

**AGREEMENT
BETWEEN OWNER AND PROJECT ARCHITECT/ENGINEER**

This Agreement is made as of _____, 20____ (the “Effective Date”)

By and between

The **Owner:** The University of Texas M. D. Anderson Cancer Center
 c/o Facilities Planning, Design and Construction
 6900 Fannin, Suite 1010
 Houston, Texas 77030

and **Project Architect/Engineer:**

for the following **Project:** Renovate Smith Research Building

Construction Services Delivery Method: Construction Manager at Risk

The Owner and the Project Architect/Engineer agree as follows:

This form of agreement is for Architectural/Engineering services on projects that use an Owner-Architect/Engineer-Contractor/Construction Manager delivery method (e.g. Competitive Sealed Proposal or Construction Manager at Risk). It has been prepared by the Office of General Counsel for the University of Texas System for use on M. D. Anderson Cancer Center projects and its legal terms should not be altered without the approval of the Office of General Counsel.

Use this form for all appropriate M. D. Anderson Cancer Center projects after July 25, 2018.

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Article 1 Project Architect/Engineer's Services and Responsibilities

Project Architect/Engineer ("Project A/E") shall provide the usual and customary Basic Services necessary and reasonably inferable to provide design services for each phase of the Project described in Paragraphs 1.2 through 1.6, below, along with any Additional Services requested by Owner.

1.1 Basic Services

1.1.1 Project A/E's Basic Services include all disciplines identified in Article 14 and all related usual and customary design, consultant, and other services necessary and reasonably inferable to complete the design for the Project, or any phase of the Project, in accordance with Owner's requirements and the terms of this Agreement.

1.1.2 The Pre-Design Document (see Article 2) shall describe the intended project scope and character along with the anticipated Project Milestone Schedule and the Preliminary Project Cost. Project A/E shall review and understand the requirements of the Pre-Design Document and perform its professional services so as to achieve those objectives.

1.1.3 The Construction Cost Limitation ("CCL") for this Project is specified in Article 14 and means the maximum amount that Owner is willing to pay for the construction of the Project. The CCL includes all costs for constructing the Project, and includes, without limitation, reasonable allowances for the Contractor's overhead, profit and general conditions costs, the cost of labor and materials furnished by the Contractor and any equipment which has been shown in the plans, specified, and specially provided for by Project A/E. The CCL does not include compensation to Project A/E and its consultants, Owner's Construction Contingency, Owner's Special Cash Allowance, the cost of the land, the cost of rights-of-way, or other costs which are the responsibility of Owner as provided in Article 2. Project A/E is responsible for managing the design of the Project so that the Construction Contract Sum does not exceed the CCL.

1.1.4 Owner may require Project A/E to provide services for the Project in multiple stages or parts identified as Construction Contract Stages ("CCS"). Each CCS shall have a unique Sub-Construction Cost Limitation ("SCCL"). Project A/E shall manage the design of each CCS so that its construction does not exceed the SCCL. Project A/E shall manage the design of the Project so that the sum of all SCCLs does not exceed the CCL.

1.1.5 Project A/E shall manage the design of the Project to achieve the objectives of scope and cost set forth in the Pre-Design Document through completion and acceptance of the Construction Documents. As part of its Basic Services, Project A/E shall advise Owner of any adjustments to the scope or quality of the Project necessary to comply with the CCL throughout the development of the design.

1.1.6 Project A/E shall submit the names of all consultants, persons, or firms, which Project A/E proposes to use in the execution of its services and shall provide Owner with a fully executed copy of each contract or agreement that Project A/E enters into with any consultant. Project A/E is responsible for coordinating the work of all of its consultants to assure that their services are appropriate for and adequately incorporated into the design of the Project. Owner reserves the right, in its sole discretion, to reject the employment by Project A/E of any consultant for the Project to which Owner has a reasonable objection. Project A/E, however, shall not be required to contract with any consultant to which it has a reasonable objection.

1.1.7 Project A/E shall pay for its consultants' services out of its fees. Owner is not responsible for any consultant fees or costs unless expressly agreed to in writing.

1.1.8 Project A/E agrees to allocate work to consultants that are historically underutilized businesses in accordance with Owner's Rider 104; Policy on Utilization of Historically Underutilized Businesses, a copy of which is included as an Exhibit hereto. No changes to the HUB Subcontracting Plan approved by Owner, a copy of which is included as an Exhibit hereto, may be made unless approved in writing by Owner. While this Agreement is in effect and until the expiration of one year after Final Completion, Owner may require information from Project A/E, and may conduct audits, to assure that the approved HUB Subcontracting Plan is followed.

1.1.9 Project A/E shall design the Project to incorporate current systems technology as appropriate to the stated mission of Owner and the programmed functional activities. The technology shall be compatible with any existing facility and acceptable to Owner.

1.1.10 Project A/E shall perform its services in accordance with the Owner's Design Guidelines, a listing of which is included as an Exhibit hereto.

1.1.11 Project A/E shall design the Project in accordance with the approved Campus Master Plan.

1.1.12 Basic design services shall include incorporation of the provisions of the Energy Conservation Design Standard for New State Buildings as administered by the State Energy Conservation Office, State Comptroller's Office of the State of Texas. Project A/E shall provide Owner with a Statement of Compliance and associated compliance documentation as required.

1.1.13 When required and as appropriate for the scope of the Project, Project A/E, as part of Basic Services, shall assist with and attend with Owner representatives an open meeting to be held pursuant to Section 2166.403(b) *Texas Government Code*, to verify the economic feasibility of incorporating alternative energy devices for space heating, cooling, water heating, electrical loads, and interior lighting into the building's design and proposed energy system. At a minimum, Project A/E shall provide an economic evaluation for the potential of renewable energy applications pursuant to the legislative requirements. Guidelines are available from the State Energy Conservation Office, State Comptroller's Office.

1.1.14 When appropriate for the scope of the Project, Basic Services shall include incorporation of the provisions of the Xeriscape Landscaping design requirements as adopted by the State of Texas Building & Procurement Division for Xeriscape landscaping, pursuant to Section 2166.404 *Texas Government Code*. Project A/E shall provide Site analysis and design to incorporate these provisions. A summary of the project requirements meeting these guidelines shall also be provided for the Design Development submittal package.

1.1.15 Project A/E, as part of Basic Services, shall engage a recognized and specialized construction cost estimating consultant acceptable to Owner to prepare detailed Estimated Construction Cost Reports of the Project in a form acceptable to Owner following the Construction Specifications Institute (CSI) format. Project A/E shall include updated and detailed Estimated Construction Cost Reports with the Drawings and Specifications submitted for review at completion of the Schematic Design phase and the Design Development phase and at the stages of completion of the Construction Documents required in Article 14. If the Estimated Construction Cost exceeds the Construction Cost Limitation at any time, Owner will determine, solely at Owner's discretion, whether to increase the Construction Cost Limitation, or to instruct Project A/E to proceed to the next stage of design with no increase in the Construction Cost Limitation, or to require Project A/E to revise, at no charge to Owner, the Project scope or quality to comply with the Construction Cost Limitation. Reductions in Project scope or quality shall be subject to Owner's review and approval. If the Estimated Construction Cost is below the Construction Cost Limitation at any time, Owner may determine, solely at Owner's discretion, whether to reduce the Construction Cost

Limitation, or to instruct Project A/E to proceed to the next stage of design with no decrease to the Construction Cost Limitation, or to require Project A/E to increase the Project scope or quality.

1.1.16 Project A/E shall submit documents to Owner for review at completion of the Schematic Design and Design Development phases and at the stages of completion of the Construction Documents as described in Article 14. Project A/E shall incorporate into the documents such corrections and amendments as Owner requests, unless Project A/E objects in writing and receives Owner's consent not to make the changes. Project A/E will be responsible for any damages incurred by Owner that are caused by Project A/E's failure to incorporate requested corrections and amendments to the documents.

1.1.17 Project A/E shall provide a review and comment form acceptable to Owner for Owner's use during document review. Owner will provide its review comments to Project A/E on the form and Project A/E shall provide a detailed written response to each of Owner's review comments indicating where and how they have been addressed in the design documents. At each required document submittal stage, Project A/E shall include the completed comment form from the preceding submittal along with a cover letter signed by a firm principal affirming that the previous review comments have been fully addressed in the current submittal. Failure to respond to the previous comments or to provide the written affirmation may result in reduction or rejection of Project A/E's then current Statement for Architectural/Engineering Services Rendered. Owner's approval of the revised drawing shall not be deemed to be an approval of any unlisted changes, and any costs or expense for any additional services subsequently incurred for such unlisted changes shall be borne or reimbursed by Project A/E.

1.1.18 Project A/E, as part of Basic Services, shall become sufficiently familiar with the existing facilities, systems and conditions at the Project location so that the proposed Project will completely and properly interface functionally with them.

1.1.19 Project A/E agrees and acknowledges that Owner is entering into this Agreement in reliance on Project A/E's represented professional abilities with respect to performing Project A/E's services, duties, and obligations under this Agreement. Project A/E shall perform its services (i) with the professional skill and care ordinarily provided by competent architects/engineers practicing in the same or similar locality and under the same or similar circumstances and professional license; and (ii) as expeditiously as is prudent considering the ordinary professional skill and care of a competent architect/engineer; and (iii) in compliance with all applicable, federal, State of Texas and municipal regulations, codes, ordinances, orders and with those of any other body having jurisdiction. There are no obligations, commitments, or impediments of any kind known to the Project A/E that will limit or prevent performance by Project A/E of its services. Project A/E hereby agrees to correct, at its own cost, any of its services, and the services of its consultants, that do not meet the standard of care.

1.1.20 Project A/E shall take reasonable precautions to verify the accuracy and suitability of any drawings, plans, sketches, instructions, information, requirements, procedures, requests for action, and other data supplied to Project A/E (by Owner or any other party) that Project A/E uses for the Project. Project A/E shall identify to Owner in writing any such documents or data which, in Project A/E's professional opinion, are unsuitable, improper, or inaccurate in connection with the purposes for which such documents or data are furnished. Owner does not warrant for the accuracy or suitability of such documents or data as are furnished unless Project A/E advises Owner in writing that in Project A/E's professional opinion such documents or data are unsuitable, improper, or inaccurate and Owner confirms in writing that it wishes Project A/E to proceed in accordance with the documents or data as originally given.

1.1.21 Project A/E's services shall be reasonably accurate and free from any material errors or omissions. Neither acceptance nor approval of Project A/E's services by Owner shall relieve Project A/E of any of its professional duties or release it from any liability, it being understood that Owner is, at all times, relying upon Project A/E for its skill and knowledge in performing Project A/E's services. Owner shall have the right to reject any of Project A/E's services because of any fault or defect in the Project due to any material errors or omissions in the Drawings, Specifications, and other materials prepared by Project A/E or its consultants. Upon notice of any such errors or omissions, Project A/E shall promptly provide any and all services necessary to correct or remedy them at no additional cost to Owner. Project A/E's obligation to correct its errors and omissions is in addition to, and not in substitution for, any other remedy for defective services which Owner may have at law, in equity, or both.

1.1.22 Project A/E shall not proceed to any phase of design not expressly authorized by Owner, except at Project A/E's own financial risk.

1.1.23 Project A/E agrees to furnish efficient business administration and superintendence and to use Project A/E's best efforts to design the Project in an expeditious and economical manner consistent with the interest of Owner and Project A/E's professional skill and care.

1.1.24 Project A/E shall allocate adequate time, personnel and resources as necessary to perform its services. Project A/E's senior principal(s) responsible for managing the Project is (are) identified in an Exhibit attached hereto and shall not be changed without the prior approval of Owner. The day-to-day Project team will be led by the senior principal(s) unless otherwise directed by Owner or prevented by factors beyond the control of Project A/E. The senior principal(s) shall act on behalf of Project A/E with respect to all phases of Project A/E's services and shall be available as required for the benefit of the Project and Owner.

1.1.25 Project A/E shall make reasonable efforts to investigate any documents provided by Owner and the visible existing conditions at the Project Site to identify existing systems and construction which must be modified to accommodate Project A/E's design for the Project and the construction of the Project. Project A/E shall identify to Owner any discrepancies between the documents and visible conditions, and shall consult with Owner on any special measures, services or further investigations required for Project A/E to perform its services free from material errors and omissions and to properly coordinate with existing systems and construction. This investigation shall be accomplished by registered, professional architects and engineers, as appropriate.

1.1.26 Project A/E, when requested by Owner, shall coordinate the purchase of additional reprographic materials for procurement purposes or when additional review sets, in excess of those required by Article 1.4 are required by Owner. Project A/E shall present a Tax Exemption Certificate to the vendor and coordinate Owner's requirements for type, quantity and invoice billing. When so requested by Owner, Project A/E will account to Owner for all additional materials ordered by Owner through Project A/E as Owner's agent and shall distinguish between those materials ordered on behalf of Owner without sales tax and any other copies thereof that Project A/E, or others, may order and pay for which includes sales tax, on its own or their behalf. Project A/E shall forward to Owner the original vendor's invoice for materials purchased by Owner and delivered to Project A/E as Owner's agent.

1.1.27 If the Project is subject to Texas Commission on Environmental Quality (TCEQ) regulations, Project A/E shall coordinate all related design efforts, including the civil engineer and landscape architect, so that consideration of site design and Best Management Practices ("BMP's") are integrated.

1.1.28 Insurance Coverage. Project A/E shall carry professional liability/errors and omissions insurance, covering the services provided under this Agreement and other coverages as required below with companies authorized to do business in the State of Texas or an eligible surplus lines insurer operating in accordance with the Texas Insurance Code, having an A.M. Best Rating of A-:VII or better, and in amounts as further described, acceptable to and approved by the Owner. The costs of such insurance will be at the expense of the Project A/E. The insurance policy shall remain in force for a period of two (2) years beyond the Final Completion Date. Each request for payment by Project A/E shall include the expiration date of the insurance. Project A/E shall deliver to Owner replacement certificates not less than thirty (30) days after the expiration of any such insurance.

- a) Professional Liability (Errors & Omissions) Insurance with limits of not less than \$1,000,000 each occurrence, \$2,000,000 aggregate. Such insurance shall cover all professional services rendered by or on behalf of the Project Architect and its consultants under the Agreement. Renewal policies written on Claims-Made basis will maintain the same retroactive date as is in effect at the inception of this Agreement. If coverage is written on a claims-made basis, Project Architect agrees to purchase an Extended Reporting Period Endorsement, effective for two (2) full years after the expiration or cancellation of this policy. No professional liability policy written on an occurrence form will include a sunset or similar clause that limits coverage unless such clause provides coverage for at least two years after the expiration of cancellation of this policy.
- b) On Site Insurance: For services performed on Owner's premises, Project A/E shall furnish to Owner Certificates of Insurance ("COIs") as set forth below prior to the commencement of any work hereunder and shall maintain such coverage during the full term of the Agreement.

Worker's Compensation	Statutory Limits
Employer's Liability	
Bodily Injury by Accident	\$1,000,000 each accident
Bodily Injury by Disease	\$1,000,000 policy limit
Bodily Injury by Disease	\$1,000,000 each employee
Commercial General Liability	\$1,000,000 each occurrence
	\$2,000,000 aggregate
Business Auto Liability	
Combined Single Limit	\$1,000,000 each occurrence

- c) Notice of Cancellation: Required insurance shall not be cancelable without thirty (30) days' prior written notice to Owner.

1.1.29 Evidence of insurance on a Texas Department of Insurance approved certificate form verifying the existence of all insurance after the execution and delivery of this Agreement and prior to the performance of any services by Project A/E under this Agreement. Additional evidence of insurance will be provided on a Texas Department of Insurance approved certificate form verifying the continued existence of all required insurance no later than 30 days after each annual insurance policy renewal. All insurance policies, with the exception of worker's compensation, employer's liability and professional liability will be endorsed and name The Board of Regents of The University of Texas System, The University of Texas System and Owner as Additional Insured for activities arising out of this Agreement on an ISO (CG 20 10 0704) or equivalent form. Workers compensation insurance policies will be endorsed

to provide a waiver of subrogation in favor of The Board of Regents of The University of Texas System, The University of Texas System and Owner. Commercial General Liability and Business Auto Liability insurance policies will be endorsed to provide primary and non-contributory coverage.

1.1.30 Project A/E is responsible for any self-insured retentions, or deductibles that apply to any policy limit required herein.

1.1.31 Certificates of Insurance. Approved Texas Department of Insurance certificates will be mailed, faxed, or emailed to the following Owner's contact.

1.1.32 The insurance policies required in this Agreement will be kept in force for the periods a) specified below:

- a) Required coverages will be kept in force until receipt of Final Payment to Project Architect by Owner;
- b) Workers' Compensation Insurance and Employer's Liability insurance will be kept in force until the services have been fully rendered and accepted by Owner in writing.

1.2 Schematic Design Phase

1.2.1 Based on the mutually agreed upon Pre-Design Document, the Construction Cost Limitation and the Project Milestone Schedule, Project A/E shall prepare sufficient alternative approaches to design the construction of the Project to satisfy Owner's requirements and shall, at completion of this phase, submit Schematic Design Documents in accordance with Owner's Design Guidelines, Owner's Master Construction Specifications, and any additional requirements set forth in Article 14.

1.2.2 Project A/E shall provide all services necessary to perform the services of this Phase (preparation of Schematic Design documents) including, without limitation, unless otherwise approved by Owner, the preparation and prompt delivery of all items specified in Owner's Design Guidelines.

1.2.3 Project A/E shall work closely with Owner in preparation of schematic drawings and shall specifically conform to Owner's requirements regarding aesthetic design issues.

1.2.4 Project A/E shall furnish and deliver to Owner the number of complete printed sets of Schematic Design documents as enumerated in Article 14.

1.2.5 Project A/E shall direct the preparation of a detailed Estimated Construction Cost Report as described in sub-paragraph 1.1.15 to confirm compliance with the Construction Cost Limitation and include the detailed Estimated Construction Cost Report with the completed Schematic Design Documents. Project A/E shall advise Owner of any adjustments to the project scope necessary to align the Estimated Construction Cost with the Construction Cost Limitation and shall revise the Schematic Design documents, without charge to Owner, as may be required to comply with the Construction Cost Limitation. Owner may, solely at Owner's discretion and in writing, increase or decrease the Construction Cost Limitation to align with Project A/E's detailed Estimated Construction Cost.

1.2.6 Before proceeding into the Design Development Phase, Project A/E shall obtain Owner's written acceptance of the Schematic Design documents and acknowledgement of Project A/E's submission of the detailed Estimated Construction Cost and updated Project Milestone Schedule. Owner's acknowledgement of Project A/E's submission of the detailed Estimated Construction Cost Report prepared

at the Schematic Design Phase does not relieve Project A/E of its obligation to design the Project within the Construction Cost Limitation.

1.3 Design Development Phase

1.3.1 Based on the approved Schematic Design documents and any adjustments to the Pre-Design Document or Construction Cost Limitation authorized by Owner, Project A/E shall prepare, for approval by Owner, Design Development documents in accordance with Owner's written requirements to further define and finalize the size and character of the Project in accordance with Owner's Design Guidelines, Owner's Master Construction Specifications, and any additional requirements set forth in Article 14.

1.3.2 Project A/E shall furnish and deliver to Owner the number of complete printed sets of Design Development documents as enumerated in Article 14.

1.3.3 Project A/E shall direct the preparation of a detailed Estimated Construction Cost Report as described in sub-paragraph 1.1.15 to confirm compliance with the Construction Cost Limitation and include the detailed Estimated Construction Cost Report with the completed Design Development documents. Project A/E shall advise Owner of any adjustments to the project scope necessary to align the Estimated Construction Cost with the Construction Cost Limitation and shall revise the Design Development documents, without charge to Owner, as may be required to comply with the Construction Cost Limitation. Owner may, solely at Owner's discretion and in writing, increase or decrease the Construction Cost Limitation to align with Project A/E's detailed Estimated Construction Cost.

1.3.4 Before proceeding into the Construction Document Phase, Project A/E shall obtain Owner's written acceptance of the Design Development documents and acknowledgement of Project A/E's submission of a detailed Estimated Construction Cost Report and updated Project Milestone Schedule. Owner's acknowledgement of Project A/E's submission of a detailed Estimated Construction Cost Report prepared at the Design Development Phase does not relieve Project A/E of its obligation to design the Project within the Construction Cost Limitation.

1.3.5 When so requested by Owner, Project A/E shall prepare presentation materials as defined in Owner's Design Guidelines at completion of Design Development and, if so requested, shall present same to the Board of Regents at a regular meeting where scheduled within the State of Texas.

1.3.6 Project A/E shall prepare preliminary recommended furniture layouts for all spaces where it is deemed important to substantiate the fulfillment of program space requirements, or to coordinate with specific architectural, mechanical or electrical elements.

1.3.7 Project A/E shall assist Owner with submitting the project to the Texas Higher Education Coordinating Board ("THECB"). Such assistance shall include (i) the preparation of a listing of the rooms, room type and usage codes, and square footages in the project, and (ii) the preparation of project cost information, in accordance with THECB Guidelines. This information shall be provided at the completion of the Design Development Phase when requested by Owner. The listing of rooms, room type and usage codes, and square footages shall then be updated to reflect any changes occurring during construction and provided to Owner at Substantial Completion.

1.4 Construction Document Phase

1.4.1 Based on the approved Design Development documents and any further adjustments in the scope or quality of the Project or in the Construction Cost Limitation authorized by Owner, Project A/E

shall prepare, for approval by Owner, Construction Documents consisting of Drawings and Specifications, in accordance with Owner's written requirements, setting forth in detail the requirements for construction of the Project, including, without limitation, Owner's Design Guidelines, Owner's Master Construction Specifications and any additional requirements contained in Article 14. The Drawings and Specifications for the entire Project shall be prepared so that the construction of the Project will cost no more than the Construction Cost Limitation established by Owner. Project A/E is responsible for managing the design to stay within the Construction Cost Limitation.

1.4.2 Project A/E shall advise Owner on matters such as construction phasing and scheduling, the inclusion of alternate scopes of work, special cash allowance items, liquidated damages, the Construction Contract Time, and other construction issues appropriate for the Project.

1.4.3 Project A/E shall assist Owner in connection with Owner's responsibility and procedures for obtaining approval of all authorities having jurisdiction over the Project.

1.4.4 Project A/E shall ensure coordination and inclusion of sequence of operations for all operable systems in the Project.

1.4.5 Project A/E, at Project A/E's expense, at each stage of review described in Article 14, shall furnish and deliver to Owner the number of complete printed copies of all Drawings and Specifications of every character made or furnished in connection with defining the scope of the Work, as enumerated in Article 14, which copies shall become the property of Owner. Project A/E shall incorporate into the Drawings and Specifications such changes as are necessary to satisfy Owner's written review comments or published meeting minutes, any of which may be appealed in writing for good cause.

1.4.6 Project A/E shall pay for the reproduction of all Drawings, Specifications and other documents for use by Project A/E and its consultants and all documents reproduced for the various completion stage reviews (as set forth in Article 14) by Owner prior to the reproduction of Construction Documents. All other reproduction costs shall be borne by Owner, provided that all invoices for such reproduction work are billed directly to Owner, free of state sales taxes, and identified by Project A/E as to the Owner's project name and project number. However, addenda documents issued after the Construction Documents are reproduced, except for changes generated by Owner, shall be supplied at Project A/E's expense.

1.4.7 Project A/E shall direct the preparation of a detailed Estimated Construction Cost Report as described in sub-paragraph 1.1.15 to confirm compliance with the Construction Cost Limitation and include the detailed Estimated Construction Cost Report with the completed Construction Documents. Project A/E shall advise Owner of any adjustments to the project scope necessary to align the Estimated Construction Cost with the Construction Cost Limitation and shall revise the Construction Documents, without charge to Owner, as may be required to comply with the Construction Cost Limitation. Owner may, solely at Owner's discretion and in writing, increase or decrease the Construction Cost Limitation to align with Project A/E's detailed Estimated Construction Cost.

1.4.8 Construction Document drawings shall be produced with computer aided design software as part of Basic Services. Owner will define the design software requirements and the final media for the data.

1.4.9 Project A/E shall participate in a final review of the Construction Documents with Owner at the Project location or other location specified by Owner in the State of Texas. Prior to Owner's approval of the Construction Documents, Project A/E shall incorporate such changes as are necessary to satisfy Owner's review comments.

1.4.10 Before proceeding into the Construction Services Procurement Phase, Project A/E shall obtain Owner's written acceptance of the Construction Documents and acknowledgement of Project A/E's submission of a detailed Estimated Construction Cost Report and Project Milestone Schedule. Owner's acknowledgement of Project A/E's submission of a detailed Estimated Construction Cost Report prepared at the Construction Document Phase does not relieve Project A/E of its duty to design the Project within the Construction Cost Limitation.

1.5 Construction Services Procurement Phase

1.5.1 Project A/E shall assist Owner in obtaining and evaluating bids or proposals, and assist in awarding contracts for construction services including preparation for and attendance at Pre-Submittal Conferences and HUB meetings. Project A/E shall answer inquiries from prospective respondents to requests for bids or proposals, at Owner's request, and shall prepare and issue any necessary addenda to the Construction Documents. Project A/E shall maintain a register of procurement documents, arrange for the distribution of documents to prospective respondents, and plan rooms, and, when so requested by Owner, obtain and administer deposits.

1.5.2 For solicitations based upon competitive sealed bidding, Project A/E shall review and inquire about the responsibility of apparent low bidders and inform Owner in writing of Project A/E's findings and recommendations. For solicitations based upon competitive sealed proposals, Project A/E shall review and inquire about qualifications and other pertinent proposal information and inform Owner in writing of Project A/E's findings and recommendations.

1.5.3 In the event the best value proposal or lowest responsible bid received for the Project exceeds the Construction Cost Limitation following the completion of the Construction Document Phase, Project A/E, without charge to Owner, and if so directed by Owner, shall revise the Construction Documents as necessary to bring the cost of the Project within the Construction Cost Limitation. Owner reserves the right to accept a proposal or bid and award a construction contract that exceeds the Construction Cost Limitation, if such award is determined by Owner to be in Owner's best interest.

1.6 Construction Phase—Administration of the Construction Contract

1.6.1 The Construction Phase shall commence with the award of the Construction Contract, either the "Agreement Between Owner and Contractor" or the "Agreement Between Owner and Construction Manager-at-Risk", and issuance of (i) a Notice to Commence On-Site Work or (ii) a Notice to Proceed with Construction Services and terminate sixty (60) days after Final Payment to the Contractor is made, or when all of Project A/E's services have been satisfactorily performed, whichever occurs later.

1.6.2 Project A/E shall administer the Construction Contract for the Project as set forth below and in the edition of Owner's Design Guidelines current as of the date of this Agreement.

- a) Project A/E shall coordinate with the Construction Manager to establish and maintain a numbering and tracking system for all Project records, including changes, Requests for Information, Submittals, and Project A/E's supplementary instructions.
- b) Project A/E shall chair all meetings scheduled by Owner or Project A/E and shall promptly provide summary notes to all parties. Project A/E shall attend the Contractor's regularly scheduled planning meetings when requested.

1.6.3 Project A/E shall review the Contractor's list of proposed subcontractors for the work, initial administrative submittals for the Baseline Schedule, Schedule of Values, Submittal Register, and Equipment

Matrix to establish appropriate bases for construction monitoring, payment processing, and system commissioning. Project A/E shall identify necessary revisions to the documents in writing to the Contractor and recommend acceptance of the documents by Owner when appropriate. Project A/E shall review periodic updates of all schedules with Owner and Contractor to evaluate appropriateness.

1.6.4 Project A/E and its consultants shall prepare appropriate materials for and conduct a Pre-Construction Conference at the Site prior to commencement of construction by the Contractor.

1.6.5 Project A/E shall be a representative of Owner during the Construction Phase, and shall advise and consult with Owner. Instructions to the Contractor shall be forwarded through Project A/E and all communication by and with Project A/E's consultants shall be through Project A/E except that Owner reserves the right to communicate directly with the Contractor and consultants as Owner deems necessary or appropriate at any time. Project A/E shall have authority to act on behalf of Owner to the extent provided in this Agreement and as supplemented by the Construction Contract Documents. Duties, responsibilities and limitations of authority of Project A/E shall not be restricted, modified or extended without written acceptance of Owner.

1.6.6 Project A/E shall visit the Site at least once each week during the entire construction period to observe the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Construction Contract Documents. Each of Project A/E's consultants shall visit the Site at least once each week during construction activities related to the consultant's discipline to observe the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Construction Contract Documents. Project A/E and its consultants shall submit written reports of their Site visits and meetings. Project A/E shall not be required to make exhaustive or continuous onsite visits to inspect the quality or quantity of the Work.

- a) On the basis of the onsite observations, Project A/E shall keep Owner informed of the progress and quality of the Work, and shall endeavor to guard Owner against defects and deficiencies in the Work. Project A/E shall notify Owner and Contractor in writing of any portions of the Work which Project A/E has observed as not being in conformity with the Construction Contract Documents and make recommendations as to correction of the deficiencies or defects. Project A/E shall make its Site representative available and shall consult with Owner and Contractor on the occasion of all circumstances arising during the course of construction which would make such consultation in Owner's interests.
- b) In addition to Site visits for general inspection and observation, Project A/E and its consultants shall visit the Site for specific purposes related to certification of progress payments, start-up or mock-up reviews for significant work activities and for formal inspections of the Work. Project A/E and its consultants shall provide written reports of all Site visits to Owner and Contractor.

1.6.7 Project A/E shall prepare an agenda for, and conduct monthly job conferences for attendance by representatives of Contractor, Subcontractors, Project A/E and Owner, and prepare and distribute minutes of the meetings.

1.6.8 Project A/E shall not have control over, be in charge of, or be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, for the acts or omissions of the Contractor, Subcontractors or any other persons performing any of the Work, or for the failure of any of them to carry out the Work in accordance with the Construction Contract Documents.

1.6.9 Project A/E shall at all times have access to the Work wherever it is in preparation or progress.

1.6.10 Project A/E shall determine the amounts owing to Contractor based on observations of Work placed at the Site and on evaluations of the Contractor's Application for Payment, and shall coordinate its review and evaluation with Owner's representatives, and shall certify Contractor's Application for Payment in an appropriate amount.

1.6.11 The certification of Contractor's Application for Payment shall constitute a representation by Project A/E to Owner, based on Project A/E's observations at the Site and on the data comprising the Contractor's Application for Payment, that the Work has progressed to the point indicated; that, to the best of Project A/E's knowledge, information and belief, the quality of the Work is in accordance with the Construction Contract Documents (subject to an evaluation of the Work for conformance with the Construction Contract Documents upon Substantial Completion, to the results of any subsequent tests required by or performed under the Construction Contract Documents, to minor deviations from the Construction Contract Documents correctable prior to completion, and to any specific qualifications stated in the Contractor's Application for Payment); and that Contractor is entitled to payment in the amount certified. However, the approval of Contractor's Application for Payment shall not be a representation that Project A/E has made any examination to ascertain how and for what purpose the Contractor has used the monies paid on account of the Construction Contract.

1.6.12 Project A/E shall be the interpreter of the technical requirements of the Construction Contract Documents and the judge of the performance of the Work of the Contractor. Project A/E shall render interpretations necessary for the proper execution or progress of the Work with reasonable promptness on written request of either Owner or the Contractor, and shall render written recommendations within a reasonable time, on all claims, disputes and other matters in question between Owner and the Contractor relating to the execution or progress of the Work or the interpretation of the Construction Contract Documents.

1.6.13 Interpretations and recommendations of Project A/E shall be consistent with the intent of and reasonably inferable from the Construction Contract Documents and shall be in written or graphic form.

1.6.14 Subject to approval of Owner, Project A/E's decisions in matters relating to artistic effect shall be final if consistent with and reasonably inferable from the intent of the Construction Contract Documents. Project A/E shall review interior designs, furniture selections or both proposed by Owner and advise Owner on their aesthetic compatibility with Project A/E's design.

1.6.15 Project A/E shall have the responsibility and the authority, with appropriate notification to the parties, to reject Work which does not conform to the Construction Contract Documents. Whenever, in Project A/E's reasonable opinion, it is necessary or advisable for the implementation of the intent of the Construction Contract Documents, Project A/E will have authority to require special inspection or testing of the Work in accordance with the provisions of the Construction Contract Documents, whether or not such Work will then be fabricated, installed or completed. Project A/E shall review construction materials testing and any special testing required and shall provide recommendations for retesting, actions, or any appropriate corrective measures as may be necessary or appropriate based on the results of such tests.

1.6.16 Project A/E and its consultants shall review and approve or take other appropriate action upon the Contractor's Submittals, such as Shop Drawings, product data and Samples, but only for conformance with the design concept of the Work set forth in the Construction Contract Documents, and shall respond to the Contractor's inquiries and questions and provide supplemental information as appropriate. Action on Submittals shall be taken with reasonable promptness so as to cause no delay to the Contractor's scheduled progress, but in any event no more than fourteen (14) Days after receipt. Project A/E's approval

of a specific item shall not indicate approval of an assembly of which the item is a component. Project A/E's review shall not constitute approval of any construction means or methods.

1.6.17 Project A/E shall clarify and interpret the intent and scope of the Construction Documents and, if necessary or appropriate, issue supplemental documents to amplify or explain portions of the Construction Documents.

1.6.18 Project A/E shall provide assistance in the review of the Contractor's requests for change orders or claims for additional time or costs, and make recommendations to Owner as to such requests or claims.

1.6.19 Unless Owner expressly directs otherwise, Project A/E shall prepare and sign Change Orders for Owner's approval and execution in accordance with the Construction Contract Documents, and shall have authority to order minor changes in the Work not involving an adjustment in the Construction Contract Sum or an extension of the Construction Contract Time which are not inconsistent with the intent of the Construction Contract Documents. In conjunction with each Change Order, Project A/E shall prepare an independent cost and time estimate for comparison with the Contractor's proposal and recommend to Owner whether the proposal is acceptable.

1.6.20 Project A/E shall prepare Proposed Change Order(s) and revise Construction Contract Documents, when appropriate, to illustrate and document the work required by approved Change Orders, addenda, Project A/E's supplemental instructions, and any other alterations to the Construction Contract Documents generated by Project A/E or Owner. All proposed changes to Drawings and Specifications, regardless of how initiated, shall be totally defined in the document depicting them as to scope of work added, removed, or changed. The original Construction Documents may be revised to show such changes, provided that all such revisions shall be separately recorded on media acceptable to Owner, including, without limitation, Owner's design software. Such revisions shall be clearly indicated and a current revision date shall be included on the document. Changes to the Specifications shall be made by consecutively numbered and dated addenda. All changes to Drawings and Specifications will be identified with date of change, revision number and other customary identification references. Areas changed on Drawings will be "clouded" to show each change. Clouds designating previous changes will be removed so that only the most recent changes will be clouded. Project A/E shall submit revised Construction Documents per Owner's native software and in Adobe PDF format and per Owner's close-out procedures.

1.6.21 Project A/E and its consultants shall conduct and participate in concealed space observations, systems start-up observations, systems integration/operational demonstrations, Substantial Completion or pre-final work observations to determine the dates of Substantial Completion, and Final Completion. In association with each observation, Project A/E and its consultants shall prepare a list of items which Project A/E and its consultants have observed as deficiencies in the Work, requiring remedial work or replacement, assemble and distribute the official Open Item List(s) and Punch List(s) to all affected parties, and thereafter review the corrected and/or replaced work and assist in verification of correction of all items.

1.6.22 Project A/E shall review, for conformance with the Construction Contract Documents, Contractor's submission of guarantees and warranties.

1.6.23 Project A/E and its consultants shall assist Owner in checking Record Documents during the course of the Work in association with certifying Applications for Payments and shall review Record Drawings and Specifications for completeness and compliance with Construction Contract requirements at Substantial Completion and at Final Completion of the Project.

1.6.24 Project A/E shall receive and review Contractor's submission of Record Documents and Close-out Documents furnished by the Contractor, shall require necessary revisions to same, and when acceptable under the terms of the Construction Contract, shall forward to Owner. Project A/E shall execute the Certificate of Final Completion and certify Final Payment to the Contractor when the requirements of the Construction Contract have been met.

1.6.25 Project A/E shall monitor the Contractor's Work Progress Schedule for the construction phase work and assist Owner in reviewing all relevant activities and advise Owner of the Contractor's scheduled progress.

1.6.26 Project A/E shall provide assistance to Owner for the purpose of advising and counseling Owner's personnel in the usage, operation and maintenance of the building mechanical, electrical, and plumbing systems.

1.6.27 Project A/E shall be available after Final Payment to advise Owner regarding warranty items and to inspect warranty work during the Warranty Period. Project A/E shall participate in the Project's one-year warranty review.

1.7 Additional Services

1.7.1 Additional Services are those services which shall be provided if authorized and confirmed in writing by Owner and for which compensation will be provided as described in this Agreement in addition to compensation for Basic Services. Prior to commencing any Additional Services, Project A/E shall prepare for acceptance by Owner an Additional Services Proposal, in the form attached hereto as an Exhibit, or other format as directed by Owner, which shall describe in detail the nature or scope of the Additional Services, the basis upon which Project A/E has determined that such services are Additional Services, and which shall set forth the proposed fee and Reimbursable Expenses for which Project A/E is prepared to perform such Additional Services, together with a proposed schedule for the performances of such Additional Service. Those services which Owner contemplates to be provided as Additional Services or considers to be Additional Services are described in Article 14. Project A/E shall proceed with rendering Additional Services only after receiving Owner's written acceptance of the Additional Services Proposal.

1.7.2 Upon acceptance by Owner, each Additional Services Proposal and the services performed by Project A/E pursuant to such Additional Services Proposal shall become part of this Agreement and shall be subject to all terms and conditions of this Agreement, as fully and completely as though the same had been included in this Agreement as a Basic Service at the original execution of this Agreement.

1.7.3 Providing services to make detailed investigations of existing conditions or facilities or to make measured drawings of them is an Additional Service except as reasonably necessary to verify the accuracy and completeness of drawings or other information furnished by Owner and to the extent necessary for Project A/E to complete its responsibilities hereunder free of material errors and omissions. Project A/E shall not be required to perform any destructive testing or to hire the services of a surveyor unless agreed to as an Additional Service.

1.8 Time

1.8.1 Project A/E shall perform all of Project A/E's services described herein as expeditiously as is consistent with (1) Project A/E's best professional efforts, skill and care, (2) the orderly progress of such services, and (3) in conformance with the Project Milestone Schedules so that the desired development and construction schedule for the Project shall be maintained. Project A/E shall at all times provide

sufficient personnel to accomplish Project A/E's services within the time limits set forth in the schedules described herein.

1.8.2 The Project Milestone Schedule, attached hereto as an Exhibit, identifies the schedule for completion of each of the phases of services to be performed by Project A/E pursuant to this Agreement. The Project Milestone Schedule includes dates previously provided in the Request for Qualifications but subject to modifications made by Owner to reflect current conditions. Supplemental activities shown on the Project Milestone Schedule, and any associated dates not yet defined, shall be determined at the completion of the Pre-design Phase or at such time when both parties mutually agree that the Project is sufficiently developed and documented. Changes in this Project Milestone Schedule may be made only with the written approval of Owner. Project A/E shall perform all of its services in accordance with the then-current Project Milestone Schedule approved by Owner.

1.8.3 Project A/E shall prepare and submit on a monthly basis an updated design milestone schedule that is acceptable to Owner prior to submission of the Project A/E's Statement for Architectural/Engineering Services Rendered, in conformance with the design Project Milestone Schedule, so that the desired design schedule for the Project is maintained by Project A/E.

Article 2 Owner's Responsibilities

2.1 Owner has prepared a pre-design phase summary document ("Pre-design Phase Document" in the form of either a "Facility Program" or a "Pre-Design Report"), which is attached hereto as an Exhibit, or Owner and Project A/E may agree that Project A/E shall prepare the Pre-design Phase Document as an Additional Service as set forth in Article 14 of this Agreement. The Pre-design Phase Document will set forth Owner's description of the project scope, preliminary project cost, schedule, criteria for design objectives, characteristics and constraints, space requirements and relationships, site requirements, information related to existing facilities, and desired special components, systems and equipment. If Project A/E prepares the Pre-design Phase Document, then Owner will review the Pre-design Phase Document when completed and then determine whether to proceed with the Project and authorize commencement of Basic Services. Owner reserves the right to terminate the Agreement following completion of the Pre-design Phase, and shall have no further obligation to Project A/E other than payment for services authorized by Owner and provided by Project A/E prior to such termination in accordance with the terms and conditions of this Agreement.

2.2 Owner will provide a preliminary project budget and schedule for the Project. The budget will include the Construction Cost Limitation, Owner's Special Cash Allowance, Owner's Construction Contingency, and other costs which are the responsibility of Owner. The Project Milestone Schedule attached hereto as an Exhibit, sets forth Owner's plan for milestone dates and completion of the Project.

2.3 Owner designates its Executive Director of Facilities Planning, Design and Construction as its representative authorized to act in Owner's behalf with respect to the Project. Owner's authorized representative, or her or his delegate, shall examine the documents submitted by Project A/E and shall render decisions pertaining thereto promptly, to avoid unreasonable delay in the progress of Project A/E's services. The Executive Director of Facilities Planning, Design and Construction is also designated as Owner's representative for the purpose of administering this Agreement, including determination of fees earned by Project A/E and equitable back charges against Project A/E. Owner shall have the right to withhold from payments due Project A/E such sums as Owner deems reasonably necessary to protect Owner against any loss or damage which may result from negligence by Project A/E or failure of Project A/E to perform Project A/E's obligations under this Agreement pending final resolution of such claims.

2.4 Owner, at Owner's cost, will secure the services of surveyors, geotechnical and laboratory testing engineers, or other special consultants to develop additional information to the extent necessary for the design of the project. Project A/E shall provide Owner with parameters for inclusion in Owner's instructions to such providers.

2.5 Owner shall arrange and pay for structural, mechanical, chemical and other laboratory tests as necessary during construction except as required of the Contractor in the Construction Contract Documents.

2.6 Owner shall furnish all legal, accounting, auditing and insurance counseling services as may be necessary for the Project.

2.7 The services, information, surveys and reports required by the preceding paragraphs shall be furnished at Owner's expense.

2.8 If Owner observes or otherwise acquires actual knowledge of any design flaw or defect in the Project or conflict in the Construction Contract Documents, written notice thereof will be given by Owner to Project A/E; however, Owner shall have no obligation or duty to investigate whether such flaws, defects, or conflicts exist.

2.9 Owner will review Project A/E's design at the completion of Schematic Design and Design Development and at completion of the stages of Construction Documents as described in Article 14. Comments concerning corrections or amendments to the Drawings and Specifications will be furnished in writing to Project A/E as promptly as possible after receipt of the documents for review. Owner's approval of the documents must be in writing and no approval may be deemed given in the absence of written approval. Owner may require Project A/E to halt production during design review.

2.10 Owner shall furnish required information and services and shall render approvals and decisions as expeditiously as necessary for the orderly progress of Project A/E's services and of the Work.

2.11 At the time the Construction Documents are issued for procurement of construction services, Owner shall prepare a statement calculating Project A/E's fees for the Project based upon the provisions of this Agreement and any adjustments to the fee calculation mutually agreed to during design. If Project A/E objects to the revised project fees, Project A/E must notify Owner of its objections in writing within fourteen (14) days of receipt of the fee statement otherwise Project A/E's approval of the fee amounts shall be deemed given.

2.12 Owner will furnish personnel who will be responsible for inspecting the Work, including close, on-site examination of the materials, structure and equipment; and surveillance of the workmanship and methods used to ensure that construction of the Project is reasonably accomplished in accordance with the Construction Contract Documents and good construction practices.

Article 3 Construction Cost—Definition

3.1 The Estimated Construction Cost means the amount calculated by Project A/E for the total cost of all elements of the Project, including all alternate scopes of work, designed and specified by Project A/E or reasonably inferable as a usual and customary component of the Project or otherwise necessary for complete construction of the Project.

3.2 The Estimated Construction Cost shall include at current market rates a reasonable allowance for overhead, profit and general conditions costs, the cost of labor and materials to be furnished by

Contractor and any equipment which has been shown in the plans, specified, and specially provided for by Project A/E. The Estimated Construction Cost shall include and consider the cost of labor and materials necessary for installation of Owner-furnished equipment which has been shown in the plans, specified, and specifically provided by Project A/E.

3.3 The Estimated Construction Cost does not include compensation to Project A/E and Project A/E's consultants, Owner's Construction Contingency, Owner's Special Cash Allowances, the cost of the land, rights-of-way, or other costs which are the responsibility of Owner as provided in Article 2.

Article 4 Direct Salary Expense

4.1 Direct Salary Expense ("DSE") is defined as the actual salaries, expressed on an hourly wage basis, prior to deductions for employment taxes (such as FICA, Medicare, income tax withholding) and employee-paid benefits, of all personnel, including Project A/E's employees directly engaged on the Project (and performing consultations or research or preparing designs, Drawings, and Specifications for the Project). DSE shall exclude mandatory and customary fringe benefits and employee benefits (such as employer-paid insurance, sick leave, holidays, vacation, pensions and similar contributions, or additions such as bonuses or other surplus payments), overhead expense (which includes salaries of bookkeepers, secretaries, clerks, and the like), and profit relating to the Project. Any multiplier applied to such DSE shall be for the purpose of covering such fringe benefits, expense, and profit. All personnel shall mean anyone employed by Project A/E and its consultants including, but not limited to, architects, engineers, officers, principals, associates, design software technicians, designers, job captains, draftspersons, and specifications writers, who are performing consultation, research or design, or who are producing Drawings, Specifications, plans, or other documents pertaining to the Project, or who are performing services during construction at the Site that are directly attributable to, and necessary for, such construction.

4.2 The full list of all personnel titles and the hourly wage for each which has been initially accepted by Owner is included as an Exhibit hereto. With Owner's express, written approval, the hourly rates contained therein may be adjusted annually in accordance with the usual and customary salaries of the architectural profession in the area of Project A/E's home office.

Article 5 Reimbursable Expenses

5.1 Reimbursable Expenses are in addition to the compensation for Basic Services and Additional Services, and include actual out-of-pocket reasonable expenditures made by Project A/E and Project A/E's employees and consultants incurred solely and directly in connection with Project A/E's performance of its services hereunder for the following expenses:

- 5.1.1 Fees paid for securing approval of authorities having jurisdiction over the Project.
- 5.1.2 Professional models and renderings produced for presentations when requested by Owner.
- 5.1.3 Shipping or mailing of all reports, Drawings, Specifications, and other items in connection with the Project except for: correspondence between Project A/E and Owner; Project A/E's in-house work or correspondence; or work or correspondence exchanged between Project A/E and its consultants.
- 5.1.4 Expense of any additional insurance coverage or limits that exceed those required by this Agreement, when requested by Owner.

- 5.1.5 Expense of transportation and living expenses in connection with out-of-state travel approved in advance in writing by Owner and directly associated with the Project will be reimbursed in accordance with Owner's Current Employee Travel Policy, which is included as an Exhibit hereto.
- 5.1.6 Expenses of any reprographic services that are in addition to those required under Basic Services requested by Owner in writing, including, but not limited to reproduction and delivery of Drawings, Specifications, addenda, reports or other miscellaneous documents. Reprographic services may include electronic document files or paper printing and delivery. Authorized additional reprographic services that are not provided in-house by Project A/E shall be procured in the following manner:
- a) Project A/E shall develop a complete scope of services fully describing the services to be provided by the reprographic vendor. Project A/E shall submit the scope of services to and request offers from at least three reprographic vendors, including at least one woman owned Historically Underutilized Business ("HUB") and one minority owned HUB. For services projected to be less than \$25,000, three offers procured by telephone are acceptable. For services anticipated to be greater than \$25,000, three written offers are required. An updated HUB Subcontracting Plan (HSP) reflecting the new scope of work shall be submitted to Owner for approval.
 - b) Reprographic services vendor shall provide, as a minimum, the following information in its offer to Project A/E:
 - (1) Its ability to handle projected volume on given schedule.
 - (2) Its ability to receive and warehouse Project A/E's electronic document files.
 - (3) Its ability to manage construction procurement document deposit process.
 - (4) Its ability to print partial document sets as directed by Project A/E.

5.2 Unless expressly directed, and approved in advance, by Owner, transportation (including mileage and parking expenses) and living expenses incurred within the State of Texas, for firms whose principal address is within the State of Texas, will not be subject to reimbursement.

5.3 Expenses not allowed for reimbursement include the cost of review documents required to be provided to Owner under Article 14, telephone charges, FAX service, alcoholic beverages, laundry, valet service, entertainment or any non-project related items. All tips must be included within the per diem allowances.

5.4 Owner shall not pay a mark-up on Reimbursable Expenses. Project A/E shall submit receipts for all Reimbursable Expenses along with any reimbursement request.

Article 6 Basis of Compensation

Owner shall compensate Project A/E for the services provided in accordance with Article 7, Payments to Project A/E, and other terms and conditions of this Agreement, as follows:

6.1 Basic Services Fee

6.1.1 For Basic Services, as described in Article 1, and including all disciplines identified in Article 14.1 as part of Basic Services, Project A/E's Basic Services Fee shall be calculated as follows:

The Construction Cost Limitation times the agreed fee percentage equals Basic Services Fee (see paragraph 14.4).

6.1.2 The agreed fee percentage for Basic Services cannot exceed the maximum fee allowed as interpolated from the Architect/Engineer Fee Schedule, which is included as an Exhibit hereto.

6.1.3 Project A/E's Basic Services Fee will be based on the Construction Cost Limitation regardless of whether the actual Construction Contract Sum at time of award, less Owner's Special Cash Allowance(s) and Owner's Construction Contingency, is more or less than the Construction Cost Limitation provided that the resulting fee, when expressed as percentage of the actual Construction Contract Sum at time of award, shall not exceed the maximum percentage fee established by the Board of Regents, or any other limitations imposed by law.

6.1.4 In multi-stage projects, the Basic Services Fee for each Construction Contract Stage ("CCS") shall be calculated multiplying the Sub-Construction Cost Limitation for the CCS times the agreed fee percentage for the Basic Services Fee established in paragraph 14.5. Project A/E's total Basic Services Fee will be the sum of the Basic Services Fees for all CCSs. The total Basic Services Fee shall not exceed the maximum fee allowed as a percentage of the Construction Cost Limitation interpolated from the appropriate Board of Regents table.

6.1.5 If the description of Project A/E's Basic Services is changed materially, the applicable fee percentage shall be adjusted equitably, subject to the maximum fee limitations established by the Board of Regents.

6.2 Fees for Changes in Project Scope

6.2.1 For reductions in the scope of the Project that occur after commencement of the Schematic Design Phase but before confirmation of the Construction Cost Limitation at the completion of the Construction Services Procurement Phase, Project A/E's fee for basic services related to the eliminated scope of the Project, to the extent such services are provided by Project A/E, shall be calculated using the same percentage fee used to establish the Basic Services Fee times the lowest bona fide price obtained for the eliminated scope or, if no price is obtained, an up-to-date detailed Estimated Construction Cost for the eliminated scope, but only to the extent that services for the eliminated scope were performed by Project A/E.

6.2.2 For increases in the scope of the Project that occur after commencement of the Schematic Design Phase but before confirmation of the Construction Cost Limitation at the completion of the Construction Services Procurement Phase, the fee for the Basic Services related to the additional scope, to the extent such services are provided by Project A/E, shall be calculated using the same percentage fee used to establish the Basic Services Fee times the lowest bona fide price obtained for the added scope or, if no price is obtained, an up-to-date detailed Estimated Construction Cost for the added scope, but only to the extent that services for the added scope were performed by Project A/E.

6.3 Fees for Change Order Services

6.3.1 If revised Construction Documents are required due to material changes ordered by Owner and not due to errors and omissions on the part of Project A/E, the fee for the additional Basic Services required will be calculated using the same percentage fee used to establish the Basic Services Fee times the lowest bona fide price obtained for the changes to the Work or, if no price is obtained, an up-to-date detailed Estimated Construction Cost for the changes to the Work, but only to the extent that services for the changes to the Work are performed by Project A/E.

6.4 Additional Services

6.4.1 Fees for Additional Services, including any services identified in Article 14.2 are in addition to the Basic Services Fee described above.

6.4.2 For Additional Services of Project A/E that are not Basic Services or fees due to changes in Project scope, Project A/E's fee shall be calculated as follows.

6.4.3 The fees for Additional Services will be negotiated by Owner and Project A/E as the scope of the Additional Services is defined and shall be calculated in one of the following ways:

- a) A pre-established fixed price amount;
- b) An agreed percentage of the Contractor's cost of the Work resulting from the service being provided; or;
- c) On an hourly basis for time expended at an amount not to exceed 3.0 times the Direct Salary Expense for all personnel directly involved in providing the service.

6.4.4 In the absence of an agreement between Owner and Project A/E, the fees for Additional Services shall be calculated on an hourly basis.

6.4.5 For additional services of Project A/E's consultants that are not Basic Services or additional Basic Services due to changes in Project scope, Project A/E's fee shall be calculated as an amount not to exceed FIVE PERCENT (5%) times the amount that the consultant bills Project A/E for the additional services. The consultant's fee for the additional services shall be calculated in the same manner as described in Article 6.4.3.

6.5 Reimbursable Expenses

For Reimbursable Expenses, as described in Article 5, and any other items included in Article 14 as Reimbursable Expenses, Project A/E's reimbursement shall be calculated as an amount not to exceed 1.00 times the amounts actually expended by Project A/E, and Project A/E's employees and consultants in the interest of the Project.

Article 7 Payments to Project Architect/Engineer

7.1 Payments for Basic Services

7.1.1 Payments for Basic Services shall be made at the end of each phase of services or, with Owner's approval, monthly and shall be in proportion to services performed within each phase of services, as demonstrated by work product, on the basis set forth in Article 6. The form for the Statement for Architectural/Engineering Services Rendered ("Statement for Services Rendered") to be utilized is attached as an Exhibit hereto, and Attachments H and I thereto, which concern payments planned and payments made to Historically Underutilized Businesses.

7.1.2 No partial payment made shall be, or construed to be, final acceptance or approval of the services to which the partial payment relates, or a release of Project A/E of any of Project A/E's obligations or liabilities with respect to such services.

7.1.3 Project A/E shall promptly pay all bills for labor and material performed and furnished by others in connection with the performance of the services.

7.1.4 Project A/E shall submit a final Statement for Services Rendered to Owner within thirty days after approval of the Final Payment to the Contractor.

7.1.5 The acceptance by Project A/E, or Project A/E's successors, of final payment under this Agreement shall constitute a full and complete release of Owner from any and all claims, demands, and causes of action whatsoever which Project A/E, or Project A/E's successors, have or may have against Owner under the provisions of this Agreement except those claims previously made in writing and identified by Project A/E as unsettled at the time of the final request for payment.

7.1.6 All Statements for Services Rendered shall be submitted in accordance with Owner's Rider 116, Invoice Payment Requirements, a copy of which is included as an Exhibit hereto. For purposes of Texas Government Code 2251.021, the date the performance of service is completed is the date when Owner's representative approves the Statement for Services Rendered. Owner shall make payment within 30 days of the date Owner approves the Statement for Services Rendered.

7.2 Payments for Additional Services and Reimbursable Expenses

Payments for Project A/E's Additional Services and for Reimbursable Expenses shall be made monthly upon presentation of Project A/E's valid Statement for Services Rendered incurred as approved by Owner. Statements for Services Rendered shall include complete documentation of all expenses.

7.3 Payments Withheld

7.3.1 Under no circumstances shall Owner be obligated to make any payment (whether a progress payment or final payment) to Project A/E if any one or more of the following conditions precedent exist:

- a) Project A/E is in breach or default under this Agreement;
- b) Any portion of a payment is for services that were not performed in accordance with this Agreement provided, however, payment shall be made for those services that were performed in accordance with this Agreement;
- c) Project A/E has failed to make payments promptly to consultants or other third parties used in connection with services for which Owner has made payment to Project A/E;
- d) If Owner, in its good faith judgment, determines that the balance of the unpaid fees is not sufficient to complete the services in accordance with this Agreement; or
- e) Project A/E has failed to achieve a level of performance necessary to maintain the Project Milestone Schedule.

7.3.2 No deductions shall be made from Project A/E's compensation on account of liquidated damages or other sums withheld from payments to Contractors or on account of the cost of changes in the Work other than those for which Project A/E may be liable.

Article 8 Project Architect/Engineer's Accounting Records

8.1 Records of A/E Costs, Reimbursable Expenses, expenses pertaining to Additional Services, services performed on the basis of a multiple of Direct Salary Expense, and other Project costs shall be kept on the basis of Generally Accepted Accounting Principles and shall be available to Owner or Owner's

authorized representative business hours for a period of at least four (4) years after Final Payment or abandonment of the Project. Owner shall have the right to verify the details set forth in Project A/E's billings, certificates, and statements, either before or after payment by (1) inspecting the books and records of Project A/E during normal business hours; (2) examining any reports with respect to this Project; (3) interviewing Project A/E's business employees; (4) visiting the Project Site; and (5) other reasonable action.

8.2 Project A/E shall submit a notarized statement documenting that the Direct Salary Expenses stated on the Exhibit hereto comply with the definition for Direct Salary Expense under Article 4, Direct Salary Expense, and that any multiplier applied to DSE on the attached Exhibit complies with the definition for DSE under Article 4. Project A/E shall break down the multiplier under Article 4 for the purpose of fringe benefits, expense, and profit to justify the multiplier up to a maximum of 3 allowed under Article 6.

Article 9 Ownership and Use of Documents

9.1 Drawings and Specifications as instruments of service are and shall remain property of Project A/E whether the Project for which they are made is executed or not. Owner shall be permitted to retain copies, including reproducible files in Owner's native software, of Drawings and Specifications for information and reference in connection with Owner's use and occupancy of the Project. Owner shall have an irrevocable, paid-up, and perpetual non-exclusive license and right, which shall survive the termination of this Agreement, to use the Drawings and Specifications, including the originals thereof, and the ideas and designs contained therein, for any purpose, regardless of whether Project A/E remains as Project A/E, has resigned, this Agreement has been terminated, Project A/E's scope of services has been modified, or the services herein have been completed.

9.2 Submission or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not be construed as publication in derogation of Project A/E's rights.

Article 10 Termination of Agreement

10.1 This Agreement may be terminated by either party upon seven days' written notice should the other party fail substantially to perform in accordance with its terms through no fault of the party initiating the termination and such failure is not fully cured prior to the expiration of such seven-day period.

10.2 This Agreement may be terminated at any time by Owner for its convenience upon at least seven days' written notice to Project A/E.

10.3 In the event of termination not the fault of Project A/E, Project A/E shall be compensated for all services satisfactorily performed to the termination date, together with approved Reimbursable Expenses then due, provided Project A/E shall have delivered to Owner such statements, accounts, reports and other materials as required by paragraph 10.5 below together with all reports, documents and other materials prepared by Project A/E prior to termination.

10.4 A termination under this Article shall not relieve Project A/E or any of its employees of liability for violations of this Agreement, or any willful, negligent or accidental act or omission of Project A/E. The provisions of this Article shall survive the termination of this Agreement. In the event of a termination under this Article, Project A/E hereby consents to employment by Owner of a substitute Project A/E to complete the services under this Agreement, with the substitute Project A/E having all rights and privileges of the original Project A/E. Project A/E and its consultants shall not be liable for any changes made by Owner to the Drawings or Specifications (including Drawings or Specifications provided in Owner's native software or other electronic format) or for claims or actions arising from any such changes on projects in which Project A/E is not involved.

10.5 As of the date of termination of this Agreement, Project A/E shall furnish to Owner all statements, accounts, reports and other materials as are required hereunder or as have been prepared by Project A/E in connection with Project A/E's responsibilities hereunder. Owner shall have the right to use the ideas and designs therein contained for the completion of the services described by this Agreement, and for completion of the Project, or otherwise.

Article 11 Successors and Assigns

11.1 Owner and Project A/E, respectively, bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement and to the partners, permitted successors, assigns and legal representatives of such other party with respect to all covenants of this Agreement. This Agreement is a personal service contract for the services of Project A/E, and Project A/E's interest in this Agreement, Project A/E's duties hereunder, and Project A/E's fees due hereunder may not be assigned or delegated to a third party. The benefits and burdens of this Agreement are, however, assignable by Owner.

Article 12 Extent of Agreement

12.1 This Agreement supersedes all prior agreements, written or oral, between Project A/E and Owner and shall constitute the entire Agreement and understanding between the parties with respect to the subject matter hereof. This Agreement and each of its provisions shall be binding upon the parties and may not be waived, modified, amended or altered except by a writing signed by Owner and Project A/E.

Article 13 Miscellaneous Provisions

13.1 **Captions.** The captions of paragraphs in this Agreement are for convenience only and shall not be considered or referred to in resolving questions of interpretation or construction.

13.2 **Governing Law.** This Agreement and all of the rights and obligations of the parties hereto and all of the terms and conditions hereof shall be construed, interpreted and applied in accordance with and governed by and enforced under the laws of the State of Texas, without giving effect to principles of conflicts of laws.

13.3 **Waivers.** No delay or omission by either of the parties hereto in exercising any right or power accruing upon the non-compliance or failure of performance by the other party hereto of any of the provisions of this Agreement shall impair any such right or power or be construed to be a waiver thereof. A waiver by either of the parties hereto of any of the covenants, conditions or agreements hereof to be performed by the other party hereto shall not be construed to be a waiver of any subsequent breach thereof or of any other covenant, condition or agreement herein contained.

13.4 **Severability.** In case any provision hereof shall, for any reason, be held invalid or unenforceable in any respect, such invalidity or unenforceability shall not affect any other provision hereof, and this Agreement shall be construed as if such invalid or unenforceable provision had not been included herein.

13.5 **Independent Contractor.** Project A/E acknowledges that it is engaged as an independent contractor and that Owner has no responsibility to provide Project A/E or its employees with transportation, insurance or other fringe benefits normally associated with employee status. Project A/E is not, and will not claim to be, an officer, partner, employee or agent of Owner and shall not make any claim, demand or application to or for any right or privilege applicable to an officer, partner, employee or agent of Owner, including, but not limited to, unemployment insurance benefits, social security coverage or retirement benefits. Project A/E hereby agrees to make Project A/E's own arrangements for any of such benefits as

Project A/E may desire and agrees that Project A/E is responsible for all income taxes required by applicable law.

13.6 Child Support Certification. Pursuant to Section 231.006, *Texas Family Code*, Project A/E certifies that it is not ineligible to receive the award of or payments under this Agreement and acknowledges that this Agreement may be terminated and payment may be withheld if this certification is inaccurate.

13.7 Franchise Tax Certification. A corporate or limited liability company Project A/E certifies that it is not currently delinquent in the payment of any Franchise Taxes due under Chapter 171 of the *Texas Tax Code*, or that the corporation or limited liability company is exempt from the payment of such taxes, or that the corporation or limited liability company is an out-of-state corporation or limited liability company that is not subject to the Texas Franchise Tax, whichever is applicable.

13.8 Payment of Debt or Delinquency to the State. Pursuant to Sections 2107.008 and 2252.093, *Texas Government Code*, Project A/E agrees that any payments owing to Project A/E under this Agreement may be applied directly toward any debt or delinquency that Project A/E owes the State of Texas or any agency of the State of Texas regardless of when it arises, until such debt or delinquency is paid in full.

13.9 Loss of Funding. Performance by Owner under this Agreement may be dependent upon the appropriation and allotment of funds by the Texas State Legislature (the "Legislature") and/or allocation of funds by the Board of Regents of The University of Texas System (the "Board"). If the Legislature fails to appropriate or allot the necessary funds, or the Board fails to allocate the necessary funds, then Owner shall issue written notice to Project A/E and Owner may terminate this Agreement in accordance with Article 10. Project A/E acknowledges that appropriation, allotment, and allocation of funds are beyond the control of Owner.

13.10 Proprietary Interests. All information owned, possessed or used by Owner which is communicated to, learned, developed or otherwise acquired by Project A/E in the performance of services for Owner, which is not generally known to the public, shall be confidential. Project A/E shall not, beginning on the date of first association or communication between Owner and Project A/E and continuing through the term of this Agreement and any time thereafter, disclose, communicate or divulge, or permit disclosure, communication or divulgence, to another or use for Project A/E's own benefit or the benefit of another, any such confidential information, unless required by law. Except when defined as part of the Work, Project A/E shall not make any press releases, public statements, or advertisement referring to the Project or the engagement of Project A/E as an independent contractor of Owner in connection with the Project, or release any information relative to the Project for publications, advertisement or any other purpose without the prior written approval of Owner. Project A/E shall obtain assurances similar to those contained in this subparagraph from persons, vendors and consultants retained by Project A/E. Project A/E acknowledges and agrees that a breach by Project A/E of the provisions hereof will cause Owner irreparable injury and damage. Project A/E, therefore, expressly agrees that Owner shall be entitled to injunctive and/or other equitable relief in any court of competent jurisdiction to prevent or otherwise restrain a breach of this Agreement.

13.11 Appointment. Owner hereby expressly reserves the right from time to time to designate by notice to Project A/E a representative to act partially or wholly for Owner in connection with the performance of Owner's obligations hereunder. Project A/E shall act only upon instructions from such representative unless otherwise specifically notified to the contrary.

13.12 Dispute Resolution.

13.12.1 To the extent that Chapter 2260, Texas Government Code, as it may be amended from time to time ("Chapter 2260"), is applicable to this Agreement and is not preempted by other

applicable law, the dispute resolution process provided for in Chapter 2260 will be used by Owner and Project A/E to attempt to resolve any claim for breach of contract made by Project Architect.

13.12.2 Neither the occurrence of an event giving rise to a breach of contract claim nor the pendency of a claim constitute grounds for the suspension of performance by Project Architect, in whole or in part, except as permitted by Subchapter D, Chapter 2251 of the Texas Government Code. Any periods set forth in this Agreement for notice and cure of defaults are not waived.

13.12.3 It is agreed that such process is not invoked if Owner initiates the dispute by first bringing a claim against Project A/E, except at Owner's sole option. If Owner makes a claim against Project A/E and Project A/E then makes a counterclaim against Owner as a claim under Chapter 2260 and in compliance therewith, Owner's original claim against Project A/E does not become a counterclaim and is not subject to the mandatory counterclaim provisions of Chapter 2260 of the *Texas Government Code*, except at the sole option of Owner.

13.12.4 In any litigation between the Owner and the Project Architect arising from this Agreement 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.

13.13 **Notices.** All notices, consents, approvals, demands, requests or other communications provided for or permitted to be given under any of the provisions of this Agreement shall be in writing and shall be deemed to have been duly given or served when delivered by hand delivery or when deposited in the U.S. mail by registered or certified mail, return receipt requested, postage prepaid, and addressed as follows:

If to Owner:

Ben Melson
Senior Vice President and Chief Financial Officer
1515 Holcombe Blvd., Unit 0050
Houston, Texas 77030

With Copies to:

James Waters, J.D., P.E.
Director, Facilities Contract and Project Financial Services
Operations and Facilities Management
6900 Fannin, Suite 11.1024
Houston, Texas 77030

If to Project A/E:

_____[Name]_____
_____[Company Name]_____
_____[Street Address]_____
_____[City, State, Zip]_____
_____[Telephone Number]_____
_____[Email]_____

or to such other person or address as may be given in writing by either party to the other in accordance with the aforesaid.

13.14 **Authority to Act.** Project A/E warrants, represents, and agrees that (1) it is a duly organized and validly existing legal entity in good standing under the laws of the state of its incorporation or organization; (2) it is duly authorized and in good standing to conduct business in the State of Texas; (3) it has all necessary power and has received all necessary approvals to execute and deliver this Agreement; and (4) the individual executing this Agreement on behalf of Project A/E has been duly authorized to act for and bind Project A/E.

13.15 **Counterparts.** This Agreement may be executed in multiple counterparts, each of which shall be deemed, construed and considered to be an original, but all of which shall constitute one and the same instrument.

13.16 **Ethics Matters; No Financial Interest.** Project A/E and its employees, agents, representatives and consultants have read and understand Owner's Conflicts of Interest Policy available at <http://www.utsystem.edu/policy/policies/int160.html>, Owner's Standards of Conduct Guide available at <https://www.mdanderson.org/patients-family/search-results.html?q=conflict%20of%20interest>, and applicable state ethics laws and rules available at www.utsystem.edu/ogc/ethics. Neither Project A/E nor its employees, agents, representatives or consultants will assist or cause Owner's employees to violate Owner's Conflicts of Interest Policy, provisions described by Owner's Standards of Conduct Guide, or applicable state ethics laws or rules. Project A/E represents and warrants that no member of the Board has a direct or indirect financial interest in the transaction that is the subject of this Agreement.

13.17 **179 D Benefit Allocation.**

13.17.1 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 this Agreement with Project A/E.

13.17.2 If the Owner and the Internal Revenue Service (IRS) determine that the Project A/E is eligible to receive the 179D deduction allocation as a "Designer" for the purposes of Section 179D of the Code or that Project A/E could otherwise profit financially from the monetization of the benefit (separately and collectively, the "Rebate"), Project A/E 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 A/E. At its sole discretion, the Owner shall determine whether to receive its portion of the Rebate in cash, discounted Project A/E fees or both.

13.17.3 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.

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

13.18 **Disclosure of Interested Parties.** By signature hereon, Project A/E certifies that, if the value of this agreement exceeds \$1 Million, it has complied with Section 2252.908 of the Texas Government Code and Part 1 Texas Administrative Code Section 46.1 through 46.3 as implemented by the Texas Ethics Commission (TEC), if applicable, and has provided the Owner with a fully executed TEC Form 1295, certified by the TEC and signed and notarized by the Project A/E.

13.19 **Certification Regarding Boycotting Israel.** Pursuant to Chapter 2270, *Texas Government Code*, Project A/E certifies Project A/E (1) does not currently boycott Israel; and (b) will not boycott Israel during the Term of this Agreement. Project A/E acknowledges this Agreement may be terminated and payment withheld if this certification is inaccurate.

13.20 **Certification Regarding Business with Certain Countries and Organizations.** Pursuant to Subchapter F, Chapter 2252, *Texas Government Code*, Project A/E certifies Project A/E (1) is not engaged in business with Iran, Sudan, or a foreign terrorist organization. Project A/E acknowledges this Agreement may be terminated and payment withheld if this certification is inaccurate.

13.21 Drug Testing Requirements. Prior to commencing any services under this Agreement, Project A/E will ensure that all Project A/E Personnel have tested negative on a five (5) panel drug test. The test must include the following: (a) Amphetamines, (b) Cocaine, (c) Opiates (2000 ng/ml), (d) PCP, and (e) THC. "Project A/E Personnel" is any individual who is compensated by Project A/E, or by a consultant engaged by Project A/E, for providing a service directly to Owner, whether or not that individual is present on Owner's premises. Project A/E Personnel may include consultants, service vendor employees, construction workers, and temporary personnel needed for staff augmentation.

Article 14 Other Conditions or Services

Owner and Project A/E hereby agree to the full performance of the covenants contained herein.

14.1 Basic Services. Project A/E's Basic Services are those services described in paragraphs 1.2 through 1.6 for which Project A/E is to be paid a Basic Services Fee in accordance with the terms of this Agreement and shall include the following disciplines:

- a. Architectural Services
- b. Landscape Architectural Services
- c. Civil Engineering Services
- d. Structural Engineering Services
- e. Mechanical Engineering Services
- f. Electrical Engineering Services
- g. Plumbing Engineering Services
- h. Life Safety Code Compliance
- i. Life Safety Engineering Services (responsible for Fire Alarm System design and third-party certification of installed system)
- j. Commissioning Coordination
- k. Audio Visual/Data & Telecommunications Engineering
- l. Security Planning Services

14.2 Additional Services. The services identified in the following list are not included in Basic Services.

14.2.1 PRE-DESIGN SERVICES.

14.2.1.1 Before proceeding into the Schematic Design Phase, Project A/E and its entire consultant team, working with Owner, shall complete a comprehensive Pre-Design Phase Document for the Project. At Owner's sole discretion, the Pre-Design Phase Document shall be a Pre-Design Report prepared in accordance with the requirements set forth in Owner's standard Pre-Design Report template, a preliminary copy (dated December 18, 2017) of which is included as an Exhibit hereto.

14.2.1.2 The anticipated services and deliverables under the responsibility of Project A/E are summarized in the Schedule of Anticipated Pre-Design Deliverables, which is included as an Exhibit hereto. Following selection, Project A/E shall provide Owner with a written itemized cost proposal to provide the designated pre-design services. Such compensation shall be in addition to the percentage based fee for Basic Services. Project A/E shall plan to meet with representatives of Owner as required during the development of the Pre-Design Phase Document and shall revise the Pre-Design Phase Document as necessary

to achieve approval of Owner. In accordance with the Professional Services Procurement Act, Owner will review Project A/E's proposal for pre-design services and attempt to negotiate a fair and reasonable fee for these services. If Owner and Project A/E are unable to do so, Owner may, at Owner's sole discretion, formally end negotiations with Project A/E and, in accordance with the Professional Services Procurement Act, engage another architect/engineer to provide the Pre-Design Phase Services.

14.2.6 REGISTERED ACCESSIBILITY SPECIALIST. Services provided by an independent contract provider under contract with TDLR to include the Preliminary Plan Review and Final Plan Review and Field Inspection of placed work to coincide with the pre-final inspections. Issues regarding accessibility shall be coordinated to be included in the punch list provided to the Contractor. Design consultation services and preliminary field inspections during installation of work are optional services. These services are related to the provisions of The Texas Architectural Barriers Act (Article 9102, T.C.S.).

14.2.7 PROJECT RECORD DOCUMENTS. Project A/E shall revise the Drawings and Specifications upon Final Completion of construction, to incorporate all modifications recorded by the Contractor on the Drawings and Specifications maintained at the Site, in addition to all alterations to the Construction Contract Documents generated by Project A/E or Owner. Project A/E shall label the revised Drawings and Specifications as "Record Drawings" and "Record Specifications" and shall deliver copies to Owner for record purposes, as follows:

- All Record Drawings and Record Specifications shall be submitted per Owner's native software requirements.
- In addition, submit one (1) full size paper copy of Record Drawings.
- In addition, submit Record Documents in Adobe PDF format.

14.2.10 SPECIALIZED CONSULTANTS. The specialized consultant services identified in the following list are included in Additional Services:

- Materials Handling Services
- Furniture and Equipment Purchasing Services
- Major Medical Equipment Purchasing Services
- Personnel and Material Transport Planning Services
- Hazardous Materials Handling Services
- Integrated Scheduling Services
- Radiation Control Services
- Graphics/Wayfinding Planning Services
- Safety Engineering Services
- Traffic Control Planning Services
- Wind Tunnel Testing/Emissions Control/Wind Pressure Analysis
- Art Procurement Consulting Services (not architectural renderings or models)

14.2.11 SPECIALIZED SERVICES. The specialized consultant services identified in the following list are included in Additional Services:

- Providing financial feasibility or other special studies.
- Providing planning surveys, site evaluations, environmental studies or comparative studies of prospective sites.
- Providing services relative to future facilities, systems and equipment which are not intended to be constructed during the Construction Phase.

- Providing services to make detailed investigation of existing conditions or facilities or to make measured drawings thereof, other than to verify the accuracy of drawings or other information furnished by Owner.
- Providing coordination of Work performed by Owner's separate Contractors or by Owner's own forces.
- Providing services in connection with the Work of a Contractor or separate consultants retained by the Owner other than commissioning consultant, testing and balance consultant, material testing firms or similar firms.
- Providing services for planning tenant or rental spaces.
- Making revisions in Drawings, Specifications or other documents when such revisions are inconsistent with written approvals or instructions previously given are required by the enactment or revision of codes, laws or regulations subsequent to the preparation of such documents or are due to other causes not solely within the control of Project A/E.
- Making extensive investigations, surveys, valuations, inventories or detailed appraisals of existing facilities, except as otherwise required by the Agreement, and services required in connection with construction performed by Owner.
- Providing consultation concerning replacement of any Work damaged by fire or other cause during construction, and furnishing services as may be required in connection with the replacement of such Work.
- Providing services made necessary by the default of the Contractor, or by major defects or deficiencies in the Work of the Contractor, or by failure of performance of the Contractor under the Construction Contract.
- Providing extensive assistance in the utilization of any equipment or system such as initial start-up or testing, adjusting and balancing, preparation of operation and maintenance manuals, training personnel for operation and maintenance, and consultation during operation.
- Providing services after the expiration of sixty (60) days following Final Payment to the Contractor, excluding any services necessary during the warranty period inspections and provided that all of Project A/E's services as required under this Agreement have been satisfactorily completed.
- Preparing to serve or serving as an expert witness at the request of Owner in connection with any public hearing, arbitration proceeding or legal proceeding.
- Providing any other services not otherwise customarily furnished in accordance with generally accepted architectural practice.

14.3 Owner-Provided Services. The services identified in the following list will be provided by Owner at Owner's expense.

- Surveying Services
- Geotechnical Services
- Code Check
- Plan Check
- Forensic Consultant
- Construction Auditing Consultant
- Existing Facility Surveys
- Integrated Scheduling
- Testing and Balancing
- Hazardous Materials Surveying and Abatement
- Laboratory Testing (Soils, Materials, Environmental, Welding, Steel Construction)

- Project Commissioning
- Wind Tunnel/Air Quality Analysis
- Exhaust Stack Testing
- Vibration Analysis
- Radio Frequency Interference Testing

14.4 Basis of Compensation

14.4.1 Basic Services.

On the Effective Date of this Agreement, the Construction Cost Limitation for the Project is stipulated to be:

Seven Million Seven Hundred Seventy-Five Thousand Dollars (\$ 7,775,000.00)

Therefore, on the Effective Date of this Agreement, the Basic Services Fee for the Project is stipulated to be:

$$\begin{array}{rcl} \underline{\$ 7,775,000.00} & \times & \underline{8\%} = \underline{\$ 622,000.00} \\ \text{Construction Cost Limitation} & & \text{Fee \%} \quad \text{Basic Services Fee} \end{array}$$

If the Construction Cost Limitation is revised, due to a change in the scope of the Project, prior to acceptance of the Contractor's bid or competitive sealed proposal or Construction Manager's guaranteed maximum price proposal, the Basic Services Fee will be adjusted based on interpolation of the attached Exhibit, The University of Texas System Office of Facilities Planning and Construction Architect/Engineer Fee Schedule, *dated December 1987*:

Over \$ <u>5,000,000.00</u>	<u>8.0 %</u>
Over \$ <u>1,000,000.00</u>	<u>9.0 %</u>
Up to \$ <u>200,000.00</u>	<u>10.0 %</u>

Owner may amend the Construction Cost Limitation after Owner authorizes the commencement of the Schematic Design Phase. If the Construction Cost Limitation is amended by Owner, and Project A/E has been notified in writing of such Construction Cost Limitation, then this paragraph of this Agreement shall be deemed to be amended by including such Construction Cost Limitation amount as the cost referenced in the first sentence of this paragraph of this Agreement. The Construction Cost Limitation will be confirmed or re-established at the completion of the Schematic Design Phase, at the completion of the Design Development Phase, at the completion of the Construction Document Phase, and at the completion of the Construction Services Procurement Phase.

14.4.2 Reimbursable Expenses. The maximum allowable cost on this Project for Reimbursable Expenses identified in Article 5 as approved by Owner is:

Maximum Reimbursable Expense Amount: \$ 10,000.00

14.4.3 Maximum Contract Sum

	Description	Amount
	Basic Services Fee (Article 14.4.1)	\$ 622,000.00
<i>plus</i>	Additional Services Fees:	TBD
<i>plus</i>	Maximum Reimbursable Expenses (Article 14.4.2)	\$ 10,000.00
	MAXIMUM CONTRACT SUM	\$ 632,000.00

14.5 Progress Payments. Payments for Basic Services shall be made as provided in Article 7 in accordance with the following schedule:

Schematic Design Phase;	15%	\$93,300.00
Design Development Phase:	20%	\$124,400.00
Construction Documents Phase:	40%	\$248,800.00
Construction Services Procurement Phase:	5%	\$31,100.00
Construction Administration Phase	20%	\$124,400.00
TOTAL BASIC SERVICES FEE:	100%	\$622,000.00

14.6 Review Stages. Project A/E shall submit Drawings, Specifications, and other documents required by the Agreement to Owner for review at completion of the Schematic Design Phase, Design Development Phase and at the following stages of completion of the Construction Documents Phase:

50%, 95%, 100%

14.7 Construction Cost Estimates. Project A/E shall submit Drawings and Specifications, Estimated Construction Cost Reports, and other documents as described in Article 1.1.15 at completion of the Schematic Design Phase, Design Development Phase and at the following stages of completion of the Construction Documents Phase:

50% (CD), 95% (SD, DD, CD), 100% (CD)

14.8 Review Documents. Project A/E shall, at its expense, furnish and deliver to Owner for Owner's review, the following number of sets of review documents at the required review stages. Review documents shall also be furnished in Adobe PDF format:

Schematic Design: (5) sets
 Design Development: (5) sets
 Construction Documents: (5) sets for each stage of % complete

14.9 Partnering. For the benefit of all parties and as a part of Basic Services, Project A/E and its entire Consultant team shall attend two (2) full day Partnering sessions in Houston, Texas; the first at the beginning of the Schematic Design Phase, and the second at the beginning of the Construction Phase.

14.10 Design Software Standards. Project A/E and its entire Consultant team, as part of Basic Services, shall utilize Owner's design software drawing-layering standard and shall review standard with Owner prior to commencing drawing preparation.

14.11 Space Planning Documents. Project A/E, as part of Basic Services, shall provide Owner with a complete current electronic set in Owner's native design software, of the architectural floor plan

drawings with room names, room numbers, and room square footages indicated. Per Owner's Design Guidelines, Owner will determine when the initial drawings, defined as the "Room Number Control Set", must be submitted. Project A/E shall submit periodic updates to Owner as room name and number designations are changed.

Article 15 Amendments to the Agreement between Owner and Project A/E when using the Construction Manager at Risk Delivery Method

15.1 By incorporating this Article 15, Project A/E acknowledges and accepts that Owner intends to construct the Project using the Construction Manager at Risk delivery method. Therefore, Owner and Project A/E hereby agree that certain preceding terms in this Agreement are supplemented and/or modified as indicated below.

15.2 The following preceding terms of this Agreement are amended by incorporating the new paragraphs and substituting the modified paragraphs for their counterparts in their entirety. For clarity purposes only, all new contract language is indicated by *italicized type face*. Existing contract language that is unchanged by the amendments is shown in standard type face.

1.1 Basic Services

1.1.30 Owner has or intends to appoint a Construction Manager-at-Risk for this project ("Construction Manager" or "Contractor"). Project A/E shall coordinate its Services (Basic and Additional) hereunder with the Construction Manager. Owner may direct Project A/E to recognize the Construction Manager as its representative for the performance of various duties hereunder which are otherwise defined as the responsibility of Owner hereunder. Project A/E hereby acknowledges such appointment. Upon request, Project A/E shall be entitled to review a redacted version of the Agreement between Owner and Construction Manager at Risk for this project ("CM Agreement"). Nothing in the CM Agreement shall confer direct responsibility on the Construction Manager for Project A/E's services, nor shall anything contained therein diminish Project A/E's responsibility for its services as set forth hereunder.

1.1.31 Project A/E shall participate in the development and review of the Construction Manager's Guaranteed Maximum Price ("GMP") Proposal. This GMP Proposal will include the qualifications, assumptions, exclusions, value engineering and all other requirements identified within Attachment 1 To Exhibit D (Guidelines for the Preparation of the GMP) of the CM Agreement. Following Owner's Approval of the GMP Proposal, Project A/E shall be responsible for developing the Construction Documents, consisting of Drawings and Specifications, setting forth in detail, and incorporating the aforementioned requirements described within the Attachment 1 To Exhibit D and contained in the GMP Proposal. Furthermore, Project A/E shall participate in the documentation of the Construction Manager's GMP Proposal so as to adequately understand the contents of the GMP Proposal and ultimately confirm that the Construction Documents, when complete, reflect all qualifications, clarifications and assumptions contained within the GMP Proposal. Project A/E and the Construction Manager shall jointly provide a monthly status report stating the progress of the incorporation of the GMP qualifications, clarifications, assumptions, exclusions and value engineering and all other requirements identified in Attachment 1 To Exhibit D, into the Construction Documents."

1.2 Schematic Design Phase

1.2.1 Based on the mutually agreed upon Pre-Design Phase Document, the Construction Cost Limitation and the Project Milestone Schedule, Project A/E shall prepare sufficient alternative approaches to design the construction of the Project to satisfy Owner's requirements and shall, at completion of this phase, submit Schematic Design Documents in accordance with Owner's Design Guidelines and any additional requirements set forth in Article 14. *Project A/E shall review alternative approaches to design and construction for the Project and the Schematic Design Documents as they are being prepared at intervals appropriate to the progress of the Project with Owner and Construction Manager at the Project location or other location specified by Owner within the State of Texas. Project A/E shall provide the Construction Manager with copies of Project A/E's documents at the Construction Manager's expense to assist the Construction Manager in fulfilling its responsibilities to Owner.*

1.2.5 Project A/E shall direct the preparation of a detailed Estimated Construction Cost Report as described in Sub-paragraph 1.1.15 to confirm compliance with the Construction Cost Limitation and include the detailed Estimated Construction Cost Report with the completed Schematic Design Documents. *Project A/E shall review its Estimated Construction Cost Report in comparison with the construction cost estimate prepared by the Construction Manager, and shall reconcile any differences between the two construction cost estimates in coordination with the Construction Manager. If Project A/E is unable to reconcile all differences between the two construction cost estimates with the Construction Manager, then Project A/E shall provide a detailed explanation of the differences to Owner.* Project A/E shall advise Owner of any adjustments to the project scope necessary to align the Project A/E's Estimated Construction Cost with the Construction Cost Limitation and shall revise the Schematic Design Documents, without charge to Owner, as may be required to comply with the Construction Cost Limitation. Owner may, solely at Owner's discretion and in writing, increase or decrease the Construction Cost Limitation to align with Project A/E's detailed Estimated Construction Cost.

1.2.7 *Project A/E shall participate in a final review of the Schematic Design Documents with Owner and Construction Manager at the Project location or other location specified by Owner in the State of Texas. Prior to Owner's approval of the Schematic Design Documents, Project A/E shall incorporate such changes as are necessary to satisfy Owner's review comments, any of which may be appealed for good cause.*

1.3 Design Development Phase

1.3.1 Based on the approved Schematic Design Documents and any adjustments to the Pre-Design Phase Document or Construction Cost Limitation authorized by Owner, Project A/E shall prepare, for approval by Owner *and review by Construction Manager*, Design Development Documents in accordance with Owner's written requirements to further define and finalize the size and character of the Project in accordance with Owner's Design Guidelines and any additional requirements set forth in Article 14. *Project A/E shall review the Design Development Documents as they are being prepared at intervals appropriate to the progress of the Project with Owner and Construction Manager at the Project location or other location specified by Owner in the State of Texas. Project A/E shall provide Construction Manager with copies of Project A/E's documents at Construction Manager's expense to assist Construction Manager in fulfilling its responsibilities to Owner.*

1.3.3 Project A/E shall direct the preparation of a detailed Estimated Construction Cost Report as described in Sub-paragraph 1.1.15 to confirm compliance with the Construction Cost Limitation and include the detailed Estimated Construction Cost Report with the completed Design Development Documents. *Project A/E shall review its Estimated Construction Cost Report in comparison with the construction cost estimate prepared by Construction Manager, and shall reconcile any differences between the two construction cost estimates in coordination with Construction Manager. If Project A/E is unable to*

reconcile all differences between the two construction cost estimates with Construction Manager, then Project A/E shall provide a detailed explanation of the differences to Owner. Project A/E shall advise Owner of any adjustments to the project scope necessary to align Project A/E's Estimated Construction Cost with the Construction Cost Limitation and shall revise the Design Development Documents, without charge to Owner, as may be required to comply with the Construction Cost Limitation. Owner may, solely at Owner's discretion and in writing, increase or decrease the Construction Cost Limitation to align with Project A/E's detailed Estimated Construction Cost.

1.3.8 At the completion of the Design Development Phase, or such other time as Owner may specify to Project A/E, at Owner's sole option and discretion, Owner will furnish Project A/E with the GMP Proposal prepared by Construction Manager based upon the Design Development Documents prepared by Project A/E and approved by Owner. Project A/E shall assist Owner and further advocate Owner's interests during Owner's negotiations with Construction Manager in an effort to develop a GMP Proposal acceptable to Owner, in Owner's sole option and discretion. If Owner does not accept Construction Manager's GMP Proposal, Project A/E shall participate with Owner and Construction Manager in constructability reviews and shall revise the documents as necessary in order to reach an agreement. If Construction Manager's proposed GMP exceeds the estimated construction cost furnished to Owner by Project A/E, and Owner directs Project A/E to revise the Drawings and Specifications, then Project A/E shall revise the Drawings and Specifications without charge to Owner such that the proposed GMP for constructing the Project, minus Owner's Special Cash Allowance, if any, within the proposed GMP and minus Owner's Construction Contingency, if any, within the proposed GMP, does not exceed the Construction Cost Limitation. If it is determined to be in Owner's best interest, instead of requiring Project A/E to revise the Drawings and Specifications, Owner reserves the right to accept a proposed GMP, minus Owner's Special Cash Allowance, if any, within the proposed GMP and minus Owner's Construction Contingency, if any, within the proposed GMP, that exceeds the Construction Cost Limitation. Project A/E shall analyze the final GMP Proposal, including its supporting assumptions, clarifications, and contingencies, and shall submit a detailed written analysis of the GMP Proposal to Owner. Such analysis shall include, without limitation, reference to and explanation of any inaccurate or improper assumptions and clarifications.

1.3.9 After Owner has accepted the GMP Proposal, Project A/E shall incorporate into the Design Development Documents all revisions which are necessary because of inaccurate assumptions and clarifications made in the development of the GMP Proposal.

1.4 Construction Document Phase

1.4.1 Based on the approved Design Development Documents and any further adjustments in the scope or quality of the Project or in the Construction Cost Limitation authorized by Owner, Project A/E shall prepare, for approval by Owner and review by Construction Manager, Construction Documents consisting of Drawings and Specifications in accordance with Owner's written requirements setting forth in detail the requirements for construction of the Project, including, without limitation, Owner's Design Guidelines and any additional requirements contained in Article 14 of this Agreement. The Construction Documents for the entire Project shall be so prepared that same will call for the construction of the Project which will cost not more than the Guaranteed Maximum Price accepted by Owner, or the Construction Cost Limitation approved by Owner if no proposed Guaranteed Maximum Price has been accepted by Owner. Project A/E will be responsible for managing the design to stay within such Guaranteed Maximum Price or Construction Cost Limitation. Project A/E shall review the Construction Documents as they are being prepared at intervals appropriate to the progress of the Project with Owner and Construction Manager at the Project location or other location specified by Owner in the State of Texas. Project A/E shall provide Construction Manager with copies of Project A/E's documents at Construction Manager's expense to assist Construction Manager in fulfilling its responsibilities to Owner.

1.4.2 Project A/E shall advise Owner *and Construction Manager* on matters such as construction phasing and scheduling, design alternates for which to obtain bids or proposals, special cash allowances, liquidated damages, the Construction Contract Time, and other construction issues appropriate for the Project. *Project A/E shall assist Owner and Construction Manager in the preparation of the necessary procurement information, procurement forms, and the Owner's Master Construction Specifications Sections for Division 00, Procurement and Contracting Requirements, and Division 01, General Requirements.*

1.4.7 Project A/E shall direct the preparation of a detailed Estimated Construction Cost Report as described in Sub-paragraph 1.1.15 to confirm compliance with the Construction Cost Limitation and include the detailed Estimated Construction Cost Report with the completed Construction Documents. *Project A/E shall review its Estimated Construction Cost in comparison with the construction cost estimate prepared by Construction Manager, and shall reconcile any differences between the two construction cost estimates in coordination with Construction Manager. If Project A/E is unable to reconcile all differences between the two construction cost estimates with Construction Manager, then Project A/E shall provide a detailed explanation of the differences to Owner.* Project A/E shall advise Owner of any adjustments to the project scope necessary to align Project A/E's Estimated Construction Cost with the Construction Cost Limitation and shall revise the Construction Documents, without charge to Owner, as may be required to comply with the Construction Cost Limitation. Owner may, solely at Owner's discretion and in writing, increase or decrease the Construction Cost Limitation to align with Project A/E's detailed Estimated Construction Cost.

1.4.9 Project A/E shall participate in a final review of the Construction Documents with Owner *and Construction Manager* at the Project location or other location specified by Owner in the State of Texas. Prior to Owner's approval of the Construction Documents, Project A/E shall incorporate such changes as are necessary to satisfy Owner's review comments.

1.5 Construction Services Procurement Phase

1.5.1 In conjunction with the development of the GMP, the awarding of subcontracts for construction services and at other times as appropriate to the Project, Project A/E shall assist Owner and Construction Manager by receiving and recording Invitation to Bid ("ITB") and Request for Proposal ("RFP") documents, issuing procurement documents, and accounting for procurement documents issued; receiving and resolving questions about procurement documents; preparing addenda, issuing addenda, and accounting for addenda issued; attending pre-submittal conferences and HUB meetings; obtaining and evaluating Bids and Proposals; and assisting in preparing and awarding subcontracts for construction. Project A/E shall answer inquiries from prospective respondents to ITBs and RFPs at Owner's request, and shall prepare and issue any necessary addenda to the subcontract procurement documents.

1.6 Construction Phase—Administration of the Construction Contract

1.6.1 The Construction Phase shall commence with the acceptance of the Construction Manager's GMP (or acceptance of a partial GMP for a stage or phase) and issuance of (i) a Notice to Commence On-Site Work or (ii) a Notice to Proceed with Construction Services and terminate sixty (60) days after Final Payment to the Contractor is made, or when all of Project A/E's services have been satisfactorily performed, whichever occurs later.

1.6.2. c) *Project A/E shall assist Owner in making arrangements for a Pre-Construction Conference and a Partnering Workshop and shall assist in preparation of an administration booklet for the Pre-Construction Conference and shall distribute copies of the bound booklet to all parties. Project A/E and its consultants shall*

participate in the project partnering process including attendance at all Partnering Workshops.

1.6.5 Project A/E shall be a representative of Owner during the Construction Phase, and shall advise and consult with Owner. Instructions to the Contractor shall be forwarded through Project A/E *and all communication by and with Project A/E's consultants shall be through Project A/E, except that Owner reserves the right to communicate directly with the Construction Manager and consultants as it deems necessary or appropriate at any time.* Project A/E shall have authority to act on behalf of Owner to the extent provided in the Construction Contract Documents. Duties, responsibilities and limitations of authority of Project A/E shall not be restricted, modified or extended without written acceptance of Owner.

1.8 Time

1.8.2 Attached hereto as an Exhibit containing a schedule for completion of each of the phases of services to be performed by Project A/E pursuant to this Agreement. The Project Milestone Schedule contains milestone dates which have been established in the Request for Qualifications previously issued or may be modified by Owner to reflect current conditions. Supplemental activities shown on the schedule, and any associated dates not yet defined, shall be determined at the completion of the Pre-Design Phase or at such time when both parties mutually agree that the Project is sufficiently developed and documented. *Project A/E shall coordinate with Construction Manager in the preparation and maintenance of the schedule for performance of the professional services for the Project, including Project A/E's services.* Changes in this schedule may be made only with the written approval of Owner. Project A/E shall perform all of its services in accordance with the then-current schedule approved by Owner.

Article 16 Definitions

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

- 16.1 *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 Construction 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.
- 16.2 *Architect/Engineer* 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 ("Project A/E") or a significant portion thereof, and to perform the contract administration responsibilities set forth in the Construction Contract.
- 16.3 *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 Project 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.

- 16.4 *Certificate of Final Completion* means the certificate issued by Project A/E that documents, to the best of Project A/E's knowledge and understanding, Contractor's completion of all Contractor's Punch List items and pre-final Punch List items, final cleanup and Contractor's provision of Record Documents, operations and maintenance manuals, and all other Close-Out Documents required by the Construction Contract Documents.
- 16.5 *Change Order* means a written modification of the Construction Contract between Owner and Contractor, signed by Owner, Contractor and Project A/E.
- 16.6 *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 Construction Contract Documents.
- 16.7 *Construction Contract* means the entire agreement between Owner and Contractor, including all of the Construction Contract Documents.
- 16.8 *Construction Contract Documents* mean those documents identified as a component of the agreement (Construction Contract) between Owner and Contractor. These may include, but are not limited to, Drawings; Specifications; the Uniform General Conditions for University of Texas System Building Construction Contracts ("UTUGCs"), Owner's Special Conditions; and all pre-bid and/or pre-proposal addenda.
- 16.9 *Construction Contract Sum* means the total compensation payable to Contractor for completion of the Work in accordance with the terms of the Construction Contract.
- 16.10 *Construction 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.
- 16.11 *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 Construction Contract Documents may refer to Contractor as if singular in number.
- 16.12 *Construction Documents* mean the Drawings, Specifications, and other documents issued to build the Project. Construction Documents become part of the Construction Contract Documents when listed in the Construction Contract or any Change Order.
- 16.13 *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.
- 16.14 *Day* means a calendar day unless otherwise specifically stipulated.

- 16.15 *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.
- 16.16 *Drawings* mean that product of Project A/E which graphically depicts the Work.
- 16.17 *Final Completion* means completion of the Work to the extent that Project A/E and Owner certify that the Work is fully and satisfactorily complete in accordance with the Construction Contract.
- 16.18 *Final Completion Date* means the date determined and certified by Project A/E and Owner that Contractor has achieved Final Completion.
- 16.19 *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 Construction Contract Sum resulting from approved Change Orders, and release of Contractor's retainage.
- 16.20 *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.
- 16.21 *Notice to Proceed* means written document informing Contractor of the dates beginning Work and the dates anticipated for Substantial Completion.
- 16.22 *Open Item List* means a list of work activities, Punch List items, changes or other issues that are not expected by Owner and Contractor to be complete prior to Substantial Completion.
- 16.23 *Owner's Construction Contingency* means amount, as designated by Owner, that is included within the Construction Contract Sum to be used when and as directed by Owner to pay for changes in the Work.
- 16.24 *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 Construction Contract. ODR is the only party authorized to direct changes to the scope, cost, or time of the Construction Contract.
- 16.25 *Owner's Special Cash Allowance* means the amount of money to be included in the Construction Contract Sum for items as clearly identified in the Construction Documents.
- 16.26 *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 Construction Contract Documents and have precedence over the UTUGC's.
- 16.27 *Project* means all activities necessary for realization Owner's desired building or other structure, or renovation thereof, including all ancillary and related work. This includes design,

construction contract award(s), execution of the Work itself, work by Owner's forces and/or other contractors and fulfillment of all Construction Contract and warranty obligations.

- 16.28 *Progress Assessment Report (PAR)* means the monthly compliance report to Owner verifying compliance with the HUB subcontracting plan (HSP).
- 16.29 *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.
- 16.30 *Punch List* means a list of items of Work to be completed or corrected by Contractor before Final Completion. Punch Lists indicate items to be finished, remaining Work to be performed, or Work that does not meet quality or quantity requirements as required in the Construction Contract Documents.
- 16.31 *Record Documents* mean the Drawing, Specifications, and other materials maintained by Contractor that documents all addenda, Project A/E's supplemental instructions, Change Orders and postings and markings that record the as-constructed conditions of the Work and all changes made during construction.
- 16.32 *Request for Information (RFI)* means a written request by Contractor directed to Project A/E or ODR for a clarification of the information provided in the Construction Contract Documents or for direction concerning information necessary to perform the Work that may be omitted from the Construction Contract Documents.
- 16.33 *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.
- 16.34 *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 Construction Contract Documents, submitted by Contractor for approval by Owner and Project A/E.
- 16.35 *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.
- 16.36 *Site* means the geographical area of the location of the Work.
- 16.37 *Specifications* mean the written product of Project 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.
- 16.38 *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.
- 16.40 *Submittal Register* means a list provided by Contractor of all items to be furnished for review and approval by Project A/E and Owner and as identified in the Construction Contract Documents including anticipated sequence and submittal dates.

- 16.40 *Substantial Completion* means completion of the Work, or a portion thereof, in accordance with the Construction Contract Documents to the extent that the Project, of portion thereof, is operational and fit for the use intended.
- 16.41 *Substantial Completion Date* means the date determined and certified by Contractor, Project A/E, and Owner when the Contractor has achieved Substantial Completion of the Work.
- 16.43 *Warranty Period* means, except as may be otherwise specified or agreed, the time during which 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 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.
- 16.44 *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 Construction Contract.
- 16.45 *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.

[SIGNATURES PROVIDED ON FOLLOWING PAGE]

BY SIGNING BELOW, Project A/E has executed and bound itself to this Agreement upon the execution of the Agreement by both parties. Changes in the terms and conditions under which Project A/E must perform the services to be provided hereunder shall become effective only upon the execution of a written Amendment to this Agreement. Changes in the services to be provided hereunder or to the Maximum Contract Sum shall become effective upon Owner's acceptance of Additional Services Proposal(s) or the issuance of a notice of Adjustment to Basic Services Compensation, signed by Owner's duly authorized representative. Subsequent to such acceptance or issuance, Owner will issue a revised Purchase Order. Project A/E must receive the revised Purchase Order prior to requesting compensation for the Additional Services or an increase in the Basic Services Fee in its Statement for Architectural/Engineering Services Rendered. Only duly authorized representatives of Owner's Department of Supply Chain Management are authorized to execute amendments to this Agreement and issue Purchase Orders to bind Owner for any payment to be made to Project A/E pursuant to the terms of this Agreement.

(SEAL)

**[PROJECT ARCHITECT/ENGINEER's
NAME]**

ATTEST:

By: _____
(original signature)

(name and title typed)

By: _____
(original signature)
Name: _____
Title: _____
Date: _____

The Texas Board of Architectural Examiners, 333 Guadalupe Street, Suite 2-350, Austin, Texas 78701, telephone (512) 305-9000, has jurisdiction over individuals licensed under the Architects' Registration Law, Chapter 1051, Texas Occupations Code.

CONTENT APPROVED:

THE UNIVERSITY OF TEXAS
M. D. ANDERSON CANCER CENTER
(Owner)

Office of Vice President
Operations & Facilities Management

Office of the Associate Director
Sourcing and Contract Management

By: _____
(original signature)

By: _____
(original signature)

Name: Spencer Moore
Title: Vice President, Operations & Facilities
Management

Name: Steven E. Stafford
Title: Associate Director

Date: _____

Date: _____

The following Exhibits are fully incorporated into this Agreement by reference:

EXHIBITS

- Exhibit A – Architect/Engineer Fee Schedule
- Exhibit B – Personnel Titles and Hourly Rates
- Exhibit C – Adjustment to Basic Services Compensation
- Exhibit D – Additional Services Proposal Form
- Exhibit E – Statement for Architectural/Engineering Services Rendered Form (Includes Attachments H & I – Documentation of Subcontracted Work)
- Exhibit F – Project Milestone Schedule
- Exhibit G – Pre-Design Phase Documentation Requirements
- Exhibit H – Anticipated Pre-Design Phase Deliverables
- Exhibit I – Owner's Design Guidelines
- Exhibit J – Owner's Building Information Modeling Requirements
- Exhibit K – Constructability Implementation Program
- Exhibit L – Owner's Commissioning Requirements
- Exhibit M – Rider 104, Policy on Utilization of Historically Underutilized Businesses
- Exhibit N – Project Architect/Engineer's Approved HUB Subcontracting Plan
- Exhibit O – Rider 105, Contractor's Affirmations & Warranties
- Exhibit P – Rider 106, Premises Rules
- Exhibit Q – Rider 107, Travel Policy
- Exhibit R – Rider 116, Invoice Payment Requirements
- Exhibit S – Rider 117, Institutional Policies
- Exhibit T – Sales and Use Tax Exemption Certification
- Exhibit U – Execution of Offer

EXHIBIT A

ARCHITECT/ENGINEER FEE SCHEDULE

Owner's Standard Agreement

**THE UNIVERSITY OF TEXAS SYSTEM
OFFICE OF FACILITIES PLANNING AND CONSTRUCTION**

ARCHITECT/ENGINEER FEE SCHEDULE

DECEMBER 1987

<u>Construction Cost of Project</u>	<u>Dormitories Garages Warehouses</u>	<u>Classrooms Offices Other Buildings</u>	<u>Health Research Special Education</u>
Over \$15,000,000	5.0%	5.5%	6.0%
Over 10,000,000	5.5%	6.0%	6.5%
Over 1,000,000	6.0%	6.5%	7.0%
Up to 200,000	7.0%	7.5%	8.0%

Remodeling and Renovation

Over \$5,000,000	7.0%	7.5%	8.0%
Over 1,000,000	8.0%	8.5%	9.0%
Up to 200,000	9.0%	9.5%	10.0%

NOTE: WHEN CONSTRUCTION COST FALLS BETWEEN THE TABULAR LIMITS,
THE RATE WILL BE DETERMINED BY DIRECT INTERPOLATION.

EXHIBIT B

PERSONNEL TITLES AND HOURLY RATES

Owner's Standard Agreement

EXHIBIT C

ADJUSTMENT TO BASIC SERVICES COMPENSATION FORM

Owner's Standard Agreement

ADJUSTMENT TO BASIC SERVICES FEE

Date: _____

MD Anderson Project Name: _____

MD Anderson Project No.: _____

MD Anderson Agreement No.: _____

To: (state name and address of Project A/E)

Attn: _____

In accordance with the provisions of the Agreement, Owner hereby amends the Basis of Compensation as described in Article 14.4 to adjust the Basic Services Fee.

The original basis for compensation shall be amended for the following reasons:

[PM describe here deviations resulting from peculiarities encountered in design or other factors altering project scope – see Art. 2.11.]

The Basic Services Fee shall be adjusted as follows. Refer to the interpolation schedule established in Article 14.4.

ORIGINAL CCL:	\$ _____.
ORIGINAL FEE PERCENTAGE:	_____.%
ORIGINAL BASIC SERVICES FEE:	\$ _____.
(as described in Art. 14.4)	

ADJUSTED CCL:	\$ _____.
FEE PERCENTAGE:	_____.%
ADJUSTED BASIC SERVICES AMOUNT	\$ _____.

OWNER'S AUTHORIZED REPRESENTATIVE:

OWNER'S 2ND AUTHORIZED REPRESENTATIVE:

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

EXHIBIT D

ADDITIONAL SERVICES PROPOSAL FORM

Owner's Standard Agreement

[TO BE SUBMITTED ON PROJECT A/E'S LETTERHEAD.]

Date: _____

Additional Services Proposal No. _____

Name of Project A/E firm:

Re: (project name and number)

Refer to the Agreement dated _____, 20__ between The University of Texas MD Anderson Cancer Center ("Owner") and the undersigned ("Project A/E") as amended to the date hereof (such agreement as so modified and amended being hereafter called the "Agreement") pursuant to which Project A/E is to perform certain services. The terms which are defined in the Agreement shall have the same meanings when used in this letter. The fee for these requested additional 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 Project A/E deems to be Additional 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. Project A/E agrees to perform the Additional Services described above subject to and in accordance with the terms and provisions of the Agreement

a.) for a *lump sum fee* which will be determined in accordance with the Agreement in an amount of:
_____ Dollars (\$_____)

OR

b.) an *hourly amount* in accordance with the Agreement, not to exceed _____
Dollars (\$_____)

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. Project A/E 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:

[Project A/E]

By:_____

Name:_____

Title:_____

Current Fee Summary

ORIGINAL ADDITIONAL SERVICE FEE AMOUNT:	\$ _____.
Previously Approved Additional Services Fees:	\$ _____.
Other Pending Additional Services Proposal Amounts:	\$ _____.
This Proposed Additional Services Fee Amount:	\$ _____.
PROPOSED TOTAL ADDITIONAL SERVICES FEES:	\$ _____.
Current Basic Services Fee Amount:	\$ _____.
Current Maximum Amount for Reimbursable Expenses	\$ _____.
PROPOSED MAXIMUM CONTRACT SUM	\$ _____.

Accepted this _____ day of _____, 20 __. Project A/E is authorized to commence performance of the Additional Services on _____, 20 __

OWNER'S AUTHORIZED REPRESENTATIVE

OWNER'S 2ND AUTHORIZED REPRESENTATIVE

By:_____

By:_____

Name:_____

Name:_____

Title:_____

Title:_____

EXHIBIT E

**STATEMENT FOR ARCHITECTURAL/ENGINEERING SERVICES RENDERED
FORM**

Owner's Standard Agreement

[To be submitted on Project A/E's letter head.]

Date:

The University of Texas MD Anderson Cancer Center
Facilities Planning, Design and Construction
1515 Holcombe Box 703
Houston, Texas 77030

ATTN: [\[MD Anderson Project Representative\]](#)

Project Name:
MD Anderson Project No.:
MD Anderson Purchase Order No:
A/E Project No. :

STATEMENT FOR ARCHITECTURAL/ENGINEERING SERVICES

Statement No. _____ for the period ended _____, for services provided in accordance with MD Anderson Agreement No. _____.

Professional Liability Insurance Policy expiration date: __/__/____

I. BASIC SERVICES

Current Construction Cost Limitation (CCL) \$ _____.

Basic Services Fee Percentage _____%

Basic Services Fee (CCL x Basic Services Fee %) \$ _____.

Services Performed to Date:

Phase	Fee	Fee Amount	Completed to Date	Fee Earned to Date
Schematic Design	15%	\$ _____.	_____%	\$ _____.
Design Development	20%	\$ _____.	_____%	\$ _____.
Construction Documents	40%	\$ _____.	_____%	\$ _____.
Construction Svcs. Procurement	5%	\$ _____.	_____%	\$ _____.
Construction Administration	20%	\$ _____.	_____%	\$ _____.
Sub-Totals	____%	\$ _____.	____.	\$ _____.
<i>Less Amount Previously Billed</i>				\$ _____.
Net Amount Due for Basic Services This Statement				\$ _____.

[To be submitted on Project A/E's letter head.]

II. ADDITIONAL SERVICES

Services Performed to Date: (Attach supplemental material to support amounts billed.)

Authorization	Fee Basis	Fee Amount	Complete to Date	Amount Earned to Date
(Approved Additional Services Proposal No.)	(% of CCL, Hourly Rate up to Not-to-Exceed Amount, Fixed Price)	\$ _____.	__%	\$ _____.
(Approved Additional Services Proposal No.)	(% of CCL, Hourly Rate up to Not-to-Exceed Amount, Fixed Price)	\$ _____.	__%	\$ _____.
Insert additional	rows, as needed.	\$ _____.	__%	\$ _____.
Sub-Total Additional Services Fees Earned to Date:				\$ _____.
Less Amount Previously Billed:				\$ _____.
Net Amount Due for Additional Services:				\$ _____.

III. CHANGE ORDER SERVICES

Services Performed to Date

Proposed Change/Change Order No.	Fee Percentage	Value of Changed Work	Fee Amount	Complete to Date	Amount Earned to Date
(Approved Additional Services Proposal No.)	____%	\$ _____.	\$ _____.	__%	\$ _____.
(Approved Additional Services Proposal No.)	____%	\$ _____.	\$ _____.	__%	\$ _____.
Insert additional rows, as needed.	____%	\$ _____.	\$ _____.	__%	\$ _____.
Sub-Total Change Order Services Fees Earned to Date:					\$ _____.
Less Amount Previously Billed:					\$ _____.
Net Amount Due for Change Order Services:					\$ _____.

[To be submitted on Project A/E's letter head.]

IV. REIMBURSABLE EXPENSES

Summary of Maximum Reimbursable Expense Amount;

Initial Maximum Reimbursable Expense Amount (Agreement, paragraph 14.4.2) \$ _____.

Cumulative Adjustments to Maximum Reimbursable Expense Amounts \$ _____.

Current Maximum Reimbursable Expense Amount \$ _____.

Summary of Reimbursable Expenses Incurred to Date (include details and supporting documentation as an Attachment to this Statement for Services Rendered);

Type	Amount Incurred	Multiplier	Total Incurred to Date
Travel	\$ _____.	1.0	\$ _____.
Reproduction/Postage	\$ _____.	1.0	\$ _____.
Other	\$ _____.	1.0	\$ _____.
Sub-total;			\$ _____.
Less Amount Previously Billed;			\$ _____.
Net Amount Due This Statement;			\$ _____.

RECAPITULATION

		Net Amount Due This Statement	Total To Date
I.	Basic Services Fee	\$ _____.	\$ _____.
II.	Additional Services Fees	\$ _____.	\$ _____.
III.	Change Order Services	\$ _____.	\$ _____.
IV.	Reimbursable Expenses	\$ _____.	\$ _____.
	Total Amount Earned as of This Statement		\$ _____.
	Less Total Amount Previously Billed		\$ _____.
	Total Amount Due This Statement	\$ _____.	\$ _____.

I certify that the above Statement for Services Rendered is correct and now due.

Signature

Title

Date

[Attach additional supporting information as appropriate for requested payment item. (e.g. for Additional Services to be compensated on an hourly-rate basis include schedule of personnel for Project A/E and each consultant who provided the service, the hourly rate, and the time expended. For Reimbursable Expenses, include receipts.)]

[To be submitted on Project A/E's letter head.]

FINAL PAYMENT CERTIFICATION AND LIEN WAIVER

The Project Architect/Engineer certifies that all persons, consultants and firms who supplied services to it in connection with this Project have been fully paid for their services or work items, or that they will be fully paid immediately upon receipt of this payment, and that there are no other outstanding debts, obligations or claims related to this Project for which the Owner may be liable or for which the Project Architect/Engineer will look to the Owner for additional payment. **This payment constitutes full and final payment to the Project Architect/Engineer and its consultants for all services provided for this Project and the Owner is not obligated to make any more payments on their behalf.**

In consideration of the payment herewith made, the undersigned does fully and finally release and hold harmless Owner from any and all claims, liens or right to claim or lien, arising out of this Project under any applicable bond, law or statute.

Signature

Date

FINAL HUB PLAN

The HUB Plan form for final payment is included with this Final Payment Request.

Yes ____ No ____

[To be submitted on Project A/E's letter head.]

HUB Subcontracting Plan (HSP) Prime Contractor Progress Assessment Report

This form must be completed and submitted to the contracting agency each month to document compliance with your HSP.

Contract/Requisition Number: _____ Date of Award: _____ Object Code: _____
(mm/dd/yyyy) (Agency Use Only)

Contracting Agency/University Name: _____

Contractor (Company) Name: _____ State of Texas VID #: _____

Point of Contact: _____ Phone #: _____

Reporting Period: ☐ - Jan. ☐ - Feb. ☐ - Mar. ☐ - Apr. ☐ - May ☐ - Jun. ☐ - Jul. ☐ - Aug. ☐ - Sept. ☐ - Oct. ☐ - Nov. ☐ - Dec.
(Check only one Month)

Total Contract Amount Paid this Reporting Period to Contractor: \$ _____

Report HUB and Non-HUB subcontractor information

Subcontractor's Name	Subcontractor's VID or HUB Certificate Number	Total Contract \$ Amount from HSP with Subcontractor	Total \$ Amount Paid This Period to Subcontractor	Total Contract \$ Amount Paid to Date to Subcontractor	Object Code (agency use only)
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
		\$	\$	\$	
TOTALS:		\$	\$	\$	

Signature: _____ Title: _____ Date: _____

Printed Name: _____ Phone No. _____

EXHIBIT F

PROJECT MILESTONE SCHEDULE

Owner's Standard Agreement

PROJECT MILESTONE SCHEDULE

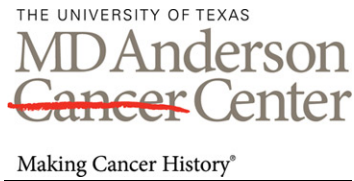
Activities shown in bold below must have the associated dates identified and included with this Agreement and represent services to be performed by Project A/E pursuant to this Agreement. Supplemental activities shown on the schedule below, for which dates are not yet defined, shall be determined at the completion of the Pre-design Phase or at such time when both parties mutually agree that the project is sufficiently developed and documented.

Activity:	Completion Date:
Pre-design Phase	
Owner Authorizes Project A/E to begin Pre-design (Programming) Phase	02/05/19
Owner Approves Pre-design Report	03/26/19
Agreement for Construction Manager-at-Risk Executed (<i>for Construction Manager-at-Risk Delivery</i>)	03/13/19
Schematic Design Phase	
Owner Authorizes Project A/E to Begin	03/27/19
Project A/E Submits SD Package for 95% Review	04/30/19
Joint Review Meeting for Owner Comments	05/07/19
Owner Approves Schematic Design	05/21/19
Design Development	
Owner Authorizes Project A/E to Begin	05/21/19
Project A/E Submits DD Package for 95% Review	07/12/19
Joint Review Meeting for Owner Comments	08/15/19
Owner Approves Design Development	08/16/19
Board of Regents Approval (<i>New Construction Projects Only</i>)	05/07/19
Owner Accepts Guaranteed Maximum Price Proposal (<i>CM at Risk Projects Only</i>)	03/04/20
Construction Documents Phase	
Owner Authorizes Project A/E to Begin	08/19/19
Project A/E Submits CD Package for 50% Review	10/08/19
Joint Review Meeting for Owner Comments	11/06/19
Project A/E Submits CD Package for 95% Review	12/19/19
Joint Review Meeting for Owner Comments	01/24/20
Project A/E Submits CD Package for 100% Review	03/09/20
Joint Review Meeting for Owner Comments	04/07/20
Owner Approves 100% Construction Documents	04/08/20
Construction Phase Activities	
Commencement (Construction Start) Date	04/01/20
Substantial Completion	03/22/21

EXHIBIT G

PRE-DESIGN PHASE DOCUMENTATION REQUIREMENTS

Owner's Standard Agreement



SRB Renovation Pre-Design Report

160131
DECEMBER 18, 2017

DRAFT

Facilities Planning Design & Construction

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I. PROJECT OVERVIEW

INTRODUCTION

The Smith Research Building houses research laboratories and the support spaces that serve those laboratories. This project has been proposed to convert approximately 22,500 square feet within the building into generic open laboratories to accommodate various lab based researchers.

All research laboratory spaces are to be of an open laboratory design with fully mobile casework. The ratio of open laboratory, laboratory support space, and office space will be equally proportioned; for example: 33 percent open laboratory, 33 percent laboratory support, and 33 percent office space. A planning module of an 11-foot planning grid for the open laboratory and laboratory support space is optimal. Layouts should incorporate strategically located infrastructure space to allow flexibility in the installation of initial and future mechanical, electrical, and plumbing services to minimize disruption to building occupants. Laboratory support space will include such areas as tissue culture rooms, chemical fume hood alcoves, darkrooms, environmental rooms, shared equipment rooms, and flex rooms that can be tailored to specific research needs. The uniqueness of this facility demands that function and flexibility be foremost in the design approach.

BACKGROUND

The mission of the University of Texas M.D. Anderson Cancer Center is to eliminate cancer in Texas, the nation, and the world through outstanding programs that integrate patient care, research and prevention, and through education for undergraduates and graduate students, trainees, professionals, employees, and the public. Our vision is that we shall be the premier cancer center in the world, based on the excellence of our people, our research driven patient care and our science. We are Making Cancer History. Our core values include: Caring – by our words and actions we create a caring environment for everyone. Integrity – we work together to merit the trust of our colleagues and those we serve. Discover – we embrace creativity and seek new knowledge. Our values guide our actions as we move toward transforming the Smith Research Building into a state-of-the-art research laboratory facility.

The laboratory space needed to accomplish these goals will be paramount to the success. The space will be renovated into an open laboratory design with a full complement of laboratory support spaces such as tissue culture labs, environmental rooms, common and shared equipment zones/rooms, shared chemical fume hood alcove and flex labs which can accommodate numerous research laboratory based equipment or processes. It will also have office and administrative space to support the research laboratory investigators and staff conducting research in the building.

OBJECTIVES

The primary objective of this project is to further the research mission of the University of Texas MD Anderson Cancer Center by providing state-of-the-art research space to support 21st century science and to provide the robust environment necessary to conduct high quality research and recruit the best and brightest to MDACC while enhancing and complementing many other programs at MD Anderson spanning basic, translational, and discovery research. It also will foster collaborative interactions on South Campus, within MDACC and with other institutions.

Primary objectives for this project include the following:

1. Creating research lab space that offers maximum flexibility and adaptability for any MDACC research client
2. Ensuring the building infrastructure can support 21st century research, the spaces created for this project and future build-outs
3. Update the current research lab space metrics that provide the ratio for lab to support space
4. Ensure the project area and paths of travel meet ADA / TDLR accessibility standards

PROPOSED RESOLUTIONS

1. Heavy renovation to include, but not limited to:
 - A. Replacement of building MEP systems that serve the project area and/or the building
 - B. Complete demolition and build back within the project area
 - C. A review and potential upgrade of elements within the building required to be accessible (restrooms, parking lot, entry doors, etc.)
 - D. Purchase and installation of lab equipment

CONDITIONS OF APPROVAL

1. Project is approved to move forward by the Board of Regents
2. Preliminary budget, schedule and scope is set and approved by the Research Core Team / BoR
3. Project is approved to move forward as part of the CIP

SPACE REQUIREMENTS

The functional space program of the Smith Research Building includes the following functional areas:

Laboratories: the room, equipment, utilities, and furnishings in which research and special investigations are undertaken. The space may support both “wet” and/or “dry” investigations. It also may or may not accommodate technician’s desks or workstations as needed.

Laboratory Support: Rooms supporting the laboratory investigations that may include such functions as tissue culture, cold rooms, dark rooms, large equipment and freezer rooms, shared instrumentation rooms, and flex labs which can accommodate numerous research modalities such as scope rooms, imaging rooms, cell sorter, proteomics, robotics and informatics.

Administrative, Office and Conference Rooms: Rooms in which faculty and support staff (i.e., technicians, students, administrative personnel) office. Conference rooms may be didactic classrooms, seminar rooms, break rooms or small dining areas, private conference areas or multipurpose rooms with fixed, all mounted library shelving and storage and may include videoconferencing capabilities. Amenities for these areas, such as coffee bars, refrigerators, bulletin boards, display rails for presentations and posters as well as white boards or write-on walls in informal discussion niches should be provided as a means of fostering collaboration and discussion.

Building Support: These areas include lobbies, corridors, storage, restrooms, mechanical rooms, delivery and waste removal staging, centralized glasswash and sterilizer facilities, centralized liquid nitrogen freezer rooms, housekeeping and security.

Refer to the attached drawings and spreadsheet for program components (Attachment 1 per list of Attachments at the end of Part I).

TRAFFIC FLOWS/ADJACENCIES

Affinity relationships between room types:

The strongest relationship are between the laboratories and the laboratory support facilities. The laboratory support spaces are located directly adjacent to the laboratory zone. This allows for the co-location of MEP intense room types to obtain heat load efficiencies yet allows for the close proximity for the research staff to perform efficient work habits. The research offices housing the faculty, post-doctoral fellows, graduate students and technicians should be located in close proximity to the laboratory but need not be considered a portion of either component. This permits the engineer to take advantage of mechanical systems that permit recirculation within the office components but not in the laboratory or laboratory support zones. Opportunities for collegial exchange in the office complex should be both formal, such as seminar, meeting rooms, or “huddle rooms” (rooms that have a small work table and two or six chairs that are appropriately sized to handle overflow or staff offices) and informal areas where random interactions are encouraged (e.g., at coffee bars, mail rooms, and at the copiers, adjacent to poster

corridor displays, and in corridor where conversation niches can accompany white boards and/or bulletin boards for review and discussion)

Laboratory and Laboratory Support Areas:

To address the highest possible efficiencies in the program and provide for a truly collaborative setting to develop the research and educational program, we request an open lab environment with immediately contingent laboratory support space. Here all of the support areas are integrated and completely accessible to the open laboratory. Services such plumbing, electrical, and data should be located in ceiling service panels, electrical track busways and/or by utilizing other innovative and flexible service systems. Tissue culture rooms should be large enough to support multiple investigators with dedicated biological safety cabinets and incubators and either dedicated or shared microscopes, water baths, refrigerators, and table top centrifuges. All tissue culture labs should have the ability to become positive or negative pressure based on the criteria of work being performed and designated by Employee Health and Environmental Health & Safety. Most ancillary support equipment, for example, additional refrigerators, freezers, beta-counters, balances, etc. are accessible in the integral shared and core equipment rooms or in the ghost equipment corridor. Staff access should be through multiple points and have quick access to the office areas. All laboratories are to be designed to Biosafety Level 2 providing directional airflow as required.

Office and Administrative Support Areas:

The office and administrative areas must integrate faculty offices, post-doctoral and graduate student trainees, as well as the administrative support for each group. This area may also house dry lab functions such as computational labs that will support the wet lab functions on the floor. As many offices as possible should have natural light and an outside vista. Flexibility in furnishings shall be the hallmark of these rooms as they are intended to flex from faculty, administrative, postdoctoral, support, or dry lab functions rooms over the life of the facility.

The offices should be readily accessible by all laboratory staff and should be located as close as possible to the laboratory and lab support zone. Zoning these functions adjacent but separate gives the engineers the ability to use this mechanical zone to augment supply to the 100% outside air laboratory thereby reducing some of the conditioned make-up air required in the more energy intensive areas. Post-doctoral and graduate student offices can be grouped to facilitate interaction, yet provide quiet space for more contemplative work. Likewise, private research faculty can be housed within the same space but apart from the more active areas for mentoring, grant work, and collegial discussions. The department may also elect to house technicians and others in these areas instead of the laboratory. Computational labs and some dry labs can also be accommodated in the administrative spaces on the floor. The space should be designed for the diverse mix of research staff.

Provisions for planned future growth and expansion:

Open laboratories with closed flex laboratories in the lab support space should afford for future planned expansion or changes in research functions. Repeating laboratory modules not only provide consistency in benches and support to the research mission, but also give the department the ability to address allocation of both dedicated and shared space based on the research density metric. Since the modules are based on a standard

planning module, 11' x 11', providing a standard lab module of 11' x 33', support and office of 11' x 11' and other space as variants of the two, the structure and utility systems also give the department the ability to subdivide or expand modules as technology, staff, or equipment needs demand. Extended to the mechanical support systems, the modular approach not only gives flexibility for future growth, but also improves efficiency by reducing the number and types of spare critical components, facilitates training and maintenance, and provides an opportunity for redundancy in services.

General Guidelines:

1. The CDC-NIH Guidelines of the US Department of Health and Human Services governing Biosafety in Microbiological and Biomedical Laboratories will govern the design and operation of the research laboratories where biological agents are employed; guidelines for the Nuclear Regulatory Commission and the Texas Nuclear Regulatory Commission shall govern the use of radioisotopes in the facility; and guidelines of the International Commission on Non-Ionizing Radiation Protection and Laser Institute of America shall govern the use of lasers within these facilities. The department of Environmental Health and Safety of the UT MD Anderson Cancer Center shall serve as the institution's Authority Having Jurisdiction where issues involving biohazards, radioisotopes, and lasers are concerned.

Design criteria for laboratory (addressed in detail in Space and Adjacency Requirements) shall first consider the safety, security, and well-being of its staff and resources; secondly, prudent practices in the research environment, and finally, sustainability issues and energy conservation.

2. The most recent Codes and Guidelines of the various regulatory and oversight agencies shall be used in the design of the facility.
3. To insure long-term viability of the new facilities, the space should be designed on a modular basis utilizing the 11' x 11' planning module.
4. Adequate space shall be set aside to provide collaborative space for investigators, trainees, and support staff. These spaces should promote interaction both horizontally and vertically to lessen the creation of silos sometimes located within high rise research buildings. While these may be "soft" program spaces, every opportunity to promote diverse interaction should be considered in design.
5. The criteria of furnishings and finishes shall primarily be based on the needs of the research programs (e.g., durability, chemical, scratch and impact resistance, cleanability, etc.) and may include the use of nonstandard components after the review of the core team to meet the design objectives and project budget.
6. Where feasible, the use of natural lighting throughout the research and administrative areas of the facility is encouraged.
7. The use in sustainability in construction and materials should be employed if they address functional need, have proven history and meet budgetary requirements.
8. The research program shall be operated twenty-four hours a day, 365 days a year. Therefore, provisions to maintain controlled, uninterrupted operation via emergency power generators and dual feeds for the laboratory and laboratory support areas shall be provided. The allowance of energy saving methods such as temperature or air exchange rate setbacks can be investigated if proven history of safety and functionality of space can be maintained.

SUPPORT SERVICES

Responsibility for the daily maintenance and housekeeping requirements for this area is within the following Facilities Management departments: Research and Administrative Facilities and Environmental Health and Safety. MD Anderson Information Technology and MD Anderson Network Services will support telecommunication / network infrastructure. The University of Texas Police Department – Houston will also support this area.

EXISTING FINISHES AND SITE CONDITIONS OF PROJECT AREA

New finishes will not need to match existing finishes, but they should complement them. Existing MEP systems are to be reviewed by the A/E team to determine if they will be adequate for the renovated space. Once reviewed and evaluated, upgrades to existing MEP systems may become a separate project funded by CRR funds.

ADJACENT AREAS

The proposed space includes 22,500 square feet of the 1st floor of the Smith Research Building. The Departments of Cancer Biology, Plastic Surgery – Research, Pediatrics – Research, Vet Medicine – Research, and Laboratory Medicine Research – Administration occupy the spaces adjacent to the area to be renovated.

FURNITURE, FIXTURES AND EQUIPMENT

All new furniture, equipment, finishes, laboratory mobile casework, etc., will be based upon MD Anderson institutional standards wherever applicable. Existing furniture will be used where applicable.

SPECIAL ISSUES OR CONSIDERATIONS

The building will remain operational during construction. Night time and/or weekend work may be necessary. Infection control procedures will need to be maintained during demolition / construction (as determined by an EH&S review prior to the commencement of work). An asbestos review will be needed prior to any construction activities.

GENERAL SCOPE OF WORK FOR DEMOLITION / CONSTRUCTION

The general scope of renovation work is anticipated to include the following:

- Complete demolition and build back within the project area (~22,500 square feet)

- Including all applicable architectural, mechanical, electrical, plumbing, telecom, security and audio visual systems
- New space types will include:
 - Open laboratories
 - Lab support (tissue culture, cold rooms, dark rooms, equipment rooms, flexible labs, etc.)
 - Administrative support (private offices, open seating, conference rooms, etc.)
 - Building support (corridors, restrooms, mechanical rooms, waste removal staging, housekeeping, etc.)
- Upgrade and/or replacement of the building MEP systems that serve the project area and/or the building, including:
 - IT Closet (IDR)
 - Existing AHU(s)
 - Sanitary sewer and domestic water systems
 - Generator
 - Environmental rooms
 - LED lighting
 - Roof mounted exhaust fans
- Review and upgrade of elements associated with ADA accessibility to meet current codes and requirements, including, but not limited to:
 - Parking
 - Access to and from the building parking areas
 - Building entry
 - Restrooms
 - Shared spaces
 - Breakrooms
- Installation of new laboratory equipment and casework

SCHEDULE / PHASING

1. The current deadline for the commencing of renovation work is January 1st, 2019.
2. The project may be constructed in phases as recommended by the Architect/Engineer and Owner's Project Manager utilizing vacated areas as swing space.
3. Final phasing will be documented in the Construction Documents.

BUDGET / FUNDING

The project budget estimate is \$11,000,000, and includes construction, architectural/engineering fees, contingencies, telecommunications, security, furniture, equipment and internal/other associated project costs. Funding is to be provided through the COH Budget.

OUTSTANDING ISSUES

1. There is currently an occupant within the footprint of the project area that will need to be relocated prior to the project moving forward.
2. A review of support spaces within the project area AND used by groups that will not be vacating the building will need to be performed to ensure no functionality is lost during construction activities.
3. A determination on which, if any, existing building infrastructure system/component will be changed/upgraded/removed as part of the project is needed.

REQUIRED ACTIONS / NEXT STEPS

The next steps, in order, include the following:

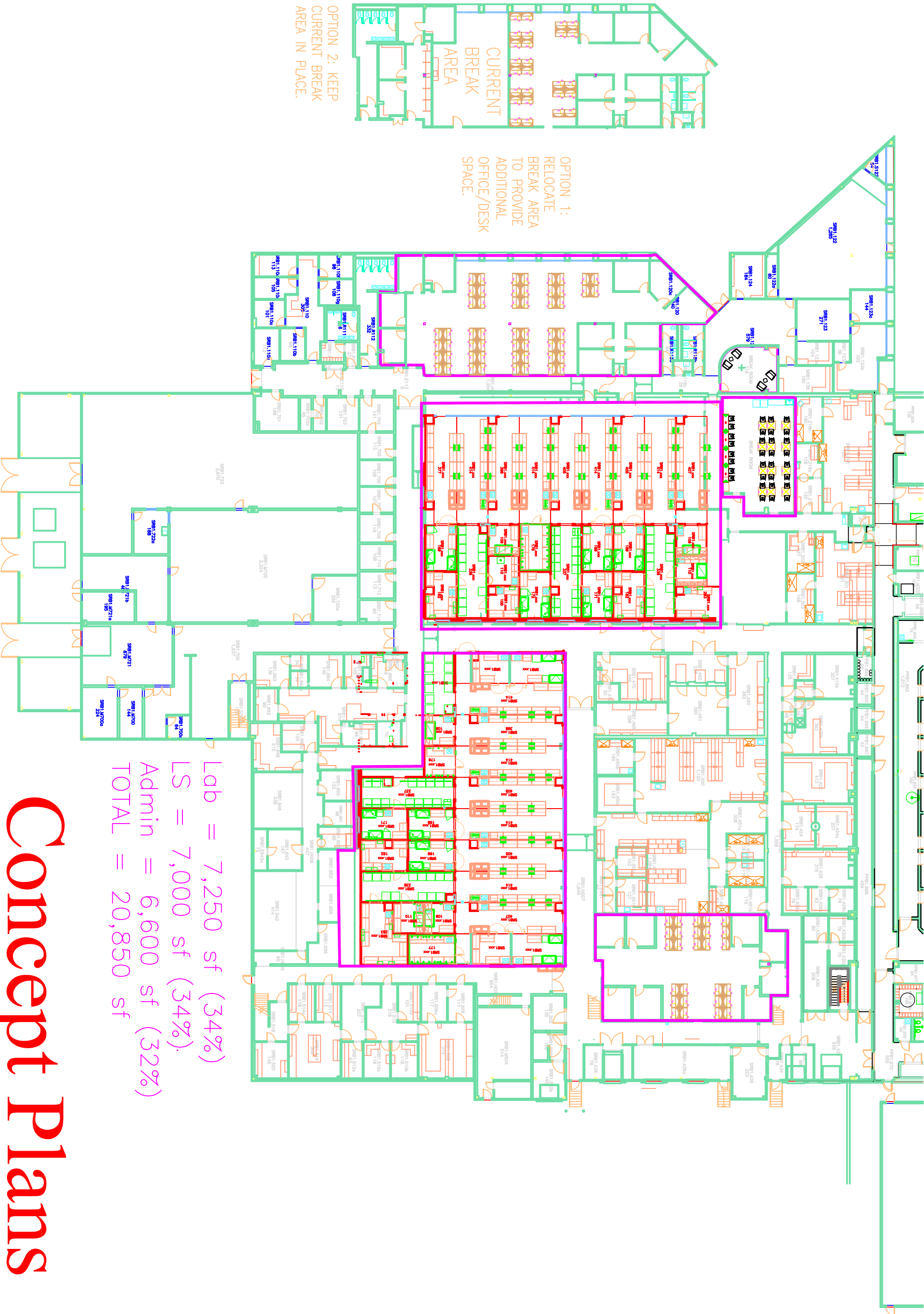
1. Complete a Design Definition letter to be submitted to the BoR
2. Issuance of a Funding Authorization Transmittal, allocating funds to begin the programming and SD phases
3. Retention of an Architectural and Engineering consultant to commence programming

ATTACHMENTS

1. Existing Space Plan and Conceptual Proposed Plan
2. Owner's Design Guidelines
3. Lab support space room templates

OPTION 1:
RELOCATE
BREAK AREA
TO PROVIDE
ADDITIONAL
OFFICE/DESK
SPACE.

OPTION 2: KEEP
CURRENT BREAK
AREA IN PLACE.



Lab = 7,250 sf (34%)
LS = 7,000 sf (34%).
Admin = 6,600 sf (32%)
TOTAL = 20,850 sf

Concept Plans

EXHIBIT H

ANTICIPATED PRE-DESIGN PHASE DELIVERABLES

Owner's Standard Agreement

ANTICIPATED PRE-DESIGN PHASE DELIVERABLES

The Project A/E shall be responsible for coordinating and compiling all of the Pre-Design Phase materials in the form of a report (with exhibits as required); in the sequence established in the Owner's Pre-Design Report Template. The primary and secondary parties responsible for generating the materials will be as follows:

<u>Work Area from Template</u>	<u>Primary/Secondary Responsibility</u>
Pre-Design Report Schedule	Project Architect
I. Project Description	
Introduction	Owner
Background	Owner
Objectives	Owner
Proposed Resolution	Project Architect
Conditions of Approval	Project Architect/Owner
Space Requirements	Owner/Project Architect
Traffic Flows/Adjacencies	Owner/Project Architect
Support Services	Project Architect/Owner
Existing Finishes and Site Conditions	Owner/Project Architect
Adjacent Areas	Owner/Project Architect
Furniture, Fixtures and Equipment	Project Architect/Owner
Accessibility	Project Architect/Owner
Plumbing Fixture Count	Project Architect/Owner
Special Issues or Considerations	Project Architect/Owner
Scope of Work – Demolition/Construction	Project Architect/Owner
Schedule/Phasing	Project Architect/Owner
Budget/Funding	Owner
Outstanding Issues	Project Architect/Owner
Required Action/Next Steps	Project Architect/Owner
Signatures	Owner/Project Architect
Attachments	Project Architect/Owner
II. Project Design and Implementation	
TAS/ADA/Code Requirements	Project Architect/Owner
Special Issues or Considerations	Project Architect/Owner
Scope of Work – Demolition/Construction	Project Architect/Owner
Schedule/Phasing	Project Architect/Owner

EXHIBIT I

OWNER'S DESIGN GUIDELINES

Owner's Standard Agreement

MD ANDERSON CANCER CENTER DESIGN GUIDELINES

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Preface	-----	ODG030513
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2010	Instructions for the Preparation of Project Manuals	-----	ODG080415
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Construction Systems and Assemblies

Element A - Substructure

A10 Foundations

A1010	Standard Foundations	-----	ODG070810
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A1030	Slab on Grade	-----	ODG091610
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Element B - Shell

B10 Superstructure

B1010	Floor Construction	-----	ODG112211
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B1020	Roof Construction	-----	ODG091610
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B20 Exterior Enclosure

B2010	Exterior Walls	-----	ODG041712
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B2020	Exterior Windows	-----	ODG091610
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B2030	Exterior Doors	-----	ODG041712
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B30 Roofing

B3010	Roof Coverings and Support Structures	-----	ODG041712
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Element C - Interiors

C10 Interior Construction

C1010	Partitions	-----	ODG030513
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C1020	Interior Doors	-----	ODG121312
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C1030	Fittings and Interior Specialties	-----	ODG030513
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C1031	Fabricated Toilet Partitions	-----	ODG100908
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C1038	Casework	-----	ODG061412
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C1039	Laboratory Casework and Equipment	-----	ODG051415
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C20 Stairs

C2010	Stair Construction	-----	ODG081408
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MD ANDERSON CANCER CENTER DESIGN GUIDELINES

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C30 Interior Finishes

C3010	Wall Finishes	-----	ODG032113
C3020	Floor Finishes	-----	ODG032113
C3025	Base Finishes	-----	ODG032113
C3030	Ceiling Finishes	-----	ODG013113

Element D – Services

D10 Conveying

D1010	Elevators and Lifts	-----	ODG020311
D1020	Escalators	-----	ODG031009

D20 Plumbing

D2000	General Design Guidelines	-----	ODG120811
D200002	Parking Garage Plumbing Design Guidelines	-----	ODG010107
D2010	Plumbing Fixtures	-----	ODG081816
D201001	Emergency Shower and Eyewash Equipment	-----	ODG041113
D201002	Plumbing Fixtures for Open Parking Garages	-----	ODG010107
D2020	Domestic Water Distribution	-----	ODG121515
D202001	Domestic Water Distribution for Open Parking Garages	-----	ODG010107
D2030	Sanitary Waste and Vent	-----	ODG040512
D203001	Sanitary Waste and Vent for Open Parking Garages	-----	ODG111009
D2035	Laboratory Waste and Vent	-----	ODG111009
D2040	Storm Water Drainage	-----	ODG111110
D204001	Storm Water Drainage for Open Parking Garages	-----	ODG111009
D2050	Natural Gas Distribution	-----	ODG010107
D2060	Medical Vacuum and Gas Systems	-----	ODG111512
D2065	Laboratory Vacuum and Gas Systems	-----	ODG111512

D30 Heating, Ventilating, and Air Conditioning (Includes BAS)

D3000	General Design Guidelines	-----	ODG011912
D300001	Renovation General Design Guidelines	-----	ODG030513
D3001	Load Calculation Criteria	-----	ODG032113
D300101	Patient Treatment Load Calculation Criteria	-----	ODG020410
D300102	Laboratory Load Calculation Criteria	-----	ODG070810
D3002	Sound Criteria	-----	ODG120908
D3010	TECO Energy Supply	-----	ODG091610
D3015	UTRP Energy Supply	-----	ODG051707
D3020	TECO Heat Generating Systems	-----	ODG091610
D3025	Steam Boilers and Associated Equipment	-----	ODG120908
D3026	Hot Water Heating Boilers	-----	ODG120908
D3030	TECO Cooling Generating Systems	-----	ODG091610

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D501001	Electrical System for Telecommunications Rooms	-----	ODG061412
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D5022	Master Lighting Fixture Schedule	-----	ODG021915
D5030	Telecommunications	-----	ODG021915
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EXHIBIT J

OWNER'S BUILDING INFORMATION MODELING REQUIREMENTS

Owner's Standard Agreement

BUILDING INFORMATION MODELING REQUIREMENTS

Owner has determined that this project is a [\[insert project type using definitions in 1.3.16 or 1.3.17, below\]](#) 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 Information Matrix

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 or equipment.

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 K

CONSTRUCTABILITY IMPLEMENTATION PROGRAM

Owner's Standard Agreement

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 Team Meeting with Constructability Consultant

- Identification of all project 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 following.
- 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 Constructability Consultant

- Attend project 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 Team and Constructability Consultant

- 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 Constructability Consultant

- Attend project 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 Constructability Consultant 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 Team and Constructability Consultant

- 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 Constructability Consultant

- Attend project 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 Constructability Consultant shall consult and resolve any differences in their respective Cost Quantity Surveys.

2.5.2 Project Team and Constructability Consultant

- Review constructability recommendations, documentation and Cost Quantity Surveys for acceptance.

3.0 Close-out Documentation

3.1 Constructability Consultant

- Complete all documentation to summarize the accomplishments or the constructability effort.

3.2 Project Team and Constructability Consultant

- Review documentation for acceptance.

EXHIBIT L

OWNER'S COMMISSIONING REQUIREMENTS

Owner's Standard Agreement

Element Z General Design Requirements

Owner Standards and Other
Requirements

Z2035 Project Commissioning

PART 1 - GENERAL

1.01 OVERVIEW

- A. MD Anderson is committed to commissioning our facilities to ensure that all systems are complete and functioning properly upon occupancy and that the facility staff has adequate system documentation and training. Commissioning refers to a systematic process confirming that building systems have been installed, properly started, and consistently operated according to criteria set forth in the Contract Documents, that all systems are complete and functioning in accordance with the A/E's Design Intent Document at Substantial Completion, and that the Contractor has provided MD Anderson's facility staff with adequate system documentation and training.
- B. MD Anderson may contract directly with a Commissioning Authority as an extension of Owner's staff, to perform technical reviews of project design documents, observe completion of construction, verify equipment and system startup by Contractor or Subcontractor, observe prefunctional tests and functional performance tests of systems and integrated systems against requirements of the project Contract Documents, track deficiencies, and recommend solutions. The Commissioning Authority has authority only as delegated by the Owner, but has no authority to alter design or installation procedures.
- C. To clarify the A/E's role in the design and construction process, this Design Guideline Element describes the intended scope of services that both the Commissioning Authority and A/E will be responsible for.

PART 2 - COMMISSIONING AUTHORITY'S RESPONSIBILITIES

2.01 GENERAL

- A. In general, the Commissioning Authority, if retained by MD Anderson, will provide the following services during the Project's Design and Construction Phases.

2.02 DESIGN PHASE

- A. Review and comment on project Drawings and Specifications for clarity, completeness, and compliance with the Owner's Design Guidelines.
- B. Recommend alternative design approaches or value engineering items based on project Design Phase reviews.
- C. Work with the A/E to make modifications and/or additions to the Master Construction Specifications for coordination with Commissioning requirements specific to the project scope.

2.03 CONSTRUCTION PHASE

- A. Provide input to the Contractor on the first draft Commissioning Plan. The Commissioning Plan is a document prepared by the Contractor and approved by MD Anderson that provides

Element Z General Design Requirements

Owner Standards and Other Requirements

Z2035 Project Commissioning

the structure, schedule, and coordination planning for the Commissioning process from the construction phase through the warranty period. Review the Commissioning Plan for completeness.

- B. Participate in Contractor's Pre-Installation meetings and Pre-Commissioning meetings with subcontractors.
- C. Review Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with A/E and MD Anderson reviews.
- D. Review Test, Adjust, and Balance (TAB) execution plan and review completed TAB reports.
- E. Before startup, gather and review current control sequences and interlocks and work with Contractor and A/E until sufficient clarity has been obtained, in writing, to be able to prepare detailed testing procedures.
- F. Verify start-up and prefunctional testing of all systems as defined in the Commissioning Plan. Monitor execution of functional performance testing, Owner demonstration of tests, integrated systems testing, and document results, follow-up, and signoffs.
- G. Provide solution recommendations on deficiencies noted during the Commissioning process.
- H. Perform site visits, as necessary, to observe component and system installations. Attend selected project meetings to obtain information on construction progress. Review project construction meeting minutes for revisions/substitutions relating to the commissioning process. Assist in resolving any discrepancies.

PART 3 - ARCHITECT/ENGINEER'S RESPONSIBILITIES

3.01 GENERAL

- A. The following describe the A/E's activities to support the commissioning process from the design phase through construction.

3.02 DESIGN PHASE

- A. Document the development of design intent and operating parameters by all A/E team members within a document titled "Design Intent Document". The Design Intent Document describes the complete architectural and engineering design intent for the project including design guiding principles, assumptions, issues, recommendations, and narrative assessment of the architectural and infrastructure systems that comprise the building.
- B. Update the Design Intent Document at each phase of design to incorporate current design documentation. Refer to Design Guideline Element Z2010 Design Submittal Requirements for additional information on the Design Intent Document format.
- C. Adapt Owner's Master Construction Specifications to apply to project-specific applications.
- D. Specify control sequences of operation within the Contract Documents.

Element Z General Design Requirements

Owner Standards and Other
Requirements

Z2035 Project Commissioning

- E. Clarify the operation and control of equipment and systems to be commissioned where the Contract Documents are not sufficient for writing the Commissioning Plan and detailed test procedures.
- F. Participate in project meetings related to commissioning activities.

3.03 CONSTRUCTION PHASE

- A. Review prefunctional checklist, functional performance test, and integrated system test procedures and results.
- B. Review functional performance test trend log data.
- C. Review training plan.
- D. Review test, adjust, and balance execution plan.
- E. Coordinate resolution of design and operational deficiencies identified during commissioning, according to the Contract Documents.
- F. Review operating and maintenance manuals.
- G. Coordinate resolution of design non-conformance and design deficiencies identified during warranty-period commissioning.
- H. Participate in project meetings related to commissioning activities.

PART 4 - PRODUCTS

4.01 GENERAL

- A. Refer to Master Construction Specifications for fire suppression, plumbing, mechanical and electrical commissioning requirements, including examples of prefunctional checklists and functional performance tests to be used during the commissioning process.

Element Z General Design Requirements

Owner Standards and Other
Requirements

Z2035 Project Commissioning

PART 5 - DOCUMENT REVISION HISTORY

Issue	Date	Revision Description	Reviser
	01-01-07	Initial Adoption of Element	
Rev. 1	12-17-13	Changed the term "Commissioning Consultant" to "Commissioning Authority" throughout document. Added fire suppression and plumbing to 4.01 A.	DOS
Rev. 2			
Rev. 3			
Rev. 4			
Rev. 5			

END OF ELEMENT Z2035

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)	Mainsewer Work Group (from MDACC)	Mainsewer Group Code (from MDACC)	Estimated Service Life (from MDACC)
I	System																			
S	Component																			
C	Unit																			
U	Unit 1																			
U	Unit 2																			
U	Unit 3																			
I	MECHANICAL																			
S	CWS- Chilled Water System																			
C	Pump																			
U	U.1																			
S	AHU- Air Handling Units																			
C	VFD																			
U	Air Terminal Units																			
C	FCU- Fan Coil Units																			
U	CRAC- Computer Room Air Condition Units																			
S	Fans																			
C																				
I	PLUMBING																			
S	Domestic Water System																			
C																				
U	U.1																			
S	Diesel Fuel System																			
U																				
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 M

**RIDER 104; POLICY ON UTILIZATION OF
HISTORICALLY UNDERUTILIZED BUSINESSES**

Owner's Standard Agreement

EXHIBIT N

PROJECT ARCHITECT/ENGINEER'S APPROVED HUB SUBCONTRACTING PLAN

Owner's Standard Agreement

EXHIBIT O

RIDER 105; CONTRACTOR'S AFFIRMATIONS AND WARRANTIES

Owner's Standard Agreement

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 P

RIDER 106; PREMISES RULES

Owner's Standard Agreement

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 Q

RIDER 107; TRAVEL POLICY

Owner's Standard Agreement

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 R

RIDER 116; INVOICE PAYMENT REQUIREMENTS

Owner's Standard Agreement

RIDER 116
INVOICE PAYMENT REQUIREMENTS

Section 1. CONTRACT VALUE

Absent prior written authorization, invoices for amounts in excess of the Cap Amount will not be paid and will be returned unpaid.

Section 2. INVOICE ROUTING; FORMAT; TIMELINESS

2.1. Invoice Submission Location: MD Anderson cannot retrieve invoices through Contractor's website and can only accept invoices through the following format (listed in order of preference):

Submittal Format	Submittal Address
EDI	Qualifying Contractors contact: Accounts Payable 713.745.9439
E-mail (one invoice per e-mail in PDF form)	mdaccap@mdanderson.org
United States Postal Service	Accounts Payable – Unit 1699 P.O. Box 301401 Houston, TX 77230-1401
Carrier (UPS, Fed Ex, etc.)	The University of Texas MD Anderson Cancer Center Accounts Payable 7007 Bertner Ave – Unit 1699 Houston, TX 77030

2.2. Electronic Invoice: An electronic invoice shall be provided in a secure, non-alterable electronic format (Adobe *.pdf is acceptable) e-mailed directly to mdaccap@mdanderson.org with the Contractor name and invoice number in the e-mail Subject line. Do not send or copy the MD Anderson Accounts Payable representative. MD Anderson will accept only one invoice per e-mail and all invoices must include a valid MD Anderson Purchase Order Number. Invoices without a Purchase Order Number or an incorrect Purchase Order Number will be returned unpaid to the Contractor.

2.3. Effective Invoice Period: Contractor will submit invoices within sixty (60) calendar days after delivery of the goods or complete performance of the services invoiced. MD Anderson will not be obligated to pay invoices that are not received within sixty (60) calendar days after delivery of the goods or complete performance of the services, unless acceptable delays are identified and approved in writing by MD Anderson prior to the delay.

2.4. Third Party Invoicing: MD Anderson does not accept invoicing from third parties acting on behalf of the vendor.

Section 3. ACCURATE BILLING

3.1. Invoice Requirements: Each invoice must include:

- Billing related to only one valid MD Anderson Purchase Order.
- Invoice should be an original version and without manual or written changes.
- Valid MD Anderson Purchase Order Number clearly stated on the face of the invoice.
- Contractor's legal name and "remit to" address, telephone and fax numbers.
- A uniquely assigned invoice number.
- An invoice date.
- The MD Anderson "bill to" address listed in Section 2.1 for the United States Postal Service submittal format.
- A description of the goods or services purchased with the line item purchase price.
- The correct invoice amount (invoices that contain an incorrect amount or a disputed amount will need to be revised and resubmitted).
- For goods, the manufacturer's part number, item description, quantity shipped, and unit price.
- A line item for all freight, shipping and handling costs related to the invoice (not billed separately).

RIDER 116

INVOICE PAYMENT REQUIREMENTS

- Line items matching MD Anderson Purchase Order line items (invoice lines must exactly match, or be less than, MD Anderson Purchase Order line items).

Each invoice must be a standard typed original invoice on Contractor letterhead. MD Anderson will not make payments based on statements, quotations, service contracts, shipping/packing slips, calculator tapes, work orders, pro-forma statements, Letter of Intent, Memorandum of Understanding or other non-invoice documents.

3.2. Deductions: MD Anderson may reduce payment to Contractor for sales tax (for more information refer to Section 8.9 of the Agreement).

3.3. Credit Memoranda: Credit memoranda submitted to MD Anderson must include the Invoice Requirements set out in Section 3.1 of this Rider 116, as well as the following:

- The phrase “Credit Memo” in clear and apparent text.
- A uniquely assigned Credit Memo number.
- A description of the goods or services credited.
- A valid Purchase Order Number against which MD Anderson may credit the Credit Memo amount.

Section 4. ACH PAYMENT DISBURSEMENT METHOD

4.1. Preferred Payment Method – Automated Clearing House (ACH): MD Anderson’s preferred process for settling financial obligations is to utilize the National Automated Clearing House Association (NACHA) standard Cash Concentration and Disbursement (CCD) format. This industry standard process is utilized and recognized by most payees as the most efficient, safe and timely way to transfer funds. Our goal is that every payment made by MD Anderson is made via electronic funds transfers, unless legally prohibited. This service may be set up by contacting MD Anderson’s Treasury Services and Operations office at 713-745-9580 or by e-mail: TreasuryServices@mdanderson.org.

Upon payment initiation, your company will receive the remittance information by e-mail with an attached Adobe Acrobat PDF file containing information detailing the payment date, invoice number, dollar amount, etc. Questions regarding this matter can be directed to MD Anderson’s Treasury Services and Operations office at 713.745.9580 or by e-mail: TreasuryServices@mdanderson.org.

4.2. Check Disbursement: MD Anderson initiates payment disbursements on Tuesdays and Thursdays with typical funds availability the following business day.

4.3. Accounts Payable Invoice Approval Process:

4.3.A Goods: MD Anderson requires a 3-way match for payment on Purchase Orders for goods. The 3-way match includes a MD Anderson Purchase Order, a MD Anderson Materials Management Receipt, and a Contractor Invoice.

4.3.B Services: MD Anderson requires a 2-way match for payment on Purchase Orders for services. The 2-way match includes a MD Anderson Purchase Order and a Contractor Invoice. In addition, complete performance of services must be verified by an appropriate MD Anderson representative before an invoice for such services will be paid unless otherwise stated in the Agreement.

Section 5. SUPPLIER INQUIRY OPTIONS

5.1. Payment Inquiry: Contractor may research invoice status by contacting the MD Anderson Accounts Payable Department through the following methods (a MD Anderson Purchase Order Number and/ or Contractor Invoice Number is required):

- E-Mail (questions only): mdaccAPIquiry@mdanderson.org
- Telephone: 713.745.9439
- Vendor Self Service (VSS) System: VSS is a secure, web-based system that allows Contractors to research detailed information regarding invoice status and MD Anderson payments online. To register for this service visit <http://mdanderson.org/suppliers> or call 713.745.7997.

5.2. Reconciliation of Payment: MD Anderson notifies Contractor that invoices have been paid by payment stub for standard check payments and e-mail for ACH payments.

RIDER 116
INVOICE PAYMENT REQUIREMENTS

Section 6. MATERIALS MANAGEMENT

6.1. Freight: MD Anderson does not accept Collect On Demand (COD) shipping.

6.2. Receiving/Logistics/Dock: All deliveries must reference a valid MD Anderson Purchase Order Number or risk being turned away. Purchase Orders for goods not delivered to a MD Anderson receiving dock risk payment delays, unless otherwise stated in the Agreement.

MD Anderson Receiving Docks	
MD Anderson Hospital 1515 Holcombe Blvd. Houston TX 77030-4009	Basic Sciences Research Building 6767 Bertner Houston, TX 77030-2603
Houston Main Bldg./ Ambulatory Clinical Bldg./ Mays Cancer Prevention Bldg. 1155 Pressler Street Houston, TX 77030-3721	Faculty Center Building 1400 Holcombe Blvd. Houston, TX 77030-4008
Smith Research Bldg. 7777 Knight Road Houston, TX 77054-3005	South Campus Research Bldg. II 7435 Fannin Street. Houston, TX 77054-1901
Proton Therapy Bldg. 1840 Old Spanish Trail Houston, TX 77054-2002	

Section 7. GOVERNING LAWS

7.1. W-9: MD Anderson requires Contractor to have a valid W-9 on file with MD Anderson prior to all disbursements. Contractor may download the W-9 form from MD Anderson's website by accessing the Supply Chain Management Internet site at: <http://mdanderson.org/suppliers> then clicking on "Contract Information."

7.2. Prompt Payment Act: All funds held by MD Anderson are subject to the Texas Prompt Payment Act, Chapter 2251, *Texas Government Code*. Chapter 2251 of the *Texas Government Code* governs (i) when a payment by MD Anderson is overdue, and (ii) the rate of interest that accrues on such overdue payments.

EXHIBIT S

RIDER 117; INSTITUTIONAL POLICIES

Owner's Standard Agreement

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 T

SALES AND USE TAX EXEMPTION CERTIFICATION

Owner's Standard Agreement

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 Senior Vice President and CFO	Date 07/13/2017
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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 U

EXECUTION OF OFFER

Owner's Standard Agreement