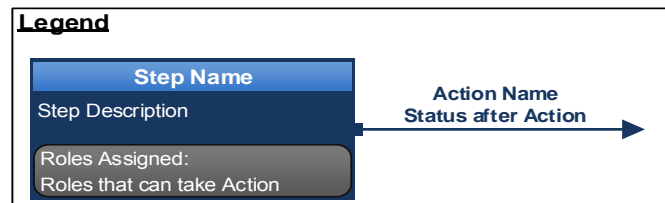
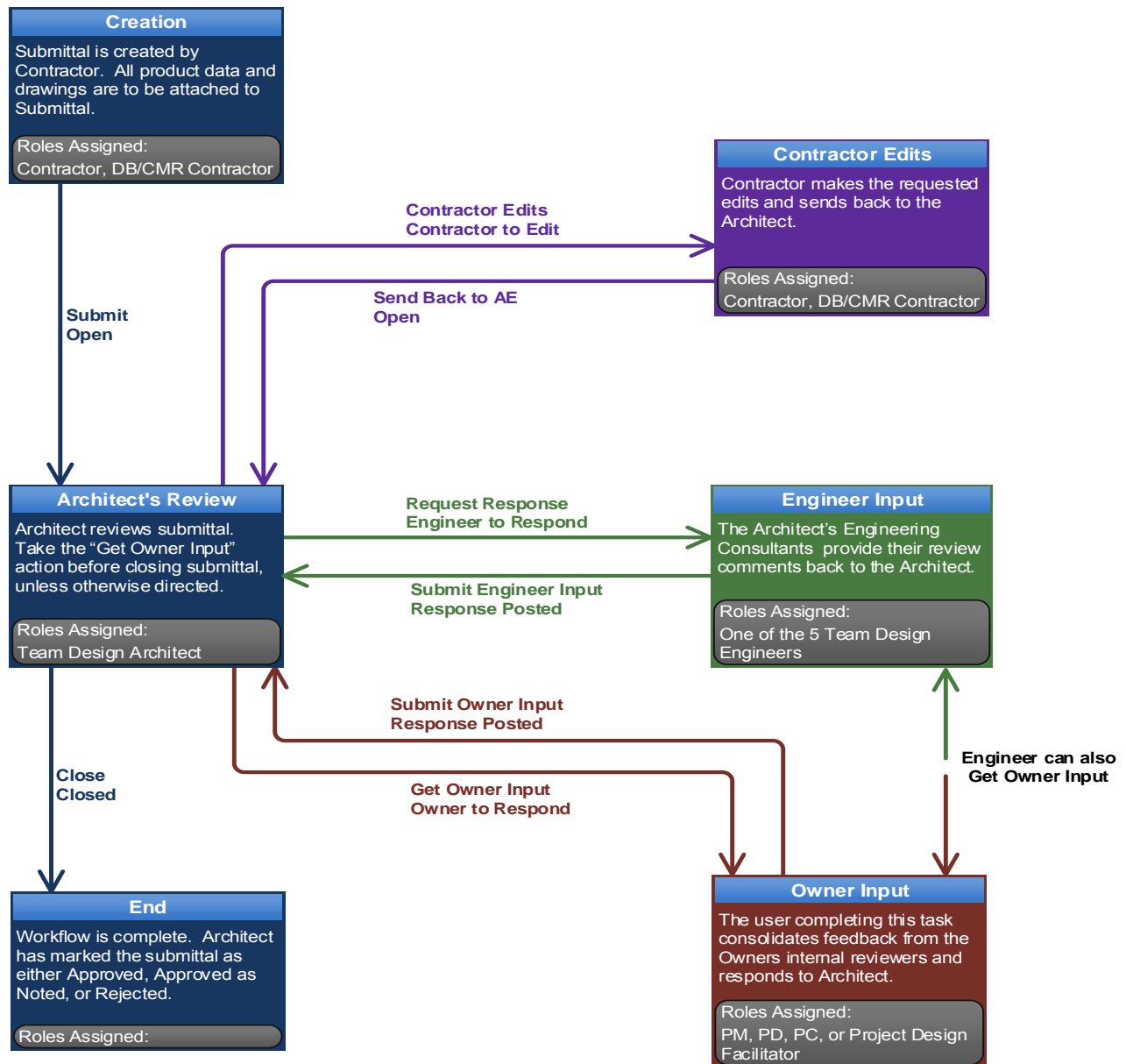
GC:

Primary Contact for Record
Documents:

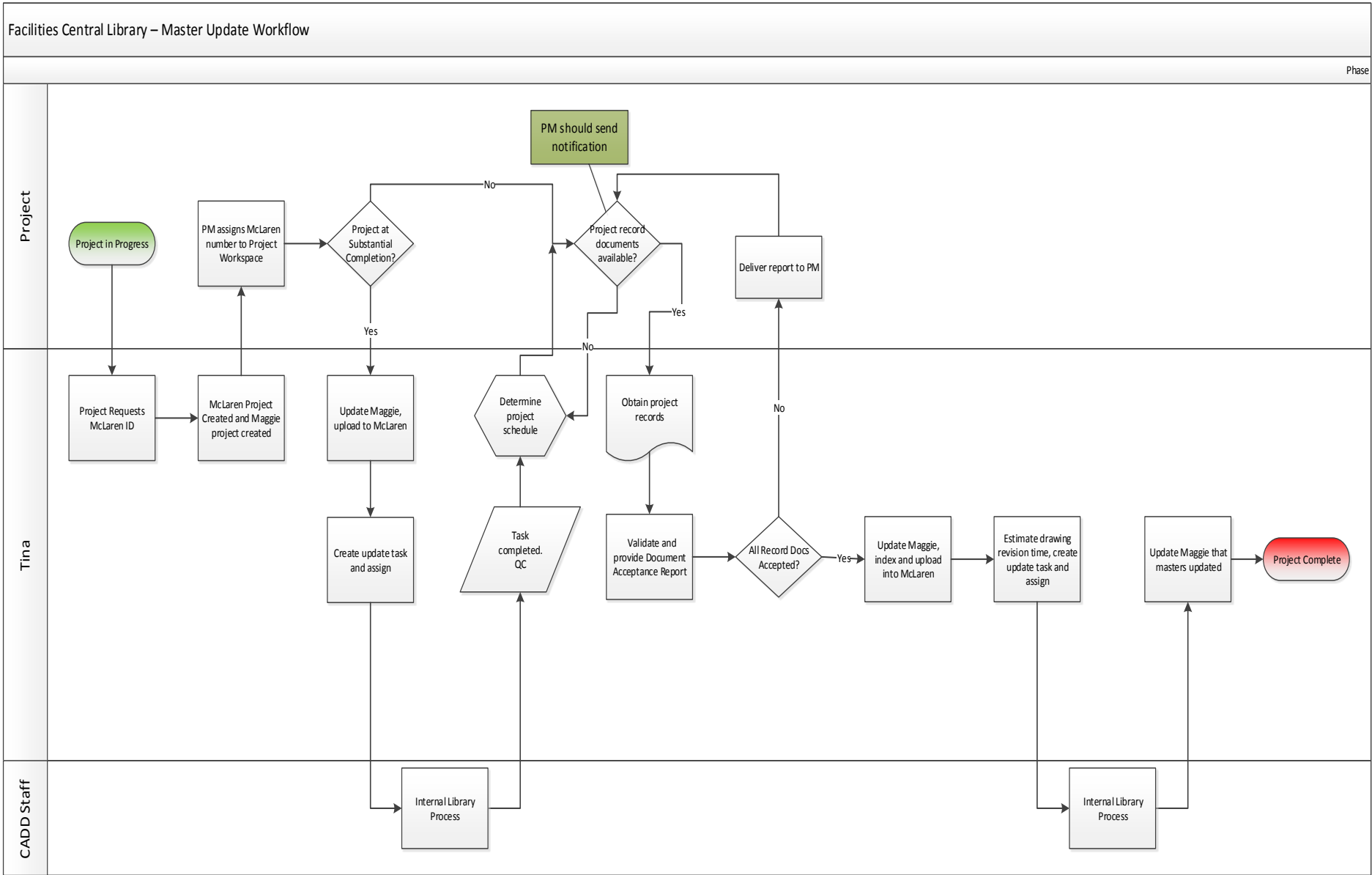
ATTACHMENT “B” – DRAWING SUBMITTAL TO FM LIBRARY PROCESS



PROJECT WORKSPACE SUBMITTAL WORKFLOW



ATTACHMENT “D” – FACILITIES CENTRAL LIBRARY WORKFLOW



01-78-46

MAINTENANCE AND MATERIALS

SECTION 01 78 46 – MAINTENANCE MATERIALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.

1.02 SUMMARY

- A. Section includes minimum requirements for surplus maintenance materials of the same production run of installed products (attic stock) to be furnished as part of the Project and that Contractor shall deliver to Owner's designated storage facility.
- B. Furnish maintenance materials as described within Part 2 – Schedule of Maintenance Material Items.

1.03 DEFINITIONS

- A. Maintenance Materials: Additional material designated within this Section intended to match and replace non-standard products installed in this Project. Non-standard products may include materials that require a specific color or pattern.
- B. Spare Parts: Parts, tools, service kits, or equipment components that are included in the purchase of the original equipment and are provided by the original equipment manufacturer for use by the Owner.
- C. Perishable Items: Items such as paint, coatings, adhesives, batteries, and other items with a finite shelf life.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Prepare items for storage as follows:
 - 1. Items shall be delivered in undamaged, original packing, or packaged in a protective covering for storage.
 - 2. Item description, manufacturer's name and model number where applicable, quantity, MD Anderson project name, and MD Anderson building name shall be clearly marked on a visible surface of the packaging.
 - 3. Mechanical rooms, electrical rooms, telecommunications, and other service areas shall not be used as storage or staging areas unless Contractor obtains prior written approval from the Owner's property manager and Environmental Health and Safety representative.
- B. Storage Locations:
 - 1. 118; Warehouse Complex-Corder (WCS)
 - 2. 143; Warehouse Complex - Pawnee Street (WPS)

C. Delivery:

1. Deliver materials directly to an Owner-approved, designated storage or warehouse facility, confirmed prior to delivery.

PART 2 - PRODUCTS

2.01 GENERAL

- A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.
- B. All maintenance materials required are referenced in this specification section.

2.02 SCHEDULE OF MAINTENANCE MATERIAL ITEMS

| Specification | Material Item Description | Furnished Quantity |
|---------------|--|---|
| 09 30 00 | Tile and Trim Units | Full size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size |
| 09 51 00 | Acoustical Ceiling Units, | Acoustical Ceiling Units: Full size units equal to 2.0 percent of amount installed. |
| 09 51 00 | Suspension System Components | Suspension System Components: Furnish quantity of each component equal to 2.0 percent of amount installed. |
| 09 65 13 | Resilient wall base | Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof of each different type and color of resilient wall base installed. |
| 09 65 16 | Resilient sheet floor covering | Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof, in roll form of each different composition, wearing surface, color, and pattern of resilient sheet floor covering installed. |
| 09 68 00 | Carpet Tile | Full size tiles for each type of material equal to 10 percent of amount installed |
| 09 69 00 | Standard Field Panels and Understructure | Standard Field Panels and Understructure: Furnish quantity of standard field panels and understructure components to support them equal to 2 percent of the amount installed. |
| 09 72 00 | Wall covering | Furnish quantity of full size rolls equal to 5 percent of amount of each wallcovering material installed. |
| 09 84 33 | Acoustical Wall Treatment Panels | Furnish quantity of full size rolls equal to 10 percent of amount of each wallcovering material installed. |
| 09 97 00 | Multi-Color Interior Coating | Multi-Color Interior Coating: Furnish quantity equal to 2 percent of amount applied, but not less than one gallon, for each color and pattern installed. |

| | | |
|----------|--|--|
| 10 26 00 | Wall and corner guard, and wall protection material | deliver to Owner not less than 2 percent of each type, color, and pattern of wall and corner guard, and wall protection material |
| 21 10 13 | Wet Standpipe & Sprinkler System - Extra Materials | Provide supply of spare heads of each type installed under the Contract in quantities as required by National Fire Protection Association Standard No. 13. The heads shall be packed in a suitable wall mounted sprinkler cabinet and shall be representative of and in proportion to, the number of each type and temperature rating installed. In addition to the spare heads, the Contractor shall provide not less than three special sprinkler head wrenches for each type of head. |
| 21 13 16 | Preaction Sprinkler Systems - Extra Materials | Provide supply of spare heads of each type installed under the Contract in quantities as required by National Fire Protection Association Standard No. 13. The heads shall be packed in a suitable wall mounted sprinkler cabinet and shall be representative of and in proportion to, the number of each type and temperature rating installed. In addition to the spare heads, the Contractor shall provide not less than three special sprinkler head wrenches for each type of head. |
| 21 31 13 | Fire Pumps - Maintenance Service / Parts | Furnish service and maintenance of fire pump, driver, and controller for one year from date of Substantial Completion. Provide one complete set of gaskets, screens and seals for each pump type and model supplied. |
| 22 10 00 | Plumbing Piping - Extra Materials | Provide one differential pressure meter kit for use with domestic hot water return circuit balancing valves installed within this project. Kit shall include differential pressure gauge, hoses with 90 micron inline filters, readout probes, circuit setter calculator and carrying case. |
| 22 40 00 | Plumbing Fixtures - Extra Materials | Provide two service kits for each type of faucet, flush valve, shower/tub valve & all other trim/accessories having serviceable parts |
| 22 45 00 | Emergency Shower & Eye Wash Equipment - Extra Materials | Provide manufacturer's drench shower tester for each emergency shower installed. |
| 23 73 24 | Custom Air Handling Units w/ Fan Array Systems - Extra Materials | (1) additional set of specified filters for each unit, packaged for storage after each unit has been tested and operated, tag products to identify associated unit |

| | | |
|----------|---|--|
| 26 28 13 | Fuses, 600 Volt | Provide (1) set of spare fuses (3 fuses) of each size and type used on the project in a keyed lockable fuse cabinet (keyed to Owner's master electrical key) Fuse cabinet to be mounted in main switchgear room of the building as designated by Owner. |
| 26 51 00 | Lighting Fixtures | Provide a stock of replacement lamps in original cartons or packing sleeves, amounting to (10%) not less than (2) lamps in each case, of each type and size |
| 28 30 00 | Fire Alarm & Smoke Detector Systems - Extra Materials | The installing fire alarm Subcontractor shall furnish a total of 1 percent of the total devices installed, or a minimum amount of one device per quantities shown, including: 1. Smoke detector bases and heads. (Minimum one device per first 25 installed) 2. Heat detector bases and heads. (Minimum one device per first 25 installed) 3. Manual pull stations. (Minimum one device per first 25 installed) 4. Audio/visual devices. (Minimum one device per first 15 installed) 5. Magnetic holdbacks. (Minimum one device per 15 first installed) 6. Duct detector bases, heads (Minimum one device per first 15 installed) 7. Addressable monitor modules. (Minimum one device per first 15 installed) 8. Addressable control modules. (Minimum one device per first 5 installed) 9. Remote indicators. (Minimum one device per first 5 installed) 10. For any project requiring more than 20 pull stations, two (2) stopper II type pull station covers shall be provided to the Owner as spare parts. |

2.03 SPARE PARTS

- A. The Owner's property manager or maintenance supervisor for the Project building is responsible for the acceptance and storage of spare parts.
- B. Items included with the purchase of materials or equipment that are considered spare or replacement parts are the property of MD Anderson and shall be submitted to the area for acceptance and storage.

- C. Installation aids, transportation tools and all items that are not deemed as spare parts shall be disposed of per Owner's waste disposal policies, or may be retained by the Contractor.

PART 3 - NOT USED

END OF SECTION 01 78 46

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specifications throughout all Divisions of the Project Manual are directly applicable to this Section, and this Section is directly applicable to them.

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of systems, subsystems, and equipment operation.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
 - 3. Demonstration and training video recordings.
- B. Refer to individual Technical Specification Sections for additional demonstration and training requirements related to systems and components.
- C. Demonstration and training shall follow successful system and equipment start-up and Owner acceptance of commissioning tests as described in Section 01 91 00 – General Commissioning Requirements.

1.03 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, experienced in operation and maintenance procedures and training.

1.04 SUBMITTALS

- A. Training Plan: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module. Refer to Owner's Commissioning Process Templates for example forms of the Training and Orientation Agenda and Staff Training and Orientation Record.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Qualification Data: For facilitator and/or instructor.

- C. Attendance Record: For each training module, submit list of participants and length of instruction time.
- D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.05 CLOSEOUT SUBMITTALS

- A. Demonstration and training video recordings, including pre-produced video recordings as applicable: Submit two (2) copies within seven (7) days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of videographer.
 - c. Name of Architect.
 - d. Name of Contractor or Construction Manager.
 - 2. Transcript: Prepared and bound in format matching Operating and Maintenance Manuals. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video recording. Include name of Project and date of video recording on each page.
 - 3. At completion of training, submit complete training manual(s) for Owner's use prepared and bound in format matching Operating and Maintenance Manuals and also in PDF electronic file format.

1.06 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operating and maintenance data has been reviewed and approved by Architect/Engineer.
- D. Furnish minimum demonstration and training instruction time as described within the following table for architectural, plumbing, fire protection, HVAC and electrical systems and components.

| Equipment / System | Spec Section | Total Hours |
|--------------------------------------|--------------|-------------|
| Air Handler Units | 20 08 00 | 4 Hrs |
| Air Terminal Units | 20 08 00 | 2 Hrs |
| Specialty Exhaust Fans | 20 08 00 | 4 Hrs |
| Medical Gas and Vacuum System Alarms | 20 08 00 | 2 Hrs |
| High Purity Water System | 22 67 13 | 8 Hrs |
| Variable Frequency Drives | 23 05 13 | 8 Hrs |
| BAS Commissioning | 25 08 00 | 8 Hrs |

PART 2 - PRODUCTS

2.01 INSTRUCTION PROGRAM

- A. Instruction Program Structure: Develop an instruction program that includes individual training modules for each integrated system operations and for equipment not part of a system, as required by the Owner's training requirements and by individual Specification Sections.
- B. Pre-instruction Meeting: Conduct a meeting at the Project site to review methods and procedures related to demonstration and training including, but not limited to, the following:
 - 1. Inspect and discuss locations and other facilities required for instruction.
 - 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 - 3. Review required content of instruction.
 - 4. For instruction that must occur outdoors, review forecasted weather conditions and procedures to follow if conditions are unfavorable.
- C. Training Plan:
 - 1. Contractor shall submit a written training plan, referred to as the Training Plan, to the Owner for review and approval. Training Plan shall cover the following elements.
 - a. Equipment and related systems included in training.
 - b. Intended audience.
 - c. Location of training.
 - d. Objectives.
 - e. Subjects covered.
 - f. Duration of training on each subject.
 - g. Instructor for each subject.
 - h. Methods (classroom lecture, video, Project site walk-through, actual operational demonstrations, written handouts, etc.).
 - i. Instructors and qualifications.
 - 2. Contractor shall coordinate, schedule and complete the training related to all equipment specified in the Contract Documents. Contractor may utilize the installing subcontractor and/or manufacturers' representative or others approved in advance by Owner for specific portions of equipment or systems training.
 - 3. Owner must approve any deviations from the Contract Document requirements prior to the Contractor developing the Training Plan.

4. Contractor shall conduct classroom-style training session followed by field demonstrations of system operation. When equipment or a system requires both demonstration and training, Contractor may combine the demonstration and training provided that the Contractor obtains the Owner's approval at least ten (10) days prior to the demonstration and training.
5. Contractor shall use Operating and Maintenance Manuals and the Equipment Matrix as a basis for instructing Owner's staff regarding system operation. Contractor shall review contents of Operating and Maintenance Manuals and review equipment data and performance verification to Owner as part of Owner training. This instruction and data review should be held in a classroom environment.
6. As a minimum, Contractor shall provide training on all systems including, but not limited to, the following (as applicable to the Project):
 - a. Architectural Items.
 - b. Heating, Ventilating, and Air Conditioning Airside and Waterside Systems.
 - c. Building Automation System.
 - d. Electrical Systems.
 - e. Life Safety Systems (including Fire Alarm, Stairwell Pressurization, Fire Protection, and Smoke Containment, Control, and Response System).
 - f. Elevators/Escalators.
 - g. Refrigeration Systems.
 - h. Lighting Fixtures and Control Systems.
 - i. Fire Alarm System.
 - j. Communications Systems (including Wired and Wireless Networks, Data, Nurse Call).
 - k. Emergency Power and Uninterruptible Power Supply (UPS) Systems.
 - l. Security System.
 - m. Domestic and Process Water Systems.
 - n. Medical Gas and Vacuum Systems.
 - o. Laboratory Gas and Vacuum Systems.
 - p. Any other major system not identified above.
7. Training shall include:
 - a. Usage of the printed installation, operation and maintenance instruction material included in the Operating and Maintenance Manuals.

- b. Review of the written operating and maintenance instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include start-up, operation in all modes possible, shutdown, seasonal changeover and any emergency procedures.
 - c. Discussion of relevant health and safety issues and concerns.
 - d. Discussion of warranties and guarantees.
 - e. Common troubleshooting problems and solutions.
 - f. Explanation of information included in the Operating and Maintenance manuals and the location of all plans and manuals in the facility.
 - g. Discussion of any peculiarities of equipment installation or operation.
- D. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
- 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Operations manuals.
 - c. Maintenance manuals.
 - d. Project record documents.
 - e. Identification systems.
 - f. Warranties and bonds.
 - g. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.
 - l. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.

- b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning
 - e. Procedures for routine and preventive maintenance.
 - f. Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training modules. Assemble training modules into a training manual organized in coordination with requirements in Section 01 77 00 – Project Close-out Procedures.
- B. Provide Owner-approved Operating and Maintenance Manuals minimum fourteen (14) days prior to the scheduled training.
- C. Set up instructional equipment at instruction location.

3.02 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, equipment, and equipment components.
- C. Scheduling: Provide instruction at mutually agreed upon days and times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner at least seven (7) day advance notice.

3.03 FIELD DEMONSTRATION

- A. Contractor shall demonstrate in the field: start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of the system(s) and each component device.
- B. Contractor shall demonstrate system performance at each stage of sequence of operation. Contractor shall promptly correct any deficiencies noted during the demonstration and document on a Deficiency report.
- C. During any demonstration, should the system fail to perform in accordance with the requirements of the Operating and Maintenance Manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.
- D. Contractor shall cooperate with Owner and Owner's Test, Adjust, and Balance Firm for verification testing and final adjustments and balancing as may be indicated in the Contract Documents or as directed by Owner.
- E. The manufacturer's representatives and the installing contractor shall demonstrate both system operation and compliance to the Owner's agents and consultants. If coordinated and scheduled appropriately by the Contractor, equipment and/or systems inspections may also serve to provide the required Owner training, if approved in advance by the Owner. Refer to Section 01 45 00 – Project Quality Control.

3.04 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. Engage a qualified videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
- B. Contractor shall furnish to the Owner a professional quality video and audio recording of the training. Owner may select portions of the training to be recorded.
- C. Video: Owner training videos shall be delivered to Owner in the MP4 file format container with MPEG-4 video. Video to be encoded using the H.264 codec with the following settings: variable bit rate mode (overall bitrate shall be less than 10 Mb/s), High Profile, 2 consecutive B frames, Closed GOP (GOP of half the frame rate), and CABAC. Resolution shall be progressive scan with a height of 720 pixels, and a preferred width of 1280 pixels (i.e. 720p). Frame rates shall match the source material unless source was recorded using interlaced scan in which case it shall be deinterlaced; for example going from 1080i 60 (60 interlaced fields per second) to 720p (30 progressive frames per second). Audio to be AAC encoded with a bit rate between 128 and 192 Kb/s at a sample rate of 48kHz using Stereo or Stereo + 5.1.
 - 1. Electronic Media: Read-only format compact disc acceptable to Owner, with commercial-grade graphic label.
 - 2. File Hierarchy: Organize folder structure and file locations according to Operating and Maintenance Manual table of contents; confirm with Owner. Provide complete screen-based menu.
 - 3. File Names: Use file names based upon name of equipment generally described in video segment, as identified in Project specifications.

4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training DVD that describes the following for each Contractor involved on the Project, arranged according to Project Manual table of contents:
 - a. Name of Contractor/Installer.
 - b. Business address.
 - c. Business phone number.
 - d. Point of contact.
 - e. E-mail address.
- D. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
 1. Film training session(s) in segments not to exceed 15 minutes.
 - a. Produce segments to present a single significant piece of equipment per segment.
 - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
 - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
 - d. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
- E. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
 1. Furnish additional portable lighting as required.
- F. Narration: Describe scenes on video recording by either audio narration by microphone while video recording is recorded or by dubbing audio narration off-site after the recording. Include description of items being viewed.
- G. Pre-produced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

END OF SECTION 01 79 00

SECTION 01 91 00 – GENERAL COMMISSIONING REQUIREMENTS

PART 1 – GENERAL

1.1. RELATED DOCUMENTS

- 1.1.1. The Contractor's attention is specifically directed, but not limited to, the Uniform General Conditions for University of Texas System Building Construction Contracts (UTUGCs) for other requirements.
- 1.1.2. Specifications throughout all Divisions of the Project Manual, which pertain to operable equipment and/or building systems, are directly applicable to this Section, and this Section is directly applicable to them.

1.2. SUMMARY

- 1.2.1. This Section establishes general and administrative requirements pertaining to commissioning of equipment, devices, and building systems installed on renovation and new construction projects delivered under various contracting methodologies. Technical requirements for commissioning of particular systems and components are established in the Contract Documents.
- 1.2.2. It is of primary concern that all operable systems installed in the Project perform in accordance with the Contract Documents and the specified Owner's operational needs. During Commissioning, the Contractor systematically demonstrates to the Owner that the operable systems are properly performing in strict accordance with the Contract Documents.
- 1.2.3. Commissioning requires cooperation and involvement of all parties throughout the construction process. The Contractor shall deliver a successful Commissioning process. Successful Commissioning requires that installation of all building systems complies with Contract Document requirements and that full operational check-out and necessary adjustments are performed prior to Substantial Completion, with the exception of deferred tests approved in advance by Owner.
- 1.2.4. Commissioning will encompass and coordinate traditionally separate functions of system documentation, Inspection, Prefunctional Checklists and start-up, control system calibration and point-to-point checkout, testing, adjusting, and balancing, Functional Performance Tests, Integrated System Tests, Contractor demonstration to the Owner, and training of Owner's personnel. This requires assembling all related documentation into one Commissioning Manual. Commissioning is intended to achieve the following specific objectives of the Contract Documents.
 - 1.2.4.1. Verify and document proper installation and design parameters of equipment, systems, and integrated systems.
 - 1.2.4.2. Ensure that operating and maintenance and Commissioning documentation requirements are complete.
 - 1.2.4.3. Provide Owner with functional buildings and systems that meet the Contract Document requirements at Substantial Completion.

1.3. DEFINITIONS

Capitalized terms used in this Section shall have the meanings as set forth in the Contract, the UTUGCs, or both, unless otherwise defined or modified below.

- 1.3.1. Commissioning: A systematic process confirming that building systems have been installed, properly started, and consistently operated in strict accordance with the Contract Documents, that all systems are complete and functioning in accordance with the Contract Documents at Substantial Completion, and that Contractor has provided Owner adequate system documentation and training. Commissioning includes Deferred Tests, as approved by Owner.
- 1.3.2. Commissioning Authority: Party employed on the Project, by Owner under a Separate Contract, to provide certain commissioning services as defined herein under Commissioning Authority's Role and Responsibilities. Commissioning Authority does not have authority to alter design or installation procedures without the written approval of Owner and the A/E.
- 1.3.3. Commissioning Plan: A document that provides the structure, schedule, and coordination plan for Commissioning during the construction phase and through the warranty period. The Commissioning Plan will describe the project and systems to be commissioned, Commissioning activities, procedures to follow throughout Commissioning, roles and responsibilities for each participant, and general description of testing and verification methods. The Commissioning Plan must satisfy all Test Requirements set forth in the Contract Documents.
 - 1.3.3.1 Download an electronic version of the Commissioning Plan Template for submittal purposes at the following website:
<http://www2.mdanderson.org/depts/cpm/standards/templates/CommissioningTemplate.zip>
- 1.3.4. Commissioning Team: Working group made up of representative(s) from the A/E, Contractor, Test, Adjust, and Balance Firm, Building Automation System vendor, specialty manufacturers and suppliers, Owner, and Commissioning Authority. Contractor will provide ad-hoc representation of Subcontractors on the Commissioning Team as required for implementation of the Commissioning Plan.
- 1.3.5. Deferred Tests: Functional Performance or Integrated System Tests performed after Substantial Completion, with Owner's approval, due to seasonal requirements, site conditions, or both, that prohibit the test from being performed prior to Substantial Completion.
- 1.3.6. Deficiency: Condition of a component, piece of equipment, or system that is not in compliance with the Contract Documents.
- 1.3.7. Factory Testing: Testing of equipment at the factory, by factory personnel with an Owner's representative present, if deemed necessary by Owner.
- 1.3.8. Functional Performance Test: Test of dynamic function and operation of equipment and systems executed by Contractor. Systems are tested shall be various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, life safety conditions, power failure, etc. Systems are run through all specified sequences of operation. Components are verified to be responding in accordance with Contract Documents. Functional Performance Tests are executed after start-ups and Prefunctional Checklists are complete.
- 1.3.9. Functional Performance Test Procedures: Commissioning protocols and detailed test procedures and instructions in tabular and script-type format that fully describe system configuration and steps required to determine if the system is performing and functioning properly.
- 1.3.10. Integrated System Test: Test of dynamic function and operation of multiple systems. Integrated System Tests are conducted under various modes, such as fire alarm and

emergency situations, life safety conditions, power failure, etc. Systems are integrally operated through all specified sequences of operation. Components are verified to be responding in accordance with Contract Documents. Integrated System Tests are executed after Functional Performance Tests are complete and prior to Substantial Completion. Integrated System Tests provide verification that the integrated systems will properly function according to the Contract Documents.

- 1.3.11. Integrated System Test Procedures: Commissioning protocols and detailed test procedures and instructions in tabular and script-type format that fully describe system configurations and steps required to determine if the interacting systems are performing and functioning properly.
 - 1.3.12. Manual Test: Use of hand-held instruments, immediate control system readouts or direct observation to verify performance (contrasted to analyzing trend data to make the "observation").
 - 1.3.13. Non-Compliance Report (NCR): A tool used to document an item or condition that does not meet the Contract Documents.
 - 1.3.14. Prefunctional Checklist: A list of static inspections and material or component tests that verify proper installation of equipment (e.g., belt tension, oil levels, labels affixed, gages in place, sensors calibrated, etc.). The word Prefunctional refers to before Functional tests. Prefunctional Checklists must include the manufacturer's start-up checklist(s).
 - 1.3.15. Start-up: The activities where equipment is initially energized tested and operated. Start-up is completed prior to Functional Performance Tests.
 - 1.3.16. Test, Adjust, and Balance (TAB) Firm: The Owner may engage a Test, Adjust, and Balance Firm for the Project under a Separate Contract. When engaged for the Project, the TAB Firm shall be a part of the Commissioning Team and shall provide services as set forth in the Specifications.
 - 1.3.17. Test Requirements: Requirements specifying what systems, modes and functions, etc. must be tested. Test Requirements are not detailed test procedures. Test Requirements and acceptance criteria are specified in the Contract Documents.
 - 1.3.18. Training Plan: A detailed plan prepared by the Contractor, and reviewed by the Owner, that outlines the training activities, instructors, time durations, and system requirements in accordance with the Contract Documents and Commissioning Plan.
 - 1.3.19. Trending: Data collection of monitoring points using the Building Automation System or dataloggers.
- 1.4. COORDINATION
- 1.4.1. Commissioning Team:
 - 1.4.1.1. Owner's Members
 - 1.4.1.1.1. Representatives assigned by Owner's Designated Representative
 - 1.4.1.1.2. Commissioning Authority, when engaged for the Project.
 - 1.4.1.1.3. A/E.
 - 1.4.1.1.4. TAB Firm, when engaged for the Project.

1.4.1.2. Contractor's Members:

- 1.4.1.2.1. Individuals, each having authority to act on behalf of the entity they represent, explicitly organized to implement all Commissioning activities through coordinated actions.
- 1.4.1.2.2. Representatives of Contractor, including but not limited to, project manager and commissioning coordinator, Subcontractors, installers, and equipment suppliers. Owner must approve Contractor's commissioning coordinator.

1.4.2. Scheduling:

- 1.4.2.1. Contractor shall integrate all Commissioning activities into the Baseline Schedule and the Work Progress Schedule. All parties will address scheduling problems and make necessary notifications in a timely manner to expedite all Commissioning activities.
- 1.4.2.2. Contractor shall provide the initial schedule of primary Commissioning activities at the pre-commissioning meeting. Prior to the first Start-up or Prefunctional Checklist test occurring, Contractor shall have incorporated and integrated all Commissioning activities into the Baseline Schedule and Work Progress Schedule with appropriately linked predecessors and successors.

1.5. ROLES AND RESPONSIBILITIES

- 1.5.1. Roles and responsibilities of Commissioning Team members are provided in this Section to clarify the commissioning process.

1.5.2. Owner's Role and Responsibilities:

- 1.5.2.1. Review Specifications containing Commissioning requirements.
- 1.5.2.2. Provide Owner's Test Requirements to Commissioning Team.
- 1.5.2.3. Approve the Commissioning Plan, Training Program and Contractor's schedule for completing all Commissioning activities.
- 1.5.2.4. Participate in Commissioning activities, including the following:
 - 1.5.2.4.1. Commissioning Team meetings.
 - 1.5.2.4.2. Review and approve Commissioning Plan, Training Plan, Prefunctional Checklists, Functional Performance Test Procedures, Functional Performance Tests, Integrated System Test Procedures, Integrated System Tests, Deferred Tests, Trending, Training Plan and other Commissioning documents.
 - 1.5.2.4.3. Attendance at Contractor's training sessions in operation and maintenance of systems and equipment.
 - 1.5.2.4.4. Observation of Contractor's demonstration of systems and equipment operation.
 - 1.5.2.4.5.

- 1.5.3. Commissioning Authority's Role and Responsibilities, when engaged for the project.

- 1.5.3.1. Prepare and submit the Commissioning Plan for Owner's approval.

- 1.5.3.2. Review, comment and approve on Contractor's schedule for Commissioning activities.
- 1.5.3.3. Participate in Contractor-led Pre-Commissioning Meeting.
- 1.5.3.4. Conduct and document Commissioning Team meetings.
- 1.5.3.5. Perform site visits as necessary or in conjunction with Commissioning Team meetings to observe component and system installations. Attend selected Project progress meetings to obtain information on construction progress.
- 1.5.3.6. Review and comment on Submittals and coordination drawings applicable to systems being commissioned.
- 1.5.3.7. Review and comment on Contractor-prepared Prefunctional Checklist and other Contractor-prepared documents, including Operating and Maintenance Manuals and Training Plan.
- 1.5.3.8. Prior to equipment Start-ups, review the control sequences and coordinate with the Contractor and A/E in order to prepare the Functional Performance Test and Integrated System Test procedures.
- 1.5.3.9. Witness equipment Start-ups as executed by Contractor.
- 1.5.3.10. Write Functional Performance Test Procedures and Integrated System Test Procedures for Contractor's execution of tests.
- 1.5.3.11. Witness, verify, and document results of Functional Performance Tests and Integrated System Tests.
- 1.5.3.12. Coordinate resolution of Deficiencies identified during Commissioning, Deferred Tests, and during the warranty period.
- 1.5.3.13. Review Contractor's Training Plan.
- 1.5.3.14. Compile Commissioning documentation for Contractor-prepared Commissioning and Closeout Manual including test documentation, Deficiency reports and solution results; non-compliance issue tracking; and recommendations on continuous commissioning, best practices, and preventive maintenance.
- 1.5.4. Architect/Engineer's Role and Responsibilities:
 - 1.5.4.1. Attend Commissioning Team meetings.
 - 1.5.4.2. Review and Approve Commissioning Plan, Training Plan, Prefunctional Checklist, Functional Performance Test Procedures, Functional Performance Tests, Integrated System Test Procedures, Integrated System Tests, Deferred Tests, and other Commissioning documents.
 - 1.5.4.3. Review and Approve Contractor's Training Plan.
 - 1.5.4.4. Review and Approve Test, Adjust, and Balance plan as defined in Specification 23 05 90 and 23 05 93.
 - 1.5.4.5. Approve technical requirements for correction of Deficiencies identified during Commissioning, Deferred Tests, and during the warranty period.
 - 1.5.4.6. Review Operating and Maintenance Manuals.

1.5.5. Contractor's Role and Responsibilities:

- 1.5.5.1 Produce for Owner, Commissioning Authority and A/E's approval, the Commissioning Plan, Prefunctional Checklist, Functional Performance Test Procedures, Integrated System Test Procedures, Equipment Matrix of all devices, systems and equipment supplied, and other Commissioning documents.
 - 1.5.5.1.1 Commissioning Authority will produce the Commissioning Plan, project-specific Functional Performance Test Procedures, and project-specific Integrated System Test Procedures.
 - 1.5.5.1.2 Contractor shall review and provide comments on documents produced by the Commissioning Authority, and shall accept the Commissioning Plan, Functional Performance Test Procedures, and Integrated System Test Procedures as approved by Owner.
- 1.5.5.2 As the Project progresses, add specific checklists, test procedures, schedules, recorded results, action lists, signoff sheets and other documents for the Commissioning and Close-out Manual. Administer updates to the Commissioning and Close-out Manual with the intent that all Commissioning Team members will have up-to-date documentation as the Commissioning progresses.
- 1.5.5.3 Provide an individual, subject to Owner's approval, experienced in construction and Commissioning of building systems to organize, schedule, conduct, and document the Commissioning Plan and the Commissioning process. The Contractor shall assign this individual to act as the Contractor's Commissioning Coordinator. The Contractor's Commissioning Coordinator may have additional duties such as MEP Coordinator, but not as Project Manager or Superintendent. Submit qualifications demonstrating the Commissioning Coordinator's technical expertise and experience to the Owner for approval. In the event that Contractor chooses to subcontract its Commissioning obligations, then Contractor must submit the subcontractor's qualifications and personnel to Owner for Owner's approval.
- 1.5.5.4 Furnish and install systems that meet all requirements of the Contract Documents. Perform construction inspections, Start-ups, Prefunctional Checklists, Functional Performance Tests, and Integrated System Tests in accordance with the Contract Documents and Commissioning Plan. Correct any Deficiencies identified during these processes.
- 1.5.5.5 Ensure that Commissioning activities are incorporated into the Baseline Schedule and the Work Progress Schedule.
- 1.5.5.6 Submit inspection and Start-up documentation to Owner in accordance with this Section – 01 91 00 General Commissioning Requirements, Section 01 45 00 – Project Quality Control, Section 01 77 00 – Project Close-out Procedures, Specifications, and the Commissioning Plan.
- 1.5.5.7 Furnish copies of all Submittals, manufacturers' literature, maintenance information, and any other information required for the Commissioning process. Contractor must submit to Owner installation and checkout materials actually shipped inside equipment and actual field checkout sheet forms used by factory or field technicians. Cross-reference Section 01 31 00 – Project Administration and Section 01 77 00 – Project Close-out Procedures (Operating and Maintenance Manuals) for additional required documentation.
- 1.5.5.8 Schedule and conduct pre-installation meetings and pre-commissioning meetings with Subcontractors and equipment suppliers related to Commissioning. Contractor must

invite A/E and Owner to attend the pre-installation meetings and pre-commissioning meetings.

- 1.5.5.9 Provide qualified personnel, including Subcontractors as required, to fully perform the testing and operational demonstrations required by the Contract Documents and the Commissioning Plan, including any Deferred Tests or re-testing related to warranty work.
- 1.5.5.10 Correct Deficiencies identified during any stage of commissioning prior to proceeding, unless approved by Owner.
- 1.5.5.11 Provide training to Owner. Coordinate Subcontractor and vendor participation in training sessions.
- 1.5.5.12 Perform Deferred Tests and make necessary amendments to Operating and Maintenance Manuals and Record Documents for applicable issues identified during the Deferred Tests.
- 1.5.5.13 Contractor shall be responsible for the following activities, and may contract with a Building Automation System (BAS) vendor for these activities.
 - 1.5.5.13.1 Provide on-site technician skilled in software programming and hardware operation to exercise sequences of operation and to correct controls deficiencies identified during Commissioning. Contractor must provide Record Documents reflecting correction of controls deficiencies identified during Commissioning.
 - 1.5.5.13.2 Provide instrumentation, computer, software and communication resources necessary to demonstrate compliance with the Contract Documents and the Commissioning Plan during the Prefunctional Checklist activities, Functional Performance Tests and Integrated System Tests of Building Automation System equipment.
 - 1.5.5.13.3 Attend pre-commissioning meetings and Commissioning meetings including seasonal, post occupancy, or deferred Commissioning meetings and activities as deemed appropriate by Owner. Prepare BAS Training Plans with Commissioning Team and perform training as specified in Contract Documents and Commissioning Plan.
 - 1.5.5.13.4 Maintain comprehensive system calibration and checkout records. Submit records to Owner.
 - 1.5.5.13.5 Set up, capture, analyze, and report trend logs as requested by Owner to substantiate proper systems operation.
- 1.5.6 Test, Adjust, and Balance Firm's Role and Responsibilities, when engaged for the project:
 - 1.5.6.1 Attend pre-commissioning meetings and Commissioning Team meetings including seasonal, post occupancy, or deferred Commissioning meetings and activities as deemed appropriate Owner.
 - 1.5.6.2 Submit Test, Adjust, and Balance Plan and forms describing methodology for performance of Test, Adjust, and Balance procedures specific to this Project to Owner/Engineer of record for review.
 - 1.5.6.3 Cooperate with Contractor and Contractor's Building Automation System vendor, if any, during Commissioning.

- 1.5.6.4 Re-balance as needed to correct any Deficiencies identified during Commissioning.
- 1.5.6.5 Review BAS graphics and performance tests for accuracy, note deficiencies.
- 1.5.6.6 Provide T A B data to Contractor and Commissioning Team before Contractor begins Functional Performance Tests.

1.6 EQUIPMENT DOCUMENTATION REQUIREMENTS

1.6.1 Equipment Matrix:

- 1.6.1.1 Contractor shall submit a complete listing of all equipment, devices, and systems, with certain information as herein noted, within twenty-one (21) days of issuance of the Notice to Proceed with Construction and at least seven (7) days prior to submission of the first Application for Payment. This listing shall be referred to as the Equipment Matrix. Download an electronic version of this spreadsheet in Microsoft Excel format to use as a template for submittal purposes at the following website:

<http://www2.mdanderson.org/depts/cpm/standards/templates/EquipmentMatrixTemplate.xlsx>

- 1.6.1.2 Contractor shall coordinate Contractor's response to this requirement with Contractor's preparation of the Baseline Schedule, Work Progress Schedule, Submittal Schedule, Schedule of Values, and list of all equipment. Refer to Section 01 32 00 – Project Planning and Scheduling and Section 01 31 00 – Project Administration.

- 1.6.1.2.1 To the extent practical, Contractor should minimize redundant efforts in favor of a single, organized approach to all documentation required for Project equipment, systems, and devices.

- 1.6.1.3 The Equipment Matrix shall be formatted as a spreadsheet per Owner's template, with capability for printing various selected data columns to meet documentation requirements at various stages of construction, and for different purposes as required by various Technical Sections. The Equipment Matrix shall be updated as the Project progresses and submitted periodically as requested by Owner. Provide Owner with an electronic version of the final approved Equipment Matrix at or before Project Close-out.

- 1.6.1.3.1 Contractor may elect to combine the Submittal Schedule and Equipment Matrix into one spreadsheet (with multiple tabbed sheets) that Contractor updates as the Project progresses.

- 1.6.1.4 The Equipment Matrix shall identify all operable devices and equipment grouped by the Construction Specification Institute (CSI) Master Format under the system they are primarily categorized under. When sorted by the column for system identification, the resulting printout must identify all system components, regardless of whether they are mechanical, electrical, or otherwise.

- 1.6.1.5 Contractor shall continue to update the Equipment Matrix for each device or system. Owner will assist the Contractor in collecting information on Owner-furnished and Contractor-installed equipment. The Equipment Matrix shall include the following column headings, as a minimum, for each device per specification 20 05 53:

- 1.6.1.5.1 Equipment Plan Designation: Equipment Naming Convention (equipment acronym and sequential number) from Contract Documents.

- 1.6.1.5.2 Specification Section number.

- 1.6.1.5.3 Building ID: Shall be obtained from Owner.
- 1.6.1.5.4 Location / Room Number: Owner's Wayfinding Codes from Owner's Space Management database referring to room number or building location. Shall be obtained from Owner.
- 1.6.1.5.5 Asset Short Description: The asset short description is to be a very short textual description. Type a brief, identifying description for the asset followed by a comma then the "Equipment Plan Designation". If multiple units, of same type, include equipment ID number from the Construction Documents. This field is limited to 80 characters. Example= Pump, Secondary Chilled Water, SCHWP-01-2B.
- 1.6.1.5.6 Asset Long Description: A more complete description of the asset to make it clearer to the Owner's maintenance group. Include any distinguishing details relevant to identifying the asset from other identical units (color, physical location within a room, and so on. Example: Horizontal split case pump located in North end of room.
- 1.6.1.5.7 System Level Asset: Type of system that the equipment serves. Shall be obtained from Owner. Example: Domestic Hot Water
- 1.6.1.5.8 Product submittal reference number(s).
- 1.6.1.5.9 Product submittal approval date.
- 1.6.1.5.10 Name of installing Subcontractor.
- 1.6.1.5.11 Installing Subcontractor contact information.
- 1.6.1.5.12 Equipment Manufacturer.
- 1.6.1.5.13 Equipment model number.
- 1.6.1.5.14 Equipment serial number.
- 1.6.1.5.15 Emergency Power: Note whether equipment is served from emergency power system.
- 1.6.1.5.16 Equipment manufacturer's representative (Vendor).
- 1.6.1.5.17 Equipment manufacturer's representative (Vendor) contact information.
- 1.6.1.5.18 Manufacturer's purchase order number.
- 1.6.1.5.19 Asset Cost: Full asset cost includes all installation costs to bring asset to full operating condition (vendor commissioning). Cost of controls/panels used to operate the asset. Cost of all supporting infrastructure involved with setting up the asset. Support framework or pad site. Piping and/or conduit runs (chiller supply water/electrical).
- 1.6.1.5.20 Estimated replacement cost: Replacement cost of the equipment only. This cost may be lower than the initial asset cost, because it does not include certain one-time costs such as piping or conduit runs, control panels, base pads.
- 1.6.1.5.21 Start-up Date: Date of initial equipment or device start-up by the Contractor.
- 1.6.1.5.22 Prefunctional Checklist completion date.

- 1.6.1.5.23 Functional Performance Test completion date.
- 1.6.1.5.24 Integrated Systems Test completion date.
- 1.6.1.5.25 Substantial Completion date.
- 1.6.1.5.26 Manufacturer's warranty start date.
- 1.6.1.5.27 Warranty End Date: The date on which the asset warranty ends.

1.6.1.6 Owner will furnish the following additional information; allow column headings for this data:

- 1.6.1.6.1 Asset Number
- 1.6.1.6.2 Parent ID
- 1.6.1.6.3 Asset Group Code
- 1.6.1.6.4 Cost Center
- 1.6.1.6.5 Critical Factor
- 1.6.1.6.6 Estimated Asset Life
- 1.6.1.6.7 Asset Status
- 1.6.1.6.8 Work Group
- 1.6.1.6.9 Work Area

PART 2- EXECUTION

2.1 COMMISSIONING PLAN

- 2.1.1 When a CxA has not been engaged for the project, Contractor shall submit draft Commissioning Plan to Owner and A/E for review within twenty-one (21) days of issuance of the Notice to Proceed with Construction or within ninety (90) days prior to initial installation of materials or equipment that will undergo Start-up and Functional Performance Tests, as directed by Owner.
- 2.1.2 Contractor shall allow in the Work Progress Schedule a minimum of twenty-one (21) days after the receipt by the Owner of the draft Commissioning Plan Submittal for the Owner to submit review comments to Contractor.
- 2.1.3 Contractor shall incorporate Owner's review comments and resubmit the revised Commissioning Plan to Owner within fourteen (14) days of receipt of the review comments.
- 2.1.4 Contractor shall allow in the Work Progress Schedule an additional fourteen (14) days for Owner's approval of the resubmitted Commissioning Plan that incorporates Owner's review comments.
- 2.1.5 **PRE-COMMISSIONING MEETING**
- 2.1.6 Upon obtaining Owner's approval of the Commissioning Plan, Contractor shall schedule, plan, and conduct a Pre-Commissioning Meeting with all parties involved in Commissioning. This meeting should include the major Subcontractors, specialty

manufacturers/suppliers, A/E, Test, Adjust, and Balance Firm, Commissioning Authority, and Owner's representatives as participants.

- 2.1.7 Contractor shall prepare for the Pre-Commissioning Meeting by creating drafts of the following documents with input from the Owner. Commissioning Authority, when engaged for the project, will prepare the Commissioning Plan, Functional Performance Test Procedures and Integrated System Test Procedures.
 - 2.1.7.1 Approved Commissioning Plan including the Equipment Matrix and the Close-out and Documentation Matrix as defined in Section 01 77 00 – Project Close-out Procedures.
 - 2.1.7.2 Baseline Schedule and Work Progress Schedule incorporating Commissioning activities.
 - 2.1.7.3 Prefunctional Checklists.
 - 2.1.7.4 Functional Performance Test Procedures.
 - 2.1.7.5 Integrated System Test Procedures.
- 2.1.8 Contractor or Commissioning Authority when engaged for the project shall conduct the Pre-Commissioning Meeting and review all aspects of the Commissioning Plan. All documentation will be discussed and all test procedures and forms reviewed for approval with the Owner. Contractor shall prepare an outline noting responsibilities of the various parties involved in Commissioning for review at this meeting.
- 2.1.9 The Commissioning Plan shall be reviewed with all attendees and the scope of work discussed. Contractor should be prepared to distribute copies of the pertinent sections to the various Subcontractors involved in Commissioning.
- 2.1.10 Contractor shall present Commissioning target dates for the Project. These dates and durations shall be incorporated in the Baseline Schedule and the Work Progress Schedule in accordance with Section 01 32 00 – Project Planning and Scheduling.

2.2 REPORTING

- 2.2.1 Contractor shall provide status reports to Owner at frequencies directed by Owner.
- 2.2.2 Contractor shall communicate at least monthly with all members of the Commissioning Team, keeping them apprised of Commissioning progress and scheduling changes.
- 2.2.3 Contractor shall submit Non-Compliance and Deficiency reports to Owner within five (5) days of the date the Non-Compliance or Deficiency is first observed. This includes responses to items noted by the Commissioning Authority.
- 2.2.4 Contractor shall provide final Commissioning documentation to Owner in accordance with Section 01 77 00 – Project Close-out Procedures, which will become part of the Commissioning and Close-out Manual.

2.3 TEST EQUIPMENT

- 2.3.1 Contractor shall provide all specialized tools, test equipment and instruments required to execute start-up, checkout, and testing of equipment.
- 2.3.2 All specialized tools, test equipment and instruments required to execute start-up, checkout, and testing of equipment shall be of sufficient quality and accuracy to test and measure

system performance within specified tolerances. A testing laboratory must have calibrated test equipment within the previous twelve (12) months. Calibration shall be NIST traceable. Contractor must calibrate test equipment and instruments according to manufacturer's recommended intervals and whenever the test equipment is dropped or damaged. Calibration tags must be affixed to the test equipment or certificates readily available.

2.4 PRE FUNCTIONAL CHECKLIST

2.4.1 Contractor shall provide a Prefunctional Checklist for each system to Owner, Commissioning Authority and A/E for review.

2.4.1.1 Contractor shall provide a draft version of each individual Prefunctional Checklist at a pre-installation meeting for the system. Based on discussions at a pre-installation meeting and subsequent as-constructed conditions, Contractor shall amend and revise each Prefunctional Checklist as appropriate prior to requesting system inspection from the Owner.

2.4.1.2 Contractor shall submit the final approved Prefunctional Checklist and all supporting documentation prior to requesting Start-up and Functional Performance Tests.

2.4.2 Contractor shall review the installation and Contract Documents for each system and shall provide written confirmation of the following if not included in the Prefunctional Checklist.

2.4.2.1 All required test reports and certifications have been submitted and accepted by Owner. Contractor must provide certification of acceptance from manufacturer's representative.

2.4.2.2 Evidence that A/E has approved all Submittals for each component device.

2.4.2.3 All valve charts, wiring diagrams, control schematics, electrical panel directories, etc. have been submitted and approved, and that all devices have been installed in accordance with the Contract Documents.

2.4.2.4 All tabulated data has been submitted for each system and for each device.

2.4.2.5 Each component device has been installed in accordance with applicable codes, the Contract Documents, and manufacturer's written recommendations.

2.5 INITIAL START-UP

2.5.1 Start-up of Independent Devices:

2.5.1.1 Prior to Start-up, Contractor shall not energize or activate, or allow to be energized or activated, any operable device until Contractor has verified to Contractor's own satisfaction that all Contract Document requirements for the operable device have been met and have been documented in the Prefunctional Checklists.

2.5.1.2 Contractor may energize or start-up independent devices for operational check-out and testing only after Contractor and manufacturer's representative or engineering technician (if required by the Contract Documents) have inspected and accepted the installation. The installation must not vary from provisions of the applicable Specifications and the manufacturer's written recommendations for Start-up.

2.5.1.3 When Start-up of equipment or systems have the potential to impact Owner's daily operations or when the Contract Documents require the Owner to witness Start-up, Contractor must provide advance notice to Owner in accordance with the procedures outlined in the Contract Documents prior to Start-up. Contractor may not proceed with Start-up without the Owner's written approval.

2.5.2 Start-up of Building Systems:

2.5.2.1 Contractor shall not energize or activate any building system until the following conditions have been met:

2.5.2.1.1 Contractor has verified that all wiring and support components for equipment are complete and have been tested in accordance with the technical specifications and the manufacturer's written recommendations.

2.5.2.1.2 Contractor has verified that each component device has been checked for proper lubrication, vibration isolation, drive rotation, belt tension, control sequence, or other conditions that may cause damage.

2.5.2.1.3 Contractor has verified that all tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer and are in compliance with applicable Contract Documents.

2.5.2.1.4 Contractor has received approved building system final inspection reports. Refer to Section 01 45 00 – Project Quality Control.

2.5.2.1.5 Contractor has provided the Owner and A/E with a written fourteen (14) day notice of intent to start-up the system for operational check-out. The notification procedures outlined in the Contract Documents shall be utilized.

2.5.2.2 Contractor shall perform Start-up under supervision of the responsible manufacturer's representative in accordance with manufacturer's instructions and specification requirements.

2.5.2.3 Contractor shall coordinate and schedule system(s) Start-up in a timely manner so that each component or system can operate for a period of time that is sufficient to evaluate and adjust performance as necessary. All building systems shall be operational and must have been successfully inspected by Owner, through attendance and concurrence with results of the Prefunctional Checklists or as otherwise approved by Owner, prior to the Contractor proceeding with Functional Performance Tests.

2.5.2.4 Contractor shall clearly list outstanding items or initial Start-up and Prefunctional Checklists items not completed successfully. Contractor shall obtain from Subcontractor completed forms documenting any outstanding Deficiency within five (5) days of completion of tests.

2.5.2.5 Contractor shall review completed Deficiency forms to determine if outstanding items prevent execution of the Functional Performance Tests and shall issue any necessary responses to the Commissioning Team.

2.6 REQUEST FOR START-UP AND FUNCTIONAL PERFORMANCE TESTS

2.6.2 Contractor shall notify Owner to request: (1) initial energization or operation of equipment and systems; and (2) an inspection of any system or system component for readiness prior to Functional Performance Tests.

2.6.2.1 Request for Start-up. Contractor must certify that: (1) electrical and mechanical connections have been installed and are safe for initial Start-up; (2) Contractor has complied with Owner's utilities outage notifications; and (3) Start-up will not harm Owner's daily routine operations.

2.6.2.2 Contractor shall complete the applicable Prefunctional Checklist(s) signed by Contractor and CxA if engaged for the project, evidencing Contractor's own thorough inspection of

the system and completion of Start-up activities required by the Contract Documents and the Commissioning Plan. Contractor shall submit required supporting documentation, including but not limited to, factory start-up forms, operational testing data, and certifications.

2.6.2.3 Request for Functional Performance Test. Contractor must certify that the Contractor has verified that the installation, Start-up, Prefunctional Checklists, and initial operation of the system or component are in accordance with the Contract Documents and the Commissioning Plan including manufacturer's instructions, manufacturer's requirements for maintenance of warranty, and verification that the system is ready for Functional Performance Tests. Contractor must certify that the manufacturer's representative has verified that the installation, Start-up, and initial operation of the system or component are in accordance with the manufacturer's published recommendations.

2.6.2 Contractor must obtain Owner's approval prior to proceeding with the Start-up or Functional Performance Test. All construction inspections must be completed. Any and all Deficiencies and all items included in the Non-Compliance Report have been brought into compliance with the Contract Documents..

2.7 FUNCTIONAL PERFORMANCE TESTS

2.7.2 Objective and Scope:

2.7.2.1 The objective of a Functional Performance Test is to demonstrate that the entire individual system operates according to the Contract Documents.

2.7.2.2 Contractor shall operate each system through all modes of operation (occupied, unoccupied, warm-up, cool-down, etc.) for specified system responses. Contractor is required to demonstrate to Owner's satisfaction each operational sequence.

2.7.2 Development of Functional Performance Test Procedures:

2.7.2.1 The purpose of a Functional Performance Test is to verify and document compliance with the stated criteria of acceptance. Contractor or Commissioning Authority if engaged for the project shall develop specific script-type test procedures and associated test forms to verify and document proper operation of each piece of equipment and system.

2.7.2.2 Contractor or Commissioning Authority if engaged for the project shall prepare Functional Performance Test Procedure forms as part of the Commissioning Plan. Once approved by Owner, Contractor shall utilize the forms for all testing activities.

2.7.2.3 Functional Performance Test Procedure forms must include the following:

2.7.2.3.1 System and equipment or component name(s).

2.7.2.3.2 Equipment location and identification number as identified in the Equipment Matrix.

2.7.2.3.3 Unique test identification number and reference to unique Prefunctional Checklist identification numbers for the equipment.

2.7.2.3.4 Date and time of test.

2.7.2.3.5 Project name.

2.7.2.3.6 Participating parties.

- 2.7.2.3.7 Specific sequence of operation or other specified parameters, including performance data being verified.
 - 2.7.2.3.8 Instructions for setting up a Functional Performance Test.
 - 2.7.2.3.9 Specific script-type, step-by-step procedures to perform a Functional Performance Test, in a clear, sequential and repeatable format that is customized for the system being tested.
 - 2.7.2.3.10 A Pass / Fail checkbox (or data entry box as appropriate) for clearly indicating whether or not proper performance of each part of a Functional Performance Test was achieved and space for actual readings.
 - 2.7.2.3.11 Section for comments.
 - 2.7.2.3.12 Signatures and date block for participant and Owner approvals.
- 2.7.2 Contractor shall operate, or cause to be operated, each system, device, or equipment item, both intermittently and continuously, for a duration period as indicated in the Specification(s) for each item and/or in accordance with the manufacturer's written recommendations, the Contract Documents and the Commissioning Plan.
- 2.7.2 Contractor shall operate each component device and each building system to the full extent of its capability, from minimum to maximum, and under automatic control and manual control.
- 2.7.2 Contractor and manufacturer's representatives shall supervise and coordinate adjustments and balancing of all devices and systems for proper operation prior to requesting a Functional Performance Test(s).
- 2.7.2.1 Where final balancing of a system is to be performed by Owner, such as final air balancing, Contractor shall provide all services indicated in the applicable Specifications and under this Section, including the following, prior to Owner's final balancing.
 - 2.7.2.1.1 Operational verification of all component devices and the total system, including automatic controls when applicable. Operational verification includes verification that all motors, fans, dampers, and other operable devices are performing in compliance with Specifications throughout their operable range and that all devices are controlled as described in the specified sequence of operation.
 - 2.7.2.1.2 All tabulated data, motor amperage readings, valve tag verifications, and other data required by the Specifications.
 - 2.7.2.2 Where final balancing of a system or particular components of a system are not specifically indicated to be performed by Owner, Contractor shall provide final balancing and adjustments for operation within specified tolerances prior to Functional Performance Test of such system.
- 2.7.2 Coordination and Scheduling.
- 2.7.2.1 Members of the Commissioning Team, including Owner, may observe Functional Performance Tests of equipment components and systems. Contractor shall provide written notice to Owner at least ten (10) days prior to Functional Performance Tests of equipment components and systems. Contractor shall notify Owner in advance of any changes to the Functional Performance Test schedule. Owner may require Contractor to

reschedule Functional Performance Tests to ensure availability of Owner's representative(s).

2.7.2.2 Contractor conducts Functional Performance Tests after system Start-up and Pre-functional Checklists are satisfactorily completed and have been approved by Owner. Air balancing and water balancing shall be completed before Functional Performance Tests.

2.7.2.3 Contractor conducts Integrated System Tests after Functional Performance Tests are satisfactorily completed and have been approved by Owner.

2.8 INTEGRATED SYSTEM TESTS

2.8.1 Objective and Scope:

2.8.1.1 The objective of an Integrated System Test is to demonstrate that each system operates jointly with other systems according to the Contract Documents.

2.8.1.2 Contractor shall operate each system jointly with other systems, through selected modes of operation (fire alarm integration with HVAC, emergency power modes, equipment failures among related systems, etc.) for specified system responses. Contractor is required to demonstrate to Owner's satisfaction each operational sequence.

2.8.2 Development of Integrated System Test Procedures:

2.8.2.1 The purpose of an Integrated System Test is to verify and document compliance with the stated criteria of acceptance. Contractor or Commissioning Authority if engaged for the project shall develop specific script-type test procedures and associated test forms to verify and document proper operation of each piece of equipment and system, jointly and independently of other systems.

2.8.2.2 Contractor or Commissioning Authority if engaged for the project shall prepare Integrated System Test Procedure forms as part of the Commissioning Plan. Once approved by Commissioning Team., Contractor shall utilize the forms for all testing activities.

2.8.2.3 Integrated System Test Procedure forms must include the following.

2.8.2.3.1 System and equipment or component name(s).

2.8.2.3.2 System and equipment location and identification number as identified in the Equipment Matrix.

2.8.2.3.3 Unique test identification number and reference to unique Functional Performance Test identification numbers for the system and equipment.

2.8.2.3.4 Date and time of test.

2.8.2.3.5 Project name.

2.8.2.3.6 Participating parties.

2.8.2.3.7 Specific sequence of operation or other specified parameters, including performance data being verified.

2.8.2.3.8 Instructions for setting up an Integrated System Test.

- 2.8.2.3.9 Specific script-type, step-by-step procedures to perform an Integrated System Test, in a clear, sequential and repeatable format that is customized for the system being tested.
- 2.8.2.3.10 A Pass / Fail checkbox (or data entry box as appropriate) for clearly indicating whether or not proper performance of each part of an Integrated System Test was achieved and space for actual readings.
- 2.8.2.3.11 Section for comments.
- 2.8.2.3.12 Signatures and date block for participant and Owner approvals.
- 2.8.3 Contractor shall operate, or cause to be operated, each system, device, or equipment item, both intermittently and continuously, for a duration period as indicated in the Specifications for each item and in accordance with the manufacturer's written recommendations, the Contract Documents and the Commissioning Plan.
- 2.8.4 Coordination and Scheduling.
 - 2.8.4.1 Members of the Commissioning Team, including Owner may observe Integrated System Tests of equipment components and systems. Contractor shall provide written notice to Owner at least fourteen (14) days prior to Integrated System Tests of equipment components and systems. Contractor shall notify Owner and A/E in advance of any changes to the Integrated System Test schedule. Owner may require Contractor to reschedule Integrated System Tests to ensure availability of Owner's representative(s).
 - 2.8.4.2 Contractor conducts Integrated System Tests after Functional Performance Tests are satisfactorily completed and have been approved by Owner.

2.9 DOCUMENTATION AND NON-CONFORMANCE

2.9.1 Documentation:

- 2.9.1.1 Contractor shall witness and document the results of all Functional Performance Tests and Integrated Systems Tests using specific procedural forms developed for that purpose or an approved electronic database program. Prior to testing, Contractor shall submit these forms to the Owner and A/E for review and approval. Contractor will include the completed, filled-out forms in the Commissioning and Close-out Manual.

2.9.2 Non-Conformance:

- 2.9.2.1 Contractor shall record results of Functional Performance Tests and Integrated System Tests. Contractor or Commissioning Authority if engaged for the project shall report all Deficiencies and non-conformance issues to Commissioning Team.in accordance with the procedures outlined in the Commissioning Plan.
- 2.9.1.2 At the sole discretion of Owner, Owner may permit Contractor to make corrections of minor Deficiencies observed during a Functional Performance Test or during an Integrated System Test. However, the Contractor must document the Deficiency and resolution on the appropriate report form.
- 2.9.1.3 Contractor shall make every effort to expedite testing and minimize unnecessary delays, while not compromising the integrity of a Functional Performance Test or an Integrated Systems Test.
- 2.9.1.4 Contractor, A/E and Owner will attempt to resolve Deficiencies in the following manner.

- 2.9.1.4.1 When there is no dispute about a Deficiency and Contractor accepts responsibility for correction.
 - 2.9.1.4.1.1 Commissioning Authority if engaged for the project or Contractor documents the Deficiency and the corrective actions, and then proceeds to another test or sequence. A Deficiency report is submitted to Owner. Contractor corrects the Deficiency, completes the statement of correction form certifying that the equipment or system is ready for retesting, and sends the certification to Owner.
 - 2.9.1.4.1.2 Contractor reschedules test with Owner.
- 2.9.1.4.2 When there is a dispute about whether or not the test indicates a Deficiency or the Contractor's responsibility for correction of the apparent Deficiency.
 - 2.9.1.4.2.1 Commissioning Authority if engaged for the project or Contractor documents the apparent Deficiency. A Deficiency report is submitted to Owner, including the apparent Deficiency.
 - 2.9.1.4.2.2 Contractor facilitates resolution of the Deficiency and provides recommendations to the Owner. Contractor and Owner may bring other parties into the discussions as needed. Final technical interpretive authority is with the A/E. Final acceptance authority is with the Owner.
 - 2.9.1.4.2.3 Contractor documents the resolution process.
 - 2.9.1.4.2.4 If Owner and the A/E agree with Contractor's interpretation and proposed resolution, Contractor forwards response to Owner. Contractor reschedules test with Owner. Contractor must repeat this process until satisfactory performance and Owner's approval is obtained.

2.10 DEMONSTRATION AND OWNER TRAINING

- 2.10.1 Contractor, in coordination with Owner shall develop the Training Plan with project specific requirements for Owner Training, after reviewing the different systems to be installed and commissioned. The purpose of the Training Plan is to specifically communicate the required content and training durations required by the Owner based upon the type of equipment and the Owner's past experience.

- 2.10.2 Refer to Section 01 79 00 - Demonstration and Training for specific requirements.

2.11 DEFERRED TESTS

2.11.1 Deferred Tests:

- 2.11.1.1 Deferred Tests shall be identified in writing and shall be approved by Owner.
 - 2.11.1.1.1 Contractor shall complete Deferred Tests as part of this Contract during the Warranty Period. Contractor shall schedule this activity with Owner. Contractor shall perform tests and document and correct Deficiencies. Owner may observe the tests and review and approve test documentation and Deficiency corrections.
 - 2.11.1.1.2 Contractor shall incorporate final updates to the Commissioning and Close-out Manual.

- 2.11.1.1.3 If any check or test cannot be completed prior to Substantial Completion due to the building structure, required occupancy condition, or other condition, performance of such test may be delayed to later in the Warranty Period, upon approval of the Owner.
- 2.11.1.1.4 Commissioning of systems which provide Life Safety (passive or active) to the building and its occupants shall not be deferred unless occupancy is deferred.

2.12 COMMISSIONING DOCUMENTATION

- 2.12.1 Contractor shall compile and organize all Commissioning documentation into a Commissioning and Close-out Manual and deliver to the Owner as specified in Section 01 77 00 – Project Close-out Procedures.
- 2.12.2 The Commissioning and Close-out Manual submitted to Owner shall contain all Commissioning documentation, including, but not limited to:
 - 2.12.2.1 The Commissioning Plan.
 - 2.12.2.2 Final Baseline Schedule filtered to show only the Commissioning activities.
 - 2.12.2.3 Completed Equipment Matrix.
 - 2.12.2.4 Completed Prefunctional Checklists with all required attachments,
 - 2.12.2.5 Functional Performance Test Procedures and results.
 - 2.12.2.6 Integrated System Test Procedures and results.
 - 2.12.2.7 Training Plan and all supporting documentation. Refer to Section 01 79 00 – Demonstration and Training for specific requirements.
 - 2.12.2.8 Deficiency reports and solution results.
 - 2.12.2.9 Recommendations on continuous Commissioning, best practices, and preventive maintenance.
 - 2.12.2.10 Refer to Section 01 77 00 – Project Close-out Procedures for additional Close-out documentation to be included in the Commissioning and Close-out Manual.

END OF SECTION 01 91 00

Attachment No. 1 – Equipment Matrix

Download an Electronic Version of the Equipment Matrix template at the following Internet Address:

<http://www2.mdanderson.org/depts/cpm/standards/supp.html#templates>

| | | Project Name Equipment Matrix | | | | | | | | | | | | | | | | | | |
|-------------------|---|----------------------------------|------------------------|-------------------------|-----------------|--------------------------------------|---|------------------------|----------------------------|------------------|----------------------------------|--------------------------------------|----------------------------------|-----------------------------|---------------------|---------------------------|--------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|
| Integrated System | | Equipment Manufacturer | Equipment Model Number | Equipment Serial Number | Emergency Power | Manufacturer / Vendor Representative | Manufacturer / Vendor Contact Information | Manufacturer PO Number | Estimated Replacement Cost | Start-Up Date(s) | Prefunctional Checklist Approved | Functional Performance Test Approved | Integrated Systems Test Approved | Substantial Completion Date | Warranty Start Date | Warranty Duration (Years) | Short Description (from MDACC) | Mainsaver Work Group (from MDACC) | Mainsaver Group Code (from MDACC) | Estimated Service Life (from MDACC) |
| I | System | | | | | | | | | | | | | | | | | | | |
| S | Component | | | | | | | | | | | | | | | | | | | |
| C | Unit | | | | | | | | | | | | | | | | | | | |
| | U.1 | | | | | | | | | | | | | | | | | | | |
| | U.2 | | | | | | | | | | | | | | | | | | | |
| | U.3 | | | | | | | | | | | | | | | | | | | |
| I | MECHANICAL | | | | | | | | | | | | | | | | | | | |
| S | CWS- Chilled Water System | | | | | | | | | | | | | | | | | | | |
| C | Pump | | | | | | | | | | | | | | | | | | | |
| | U.1 | | | | | | | | | | | | | | | | | | | |
| S | AHU- Air Handling Units | | | | | | | | | | | | | | | | | | | |
| C | VFD | | | | | | | | | | | | | | | | | | | |
| | U | | | | | | | | | | | | | | | | | | | |
| C | Air Terminal Units | | | | | | | | | | | | | | | | | | | |
| | U | | | | | | | | | | | | | | | | | | | |
| S | FCU- Fan Coil Units | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | |
| S | CRAC- Computer Room Air Condition Units | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | |
| S | Fans | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | |
| | U | | | | | | | | | | | | | | | | | | | |
| I | PLUMBING | | | | | | | | | | | | | | | | | | | |
| S | Domestic Water System | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | |
| | U | | | | | | | | | | | | | | | | | | | |
| | U.1 | | | | | | | | | | | | | | | | | | | |
| S | Diesel Fuel System | | | | | | | | | | | | | | | | | | | |
| | U | | | | | | | | | | | | | | | | | | | |
| | U.1 | | | | | | | | | | | | | | | | | | | |
| S | Subsurface Drainage System | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | |
| S | Elevator Sump System | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | |
| S | Sewage System | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | |
| S | Med Gas | | | | | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | | | | | | |
| S | Lab Piping System | | | | | | | | | | | | | | | | | | | |
| C | Lab Waste | | | | | | | | | | | | | | | | | | | |
| | U | | | | | | | | | | | | | | | | | | | |
| | U.1 | | | | | | | | | | | | | | | | | | | |
| C | Liquid Nitrogen | | | | | | | | | | | | | | | | | | | |
| | U | | | | | | | | | | | | | | | | | | | |
| | U.1 | | | | | | | | | | | | | | | | | | | |
| C | Lab Vacuum | | | | | | | | | | | | | | | | | | | |
| | U | | | | | | | | | | | | | | | | | | | |
| | U.1 | | | | | | | | | | | | | | | | | | | |

EXHIBIT C

ALLOWABLE LINE ITEMS FOR GENERAL CONDITIONS COSTS

ALLOWABLE LINE ITEMS FOR GENERAL CONDITIONS COSTS

On-Site Project Management Staff

Assistant Superintendent(s)
Commissioning Coordinator
Field Office Engineer(s)
Project Expeditor(s)
Project Manager(s)

Out-of-State Project Specific Travel*
Project Scheduler
Project Support Staff
Safety Coordinator/Assistant(s)
Superintendent(s)

Bonds and Insurance

Builder's Risk Insurance (unless provided by Owner)
General Liability Insurance (unless ROCIP)
Payment and Performance Bonds (not trade contractor's or Subcontractor's bonds)
Other Project Insurance (only as required by Contract Documents)

Temporary Project Utilities

Dumpsters
Temporary Toilets
Monthly Hardwire Telephone /Internet Service
Street Sweeper Rental and Barricades
Temporary Water Distribution and Meters
Temporary Electrical Distribution and Meters
Site Erosion Control (BMP) and Project Entrance(s)

Project Water
Temporary Fire Protection
Telephone / Internet System Installation
Fencing and Covered Walkways
Jobsite 2-way radios

Field Offices & Office Supplies

Partnering Costs
Job Photos/Videos
Project Site Static Web Camera
Project Specific Signage
Postage/Special Shipping
Project Milestone Event(s)*
Employee Identification System
Move-In/Out and Office Setup
Small Tools and Storage Trailers
Mobilization and Demobilization (Equipment Only)

First Aid Supplies
Reproduction Services/Copier
Monthly Office Trailer Rental Costs
Monthly Office Supplies
Project Reference Manuals
Security System/Watchman
Safety Material and Equipment
Drinking Water and Accessories
Office Clean-Up/Janitorial Services

* Specific justification and all estimated costs shall be submitted and approved by the Owner prior to any travel or event.

EXHIBIT D

GUARANTEED MAXIMUM PRICE PROPOSAL FORM

MD Anderson Agreement No. _____

MD Anderson Project No. _____

GUARANTEED MAXIMUM PRICE PROPOSAL FORM

Construction Manager hereby submits to Owner pursuant to the provisions of Article VII of the Agreement by and between Owner and _____ dated _____, 20__ (the Agreement”), a Guaranteed Maximum Price (GMP), as defined in the Agreement, for the _____ Project, MD Anderson Project Number _____, based on the Contract Documents (as defined by the Agreement) developed for the Project, as follows:

1. A not-to exceed amount for the Cost of the Work pursuant to the Agreement: \$ _____.
2. A not-to exceed amount for the General Condition Costs pursuant to the Agreement: \$ _____.
3. A not-to exceed amount for the Construction Manager’s Contingency pursuant to the Agreement: \$ _____.
4. A lump sum amount for the Construction Phase Fee pursuant to the Agreement: \$ _____.
5. Owner’s Special Cash Allowance provided by Owner: \$ _____.
6. Owner’s Construction Contingency provided by Owner. This is a lump sum amount from which changes are to be paid in accordance with the Uniform General Conditions for University of Texas System Building Construction Contracts. Any unused amount will be deducted from the Guaranteed Maximum Price by Change Order. \$ _____.
7. TOTAL OF GMP LINE ITEMS 1 THROUGH 6: \$ _____.

This figure shall be the Guaranteed Maximum Price (GMP), which we hereby propose to Owner.

Corporations/LCC’s: Attest:

(Construction Manager’s Name)

By:

Corporate Secretary

(original signature)

(name and title typed)

Other business forms: Witness:

Date: _____

EXHIBIT D – ATTACHMENT 1**GUIDELINES FOR THE PREPARATION OF THE
GUARANTEED MAXIMUM PRICE PROPOSAL****1. CONTRACT REQUIREMENTS:**

The requirements for the GMP Proposal are defined herein and other related requirements are included throughout the Agreement. In the event of irreconcilable conflict between the GMP Proposal and the Agreement, the interpretation that provides for the higher quality of material and/or workmanship shall prevail.

The GMP Proposal shall adopt and incorporate all of the terms and conditions of the Agreement. Any exceptions to or modifications of such terms and conditions proposed shall not be effective unless they are expressly stated and conspicuously identified in the GMP Proposal and are specifically accepted and approved by Owner. In general, proposed revisions or modifications to the language, terms or conditions of the Agreement will not be accepted.

2. PRE-SUBMITTAL REQUIREMENTS:

- A. Scope Definition: Prior to submitting the GMP Proposal, Construction Manager shall thoroughly review the documents upon which the GMP is to be based with Owner and determine if the scope is sufficiently defined and identify those areas requiring additional scope definition. As a minimum the following should be defined: Program building size, site limits and access, utility systems (existing and new), complete building systems descriptions, materials outline by division, MEP systems descriptions including materials, MEP system options shall be defined and accepted.
- B. Schedule: The anticipated Date of Commencement and Substantial Completion date shall be coordinated and approved by Owner.
- C. Value Engineering: Proposed value engineering items included in the proposed GMP shall be updated from previously submitted value engineering efforts and should reflect the “final acceptance” of VE items, which are part of the proposed scope of work. The VE schedule shall identify current acceptance and the date of acceptance in an adjacent column. VE items must be resolved and accepted by Owner prior to Construction Manager submitting the GMP Proposal.
- D. Pre-submittal Conference: Construction Manager shall schedule a conference with the Project Manager no later than six (6) weeks prior to submitting the GMP Proposal to Owner. Issues regarding the required materials to be included in the GMP Proposal should be reviewed so that there is a clear understanding of the format and contents of each division of work to be submitted. Construction Manager shall obtain a copy of the “Owner Standard Schedule of Values Format” from the Project Manager. Additionally, a review of acceptable “General Conditions Cost” items, as defined in the Agreement, is required.

3. CONSOLIDATION OF REVIEW COMMENTS:

Owner and Owner’s Consultants shall provide review comments. Construction Manager shall consolidate all responses to those groups into TAB 9 of the document. Each Owner comment shall have a corresponding answer directly below the original comment. A reply to each Owner

comment is required even if only a clarification is required. Each reply shall state where in the GMP Proposal the corresponding information may be located.

4. GENERAL REQUIREMENTS;

Construction Manager shall submit the GMP Proposal, in the format described herein, at the phase specified by Owner. GMP Proposals substantially deviating from the requirements set forth will be returned to Construction Manager for re-submittal. GMP Proposals not in compliance with the format, which result in substantial delay, will be the responsibility of Construction Manager and may not extend the Contract Time or Substantial Completion date.

5. MULTIPLE STAGES:

In order to expedite the Project, Owner and Construction Manager may execute the Project in multiple stages with a GMP being established for each stage. The GMP for each stage shall be incorporated into the Agreement through a Change Order to the previously accepted GMP Proposal(s), as identified in Article 7. The requirements for the submission and acceptance of GMP Proposals for each stage shall be identical to the requirements for the submission and acceptance of the first GMP Proposal.

6. GMP PROPOSAL PACKAGE

The GMP Proposal shall be bound in 3-ring notebook or spiral notebook and entitled "Guaranteed Maximum Price Proposal". Below it the following items shall be shown:

- Submittal number (e.g. Submittal #1)
- Date of Submittal
- MD Anderson Project Name
- MD Anderson Project Number

Since several submittal revisions may be submitted, Construction Manager shall always indicate which submittal number is currently being submitted.

All pages within each tab shall be numbered.

The proposal shall be organized in the order described below:

TABLE OF CONTENTS

- List all the following items. Provide a brief summary of the major components within each Tab.

TAB 1 – Guaranteed Maximum Price Proposal Form

- Refer to the GMP Proposal form attached to this Exhibit. Type in the cost amounts and sign, attest, date and seal the form.
- In addition to the bound notebooks, provide two (2) loose original executed copies. (Do not bind into spiral notebooks.)
- Do not alter any language from the original document without prior approval from Owner's Designated Representative.
- Do not electronically alter the document.
- Each line item cost must exactly match the corresponding cost summary shown on the TAB 6 Proposed GMP Breakdown.

- Provide a Corporate Resolution or Articles of Organization, stating individual's authorization to execute contracts on behalf of the corporation, for any individual signing the GMP Proposal, who is not the President or CEO of the firm.

TAB 2 - Executive Project Summary

- State any amended services or scope changes included in the GMP Proposal.
- Provide a brief project summary defining the proposed scope of work associated with the construction phase work included in the GMP Proposal.
- Include the description of building type, size, character and general materials.
- Summarize any relationship with existing structures, unusual site conditions, utility issues, or conditions effected by other governmental agencies (i.e. right-of-way issues)
- State the proposed Commencement Date and Substantial Completion date.

TAB 3 - Project Team

- List the various teams and the team members, in graphic and written form, including names, titles, job responsibilities, and contact information. Identify the Project Safety Specialist(s) and her or his (their) duties. If Project Safety Specialist has changed from the individual approved in the RFQ, clearly and conspicuously identify the change in a statement on a separate page.
- Identify all consultants.

TAB 4 - List of Documents

- Drawings Index – provide detailed listing of each sheet number, sheet title, original date of drawing, revised date of drawing
- Specification Index:
 - Provide a detailed listing of each specification section required by Owner as identified in the Agreement (see the Exhibit for “Owner’s Division 00 and Division 01 Specifications”)
 - Provide a detailed listing of all other spec sections describing the project.
 - Specifications shall be organized by CSI Division format. State the name, original date of issue, and a column for revision date.

TAB 5 - Qualifications and Value Engineering

- Qualifications – A summary of all qualifications and assumptions organized by drawing sheet number or by specification sections to match those in TAB 4.
- Exclusions – A summary of exclusions organized by drawing sheet number or by specification section.
- Substitutions – A summary of substitutions to materials or systems described by drawing sheet number or by the specifications listed in TAB 4. Organize by specification section.
- Value Engineering Recommendations – List all items proposed to date and for each item identify if the item is accepted by Owner and included in the proposed GMP. State the date of acceptance. In addition identify those VE items not currently accepted. State if the proposed price is good for a limited time period.
- Alternates List. State the amount of each alternate and the last date in which the price is good in the event the alternate is not currently included in the proposed GMP.

MD Anderson Agreement No. _____

MD Anderson Project No. _____

TAB 6 – Proposed GMP Breakdown

- Provide an Estimated Construction Cost breakdown on Owner's Standard Schedule of Values for Cost of the Work based on anticipated subcontracts organized by CSI Division format, General Condition Costs per Exhibit, Construction Manager's Contingency, Construction Phase Fee, and any Owner's Special Cash Allowance items or Owner's Construction Contingency, as identified by Owner.

| The U.T. System Schedule of Values - Contractor's Estimate Continuation Sheet (8 1/2" x 11" Sheet ONLY) | | | | | | | | | | | | | | | |
|---|--|----------------------------------|-------------------------------------|------------------------|----------------------------|---|---|---|------------------------------|--|---------------------------------------|-------|-----|---------------|--|
| OTFC Project No. _____ | | | | | | | | Project Address: _____ | | | | | | | |
| OTFC Project Name: _____ | | | | | | | | Application For Payment Number: _____ | | | | | | | |
| OTFC-ROB Name: _____ | | | | | | | | Application Period: From _____ To _____ | | | | | | | |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | |
| CSI Section / Work Breakdown Structure | Description of Work / Subcontractor Name / Specification Section | Initial Proposed Line Item Value | Actual Subcontract Amount at Bidout | Contingency Allocation | Delta (Proposed to Actual) | Subcontract, Purchase Order or Vendor No. | Detailed Breakdown of Contract Line Items | Total Amount Previously Requested & Percent | This Period Amount & Percent | Total Amount Completed To Date & Percent | Balance to Finish Including Retainage | | | | |
| Column Equations | | C | C | C - D + E | | | D' | M' | N' | M - I | K/H | I + K | M/H | H - (M x 99%) | |
| Preconstruction (Part I) Services | | | | | | | | | | | | | | | |
| Programming | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | N/A | |
| Schematic Design | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | N/A | |
| Design Development | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | N/A | |
| Contract Documents | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | N/A | |
| Bidding | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | N/A | |
| Owner's Special Cash Allowance | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | N/A | |
| Preconstruction (Part I) Services Subtotal | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | N/A | |
| Construction (Part II) Services | | | | | | | | | | | | | | | |
| General Conditions (Breakdown per Exhibit I) | | | | | | | | | | | | | | | |
| Project Management | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Bonds & Insurance | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Temporary Utilities | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Field Office/Construction Supplies | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| General Conditions Subtotal | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Cost of Work | | | | | | | | | | | | | | | |
| Sitework | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Concrete | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Masonry | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Metals | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Woods & Plastics | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Thermal & Moisture Protection | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Doors & Windows | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Finishes | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Specialties | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Equipment | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Furnishings | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Special Construction | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Communications Systems | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Mechanical | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Electrical | | \$ - | \$ - | \$ - | \$ - | | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Cost of Work Subtotal | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Contractor's Contingency | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Construction Phase Fee | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Owner's Special Cash Allowance | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Owner's Construction Contingency | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Construction (Part II - GMP) Services Subtotal | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |
| Contract (Part I + Part II Services) Total | | \$ - | \$ - | \$ - | \$ - | N/A | \$ - | \$ - | 0% | \$ - | 0% | \$ - | 0% | \$ - | |

(An electronic copy is available upon request)

- Construction Manager shall provide a breakdown for all Allowable General Conditions Costs by line item, unit cost and duration.
- Construction manager shall clearly state the different types of insurance coverages included in the General Conditions Costs and shall include line items for each type of insurance coverage including builders risk and auto.
- On a separate page state whether the proposed GMP includes provisions to incorporate Owner's ROCIP program, which will affect insurance coverages provided by Construction Manager.
- For projects which involve renovation of an existing building or a project which is being constructed adjacent to or connected to an existing building, the GMP Proposal shall include a page which states whether or not the builders risk insurance coverage includes a \$5M endorsement for coverage of damages to the Owner's existing property for damages caused by Construction Manager or its Subcontractors.
- Construction Manager may request to include an updated Exhibit, "Construction Manager's Personnel and Monthly Salary Rates" identifying any proposed new staff or proposed rate modifications. If an updated Exhibit is included, Construction Manager shall clearly and conspicuously identify each revision, which shall be subject to the approval by Owner at Owner's sole discretion.

- Identify the CM's Contingency and provide a breakdown or explain the basis for how the amount was established.
- Provide a breakdown of Owner's Special Cash Allowance(s) showing the major items anticipated to be included in this amount. Owner's Project Manager will help to provide this detail.

TAB 7 - Master Project Schedule (Summary Level)

- The Summary Level schedule shall be submitted in a digital format and on paper bound with the GMP Proposal.
- Summary Schedule Requirements
 - The schedule shall comply with the requirements of Owner's Specification Section 01 32 00 and shall form the basis for the "Detail" schedule, which shall be submitted within sixty (60) days following the date of the Notice to Proceed with Construction Services.
 - The schedule shall be a computer-generated Critical Path Milestone schedule developed in Microsoft Project Planner software, or other software as expressly approved by Owner.
 - The schedule shall be presented in "bar chart" form and contain detailed activities for all events and milestones included in Pre-Construction Phase and Construction Phase Services
 - The schedule shall include detailed, logic driven activities for all Construction Service activities scheduled to commence during the first ninety (90) days following the Date of Commencement. The remaining construction activities (those commencing after the first 90 days) may be summarized by trades and may have longer durations than the "detailed" activities mentioned above.
- Total Float
 - The total float indicated on the Master Project Schedule shall be no less than 10% of the total Construction Phase duration (Date of Commencement to Substantial Completion). i.e. - All paths in the schedule must lead to a milestone activity for Substantial Completion, which shall be logic driven and indicate completion within approximately 90% of the time allowed by contract for Owner established Substantial Completion date.

TAB 8 - Procurement Package Strategy

- Construction Manager shall provide a written Procurement Package Strategy for procuring subcontracts including self-performance work (other than General Conditions) as described in Owner's Specification Section 01 31 00.

TAB 9 - Historically Underutilized Business Plan

- Complete the attachments required Owner's Policy of Historically Underutilized Businesses, which is included as an Exhibit to the Agreement.
- For all first and second tier subcontractors currently under contract or anticipated to be contracted with, provide completed documentation as set forth in the policy.
- A completed HUB Subcontracting Plan shall be delivered to Owner at the time of final subcontracting buyout.

MD Anderson Agreement No. _____

MD Anderson Project No. _____

TAB 10 - Responses to Review Comments

- For resubmitted GMP Proposals, Construction manager shall include all review comments provided by Owner regarding the GMP Proposal or GMP Proposal re-submittal.
- For each submittal Construction Manager shall provide a written response below each original comment, stating the appropriate response to the issue and include that documentation in this section. **A re-submittal may not be forwarded to Owner without responses to the previous review comments and included under this TAB 10.**
- **Any proposed deviations from the provisions or processes described in the Agreement, contained in this Proposal, shall be approved in writing by Owner's Executive Director of Facilities Planning, Design and Construction.**

MD Anderson Agreement No. _____

MD Anderson Project No. _____

EXHIBIT D – ATTACHMENT 2

FORMS FOR PAYMENT AND PERFORMANCE BONDS

(Bonds shall be provided to Owner
after GMP Proposal is accepted and prior to the issuance of the Notice to Proceed with
Construction.)

EXHIBIT E
SECURITY BOND

SECURITY BOND

Surety Bond No. _____

STATE OF TEXAS §

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF _____ §

That we, _____, as Principal, and _____, as Surety, are hereby held and firmly bound unto Owner and The Board of Regents of The University of Texas System as Obligees in the penal sum of Five Percent (5%) of _____ (\$ _____), the anticipated Guaranteed Maximum Price for the project defined herein below, for payment whereof the said Principal and Surety bind themselves, their heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

Whereas the Principal has executed a contract, with Obligees for the use and benefit of _____, dated _____, _____ (the "Contract"), for _____, Project No. _____, (the "Project").

NOW THEREFORE, the condition of this obligation is such that, if the aforesaid Principal shall execute a Guaranteed Maximum Price Proposal acceptable to all parties, the said Principal will, within the time required by the Contract, give Performance and Payment Bonds, as required by the Contract, to secure the performance of the terms and conditions of the Contract, then this obligation to be void; otherwise the Principal and surety will pay unto the Obligees the difference in money between the amount of the Guaranteed Maximum Price Proposal of the said Principal and the amount for which the Obligees legally contracts with another party to perform the work if the latter amount be in excess of the former, but in no event shall liability hereunder exceed the penal sum hereof.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals this _____ day of _____ in the year 20____, the name and corporate seal of each corporate party being hereto affixed, and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

(SEAL)

Principal

ATTEST:

By: _____

By: _____

(Typed Name and Title)

(Typed Name and Title)

(SEAL)

Surety

ATTEST:

By: _____

By: _____

(Typed Name and Title)

(Typed Name and Title)

EXHIBIT F

CONSTRUCTION MANAGER'S PERSONNEL AND MONTHLY SALARY RATES

EXHIBIT F
CONSTRUCTION MANAGER'S PERSONNEL AND MONTHLY SALARY RATES

Owner's Project No. _____ Owner's Project Name: _____

The following Monthly Salary Rate (MSR) shall identify the estimated billable rate prior to execution of the Agreement, and shall be confirmed during the Guaranteed Maximum Price Proposal phase for use throughout Construction Phase Services on Owner Standard Schedule of Values Format for all salaried type personnel costs that are to be included as General Conditions Costs pursuant to the Agreement. The MSR shall include the employee's estimated monthly direct salary expense (including possible future salary increases), plus any employer payroll taxes and/or fringe benefit contributions as identified below. Any additional employer contributions not identified below shall be included in the Construction Phase Fee pursuant to Article 14 of the Agreement.

| Employee | | Estimated Employer's Monthly Contributions | | | | | | Monthly Salary Rate |
|----------------|---|--|------------------------------------|---------------------------------------|--------------------|------------------|--------------------|---------------------|
| Name and Title | Estimated Monthly Direct Salary Expense | Federal & State Unemployment (Approx. 1%) | Social Security & Medicare (7.65%) | Worker's Compensation (\$0 for ROCIP) | Health & Insurance | Pension / 401(k) | Vacation / Holiday | |
| 1. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| 2. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| 3. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| 4. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| 5. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| 6. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| 7. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| 8. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| 9. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| 10. | \$ | \$ | \$ | \$ | \$ | \$ | \$ | \$ |

Construction Manager shall certify, to the best of his knowledge, that the above referenced salary information is accurate.

CM signature: _____ (same individual who signs agreement)

EXHIBIT G

CONSTRUCTABILITY IMPLEMENTATION PROGRAM

EXHIBIT G

CONSTRUCTABILITY IMPLEMENTATION PROGRAM

GENERAL SCOPE OF WORK

1.0 PROGRAM OBJECTIVES

- Implement a rigorous constructability program.
- Identify and document project cost and schedule savings (targeted costs are 5% of construction costs).
- Clarification of project goals, objectives.

2.0 PROGRAM IMPLEMENTATION

2.1 Project Constructability Team Meeting

- Identification of all project constructability team personnel and all project stakeholders.
- Team briefing of objectives, methods and concepts of constructability.
- Familiarization with implementation program.
- Preliminary identification of constructability priorities, special challenges, concerns and progress to date.

2.2 Constructability Implementation

- Review constructability program, implementation and documentation requirements.
- Establish constructability organization.
- Identify preliminary constructability priorities and special challenges or concerns.

2.3 Schematic Design Phase

(On-going tasks during Schematic Design Phase and for final review of Schematic Design Documents)

2.3.1 Construction Manager

- Lead project constructability team meetings, review documents, and develop constructability recommendations and documentation.
- Provide construction cost estimates to coincide with Project A/E's submissions. Project A/E and Constructability Consultant shall consult and resolve any differences in their respective construction cost estimates.

2.3.2 Project Constructability Team

- Review detailed issues of front-end, high-priority concepts and identify concerns, identify information needs, start to brainstorm alternative approaches, conduct preliminary evaluation of approaches, identify needs for further analysis, chart path forward.
- Review constructability recommendations, documentation and construction cost estimates for acceptance.

2.4 Design Development Phase

(On-going tasks during Design Development Phase and for final review of Design Development Documents)

2.4.1 Construction Manager

- Lead project constructability team meetings, review documents, and develop constructability recommendations and documentation.
- Provide Cost Quantity Surveys to coincide with Project A/E's submissions. Project A/E and Construction manager shall consult and resolve any differences in their respective Cost Quantity Surveys.
- Provide follow-up discussions on front-end, high priority concepts.

2.4.2 Project Constructability Team

- Review constructability recommendations, documentation and Cost Quantity Surveys for acceptance.

2.5 Construction Documents Phase

(On-going tasks during Construction Documents Phase and for final review of Construction Documents)

2.5.1 Construction Manager

- Lead project constructability team meetings, review documents, and develop constructability recommendations and documentation.
- Review plans and specifications developed to date, identifying sub-optimal or potentially problematic design elements.
- Recommend alternative design suggestions for consideration and document potential savings.
- Conduct value engineering investigations into selected high-cost design elements.
- Provide Cost Quantity Surveys to coincide with Project A/E's submissions. Project A/E and Construction Manager shall consult and resolve any differences in their respective Cost Quantity Surveys.

2.5.2 Project Constructability Team

- Review constructability recommendations, documentation and Cost Quantity Surveys for acceptance.

3.0 Close-out Documentation

3.1 Construction Manager

- Complete all documentation to summarize the accomplishments or the constructability effort.

3.2 Project Constructability Team

- Review documentation for acceptance.

EXHIBIT H

ADDITIONAL SERVICES PROPOSAL FORM

MD Anderson Agreement No. _____

MD Anderson Project No. _____

[TO BE SUBMITTED ON CONSTRUCTION MANAGER'S LETTERHEAD.]

Date: _____

Additional Pre-Construction Phase Services Proposal No. _____

Name of Construction Manager's firm:

Re: (Owner's Project Name)
(Owner's Project Number)
(Owner's Agreement No.)
(Owner's Purchase Order Number)

Refer to the Agreement dated _____, 20__ between The University of Texas MD Anderson Cancer Center ("Owner") and the undersigned ("Construction Manager") as amended to the date hereof (such agreement as so modified and amended being hereafter called the "Agreement") pursuant to which Construction Manager is to perform certain services. The terms which are defined in the Agreement shall have the same meanings when used in this proposal. The fee for these proposed Additional Pre-Construction Phase Services are in lieu of any other fee adjustment based on an increase to the CCL as related to these services.

1. Owner has requested the performance of the services described below which Construction Manager deems to be Additional Pre-Construction Phase Services. Refer to "Attachment A" for complete breakdown.

(Detailed description of services. Use attachment only for additional description)

2. The services are fully described in the following documents: (list sheet #'s and spec sections)
3. Construction Manager agrees to perform the Additional Pre-Construction Phase Services described above subject to and in accordance with the terms and provisions of the Agreement

for a *lump sum price* which will be determined in accordance with the Agreement in an amount of:
_____ Dollars (\$ _____),

OR

b.) an *hourly based on the hourly cost of Construction Manager's employees or consultants who actually perform the services* in accordance with the Agreement, not to exceed
_____ Dollars (\$ _____),

MD Anderson Agreement No. _____

MD Anderson Project No. _____

and for reimbursement of expenses in accordance with the Agreement incurred solely in connection with the performance of such Additional Services, but which reimbursement for expenses will not exceed _____ Dollars (\$_____).

4. Construction Manager will perform the services in accordance with any schedule attached hereto (attach schedule if applicable), but in any event not later than _____ (_____) days after Project A/E is authorized to proceed.

Submitted by:

[Construction Manager]

By: _____

Name: _____

Title: _____

Current Fee Summary

| | |
|--|------------------|
| ORIGINAL ADDITIONAL PRE-CONSTRUCTION PHASE SERVICES FEE AMOUNT: | \$ _____. |
| Previously Approved Additional Pre-Construction Phase Services Fee Amounts: | \$ _____. |
| Other Pending Proposed Additional Pre-Construction Phase Services Fee Amounts: | \$ _____. |
| This Proposed Additional Pre-Construction Phase Services Fee Amount: | \$ _____. |
| PROPOSED TOTAL ADDITIONAL PRE-CONSTRUCTION PHASE SERVICES FEES: | \$ _____. |
| Current Pre-Construction Phase Services Fee Amount: | \$ _____. |
| Current Maximum Amount for Reimbursable Expenses: | \$ _____. |
| PROPOSED TOTAL PRE-CONSTRUCTION PHASE SERVICES FEES. | \$ _____. |

Accepted this _____ day of _____, 20 __. Construction Manager is authorized to commence performance of the Additional Pre-Construction Phase Services on _____, 20 __.

OWNER'S AUTHORIZED REPRESENTATIVE

OWNER'S 2ND AUTHORIZED REPRESENTATIVE

MD Anderson Agreement No. _____

MD Anderson Project No. _____

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

EXHIBIT I

TEXAS SALES AND USE TAX EXEMPTION CERTIFICATION

Texas Sales and Use Tax Exemption Certification

This certificate does not require a number to be valid.

| | |
|---|---|
| Name of purchaser, firm or agency The University of Texas MD Anderson Cancer Center | |
| Address (Street & number, P.O. Box or Route number) 1515 Holcombe Blvd., Unit 1695 | Phone (Area code and number) (713) 792-2121 |
| City, State, ZIP code Houston, Texas 77030 | |

I, the purchaser named above, claim an exemption from payment of sales and use taxes (for the purchase of taxable items described below or on the attached order or invoice) from:

Seller: _____

Street address: _____ City, State, ZIP code: _____


Description of items to be purchased or on the attached order or invoice:

Purchaser claims this exemption for the following reason:

EXEMPT UNDER SUBCHAPTER H, SEC. 151.309 GOVERNMENTAL ENTITIES. PURCHASER IS AN AGENCY
OF THE STATE OF TEXAS. FEDERAL I.D. 74-6001118; TEXAS TAXPAYER I.D. 35065065068

I understand that I will be liable for payment of all state and local sales or use taxes which may become due for failure to comply with the provisions of the Tax Code and/or all applicable law.

I understand that it is a criminal offense to give an exemption certificate to the seller for taxable items that I know, at the time of purchase, will be used in a manner other than that expressed in this certificate, and depending on the amount of tax evaded, the offense may range from a Class C misdemeanor to a felony of the second degree.

| | | | |
|--|-----------|-------------------------------|------------|
| sign here  | Purchaser | Title | Date |
| | | Senior Vice President and CFO | 07/13/2017 |

NOTE: This certificate cannot be issued for the purchase, lease, or rental of a motor vehicle.

THIS CERTIFICATE DOES NOT REQUIRE A NUMBER TO BE VALID.

Sales and Use Tax "Exemption Numbers" or "Tax Exempt" Numbers do not exist.

This certificate should be furnished to the supplier.
Do not send the completed certificate to the Comptroller of Public Accounts.

EXHIBIT J

**RIDER 104C – POLICY ON UTILIZATION OF HISTORICALLY UNDERUTILIZED
BUSINESSES**

EXHIBIT K

HUB SUBCONTRACTING PLAN FOR PRE-CONSTRUCTION PHASE SERVICES

EXHIBIT L

RIDER 105 – CONTRACTOR'S AFFIRMATIONS AND WARRANTIES

RIDER 105

CONTRACTOR'S AFFIRMATIONS AND WARRANTIES

Contractor affirms, certifies, and warrants that the information set forth in this Rider is current, complete, and accurate. Contractor agrees that in the event Contractor makes a false statement by affirming, certifying, or warranting the information set forth in this Rider, MD Anderson may, at its option, terminate the Agreement/Purchase Order to which this Rider is attached without further liability, and Contractor shall be removed from all MD Anderson bid lists.

Contractor agrees to notify MD Anderson in writing within thirty (30) days of any changes in the affirmations, certifications, and warranties made by Contractor under this Rider.

1. Contractor has neither given, offered to give, and has no intention to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor or service to a public servant in connection with this Agreement/Purchase Order.
2. Neither Contractor nor the firm, corporation, partnership or institution represented by Contractor, or anyone acting for such firm, corporation, or institution, has violated the antitrust laws of the State of Texas, codified in Section 15.01, et. seq. *Texas Business and Commerce Code*, or the federal antitrust laws, nor communicated directly or indirectly Contractor's bid or proposal made to MD Anderson to any competitor or any other person engaged in such line of business. Contractor has not received compensation for participation in the preparation of the specifications for this Agreement or of the request for proposal-on which this Agreement is based.
3. Contractor is not excluded, debarred, or otherwise suspended from participating in the Federal Healthcare programs, as defined in 42 U.S.C. §1320a – 7b(f), or listed in the U.S. System for Award Management's ("SAM") List of Parties Excluded From Federal Procurement or Non-Procurement Programs, or the United States Office of Inspector General's List of Excluded Individuals/Entities ("LEIE"). Contractor further acknowledges that MD Anderson is prohibited by federal regulations and arrangements with third party payors from allowing any employee, subcontractor or agent of Contractor to provide services to MD Anderson if such employee, subcontractor, or agent is not eligible to participate in the Federal Healthcare programs. Therefore, Contractor shall not assign any employee, subcontractor or agent that is excluded from participating in any Federal Healthcare program, including but not limited to Medicare, Medicaid, or Tricare, to work on an MD Anderson engagement. Contractor shall perform an LEIE, SAM, and State Medicaid sanction check monthly on each of its employees, subcontractors and agents during the time such employees, subcontractors and agents are assigned to work on an MD Anderson engagement. Contractor acknowledges that MD Anderson will require immediate removal of any employee, subcontractor or agent of Contractor assigned to work on an MD Anderson engagement if such employee, subcontractor or agent is found to be excluded from participating in any Federal Healthcare program. Upon request, Contractor will provide MD Anderson a letter signed by an authorized officer of Contractor that certifies compliance with this Section.
4. Contractor certifies it qualifies status in one of the below as defined by the State of Texas:
 - A. Contractor **is a Small Business** (as defined by Chapter 2155 of the Texas Government Code), and claims the following status:
 - _____ (100) Small Business, Non-HUB
 - _____ (100N) Disabled Person, Small Business
 - _____ (141) Black American, Male, Small Business
 - _____ (142) Black American, Female, Small Business
 - _____ (151) Hispanic American, Male, Small Business
 - _____ (152) Hispanic American, Female, Small Business
 - _____ (160) Non-minority, Female, Small Business
 - _____ (171) Asian Pacific American, Male, Small Business
 - _____ (172) Asian Pacific American, Female, Small Business
 - _____ (181) Native American, Male, Small Business
 - _____ (182) Native American, Female, Small Business
 - B. Contractor **is not a Small Business** as defined above and claims the following status:

| | |
|---------------------------------------|--|
| _____ (900N) Disabled Person | _____ (971) Asian Pacific American, Male |
| _____ (941) Black American, Male | _____ (972) Asian Pacific American, Female |
| _____ (942) Black American, Female | _____ (981) Native American, Male |
| _____ (951) Hispanic American, Male | _____ (982) Native American, Female |
| _____ (952) Hispanic American, Female | _____ (900) None of the above |
| _____ (960) Non-minority, Female | |

RIDER 105
CONTRACTOR'S AFFIRMATIONS AND WARRANTIES

- C. Contractor is to indicate below if it is not certified by the Texas Procurement and Support Services Division of the Texas Comptroller's Office as a Historically Underutilized Business.

_____ **YES**, Contractor is certified by the Texas Procurement and Support Services Division of the Texas Comptroller's Office.

_____ **NO**, Contractor is not certified by the Texas Procurement and Support Services Division of the Texas Comptroller's Office.

- D. Contractor is:

_____ A Non-Resident Contractor (e.g., does not maintain a permanently staffed full time office in Texas).

_____ A Resident Contractor (e.g., does maintain a permanently staffed full time office in Texas).

_____ Anticipating the use of Texas Non-Resident firms as sub-contractors and will provide information of such contracts, when requested.

_____ Not anticipating the use of Texas Non-Resident firms as sub-contractors.

[Sourcing, item 5 should only be included if the Contractor is a franchise.]

5. If Contractor is a franchise, then:

- A. Contractor affirms, certifies, and warrants that it shall maintain such franchise in full force and effect at all times during the existence of this Agreement/Purchase Order; and

- B. Contractor shall provide MD Anderson with all data that MD Anderson, in its sole discretion, deems necessary to identify Contractor's franchise, the date on which Contractor's franchise will expire, and to certify that Contractor's franchise remains in good standing at all times during the existence of the Agreement/Purchase Order.

6. (1) No relationship (whether by blood, marriage, business association, capital funding agreement or by any other kinship or connection) exists between Contractor and an employee of MD Anderson, and (2) Contractor has not been an employee of MD Anderson within the twelve (12) month period immediately prior to the date of this Agreement/Purchase Order, or (3) in the event such a relationship does exist, full written disclosure of the relationship has been made by Contractor to MD Anderson prior the execution of this Agreement, or acceptance of Purchase Order. Contractor understands that all such disclosures will be subject to administrative review, and approval by MD Anderson prior to MD Anderson's execution of this Agreement/Purchase Order. Subsection (2) of this item does not prohibit MD Anderson from entering into a contract with a corporation, firm, or other business entity that employs a former or retired employee of MD Anderson within 12 months of the employee's leaving MD Anderson, provided that the former or retired employee does not perform services on projects for the corporation, firm, or other business entity that the employee worked on while employed by MD Anderson.
7. (1) Contractor is not a party to any agreement with MD Anderson whereby it has licensed from MD Anderson any technology, invention, or other intellectual property that relates to or is used with any goods or services being acquired by MD Anderson hereunder; and (2) as a result of the sale to MD Anderson of the goods or services hereunder, Contractor will not owe, directly or indirectly, any royalties, fees, or other consideration of any kind to MD Anderson or any employee of MD Anderson under the terms of any license agreement with MD Anderson. Contractor will advise MD Anderson in writing of any change in status with respect to the foregoing items (1)-(2), by sending written notice within ten (10) days of such status change to: Legal Services, Unit 537, The University of Texas MD Anderson Cancer Center, P.O. Box 301439, Houston TX 77230-1439, ATTENTION: Chief Legal Officer.
8. **OSHA COMPLIANCE:** By signing the Agreement, or accepting the Purchase Order, Contractor affirms, certifies, and warrants that all goods and services furnished under this Agreement/Purchase Order will meet or exceed the safety standards established and promulgated under the Federal Occupational Safety and Health Law (Public Law 91-596) and its regulations in effect as of the date on which the goods or services are furnished.
9. **AFFIRMATIVE ACTION COMPLIANCE:** In addition to the Contractor's affirmation, certification, and warranty under section 8 of this Rider, if this Agreement exceeds \$50,000.00 in value, Contractor shall provide a copy of its written Civil Rights "Affirmative Action Compliance Program" which shall be incorporated into Exhibit A to this Rider. If Contractor is NOT required to have such a written Civil Rights "Affirmative Action Compliance Program", Contractor must state the reasons why it is not required to have such a written program in

RIDER 105
CONTRACTOR'S AFFIRMATIONS AND WARRANTIES

Exhibit A to this Rider.

EXHIBIT A

Civil Rights "Affirmative Action Compliance Program"

EXHIBIT M

RIDER 106 – PREMISES RULES

RIDER 106 PREMISES RULES

If this Agreement requires Contractor's presence on MD Anderson's premises, buildings, grounds, facilities, or campus, whether owned, leased or otherwise controlled by MD Anderson (collectively, "MD Anderson's campus"), Contractor represents and warrants that it will ensure that its representatives, agents, employees, and permitted subcontractors are aware of, fully informed about and in full compliance with Contractor's obligations under the following rules:

- A. Contractor (and its representatives, agents, employees and permitted subcontractors) will comply with all applicable MD Anderson rules and policies, including, without limitation, those related to environmental quality, safety, fire prevention, noise, information security, and architectural barriers issued by MD Anderson's Department of Environmental Health and Safety, (713) 792-2888, and those that restrict the use of alcohol on MD Anderson's campus.
- B. MD Anderson is a smoke-free institution. Smoking, or use of smokeless tobaccos, is prohibited throughout MD Anderson's campus.
- C. Contractor will have the right to access only those areas in MD Anderson's campus that are public areas or areas that it is necessary for Contractor to access in order to provide the products and perform the services under this Agreement. Cellular telephones and two-way radios are prohibited in some areas of MD Anderson's campus and Contractor affirms, certifies, and warrants that its representatives, agents, employees, and permitted subcontractors will abide by such prohibitions.
- D. It is the policy of MD Anderson to maintain a safe environment free from violence on MD Anderson's campus. Any direct or indirect threats or acts of violent behavior are prohibited. Violence includes, but is not limited to, intimidating, threatening, or hostile behavior; physical or verbal abuse; harassment, stalking, vandalism, arson, sabotage, use of weapons, possession of weapons on institutional property, the threat of any of the above, or any other act inconsistent with MD Anderson's campus violence policy. Intentionally bringing a prohibited weapon including a licensed, concealed handgun on MD Anderson's campus is a violation of MD Anderson's campus violence policy. Furthermore, any violation of a law prohibiting violence and violent behavior (including, but not limited to, the violation of Section 37.125 of the Texas Education Code or of Section 46.03 of the Texas Penal Code) also constitutes a violation of MD Anderson's campus violence policy. Violators of MD Anderson's campus violence policy or of any law prohibiting violence or violent behavior may be removed from or refused further access to MD Anderson's campus. Contractor represents and warrants that Contractor and all of its representatives, agents, employees, and permitted subcontractors will comply with MD Anderson's campus violence policy and all laws prohibiting violence and violent behavior. MD Anderson reserves the right to pursue criminal or civil actions against violators of MD Anderson's campus violence policy or of any law prohibiting violence and violent behavior. Contractor will remove from the performance of any work under this Agreement any Contractor representative, agent, employee, or permitted subcontractor that MD Anderson, in its sole discretion, finds has violated MD Anderson's campus violence policy or any law prohibiting violence and violent behavior.
- E. Contractor will ensure all personnel sent to work at MD Anderson's campus that have direct patient care/contact under this Agreement will be able to show proof of a tuberculosis screening having been completed within ninety (90) calendar days prior to starting work at MD Anderson's campus and every two years thereafter. Contractor will also be able to show proof that these same personnel do not have active tuberculosis. Contractor will ensure all personnel with direct patient care/contact will be able to show proof of current immunization to influenza and proof of immunization or immunity to varicella (chicken pox) prior to active duty at MD Anderson. Records of screenings, vaccinations, immunity and related reports will be made immediately available to M.D. Anderson upon request. This paragraph does not apply to contractors deemed by MD Anderson to not have direct patient care/contact.
- F. Contractor will be solely responsible for ensuring that all of its agents, employees, personnel, permitted subcontractors, or representatives abide by the provisions set forth in this Rider 106.
- G. The University of Texas Police Department ("UTPD") & Security Equipment:

The UTPD is the law enforcement agency of record for all property and premises owned, leased, or otherwise under the control of MD Anderson. The UTPD will be notified in matters relating to the following:
 - 1. Reporting of criminal incidents, including those occurring to or involving Contractor property and personnel if the incident occurs on MD Anderson campus;
 - 2. The investigation of crimes, including those involving Contractor's property and personnel, if the incident occurs on MD Anderson campus; and
 - 3. Reporting of security problems.
- H. Contractor will not retain the services of outside guard or law enforcement services in connection with work on MD Anderson's campus without the specific prior written approval of the Chief of the UTPD.
- I. Contractor will not install or operate any system intended to electronically control access and/or detect and report intrusion, hold-up or duress on any MD Anderson property, any MD Anderson leased premises or any premises otherwise under the control of MD Anderson. Where such systems are required due to the nature of the Contractor's operation, the UTPD will be responsible for approval, design and installation. Once approved by UTPD, the system's cost will be Contractor's responsibility.

RIDER 106
PREMISES RULES

these Premises Rules, MD Anderson will have the right to deny Contractor and its personnel access to MD Anderson's campus.

J. Installation by Contractor of any security system is subject to the review and approval of UTPD. If Contractor desires to install an electronic security system in accordance with the terms of this Agreement, Contractor will contact the UTPD - Crime Prevention Component of UTPD at (713) 792-2890 and request that UTPD establish design criteria for the application. Contractor will provide written evidence of the estimated cost of the electronic security system to the Technical Services Component of UTPD located at 7777 Knight Road and, if the electronic security system is approved by UTPD, the Technical Services Component of UTPD will coordinate the installation of the approved system. Upon written approval of the UTPD Chief, Contractor may use a commercial installation company to install the electronic security system under the coordination of the UTPD.

P. MD Anderson will not be obligated to pay for labor hours supplied by any individual(s) upon whom a background check and records check is not completed or who fails to meet the standards described in this Rider.

K. All security related systems must be monitored and controlled by the UTPD and UTPD must be the primary monitoring station. If Contractor utilizes the services of a commercial alarm company or a proprietary alarm monitoring station, the system may report to such location after first transmitting the alarm to the UTPD.

L. Contractor is responsible for the performance of the persons Contractor assigns to provide services for MD Anderson on MD Anderson's campus. Contractor will not knowingly assign individuals to provide services on MD Anderson's campus who have a history of violent, unacceptable, or grossly negligent behavior or who have a felony conviction. Prior to supplying labor services under this Agreement, MD Anderson may require Contractor to provide a list identifying the individuals that may be assigned to MD Anderson along with a letter signed by an appropriate officer of Contractor that affirms compliance with this Rider. Contractor will revise such letter each time there is a change in Contractor's personnel assigned to MD Anderson's campus, but in any case, annually on the anniversary date of this Agreement.

M. Contractor will ensure that all individuals assigned by Contractor to perform services on MD Anderson's campus will display in plain view a photo identification badge provided by MD Anderson while on MD Anderson's campus.

N. Contractor will retain resumes of all Contractor's employees assigned to this project. Contractor will ensure the proper maintenance of these documents for a minimum of one (1) year after contract completion. Contractor will maintain all documentation, including the results of any background checks, during the term of this Agreement.

O. MD Anderson will have the right to reject any individual(s) that Contractor offers to assign to MD Anderson's account for any reason. In addition, if Contractor and/or its personnel fail to abide by

EXHIBIT N

RIDER 107 – TRAVEL POLICY

RIDER 107 TRAVEL POLICY

All travel and expense costs will be calculated as follows:

1. Contractor must use regular coach air transportation (state rate or corporate rate, whichever is lower) for travel in excess of two hundred (200) miles, unless otherwise agreed in advance by MD Anderson. In order to maximize discounted airfares, Contractor, with the cooperation of MD Anderson, will schedule on-site visits far enough in advance to take advantage of most advance-purchase offers. In the event meetings or on-site visits are cancelled by MD Anderson, Contractor may charge for any advance-purchase cancellation penalties imposed by the airline.
2. Corporate or state rate discounts (whichever is higher) will be used for hotel accommodations.
3. Maximum billable amount per person per day for meals will be \$36.00. Departing from MD Anderson prior to 12:01 p.m. negates any billing for meals for that day. Meal expenses are reimbursable for Contractor personnel who travel fifty (50) miles or more, and stay overnight.
4. Rental cars will be the least expensive, air-conditioned, automatic transmission, mid-size car available to Contractor under corporate rate programs. Full coverage collision insurance may be used for rental cars, but personal protection plans will not be reimbursed.
5. Ground transportation, parking costs and tolls may be invoiced at cost.
6. Personal automobile mileage charges will be computed based upon actual miles to and from the appropriate Contractor office to and from the applicable MD Anderson facility. Mileage charges will be invoiced at the standard mileage rate recognized by the State of Texas at the time of invoicing.
7. Miscellaneous expenses (i.e., tips, transfers, etc.) will be invoiced in an amount not to exceed \$5.00 per person per day, if deemed reasonable.

All travel or miscellaneous expenses must receive prior written approval by the Project Coordinator. Contractor will not be reimbursed for expenses that do not receive this prior written approval.

All travel or miscellaneous expenses must be submitted with an original receipt. All approved expenses will be reimbursed at “actual cost” only. Contractor will not be reimbursed for expenses that are not accompanied by original receipts.

EXHIBIT O

RIDER 117 – INSTITUTIONAL POLICIES

EXHIBIT O

RIDER 117 – INSTITUTIONAL POLICIES

THE UNIVERSITY OF TEXAS
MDAnderson
~~Cancer Center~~
RIDER 117
Institutional Policies

In accordance with the education requirements set forth in Section 6032 of the Deficit Reduction Act of 2005 (Act), MD Anderson has implemented, and Contractor agrees to abide by, the following policies, as may be subsequently amended, that are available at: <http://www.mdanderson.org/about-us/doing-business/vendors-and-suppliers/index.html>

1. Fraud, Waste, and Abuse Policy
2. Hospital Compliance Plan
3. Non-Retaliation Policy

EXHIBIT P

BUILDING INFORMATION MODELING (BIM) REQUIREMENTS

BUILDING INFORMATION MODELING REQUIREMENTS

Owner has determined that this project is a Major Capital – Renovation project as that term is defined herein and requires the following specific BIM Requirements.

PART 1 – GENERAL

1.1. RELATED DOCUMENTS

- 1.1.1. Attention is specifically directed, but not limited to, the Uniform General Conditions for University of Texas System Building Construction Contracts (UTUGCs) for other requirements related to the completion and submittal of Record Documents.
- 1.1.2. Attention is specifically directed to Owner's Design Guidelines issued for the project for other requirements related to the development, maintenance and exchange of design information, the formatting of design documents, and the completion and submittal of Record Documents.
- 1.1.3. Attention is specifically directed to Owner's Master Construction Specifications for other requirements related to the development, maintenance and exchange of construction project information, and the completion and submittal of Record Documents.

1.2. SUMMARY

- 1.2.1. This document establishes general and administrative requirements pertaining to Building Information Modeling (BIM) to meet Facilities Information Management (FIM) expectations for projects of various sizes and delivered under various contracting methodologies.
- 1.2.2. BIM practices require cooperation and involvement of all parties throughout the project delivery process, regardless of the delivery method being used for a given project. For BIM practices to be successful, collaboration must begin at the onset of the project development.
- 1.2.3. BIM practices encompass and coordinate traditionally separate functions of design and construction in order to assemble all related building information into one Project Information Matrix that will provide the information needed to efficiently operate and maintain the facility once Substantial Completion has been achieved and the Project has been turned over to the Owner.
- 1.2.4. It is of primary concern that all building modeling and facility information developed during the design and construction of the Project be timely and efficiently developed, maintained and exchanged from initiation of the Project through Final Completion in accord with all Contract Documents and with Owner's operational and maintenance needs. Throughout the Project lifecycle, the A/E and the Contractor are expected to systematically demonstrate to the Owner that all building and system information is current to the extent that it can be at a given time during the design and construction process.
- 1.2.5. It shall be the responsibility of the A/E, and each of its consultants, and the Contractor and each of its Subcontractors, to have or obtain, at their cost, the trained personnel, hardware, and software necessary to successfully fulfill their respective obligations as set forth in the mutually developed BIM Execution Plan.

1.3. DEFINITIONS

Capitalized terms used in this document shall have the meanings as set forth in the applicable contract(s), the UTUGCs, or any combination thereof, unless otherwise defined or modified below. For projects implemented with the construction manager-at-risk delivery method, the term Contractor shall mean Construction Manager. For projects implemented with the design-build delivery method, the term Contractor shall mean Design/Build Contractor. To be consistent with the UTUGCs, A/E is used in lieu of, and as a synonym for, the term Project

Architect that is used in the standard UT System construction manager-at-risk, design-build, and some design services agreements.

- 1.3.1. Final Model – The models from the Contract Documents that have been professionally electronically generated reflecting the as-constructed conditions of the Work based upon the information provided by the Contractor as reflected in the Record Documents. As various firms tend to use their own definitions of "model level", MD Anderson is not specifying a "level of model development" as defined by the AIA. MD Anderson's primary focus is to receive a data rich model that contains the relevant information and model components necessary for the long term maintenance and future renovations of the facility. To this end overall dimensionally correct physical representations are required, however every technical connection, such as steel connections, gyp board layout, bolt patterns, etc. do not need to be modeled. The physical properties of construction types and methods, finishes, equipment, systems and their corresponding specifications and documentation should be contained within the model(s) when appropriate based upon project scope and as identified in the BEP. Federated REVIT Models shall be pathed and configured in such a manner that they are usable without significant re-pathing. If the Final Model is federated, ensure all models that were used to create the project are properly supplied and linked to the central model utilizing a generic path.
- 1.3.2. BIM Execution Plan (BEP) – A document developed by the BIM Team, concurrent with the start of the project, that prescribes how Building Information Modeling will be implemented for the Project and how requisite information will be transferred into the Project Information Matrix prior to Substantial Completion of the Project.
- 1.3.3. BIM Level – The extent to which model and information development will be required on a specific project. The BIM Level initially will be determined by Owner but may be adjusted, with Owner's express approval, by the BIM Team over the course of the Project. The BIM Level will depend upon several factors, including the scope of project, project schedule; project cost; availability of existing BIM models; and availability of existing BIM data, etc.
 - 1.3.3.1. The A/E team must provide to the Contractor a level of Model that is sufficient for the Contractor to accurately create and maintain their construction model throughout the construction and project close out processes. MDACC is not dictating the means and methods of coordination between the AE and Contractor, however the AE shall be required to coordinate with the Contractor to provide clarifications and additional modeling elements should the initial Design model prove to be insufficient. This should be detailed, as well as MDACC's interactions in the process, in the BEP created at the beginning of the project and modified as needed throughout.
- 1.3.4. Building Automation System (BAS) – The distributed control system used by MD Anderson to monitor and control infrastructure systems within its facilities.
- 1.3.5. Building Information Modeling (BIM) – The process of generating and managing building data and geometry using three-dimensional (3-D), real-time, dynamic building modeling software resulting in a Building Model and corresponding information pertaining to said model.
- 1.3.6. Building Information Modeling Team (BIM Team): Working group made up of representative(s) from the A/E, A/E's consultants, Contractor, Subcontractors and Owner. A/E will provide ad hoc representation of the A/E's consultants on the BIM Team as required for the implementation of the BIM Execution Plan. Contractor will provide ad hoc representation of Subcontractors on the BIM Team as required for implementation of the BIM Execution Plan.
- 1.3.7. Building Model – A 3-D digital representation of physical and functional characteristics of a facility, or the components or systems thereof that encompass building geometry, spatial relationships and quantities and properties of building components and systems.
- 1.3.8. Computerized Maintenance Management System (CMMS) – The computer software package that MD Anderson uses to manage a digital database of information related to its facilities equipment and systems for the purpose of optimizing its maintenance operations.
- 1.3.9. CMMS Integration Process (CIP) – The prescribed process by which the information generated during Building Information Modeling will be fully integrated into Owner's CMMS. The CIP is to be developed

by the BIM Team and is to be included in the BIM Execution Plan.

- 1.3.10. Construction Documents – Defined in the UTUGC unless otherwise defined herein. The Construction Documents shall also include the Building Model and the Project Information Matrix.
- 1.3.11. Construction Model – A 3-D digital representation of physical and functional characteristics of a facility, or the components or systems thereof, that encompasses building geometry, spatial relationships and quantities and properties of building components and systems and that is developed by the Contractor and the Subcontractors before or during the Construction Phase of the Project. Unless owner specifically agrees otherwise, the Construction Model shall represent a spatially accurate actual as-built condition. Components of the building shall be modeled and their corresponding data shall be built into the model as detailed in the project BIM Execution Plan. This includes Tier 1 & Tier 2 items as described in sections 1.3.12 and 2.2. Reference section 2.5.1.1.5.
 - 1.3.11.1 Coordination model(s) – Typically a derivation of the Construction Model in either a Navisworks or BIM 360 Glue format used by the contractor and sub-contractors to coordinate the objects and systems to be installed during the course of construction.
- 1.3.12. Depth of Detail – A measure of the amount of information to be provided for each element within the Building Model. The Building Model and Contract Documents shall be developed so as provide information that aligns with the following tiers:
 - 1.3.12.1.1. Tier 1 Data – Information that MD Anderson maintains about its facilities, or any components thereof, that currently resides within MD Anderson's Computerized Maintenance Management System (CMMS).
 - 1.3.12.1.2. Tier 2 Data – Information MD Anderson maintains about its facilities, or any component(s) thereof, that does not reside in MD Anderson's CMMS. This data may reside within but not limited to the following: a model, a table, schedule, list, external spreadsheet/database, submittal, RFI, ASI, drawings or specifications etc. that pertain to final completion of the project. Tier 2 Data elements must reference to an identified specific physical space within the project using the appropriate room number designation. Reference section 2.2 of this document.
- 1.3.13. Design Model – A 3-D digital representation of physical and functional characteristics of a facility, or the components or systems thereof, that encompasses building geometry, spatial relationships and quantities and properties of building components and systems and that are developed during the preconstruction (Design) phase of the Project. Reference sections 1.3.3.1 and 2.5.1.1.4.
- 1.3.14. Facilities Information Management (FIM) – The process of gathering, maintaining and distributing data associated with Owner's facilities for the purposes of operating and maintaining those facilities.
- 1.3.15. Level of Development – The degree to which information included within the Building Model can be relied upon.
- 1.3.16. Major Capital Project – Any project that involves the construction of a new facility and that has a total project cost of \$10 million or more (Major Capital – New Construction), or any project that involves the renovation (repair and rehabilitation) of an existing facility and that has a total project cost of \$10 million or more (Major Capital – Renovation). Major Capital Projects may involve the rehabilitation or upgrading of mechanical, electrical, plumbing, infrastructure technology components or systems or any combination thereof.
- 1.3.17. Minor Capital Project – Any project that involves the construction of a new facility and that has a total project cost of \$100,000 or more but less than \$10 million (Minor Capital – New Construction), or any project that involves the renovation (repair and rehabilitation) of an existing facility and that has a total project cost of \$100,000 or more but less than \$10 million (Minor Capital – Renovation). Minor Capital Projects may involve the rehabilitation or upgrading of mechanical, electrical, plumbing, infrastructure technology components or systems or any combination thereof.
- 1.3.18. Operations Project – Any project that involves new construction work or the renovation (repair and rehabilitation) of an existing facility and that has a total project cost that is less than \$100,000. Operations Projects may involve the rehabilitation or upgrading of mechanical, electrical, plumbing,

infrastructure technology components or systems or any combination thereof.

- 1.3.19. Project Information Matrix (PIM) – The electronic file for a spreadsheet or database that identifies the information required from the Building Model, Drawings, and any other data source(s) developed for the Project and the parameters and properties of the content. Generally, MD Anderson initially will provide the PIM at the beginning of the Project. During the design phase, the A/E will populate the PIM as information becomes available. Throughout the construction phase, the Contractor will update the PIM and will issue scheduled renditions during construction in addition to the final PIM to MD Anderson at Substantial Completion of the Project.
- 1.3.20. Record Documents – Defined in the UTUGCs and Owner's Master Construction Specification Section 01 78 39, Project Record Documents, unless otherwise defined herein. Record Documents shall also include all BIM deliverables as detailed in this document; reference section 2.5 for additional detail.
- 1.3.21. System – A group or collection of items or equipment that work together or in tandem to function as a whole. Examples of systems include but are not limited to: HVAC systems, Bulk Gas Systems (any gases or vacuum not supplied by a point-of-service device), Plumbing, Fire Rated Assemblies such as doors/frames, Glazing, etc. or any items that are commonly known as systems by the Design and Construction Industries. If uncertainty exists, Consultants and contractor are to coordinate with the owner for clarification.
- 1.3.22. Test, Adjust, and Balance (TAB) Firm: The Owner may engage a Test, Adjust, and Balance Firm for the Project under a Separate Contract. When engaged for the Project, the TAB Firm shall be a part of the BIM Team and shall provide services as set forth in the Specifications and its Separate Contract.

1.4. COORDINATION

1.4.1. BIM Team

1.4.1.1. Owner's Members

- 1.4.1.1.1. Representatives assigned by Owner's Designated Representative,
- 1.4.1.1.2. A/E, including A/E and sub-consultant BIM manager(s), except for projects implemented with design-build methodology,
- 1.4.1.1.3. TAB Firm, when engaged for the Project.

1.4.1.2. Contractor's Members

- 1.4.1.2.1. Individuals, each having authority to act on behalf of the entity they represent, explicitly organized to implement all BIM and FIM activities through coordinated actions.
- 1.4.1.2.2. Representatives of Contractor, including but not limited to
- 1.4.1.2.3. Contractor's project manager,
- 1.4.1.2.4. Contractor's BIM Coordinator
- 1.4.1.2.5. A/E, including A/E sub-consultant BIM manager(s), (for projects implemented with design-build methodology)
- 1.4.1.2.6. Subcontractors, as needed for Contractor to fulfill its BIM obligations, and
- 1.4.1.2.7. Equipment suppliers, as needed for Contractor to fulfill its BIM obligations

1.4.2. Scheduling

1.4.2.1. Design (Preconstruction) Phase

- 1.4.2.1.1. For projects implemented using the competitive sealed proposal, construction manager-at-risk, or job order contracting methodology, the A/E shall integrate all BIM activities into its Project Work Plan and the design schedule.
- 1.4.2.1.2. For projects implemented using the construction manager-at-risk or design-build methodology, the Contractor shall integrate all BIM activities into the Baseline Schedule and the Work Progress Schedule and shall ensure that BIM requirements

are clearly set forth in all solicitation documents used to select subcontractors or suppliers for the Project. All parties will address scheduling problems and make necessary notifications in a timely manner to expedite all BIM activities.

1.4.2.2. Construction Phase

1.4.2.2.1. Contractor shall integrate all BIM activities into the Baseline Schedule and the Work Progress Schedule. All parties will address scheduling problems and make necessary notifications in a timely manner to expedite all BIM activities.

1.4.2.2.2. Contractor shall provide the initial schedule of primary BIM activities at the project kick-off meeting. Prior to the start of Schematic Design, Contractor shall have incorporated and integrated all BIM activities into the Baseline Schedule and Work Progress Schedule with appropriately linked predecessors and successors.

1.5. ROLES AND RESPONSIBILITIES

1.5.1. Roles and responsibilities of BIM Team members are set forth below to help to clarify Owner's expectations with respect to the BIM and FIM processes.

1.5.2. Owner's Role and Responsibilities:

1.5.2.1. Provide specifications related to the format and content for the Project Information Matrix. These specifications are to include the identification of Tier 1 Data and Tier 2 Data required for the Project where available.

1.5.2.2. Provide initial direction as to the extent the BIM is to be used on the Project. BIM Level to be used on the Project.

1.5.2.3. Approve the BIM Execution Plan and A/E's and Contractor's schedules for completing all BIM activities.

1.5.2.4. Participate in BIM Team meetings.

1.5.2.5. Review and validate adequacy of Building Model development and project data collection.

1.5.3. A/E's Role and Responsibilities:

1.5.3.1. Initiate the BIM collaboration proceedings with the owner at time of project award. Contact MD Anderson Project Manager to establish the BIM Coordination Kick-Off meeting with all stakeholders, including the MD Anderson BIM Manager.

1.5.3.2. Attend BIM Team meetings.

1.5.3.3. Incorporate all BIM activities into the design Work Plan and the design phase schedule.

1.5.3.4. Produce for Owner's approval, the initial BIM Execution Plan concurrently with the start of the project design, the initial Project Information Matrix of all devices, systems and equipment supplied. It is intended that the initial BEP be coordinated with and contain the Owners BIM requirements including the BIM Deliverables. Reference section 2.5 – BIM Deliverables.

1.5.3.5. Review and approve Contractor's edits to the BIM Execution Plan, and the Project Information Matrix.

1.5.4. Contractor's Role and Responsibilities:

1.5.4.1. Receive from A/E and assume lead responsibility for the BIM Execution Plan, the Building Model and the Project Information Matrix.

1.5.4.2. Administer updates to the BIM Execution Plan, the Building Model and the Project Information Matrix with the intent that all BIM-FIM Team members will have up-to-date information as the Project progresses.

1.5.4.3. It is intended that the Contractor will revise and refine the BEP with their requirements at prior to the start of construction and coordinate the revised BEP with the Owner by requesting a BIM Kick-Off meeting. If no BEP was supplied by the A/E, it is intended that

the Contractor will create a BEP that incorporates the Owners BIM requirements including the BIM Deliverables. Reference section 2.5 – BIM Deliverables.

- 1.5.4.4. Provide an individual, subject to Owner's approval, experienced in Building Information Modeling to document changes to Building Model and complete the implementation of the BIM Execution Plan. The Contractor shall assign this individual to act as the BIM Coordinator, who may have additional duties such as MEP Coordinator, but shall not be Contractor's project manager or superintendent. Contractor shall submit qualifications demonstrating the BIM Coordinator's technical expertise and experience to the Owner for approval. In the event that Contractor chooses to subcontract its BIM obligations, Contractor must submit the name and qualifications of the proposed subcontractor for Owner's approval.
- 1.5.4.5. Ensure that Building Modeling activities are incorporated into the Baseline Schedule and the Work Progress Schedule.
- 1.5.4.6. Schedule and conduct periodic meetings with Subcontractors and equipment suppliers related to BIM to ensure the Building Model and the Project Information Matrix are being routinely and accurately updated.

PART 2- EXECUTION

2.1 BIM EXECUTION PLAN

- 2.1.1 Throughout its development, efforts shall be made to align the responsibilities set forth in the BIM Execution Plan with the skills customarily contributed by each party associated with the Project. The BIM Execution Plan shall be considered as a "living document" that is to be updated and refined throughout the life of the Project and shall be available for review and verification by Owner at any time.
- 2.1.2 To the extent practical, the BIM Execution Plan shall minimize redundant efforts in favor of a single, organized approach to all activities required to successfully complete the BIM - FIM process.
- 2.1.3 The BIM Execution Plan shall include all pertinent Project Information, as a baseline for required information, reference the "BIM Project Execution Planning Guide" created by the CIC Research Group, Department of Architectural Engineering, and The Pennsylvania State University. It shall also identify and specify;
 - 2.1.3.1. the extent to which Building Model(s) are to be used on the Project.
 - 2.1.3.2. the expected timeline for when information will become available.
 - 2.1.3.3. the information workflow process, which is to include identifying from where the information to be included in the PIM will originate, the requirements for transferring information from and to each model and into the PIM, the Depth of Detail and the party responsible for authoring and supplying the information at the appropriate time.
 - 2.1.3.4. the version of the Autodesk Building Design Ultimate software suite into to which the project documents will be transferred.
 - 2.1.3.5. the file structure for the Building Model.
 - 2.1.3.6. all model types, names, content and relationships.
 - 2.1.3.7. the Level of Development for each element to be included within the Building Model at each stage of the Building Model development.
 - 2.1.3.8. the Depth of Detail for each element to be included within the Building Model.
 - 2.1.3.9. the drawings to be generated from the Building Model(s) and the process(es) to be used for generating two-dimensional drawings from the Building Model(s) to ensure that all generated drawings adhere to Owner's CAD standards drawing structure, content, data elements and delivery as defined in the MD Anderson Cancer Center OWNERS DESIGN GUIDELINES.

- 2.1.3.10. the CMMS Integration Process to be used on the Project, including the requisite process for receiving Owner's CMMS Asset Numbers and for incorporating those numbers into the design documents and the PIM.
- 2.1.3.11. the data transfer protocol.
- 2.1.3.12. conventions to be used for naming files.
- 2.1.3.13. measures to be taken to ensure that there is no significant loss of drawing entities or data during drawing generation and data extraction.
- 2.1.3.14. areas in which laser scanning is to be conducted.
- 2.1.3.15. locations and folder/file structures where all working files will be located during the lifecycle of the project that will be accessible by all members of the BIM Team, including the owner. Coordination between the A/E, Contractor and Owner of the location, folders and files to be detailed prior to project design to ensure a seamless transfer of data and models throughout the project life cycle and for BIM Deliverables.
- 2.1.3.16. Agreed upon version of all software that will be utilized to create the models, drawings, etc. This shall include, but be limited to the following: AutoDESK REVIT, AutoDESK AutoCAD MEP, Navisworks and BIM 360.
- 2.1.4 Development of the BIM Execution Plan shall be included as an agenda item for all Project Team meetings throughout the Preconstruction (Design) Phase of the Project. As and when appropriate, the discussion items shall include, as a minimum;
 - 2.1.4.1. the status of the development of the BIM Execution Plan,
 - 2.1.4.2. the identification of any issues related to the timing for exchanging information between the various Building Models and the timing and the means and methods for entering information into the Project Information Matrix,
 - 2.1.4.3. the Level of Development of each of the Building Models,
 - 2.1.4.4. the Depth of Detail for information within the Building Models and to be entered into the Project Information Matrix.
- 2.1.5 Refinement and implementation of the BIM Execution Plan shall be included as an agenda item for all Project Team meetings throughout the Construction Phase of the Project. When and as appropriate, the discussion items shall include, as a minimum;
 - 2.1.5.1. the status of the refinement of, and any updates to, the BIM-FIM Execution Plan,
 - 2.1.5.2. the identification of any issues related to the timing for exchanging information between the various Building Models and the timing and the means and methods for entering information into the Project Information Matrix,
 - 2.1.5.3. the Level of Development of each of the Building Models,
 - 2.1.5.4. the Depth of Detail for information contained within the Building Models and for information to be entered into the Project Information Matrix,
 - 2.1.5.5. the status of the development and implementation of the CMMS Integration Process.

2.2 EXTRACTED DATABASE

- 2.2.1 Unless Owner specifically agrees otherwise, all data input into the model(s) or contract documents, shall be extracted from its various sources and delivered in a single Microsoft Access database. The contents of this database is NOT limited to those items contain within the PIM. Any other equipment installed within the course of the project that is not listed in the PIM is also required. Data elements with the database must reference to a specific, identified physical space utilizing the appropriate room number. Tier 2 Data elements must reference to an identified specific physical space with the project using the appropriate room number designation. Reference section 1.3.12 – Depth of Detail. This Extracted Database shall include:
 - 2.2.1.1 equipment data gathered during the course of design and construction that is related to

equipment listed in the PIM, but for which a data field does not exist within the PIM. This data may or may not physically reside with a table or schedule located within the drawings or specifications.

2.2.1.2 fixed equipment data gathered during the course of design and construction that is not associated with equipment listed in the PIM (e.g. manufacturer's maintenance information related to sinks, faucets, emergency showers, light fixtures, life safety items, etc.). This data may or may not physically reside with a table or schedule located within the drawings or specifications.

2.2.1.3 data related to all fixed architectural and finish features (e.g. manufacturers maintenance information related to doors, hardware, finishes, glazing, etc.). This data may or may not physically reside within a table or schedule located within the drawings or specifications.

2.2.1.4 all information that is contained within a schedule or table located within the drawings.

2.2.1.5 all information contained within a schedule or table within the specifications.

2.3 DOCUMENT INDEX

2.3.1 An index shall be included with each document delivery. The document index shall be in the form of a Microsoft Excel spreadsheet and shall identify every file included in the delivery. Identification information shall include;

2.3.1.1 Owner's project number.

2.3.1.2 Owner's project name.

2.3.1.3 File name.

2.3.1.4 File description.

2.3.1.5 Identity of the file authoring entity (i.e. who generated the file A/E, consultant, Contractor, Subcontractor).

2.3.1.6 Cross references to any required support files.

2.4 LASER SCANS

2.4.1 Unless Owner specifically directs or agrees otherwise, Contractor shall provide laser scans for the following types of spaces:

2.4.1.1 Operating rooms.

2.4.1.2 Intensive care units.

2.4.1.3 Imaging suites.

2.4.1.4 Mechanical equipment rooms.

2.4.1.5 Plenum, above ceiling spaces and walls through which significant mechanical, electrical, plumbing and/or information technology distribution systems are routed.

2.4.1.6 Spaces and areas located above hard finished ceilings.

2.4.2 Laser scans shall be completed for ceilings, walls and plenums before final cover-up begins.

2.4.3 Laser scan deliverables shall be in the form of three-dimensional models or two-dimensional drawings as set forth below in the BIM-FIM Deliverables section of this document and the final point cloud file generated by the laser scan used to create the models or drawings.

2.4.3.1 Documentation of what scanning hardware and software was used shall be part of the Laser Scan deliverables.

2.5 BIM-FIM DELIVERABLES

2.5.1 The BIM-FIM deliverables shall be set forth in the BIM Execution Plan and are based upon this Project

requirements. All files delivered in portable document file (pdf) format shall be searchable (i.e. “smart” or “vector” pdf’s). Unless Owner expressly agrees otherwise the deliverables for each Project type shall be as follows:

2.5.1.1 Project Deliverables

2.5.1.1.1 BIM Execution Plan

2.5.1.1.2 Project InformationMatrix

2.5.1.1.3 Final Model(s) – in the version of Autodesk REVIT agreed upon in the BEP. The Final Model may be either the Design Model, the Construction Model or a combination of elements and information from both depending on the contract language and method of project delivery. Federated REVIT Models shall be pathed and configured in such a manner that they are usable without significant re-pathing. Reference section 1.3.1.

2.5.1.1.3.a All BIM Team members (Architect(s), Engineer(s), Consultant(s), Contractor and Subcontractor(s)) shall utilize REVIT to generate all as-constructed Final models.

2.5.1.1.3.b Tier I and Tier II construction and data elements shall be incorporated within the model structure as specified in the BIM Execution Plan section 2.1.4.4 – Depth of Detail, from which the Contractor shall extract the data and place it into a comprehensive external database and into the PIM.

2.5.1.1.3.c Contractor shall maximize the use of REVIT Spaces and Zones within the models. Each item that is placed within the model will be linked to a Space and/or Zone.

2.5.1.1.3.d ALL Mechanical, Electrical, Plumbing, Security, Telecommunications and all other items or equipment that are part of a System will be linked to both the Space it is located within and the Zone (groups of Spaces and/or Zones) that are served by said items orequipment.

2.5.1.1.3.d.1 Systems and their related Zones and Spaces shall be scheduled within their respective models.

2.5.1.1.3.e As identified in the BIM Execution Plan section 2.1.4.4 – Depth of Detail, physical items that are documented in a table, schedule, list, external spreadsheet/database, submittal, RFI, ASI, etc. that pertain to final completion of the project will be represented within the model as a 3-D object with inherent parameters or as part of a property set, etc.

2.5.1.1.4 Design Model(s) – in the version of Autodesk REVIT agreed upon in the BEP. Reference section 1.3.13. Federated REVIT Models shall be pathed and configured in such a manner that they are usable without significant re-pathing. If the final design model is federated, ensure all models that were used to create the project are properly supplied and linked to the central model utilizing a generic path.

2.5.1.1.5 Construction Model(s) – in the version of Autodesk REVIT agreed upon in the BEP. Reference section 1.3.11. Federated REVIT Models shall be pathed and configured in such a manner that they are usable without significant re-pathing. If the final construction model is federated, ensure all models that were used to create the project are properly supplied and linked to the central model utilizing a generic path.

2.5.1.1.6 Coordination Model(s) - in the version of Autodesk Navisworks or GLUE as agreed upon in the BEP. Reference section 1.3.11.1. Final Coordination Models will have all Tier 1 data (CMMS equipment) submittals, operational data, etc., hyperlinked within the model to the appropriate information in a manner that will not result in non-functioning hyperlinks when the model is turned over the owner.

2.5.1.1.7 Extracted Database containing Tier 1 and Tier 2 data as defined in sections

1.3.12 and 2.2 as well as what is contained within the PIM.

- 2.5.1.1.8 Laser Scans - Laser Scans shall be delivered in 3-D REVIT models as well as the final Point Cloud file from which the model(s) were generated. Searchable PDF floor plans with scan locations identified and hyperlinked to each scan. PDF's shall be created in a manner hyperlinked that will not result in non-functioning hyperlinks when the model is turned over the owner. Reference section 2.4 for additional requirements.
- 2.5.1.1.9 Final Documents as specified in the Owners Design Guidelines and section 1.3.20.
- 2.5.1.1.10 Media Type and format - All models, drawings, submittals, RFI's, Spreadsheets, databases, and any other deliverable shall be provided to the Owner through the project management system, unless otherwise agreed upon by the owner prior to the start of design or construction.
 - 2.5.1.1.10.a If any project model file(s) exceed the allowable size limit for upload into the project management system, ALL model file(s) shall be delivered on a Windows 7 compatible USB 2.0 "Plug and Play" device, unless otherwise agreed upon by the owner prior to the start of design or construction.
 - 2.5.1.1.10.b All appropriate links, hyperlinks and all other required connections between models, data and documentation must be maintained or updated so that the information on the USB device or agreed upon alternative is complete and accessible.

EXHIBIT Q

EXECUTION OF OFFER

(From Construction Manager's Proposal. To be inserted prior to execution of this Agreement.)

EXHIBIT R

PRICING AND DELIVERY PROPOSAL

(From Construction Manager's Proposal. To be inserted prior to execution of this Agreement.)