

November 15, 2019

Endur Contractors LLC

[REDACTED]
4750 Kennedale New Hope Road
Fort Worth, Texas 76140

Via Electronic Mail

[REDACTED]

RE: Notification of Award: University of North Texas System Request for Proposal (RFP) 752-20-934DH, Trades Job Order Contracting 2020

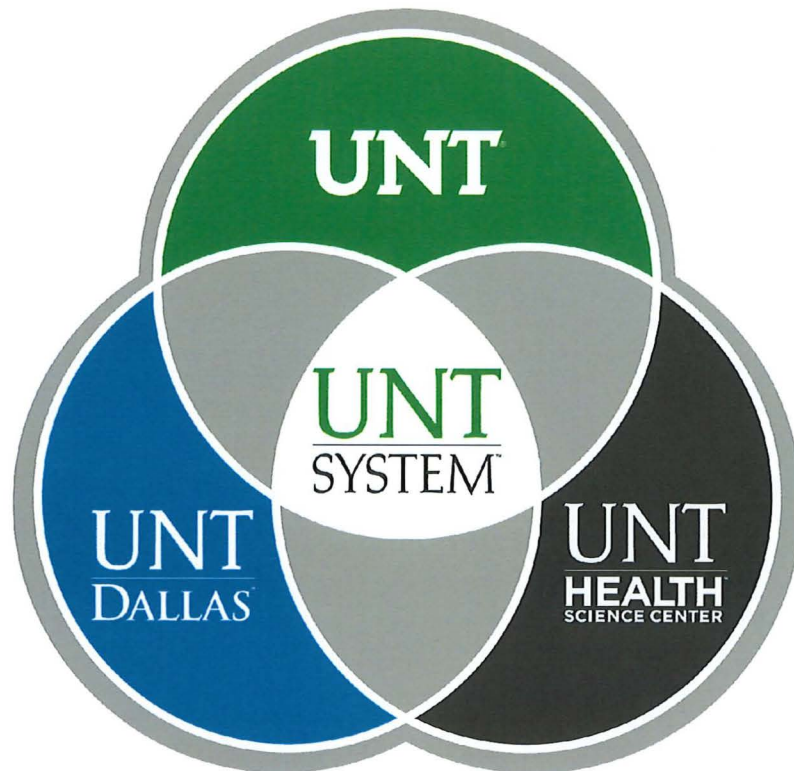
Dear Mr. Rodriguez:

Thank you for your proposal submission on the Trades Job Order Contracting 2020 RFP. Endur Contractors LLC has been selected as one of the successful awardees for Plumbing and Mechanical trades. This award will be contingent upon execution of a contract and the all necessary approvals. Your company submitted a very good proposal, and was evaluated as being the best value for the University and met all criteria required in the proposal. Thank you for your time and interest in the University of North Texas.

Sincerely,

[REDACTED]

JOB ORDER CONTRACTING AGREEMENT



JOB ORDER CONTRACTING AGREEMENT

This Agreement is made and entered into by **University of North Texas** ("Owner"), and by **Endur Contractors LLC** ("Contractor"), for the "minor construction, repair, rehabilitation, or alteration of a facility if the work is of a recurring nature but the delivery times are indefinite and indefinite quantities and orders are awarded substantially on the basis of pre-described and pre-priced tasks" as allowed by Section 51.784 of the Texas Education Code. The capitalized term "Party" refers to either Owner or Contractor individually and the term "Parties" refers to Owner and Contractor collectively. The effective date ("Effective Date") of this Agreement shall be the date of last signature by the Parties hereto.

ARTICLE 1 PROJECT

- 1.1 Owner desires and intends to conduct Mechanical & Plumbing Services for the Single Trade Job Order Contract [JOC] on the Denton Campus, to be completed in accordance with the requirements herein.
- 1.2 The initial term of this Contract shall begin on the Effective Date and shall expire two (2) years after that date unless renewed or terminated in accordance with the terms herein.
- 1.3 Owner has three (3) options to renew the term of this Contract in one (1) year increments upon written notice to Contractor prior to the expiration of the initial or subsequent term or until the maximum contract amount is reached, whichever occurs first.

ARTICLE 2 AUTHORIZED CONTRACT SUM

- 2.1 Each proposed individual Job Order will not exceed a maximum value of \$300,000.
- 2.2 The total combined cost of all Job Orders issued will not exceed the maximum value of \$900,000.00 (Option: See Article 1.3).
- 2.3 It is expressly understood that Owner is under no obligation to request a minimum amount of Work under this Agreement. All service requests will be made by Owner on an as-needed basis.

ARTICLE 3 CONTRACT DOCUMENTS

- 3.1 The Contract Documents consist of:
 - 3.1.1 This Agreement and all exhibits and attachments listed, contained, or referenced herein;
 - 3.1.2 Each Job Order issued under this Agreement;
 - 3.1.3 The Uniform General Conditions for Construction and Design Contracts for the University of North Texas System ("Uniform General Conditions" or "UGC");
 - 3.1.4 Supplementary General Conditions or Special Conditions, if any;
 - 3.1.5 Owner Specifications;
 - 3.1.6 All Change Orders issued after the effective date of each Job Order;

- 3.1.7 Any Scope of Work, drawings, specifications, details, or other documents developed in connection with each Job Order issued under this Contract;
- 3.1.8 The Historically Underutilized Business (HUB) subcontracting plan submitted or amended and approved by Owner.
- 3.2 The Contract Documents form the entire and integrated Contract between Owner and Contractor and supersede all prior negotiations, representations or agreements, written or oral.
- 3.3 To the extent the terms of this Agreement conflict with the Uniform General Conditions and/or the Supplemental Conditions, the terms of this Agreement will control.

ARTICLE 4 DEFINITIONS

- 4.1 Terms, words, and phrases used in the Contract Documents shall have the meanings given in the Uniform General Conditions.
- 4.2 The following terms, words, and phrases used in the Contract Documents shall have the following meanings, and if more specific than the definition given in the Uniform General Conditions, the more specific meaning given in this Agreement shall control.
 - 4.2.1 "Coefficient" shall mean the price multiplier that Contractor bids. The Parties shall use this multiplier to determine the price of Work. Contractor's coefficient is multiplied by the Construction Task Catalog® rates. Proposed coefficient shall be a net decrease from or increase to the price in the CTC®. Coefficient shall be carried to four (4) decimal places only.
 - 4.2.2 "Construction Task Catalog® ("CTC®")" shall mean the Gordian Group cost database which contains construction task(s) with preset unit price(s) to be used in the administration of this Agreement.
 - 4.2.2.1 Construction Task Catalog® issued with request for proposal No. **RFP752-20-934DH** will be in effect for the first year of the Agreement.
 - 4.2.2.2 The CTC® will be updated annually and furnished to Contractor. The CTC® that accompany each anniversary shall only apply to Job Orders issued after the effective date of that specific renewal option and shall have no impact on Job Orders issued prior to the effective date of that specific renewal option. Contractor shall use the CTC® in effect on the date that the Job Order is issued. Contractor shall not delay the issuance of a Job Order to take advantage of a scheduled update of the CTC®. In that event, Contractor shall use the CTC® that would have been in effect without the delay.
 - 4.2.3 "Job Order" shall mean a contractual instrument issued by Owner to Contractor. A Job Order represents Owner's and Contractor's agreement of task(s) and quantities of labor, materials, and equipment required to perform the Work, plans and specifications, and timeline to complete a project. A Job Order is issued upon agreement between Owner and Contractor regarding Scope of Work, performance, time, and price, and will be in form substantially similar to Exhibit A attached hereto.
 - 4.2.4 "Non-Pre-Priced (NPP) Task" shall mean Work that is required by the Scope of Work, but is not included in the CTC®.
 - 4.2.5 "Pre-priced Task" shall mean Work for which a unit price is stated and included in the CTC®.

- 4.2.6 "Scope of Work (SOW)" shall mean a description of specific Work negotiated by Owner and Contractor that contains sufficient detail to determine quantity, quality, and time for performance, which Work will be ordered through an associated Job Order.
- 4.2.7 "Work" shall mean the provision of all services, labor, materials, supplies, and equipment that are required to complete a project in strict accordance with the requirements of the Contract Documents related to a project. Work includes, without limitation, any additional Work required by Change Orders and any other Work reasonably inferable from the Construction Documents, taking into consideration the understanding of the Parties that some details necessary for completion of the Work may not be expressly stated in the Scope of Work, shown on drawings, or included in specifications, but they are a requirement of the Work if they are a usual and customary component of the Work or otherwise necessary for complete installation and operation of the Work.

ARTICLE 5 PROCEDURES

- 5.1 Project Request. Owner shall prepare a SOW, identifying the project and describing in drawings, specification and other appropriate materials the intended scope of the project, setting forth the proposal due date.
- 5.2 Project Proposal.
- 5.2.1 Contractor shall provide Owner with a written project proposal. Contractor shall prepare their proposal to include, at a minimum, the following:
- 5.2.1.1 Project price proposal;
 - 5.2.1.2 Required drawings and/or sketches;
 - 5.2.1.3 Catalog cuts, technical data, or samples;
 - 5.2.1.4 List of proposed subcontractors, anticipated price, and completed HUB Plan, if applicable;
 - 5.2.1.5 Project schedule;
 - 5.2.1.6 Any qualifications or conditions applicable to the project proposal; and
 - 5.2.1.7 Sample warranties and/or guarantees for materials, equipment, and/or systems proposed.
- 5.2.2 The price proposal shall identify the Pre-Priced Task, the NPP Tasks, and any other costs of Work proposed for the project. Contractor shall prepare the price proposal according to the following:
- 5.2.2.1 Pre-Priced Tasks and their quantities shall be identified in the CTC®.
 - 5.2.2.2 NPP Tasks shall be identified separately and included in the price proposal. NPP Tasks shall include, but not be limited to, catalog cuts, specifications, technical data, drawings, and/or other information as required to evaluate the task.
 - 5.2.2.3 NPP Tasks performed by Contractor shall be identified and must include a minimum of three (3) independent quotes for all materials. To the extent possible, pre-priced labor and equipment from the CTC® is to be used.

NPP Tasks performed by a subcontractor shall be identified and must include a minimum of three (3) independent quotes from subcontractors. Contractor shall not submit quotes or bids from any supplier or subcontractor that Contractor is not prepared to utilize. Owner may require additional quotes and bids from suppliers or subcontractors if Owner, at its sole discretion, deems submitted quotes or bids unacceptable.

- 5.2.2.4 The final price submitted for NPP Tasks shall be based on the NPP coefficient multiplied by the selected NPP price quoted.
- 5.2.2.5 Once an NPP Task has been used on three (3) separate Job Orders and upon approval by Owner, the unit price for said task is established and will be fixed as a permanent Pre-Priced Task. Price justification will no longer be required.
- 5.2.2.6 Owner shall determine an item is a Pre-Priced Task or an NPP Task. Said determination shall be final, binding, and conclusive to Contractor.
- 5.2.3 By submitting a signed project price proposal, Contractor agrees to complete the Work encompassed in the SOW, in accordance with the project request, and at the price submitted. It is Contractor's responsibility to ensure the necessary tasks and quantities are included in the project proposal prior to submittal.
- 5.2.4 Contractor shall not refuse to perform any task or Work in connection with a project.
- 5.3 Job Order. A Job Order signed by Owner and delivered to Contractor constitutes Owner's acceptance of the project price proposal. The Job Order authorizes Contractor to begin the work identified in the Job Order. Contractor shall complete the Work within the number of days specified in the Job Order, subject to extensions of time approved by Owner through a Change Order. The time set forth for completion of the Work for each Job order is an essential element of the Agreement.
- 5.4 Modification of a Job Order.
 - 5.4.1 Change Orders to a Job Order shall be requested, made, and issued in accordance with the UGC.
 - 5.4.2 Change orders shall be generated from CTC® as the sole basis for pricing.
 - 5.4.3 Owner recognizes three (3) typical circumstances resulting in the modification of a Job Order:
 - 5.4.3.1 Differing site conditions
 - 5.4.3.2 Increased Scope of Work
 - 5.4.3.3 Decreased Scope of Work
- 5.5 Project Completion. Upon completion of the project, Contractor will submit a Certificate of Final Completion for approval. Issuance of the Substantial Completion Certificate and Final Completion Certificate will be in accordance with the UGC.

ARTICLE 6 CONTRACTOR'S GENERAL RESPONSIBILITIES

- 6.1 In General. Contractor agrees to provide general and specific services as requested by Owner in accordance with the terms of this Agreement. Contractor shall provide all labor and material

necessary and reasonably inferable for the complete performance of any Job Order authorized pursuant to this Contract. Contractor shall be responsible for the supervision and coordination of the Work, including the construction means, methods, techniques, sequences, and procedures utilized, unless the Contract Documents specify other instructions.

- 6.2 Standard of Care. Contractor shall use its best efforts, skill, judgment, and abilities to perform the Work in an expeditious and timely manner as is consistent with the orderly progress of any project authorized pursuant to this Agreement. Contractor shall at all times provide a sufficient number of qualified personnel to accomplish the Work within the time limits set forth in the schedule.
- 6.3 Filings and Permits. Contractor is responsible for obtaining all filings and permits required for the Work, and is to include, but not limited to, the preparation of all drawings, sketches, calculations and other documents or information that may be required thereof. Contractor shall bear the cost of providing all drawings, plans, specifications, and other documents used by Contractor and its consultants.
- 6.4 Compliance with Laws. Contractor shall perform the Work in compliance with all applicable national, federal, state, municipal, and State of Texas laws, regulations, codes, ordinances, orders and with those of any other body having jurisdiction over the project. Contractor shall be liable to Owner for all loss, cost, or expense attributable to any acts or omissions by Contractor, its employees, subcontractors, and agents for failure to comply with applicable laws and regulations, including fines, penalties, or corrective measures. Contractor shall also comply with all Owner's policies. These include, but are not limited to, contractor guidelines, safety and work practices, code of conduct, smoking and/or tobacco policies, and parking regulations. Any citations as a result of violations are the sole responsibility of Contractor.
- 6.5 Safety. Contractor shall have overall responsibility for safety precautions and programs in the performance of the Work. Such obligation does not relieve subcontractors of their responsibility for the safety of persons or property in the performance of their Work or for compliance with applicable laws and regulations.
- 6.6 Storage of Materials. Contractor is solely responsible for the receipt and storage of their own materials, including the unloading of trucks, and checking of deliveries and transportation to the work area.
- 6.7 Representative. Before commencing the Work, Contractor shall notify Owner in writing of the name and qualifications of its proposed project manager so Owner may review the individual's qualifications. If, for reasonable cause, Owner refuses to approve the individual, or withdraws its approval after giving it, Contractor shall name a different project manager for the site. Contractor's project manager shall possess full authority to receive instructions from Owner and to act on those instructions. If Contractor changes its project manager or authority for those individuals, Contractor shall immediately notify Owner in writing.
- 6.8 Supervision. Contractor shall provide competent supervision for the performance of each Job Order. Contractor will ensure that one (1) of their employees is present on each job site at all times. This individual must have overall project supervisory authority. Supervisory costs are to be included in Contractor's Coefficient and will not be reimbursed as a separate labor cost.
- 6.9 Off-site Work. In the event off-site Work is required, such as site fabrication, Contractor shall notify Owner at the time of the issuance of the Job Order. Owner reserves the right to inspect such off-site Work at any time.
- 6.10 Existing Conditions. Contractor shall use reasonable efforts to verify the accuracy and suitability of any drawings, plans, sketches, instructions, information, requirements, procedures, and other data supplied to Contractor by Owner, or any other party that Contractor uses for the Work.

- 6.11 Correction of Work. Contractor shall promptly correct any known or discovered error, omission, or other defect in the Work without any additional cost or expense to Owner.

ARTICLE 7 OWNER'S RESPONSIBILITIES

- 7.1 Owner Specifications. Owner will develop specifications necessary for the execution of this Agreement. The intent of the specification(s) is to provide concise institutional and/or industrial standards for maintenance, repair, and construction of Owner's facilities.
- 7.2 Special Information. Owner shall furnish available property, boundary, easement, right-of-way, topographic and utility surveys, and plans and specifications relevant to the project. Contractor shall exercise reasonable care in relying upon this information in the performance of its services under this Agreement. Owner makes no warranties or representations as to the accuracy or suitability of information provided to Contractor by Owner.
- 7.3 Time for Response. Owner shall furnish required information and services and shall render approvals and decisions as expeditiously as necessary for the orderly progress of Contractor's services under this Agreement.
- 7.4 Representative. Owner reserves the right to designate by notice to Contractor a representative(s) to act partially or wholly for Owner in connection with the performance of Owner's responsibilities. Contractor shall act only upon instructions from the designated representative(s) unless otherwise specifically notified to the contrary.
- 7.5 Owner-Furnished Materials. Owner reserves the right to purchase material(s) and/or job-required merchandise. Owner will deliver any such material(s) to the jobsite, or compensate Contractor for providing the labor to relocate Owner-furnished materials to the jobsite. Contractor will return Owner-owned materials delivered but not used on the job to Owner for credit.
- 7.6 Owner's Rights. Owner reserves the right to cancel any project for any reason, to opt not to issue a Job Order, and/or perform such Work by other means, if it is determined to be in the best interest of Owner. No cost allowance is provided for the recovery of any costs by Contractor resulting from the development of the Job Order. These include but are not limited to, costs associated with attendance to the joint scope meeting, review of the SOW, subcontractor costs, and costs associated with reviewing the proposal with Owner.

ARTICLE 8 SUBCONTRACTS

- 8.1 In General. Contractor may use the services of subcontractors, and will be responsible for their reimbursement. Owner may require Contractor to submit payment affidavit(s) for subcontractors before release of final payment. The use of subcontractors does not alter the CTC® unit costs or Contractor's Coefficient, and subcontractor pricing is not a basis of reimbursement.
- 8.2 Notice. As soon as practical, and prior to any subcontractor beginning work, Contractor shall notify Owner, in writing, the names and phone numbers of all subcontractors proposed for the principal parts of Work, as well as for any other as directed by Owner. Contractor may not employ any subcontractor, to which Owner objects for any reason, such as incompetent, unfit, irresponsible, or unsafe. Such objection shall not relieve the responsibility of Contractor for Contractor's Work and the Work of the subcontractors.
- 8.3 No Third-Party Beneficiary. The Contract Documents shall not create any contract or agreement between any subcontractor and Owner. Additionally, there is no intent to designate a subcontractor as a beneficiary of the contract between Owner and Contractor. Contractor shall be solely and fully

responsible to Owner for any acts and/or omissions of a subcontractor or persons directly employed thereby.

- 8.4 Compliance. Contractor shall ensure that each subcontractor agrees to be bound by the terms of this Agreement and related Contract Documents, including the University of North Texas System Uniform General Conditions, and individual project specifications, as far as applicable to their Work.

ARTICLE 9 HISTORICALLY UNDERUTILIZED BUSINESS PLAN

- 9.1 HUB Plan for Job Order of \$85,000 or more. In the event that the value of any individual Job Order equals or exceeds Eighty-Five Thousand (\$85,000), Contractor must submit a separate HUB Plan, which shall be subject to Owner's approval and compliance efforts.
- 9.2 Compliance with HUB Plan. Contractor agrees to comply with the terms of its Historically Underutilized Business Plan ("HUB Plan"). No changes to the HUB Plan may be made without Owner's written approval. While this Agreement is in effect, Owner may require Contractor to provide information, and may conduct audits of Contractor, to ensure that the HUB Plan is being, and has been, followed.

ARTICLE 10 PAYMENT

- 10.1 Contractor shall submit an invoice to Owner with sufficient documentation, as determined by Owner, to substantiate the completion of a Job Order at the time of billing. Owner shall render payment in accordance with the UGC. Owner will make progress payments based on the UGC and Applications for Payment submitted by Contractor.

ARTICLE 11 BONDS

- 11.1 Contractor shall provide performance and payment bonds in accordance with the requirements set forth in the Uniform General Conditions.
- 11.1.1 Payment Bonds. For any Job Order requiring Work in excess of Twenty-five Thousand (\$25,000.00), Contractor shall provide a Payment Bond in accordance with Texas Government Code Chapter 2253 and documentation of such bonding to Owner.
- 11.1.2 Performance Bonds. In addition to Payment Bond, if a Job Order is in excess of One Hundred Thousand (\$100,000), Contractor must also provide a Performance Bond in accordance with the Texas Government Code Chapter 2253 and documentation of such bonding to Owner.

ARTICLE 12 WARRANTY

- 12.1 In General. Contractor warrants that all materials and equipment shall be new unless otherwise specified, of good quality, in conformance with the Contract Documents, and free from defective workmanship and materials. Contractor shall furnish satisfactory evidence of the quality and type of materials and equipment furnished. Contractor further warrants that the Work shall be free from material defects not intrinsic in the design or materials required in the Contract Documents. Contractor's warranty shall commence on the Date of Substantial Completion of Work.
- 12.2 Special or Extended Warranties. Contractor shall obtain from its subcontractors and material suppliers any special or extended warranties required by the Contract Documents. Contractor's

liability for such warranties shall be limited to a one-year period. After that period, Contractor shall provide reasonable assistance to Owner in enforcing the obligations of subcontractors or material suppliers for such extended warranties.

- 12.3 Correction of Work. If Contractor fails to correct defective Work within a reasonable time after receipt of written notice from Owner prior to final payment, Owner may correct it in accordance with Owner's right to carry out the Work. In such case, an appropriate Change Order shall be issued deducting the cost of correcting the defective Work from payments then or thereafter due Contractor. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to Owner. If Contractor's correction or removal of defective Work causes damage to or destroys other completed or partially completed Work or existing buildings, Contractor shall be responsible for the cost of correcting the destroyed or damaged property.

ARTICLE 13 INDEMNITY AND INSURANCE

- 13.1 Indemnity. Contractor covenants and agrees to FULLY INDEMNIFY and HOLD HARMLESS Owner, and the University of North Texas System Board of Regents, elected and appointed officials, directors, officers, employees, agents, representatives, and volunteers, individually or collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, liability, and suits of any kind and nature, including but not limited to, personal or bodily injury, death, or property damage, made upon Owner directly or indirectly arising out of, resulting from, or related to Contractor's activities under the Agreement, including any acts or omissions of Contractor, or any director, officer, employee, agent, representative, consultant, or Subcontractor of Contractor, and their respective directors, officers, employees, agents, and representatives while in the exercise of performance of the rights or duties under the Agreement. The indemnity provided for in this paragraph does not apply to any liability resulting from the negligence of Owner or separate contractors in instances where such negligence causes personal injury, death, or property damage. IN THE EVENT CONTRACTOR AND OWNER ARE FOUND JOINTLY LIABLE BY A COURT OF COMPETENT JURISDICTION, LIABILITY WILL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO THE STATE UNDER TEXAS LAW AND WITHOUT WAIVING ANY DEFENSES OF THE PARTIES UNDER TEXAS LAW.

13.1.1 The provisions of this indemnification are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

13.1.2 Contractor shall promptly advise Owner in writing of any claim or demand against Owner or against Contractor known to Contractor related to or arising out of Contractor's activities under this Agreement.

13.2 Insurance.

13.2.1 Contractor shall not commence Work until it has obtained all insurance required in accordance with the Uniform General Conditions.

13.2.2 Owner reserves the right to review the insurance requirements during the effective period of the Contract and to make reasonable adjustments to the insurance coverage and their limits when deemed necessary and prudent by Owner based upon changes in statutory law, court decisions, or the claims history of the industry.

13.2.3 Owner shall be entitled, upon request, and without expense, to receive copies of the policies, all endorsements thereto and documentation to support costs and may make

any reasonable requests for deletion, or revision or modification of particular policy terms, conditions, limitations, exclusions and costs, except where policy provisions are established by law or regulation binding upon either of the Parties or the underwriter of any of such policies. Any price credits determined in the insurance review will be refundable to Owner. Actual losses not covered by insurance as required by this Article shall be paid by Contractor.

ARTICLE 14 MISCELLANEOUS

- 14.1 Assignment. The terms and conditions of this Agreement shall be binding upon the Parties, their partners, successors, permitted assigns, and legal representatives. This Agreement is a service contract for the services of Contractor, and Contractor's interest in this Agreement, duties hereunder and/or 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 to a component or affiliate of Owner or a branch or agency of the State of Texas.
- 14.2 Death or Incapacity. If Contractor transacts business as an individual, his death or incapacity shall automatically terminate this Agreement as of the date of such event, and neither he nor his estate shall have any further right to perform hereunder; and Owner shall pay him or his estate the compensation payable under the Agreement for any services rendered prior to such termination. If Contractor is a firm comprised of more than one principal and any one of the members thereof dies or becomes incapacitated and the other members continue to render the services covered herein, Owner will make payments to those continuing as though there had been no such death or incapacity, and Owner will not be obliged to take any account of the person who died or became incapacitated or to make any payment to such person or his estate. This provision shall apply in the event of progressive or simultaneous occasions of death or incapacity among any group of persons named as Contractor; and if death or incapacity befalls the last one of such group before this Agreement is fully performed, then the rights shall be as if there had been only one Contractor. In any event, notice of the death or incapacity of any principal shall be given to Owner by any surviving principal within a reasonable time.
- 14.3 Irreparable Injury. It is acknowledged and agreed that Contractor's services to Owner are unique, which gives a peculiar value to Owner and for the loss of which Owner cannot be reasonably or adequately compensated in damages; accordingly, Contractor acknowledges and agrees that a breach by Contractor of the provisions hereof will cause Owner irreparable injury and damage. Contractor, 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, but only if Owner is not in breach of this Agreement.
- 14.4 Certifications.
- 14.4.1 Pursuant to Texas Family Code, Section 231.006, Contractor 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.
- 14.4.2 Pursuant to Texas Government Code, Section 2155.004, Contractor certifies that the business entity named in this Agreement is not ineligible to receive the award of or payments under this Agreement and acknowledges that this Agreement may be terminated and payment withheld if this certification is inaccurate.
- 14.4.3 If a corporate or limited liability company, Contractor certifies that it is not currently delinquent in the payment of any Franchise Taxes due under Texas Tax Code, Chapter 171, 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.

- 14.4.4 Pursuant to Texas Government Code Sections 2107.008 and 2252.903, Contractor agrees that any payments owing to Contractor under this Agreement may be applied directly toward any debt or delinquency that Contractor 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.
- 14.4.5 Pursuant to Texas Government Code Chapter 2252, Subchapter F, Contractor certifies that it is not engaged in business with Iran, Sudan, or a foreign terrorist organization. Contractor acknowledges this Agreement may be terminated if this certification is inaccurate.
- 14.4.6 Pursuant to Texas Government Code Sections 2252.201-2252.205, Contractor certifies that it is in compliance with the requirement that any iron or steel product produced through a manufacturing process and used in the Project is produced in the United States.
- 14.4.7 To the extent required by Texas Government Code Chapter 2270, Contractor certifies that it does not currently boycott Israel and will not boycott Israel during the Term of this Agreement. Contractor acknowledges this Agreement may be terminated and payment withheld if this certification is inaccurate.
- 14.4.8 By signature hereon, Contractor certifies that no member of the Board of Regents of the University of North Texas System, or Executive Officers, including component institutions, has a financial interest, directly or indirectly, in the transaction that is the subject of this Agreement.
- 14.5 Business Ethics. During the performance of Contractor's contract responsibilities, Contractor agrees to maintain business ethics standards aimed at avoiding any impropriety or conflict of interest with Owner's best interests. Neither Contractor nor its employees, agents, representatives, or subcontractors will assist or cause Owner to violate Owner's Conflicts of Interest Policy or applicable state ethics laws or rules.
- 14.6 Illegal Dumping. Contractor shall ensure that it and all of its subcontractors and assigns prevent illegal dumping of litter in accordance with Title 5, Texas Health and Safety Code, Chapter 365.
- 14.7 Asbestos Containing Materials.
 - 14.7.1 Contractor shall provide a notarized certification to Owner that all equipment and materials used in fulfillment of its Contract responsibilities are non-Asbestos Containing Building Materials (ACBM) no later than Contractor's application for Final Payment as required by the Uniform General Conditions.
 - 14.7.2 All materials used in this Project shall be certified as non-ACBM. Contractor shall take whatever measures it deems necessary to insure that all employees, suppliers, fabricators, material men, subcontractors, or their assigns, comply with the following acts:
 - 14.7.2.1 Asbestos Hazard Emergency Response Act (AHERA—40 CFR 763, Subpart E)
 - 14.7.2.2 National Emission Standards for Hazardous Air Pollutants (NESHAP—EPA 40 CFR 61, Subpart M, National Emission Standard for Asbestos)

14.7.2.3 Texas Asbestos Health Protection Rules (TAHRP—Tex. Admin. Code Title 25, Part 1, Ch. 295, Subchapter C, Asbestos Health Protection)

- 14.8 Records. Records of Contractor's costs, reimbursable expenses pertaining to the Project and payments shall be kept on a generally recognized accounting basis and shall be made available to Owner or its authorized representative during business hours for audit or other purposes as determined by Owner. Such records shall be maintained by Contractor and shall be available to Owner or his authorized representative for a period of at least five (5) years after the provision of Contractor's Services.
- 14.9 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:

Associate V.P. for Facilities
University of North Texas
1155 Union Circle #311040
Denton, Texas 76203-5017

If to Contractor:

Endur Contractors LLC
Todd Rodriguez
4750 Kennedale New Hope Road
Fort Worth, TX 76140

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

- 14.10 Independent Contractor. Contractor recognizes that it is engaged as an independent contractor and acknowledges that Owner will have no responsibility to provide transportation, insurance or other fringe benefits normally associated with employee status. Contractor, in accordance with its status as an independent contractor, covenants and agrees that it shall conduct itself consistent with such status, that it will neither hold itself out as nor claim to be an officer, partner, employee or agent of Owner by reason hereof, and that it will not by reason hereof 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. Contractor hereby agrees to make its own arrangements for any of such benefits as it may desire and agrees that it is responsible for all income taxes required by applicable law.
- 14.11 Loss of Funding. Performance by Owner under the 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 North 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 Contractor and Owner may terminate the Agreement. Contractor acknowledges that appropriation, allotment, and allocation of funds are beyond the control of Owner.
- 14.12 Confidentiality. All information owned, possessed or used by Owner which is communicated to, learned, developed or otherwise acquired by Contractor in the performance of services for Owner, which is not generally known to the public, shall be confidential and Contractor shall not, beginning on the date of first association or communication between Owner and Contractor 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 Contractor's own benefit or the benefit of another, any such confidential information, unless required by law. Except when defined as part of the Work, Contractor shall not make any press releases, public statements, or

advertisement referring to the Project or the engagement of Contractor as an independent contractor of Owner in connection with the Project, or release any information relative to the Project for publications, advertisement or any other purpose without the prior written approval of Owner. Contractor shall obtain assurances similar to those contained in this subparagraph from persons, and subcontractors retained by Contractor. Contractor acknowledges and agrees that a breach by Contractor of the provisions hereof will cause Owner irreparable injury and damage. Contractor, 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.

- 14.13 Open Records. Owner shall release information to the extent required by the Texas Public Information Act and other applicable law. If required, Contractor shall make public information available to Owner in an electronic format. The requirements of Subchapter J, Chapter 552, Government Code, may apply to this Agreement and Contractor agrees that the Agreement can be terminated if Contractor knowingly or intentionally fails to comply with a requirement of that subchapter.
- 14.14 Governing Law and Venue. 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 and venue shall be as provided in Texas Education Code Section 105.151 for any legal proceeding pertaining to this Agreement.
- 14.15 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.
- 14.16 Severability. Should any term or provision of this Agreement be held invalid or unenforceable in any respect, the remaining terms and provisions shall not be affected and this Agreement shall be construed as if the invalid or unenforceable term or provision had never been included.

SIGNATURE PAGE TO FOLLOW

IN WITNESS WHEREOF the parties hereto have executed this Agreement in the day and year first above written.

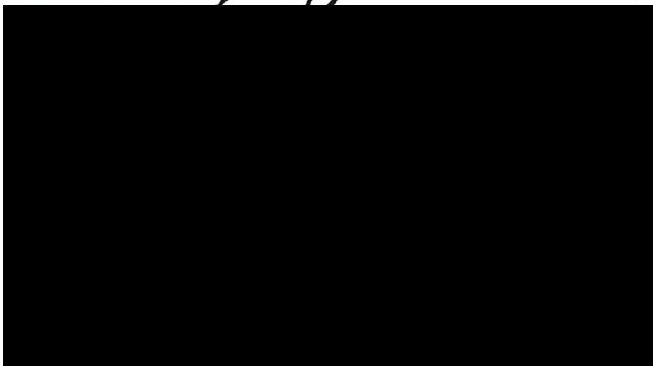
OWNER:
UNIVERSITY OF NORTH TEXAS



Date: 07/22/2020

CONTRACTOR:

Endur Contractors LLC 



Telephone

State of TX Vendor ID Number _____



REQUEST FOR PROPOSAL

RFP No: 752-20-934DH
*Title: **Trades Job Order Contracting***

Proposal Submittal Deadline: **October 11, 2019 2:00 pm, local time**

Prepared by:
Denise Harpool, Sr. Buyer
University of North Texas System Procurement Services
Business Service Center
1112 Dallas Drive, Suite 4000
Denton, Texas 76205
Date Issued: September 10, 2019

REQUEST FOR PROPOSAL

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ATTACHMENT(S)

Attachment A: Pricing

Attachment B: Proposer Qualifications

Attachment C: Sample Trades JOC Contract

Attachment D: UNTS Uniform General Conditions-2017

Attachment E: Design & Construction Guidelines the University of North Texas

Attachment F: Insurance & Bond requirements

Attachment G: HUB Sub Contracting Plan Sample/HUB Short Form

Link to: University of North Texas Trades Construction Task Catalog®

Distribution Link (Contractor Link)

https://thegordiangroup-my.sharepoint.com/:f/g/personal/d_lee_gordian_com/EggUTzxqgHBNhL0KEacQR6QBCfZ43kfWKV8P-ySGM_pATA?e=vioNvx

SECTION 1: INTRODUCTION

1.1 UNTS System Description

The University of North Texas System (UNTS) on behalf of the University of North Texas (UNT) is seeking proposals for **Trades Job Order Contracting (NIGP commodity code 910-65)**. UNTS is a University system that is composed of the University of North Texas in Denton (UNT), the University of North Texas Health Science Center (UNTHSC) in Fort Worth and the University of North Texas at Dallas (UNTDD). The UNT System Administration is based in downtown Dallas. The three (3) independent universities of the UNT System have combined enrollment of just over 42,000 students across five (5) major teaching locations, including each main campus as well as Frisco and downtown Dallas. Proposals submitted in response to this RFP shall be for goods and/or services provided to UNTS, UNT, UNTHSC and/or UNTDD, as agreed to in writing by the parties.

1.2 Background

A Trades Job Order Contract (JOC) is a competitively bid, firm fixed-price, indefinite-quantity contract to perform work for the University. The contract will consist of a collection of proposed institutional facilities-type projects as they become approved, each subtracting its individual cost from the original total contract sum. Contracts are in accordance with the University of North Texas System Uniform General Conditions 2017 and Design & Construction UNT Guidelines March 2018. Refer to Attachments D & G.

1.3 Group Purchase Authority

Texas law authorizes institutions of higher education to use the group purchasing procurement method (ref. Sections 51.9335, 73.115, and 74.008, Education Code). Additional Texas institutions of higher education may therefore elect to enter into a contract with the successful Proposer(s) under this Section. Should another institution exercise this option the resulting contract and obligations shall be between that institution and the vendor with UNTS incurring no obligation as a result thereof.

SECTION 2: NOTICE TO PROPOSER

2.1 Submittal Deadline

UNTS will accept proposals submitted in response to this RFP until **2:00 p.m.**, local time, on **October 11, 2019** (the "Submittal Deadline"). HUB Sub-Contracting Plan due **2:00 p.m.**, local time on **October 10, 2019**.

2.2 UNTS Contact Person

Proposers will direct all questions or concerns regarding this RFP to the following UNTS contact ("UNTS Contact"):

Denise Harpool, Senior Buyer

The University specifically instructs all interested parties to restrict all contact and questions regarding this RFP to written communications forwarded to the UNTS Contact via the following link: <https://www.untsystem.edu/bid-inquiry>.

The UNTS Contact must receive all questions or concerns no later than **2:00 PM**. On **September 26, 2019**. It is UNTS' intent to respond to all appropriate questions and concerns by **October 2, 2019 at 5:00 PM**; however, UNTS reserves the right to decline to respond to any question or concern.

Answers to questions will be posted via addendum to this RFP on UNTS Business Service Center Bid Opportunities web page located at: <https://www.untsystem.edu/hr-it-business-services/procurement/purchasing/bid-opportunities>. Vendors are strongly advised to review this page at least four (4) business days prior to the due date for submissions or earlier to ensure that you have received all applicable addenda.

2.3 Criteria for Selection

The successful Proposer(s), if any, will be the Proposer(s) who submit a response to this RFP on or before the Submittal Deadline, and whose response is the best value UNTS, taking into consideration the evaluation criteria contained herein. Selection by UNTS will be in accordance with the requirements and specifications set forth in this RFP. The successful Proposer(s) is/are referred to as the "Contractor". UNTS reserves the right to make a single award from this solicitation or multiple awards, whatever is in the best interest of the University, with UNTS being the sole judge thereof.

Proposer is encouraged to propose terms and conditions offering the maximum benefit to UNTS as outlined below. Proposers should describe all educational, state and local government discounts, as well as any other applicable discounts that may be available to UNTS in a contract for the services.

An evaluation team from UNTS will evaluate proposals. The evaluation of proposals and the selection of Contractor will be based on the information provided by Proposer in its proposal. Proposers should address, within the response, each of the criteria listed in this section. Failure to respond to these criteria may result in your proposal receiving a negative rating or considered as non-responsive. Proposers should note that the awarded proposal may not be the lowest offer, but the offer(s) deemed most advantageous to UNTS as described in this section.

The criteria to be considered by UNTS in evaluating proposals and selecting awardee(s), will be the following factors:

1. Proposed coefficient amount listed on the Pricing form.
2. The qualifications and experience of the proposer's key personnel for the Trades Job Order Contract.
3. The quality of references from owners and relative Trades Job Order Contracts by the proposer within the last three (3) years.
4. The proposer's demonstrated ability to meet expedited schedules on similar type/size projects.
5. The responsibility and reputation of the proposer, including claims and litigation experiences.
6. The proposer's safety record.
7. The sufficiency of the proposer's financial resources.
8. Quality and completeness of RFP submittal.

Furthermore, UNTS may consider information related to past contract performance of a respondent including, but not limited to, the Texas Comptroller of Public Accounts Vendor Performance Tracking System.

2.4 Schedule of Key Events

| | |
|---|--------------------------------|
| Issuance of RFP..... | September 10, 2019 |
| Pre-Proposal Conference..... (Ref. Section 2.6 of this RFP) | September 19, 2019 @ 1:00 p.m. |
| Deadline for Questions/Concerns..... | September 26, 2019 @ 2:00 p.m. |
| Questions and Answers Posted (Ref. Section 2.2 of this RFP) | October 2, 2019 @ 5:00 p.m. |
| Submission of HUB HSP Deadline..... (Ref. Section 2.5 of this RFP) | October 10, 2019 @ 2:00 p.m. |
| Submission of Proposal Deadline..... (Ref. Section 2.1 of this RFP) | October 11, 2019 @ 2:00 p.m. |
| Public Opening | October 14, 2019 @ 2:00p.m. |
| Formal Contract Award Notification | November 2019 |
| Agreement Authorized | December 2019 |

Proposals will be received until the date and time established for receipt, then opened. The names of the respondents who submitted proposals will be made public. **A public opening shall be held on October 14, 2019, promptly at 2:00 p.m., CDT. Location shall be University of North Texas System, Business Service Center, Woodhill Square, 1112 Dallas Drive, Suite 4202A, Denton, Texas 76205.**

Note: This events schedule is for planning purposes only and may be changed at the sole discretion of UNTS.

2.5 HUB SUBCONTRACTING OPPORTUNITIES AND FORMS:

It is the policy of the UNTS to promote and encourage contracting and subcontracting opportunities for HUB. Specific subcontracting opportunities will be dependent on each project. When a qualified firm is selected for a project, the contractor will be required to provide a HUB Subcontracting Plan (HSP) for the intended subcontracting opportunities for the project. The HSP must be submitted along with the proposal for the project. Only projects over \$85,000.00 will require an HUB Subcontracting plan. Because this Single Trade Job Order Contract should be "Self Performing" most contractors will not be using subcontractors to perform work, however, there will be opportunities for HUB vendors to offer bids on materials and supplies. Therefore, a HSP is required with this submission. Contractors shall explain how they plan on offering HUB opportunities in their HUB Subcontracting plan.

Questions regarding the completion of the HUB Subcontracting Plan should be directed to Greg Obar at 940-369-5647. Additional information can also be found at the Texas Comptroller for the Public Accounts website at: <http://www.window.state.tx.us/procurement/prog/hub/hub-forms/>

FAILURE TO MEET HUB REQUIREMENTS MAY RESULT IN THE TERMINATION OF THE CONTRACT.

2.6 Pre-Proposal Meeting:

A pre-submittal conference will be conducted to answer any questions regarding the solicitation. Attendance is not mandatory, but highly recommended. The pre-proposal meeting will be held on **(Thursday), September 19, 2019 at 1:00 p.m.** at the **UNT System Business Service Center, Woodhill Square, and 1112 Dallas Drive, Suite 4202A&B, Denton, Texas 76205.**

SECTION 3: SUBMITTAL OF PROPOSAL

3.1 Number of Copies

Proposer must submit two (2) complete copies of the entire response. Please submit one (1) unbound original paper copy plus one (1) copy on labeled CD or flash drive of the entire proposal. Both formats MUST include the exact same information. Missing information from either format may result in the Owner's rejection of the response. No QR codes will be accepted as part of your response and may disqualify your response. An *original* signature by an authorized officer must appear on the Execution of Offer (ref. Appendix 1 (One), Section 2) of submitted proposal. The Proposer's proposal bearing an original signature should contain the mark "original" on the front cover of the proposal.

The University does not consider electronic signatures to be valid for submittal of competitive solicitation responses. Therefore, the original signature must be a "wet signature."

3.2 Submittal

Proposals must be received by UNTS on or before the Submittal Deadline (ref. Section 2.1 of this RFP) and shall be delivered:

Denise Harpool, Senior Buyer
University of North Texas System
Procurement Services
Business Service Center
1112 Dallas Drive, Suite 4000
Denton, TX 76205

Proposals must be typed on letter-size (8.5" x 11") paper. Sections within the proposal are to be tabbed for ease of reference. Pre-printed material(s), if included, should be referenced in the proposal and included as labeled attachments.

Request for Proposal number and submittal date should be marked in the lower left-hand corner of sealed bid envelope (box/container). An HSP is required (refer to Section 2.5), so both the proposal and the completed HSP must be in separate individual sealed envelopes. If they are packaged together and both envelopes are placed in one sealed master container they each must be clearly marked as ***Proposal and HUB HSP***.

Note: Electronic submittals via facsimile or other electronic means will not be accepted.

3.3 Proposal Validity Period

Each proposal must state that it will remain valid for UNTS' acceptance for a minimum of one hundred and eighty (180) days after the Submittal Deadline, to allow time for evaluation, selection, and, any unforeseen delays. Should circumstances arise that require an extension to this period, UNTS reserves the right to provide extensions at its discretion.

3.4 Terms and Conditions

3.4.1 Proposer must comply with the requirements and specifications contained in this RFP, including the Notice to Proposer (ref. Section 2 of this RFP), Proposal Requirements (ref. Section 5 of this RFP). If there is a conflict among the provisions in this RFP, the provision requiring Proposer to supply the better quality or greater quantity of services will prevail, or if such conflict does not involve quality or quantity, then interpretation will be in the following order of precedence:

- 3.4.1.1 Specification (ref. Section 5 of this RFP),
- 3.4.1.2 Proposal Requirements (ref. Appendix One),
- 3.4.1.3 Notice to Proposers (ref. Section 2 of this RFP).

3.4.2 UNTS intends to enter into a contract with the Contractor(s) in substantially the form of the attached Sample Agreement "Trades Job Order Contract". Award is contingent upon the successful execution of agreement.

3.5 Submittal Checklist

Proposer is to complete, sign, and return the following documents as a part of its proposal. Failure to return each of these items with the proposal may result in rejection of the proposal.

- 3.5.1 Signed and Completed Execution of Offer (ref. Appendix One, Section 2).
- 3.5.2 Responses to Proposer's General Questionnaire (ref. Appendix One, Section 3).
- 3.5.3 Signed and Completed Addenda Checklist (ref. Appendix One, Section 4).
- 3.5.4 Responses to evaluation criteria.

SECTION 4: GENERAL TERMS AND CONDITIONS

UNTS' standard purchase order terms and conditions can be found at https://www.untssystem.edu/sites/default/files/bsc_po_terms_12.19.2017.pdf. Additionally, attached is a sample Services Agreement (refer to Section 3.4.2 of this RFP).

- 4.1 **Term.**
The initial term of the contract resulting from this RFP shall be for **two (2) years, with three (3) options to extend in one (1) year increment.** Options to extend are by mutual consent and in writing. Either party may terminate after year one (1) without penalty by giving at least one-hundred eighty (180) days' notice to the other party.

- 4.2 **Exceptions**
Any exceptions to the terms in either our standard purchase order terms and conditions or UNTS' standard Trade Job Order Contract, will not be accepted. Any proposed stated exceptions may result in the disqualification of the proposal.

SECTION 5: SCOPE OF SERVICES

5.1 Vendor Minimum Requirements/Qualifications

A Trades Job Order Contract (JOC) is a competitively bid, fixed price, multi-year construction contract based on established or published unit prices (coefficient) applied to the unit prices. The unit prices are used to price construction tasks associated with the scope of work. These are often referred to as construction catalogs or in this case the Gordian Group cost database (University of North Texas Trades Construction Task Catalog®). This is an indefinite quantity contract to perform work for the University of North Texas (UNT). It will be a requirement of this solicitation the each Trade Job Order Contractor who is awarded a contract must self-perform at least **75%** of the work that they are awarded, unless pre-approved by UNT Facilities on any specific Job Order.

5.1.2 UNT Trades Job Order Contractor List of Trades and Scope of Work

The following, in no particular order, represents a general description for each trade service. Every project assigned as a JOC project will have a specific scope of work, which may not be limited to the descriptions below.

1. **Mechanical**
 - a. HVAC – Type of work includes HVAC repairs, upgrades, or replacement of equipment and ductwork.
 - b. Building Automation (Controls) – Type of work includes upgrades, repairs, renovation, relocating existing devices.
2. **Plumbing** – Type of work includes repairs, upgrades, or replacement to fixtures and/or piping.
3. **Electrical** – Type of work includes repairs, upgrades, or replacement of fixtures, wiring, devices, and panels.
4. **Concrete/Paving** - Type of work includes replace existing or install new concrete or asphalt paving and sidewalks.
5. **Carpentry/Millwork** - Type of work includes wood trim and millwork, cabinets, and casework.
6. **Drywall/Ceilings** - Type of work includes repairs or installing new sheetrock, plaster, metal framing, tape/bed/texture. Ceilings includes all ceilings - drywall, plaster, acoustical lay in.
7. **Painting** - Type of work includes all interior and exterior painting or staining and associated preparation and caulking.
8. **Flooring** - Type of work includes all flooring options and base.
9. **Access Control** - Type of work includes all hardware and access control.
10. **Window Cleaning** - Type of work includes window cleaning services for interior and exterior windows.
11. **Landscaping/Irrigation** - Type of work includes all services for landscaping and irrigation.
12. **Furniture moving** - Type of work includes packing and relocating furniture and /or equipment.
13. **Welding/Metal** – Type of work includes the fabrication and installation of all types of metals, such as, but not limited to, gutters, handrails, and structural.
14. **Communication/Audio Visual** – Type of work includes all wiring and devise integration.
15. **Site Utilities** – Type of work includes all earthwork, site improvements, and utility work.
16. **Masonry/Waterproofing** – Type of work includes all masonry, brick, stone, and stucco repairs, additions, and salvaging, in addition to expansion joint maintenance and repairs.
17. **Roofing** – Type of work includes repairs, additions, and modifications, and excludes new and entire roof replacement.

5.2 Specifications/Deliverables

5.2.1 Trades Job Order Contract Execution Guide

5.2.1.1 The purpose of the guide is to describe the procedure to be utilized in the administration of the Trades Job Order Contract (JOC) a Contract designed to provide the University of North Texas with a flexible and responsive contractual capability in support of their real property maintenance mission. After proposals are received in response hereto, and notice of intent to award a contract is made, the successful Respondent will be required to enter into a contract in the form of UNT's standard Trades Job Order Contract.

5.2.1.2 The contract will consist of a collection of proposed institutional facilities-type projects, as they become approved, each subtracting its individual cost from the original total contract sum. Each project will include detailed task specifications encompassing alterations, renovation, remodeling, and major repairs to UNTS' structures and properties.

Much of the work may be performed during normal operating hours; however, it may be necessary to schedule work outside normal hours. It is expected that during University break times that total project loads may be significantly higher; contractor staffing should anticipate these needs.

For each project task, a unit of measure and corresponding unit price are to be the basis for Contractor reimbursement. The contract will include a Trades Construction Task Catalog® (TCTC®) containing construction task(s) with preset unit price(s). All unit prices are based on local labor, material, and equipment price and are for the direct cost of construction. This resource book may also be referred to as the Unit Price Book (UPB). Contractors bidding on the JOC are required to submit three (3) coefficients or multipliers: 1) coefficient for normal working hours, 2) coefficient for other than normal working hours, and 3) coefficient for non-pre-priced (NPP) task(s). Coefficient numbers 1 and 2 apply to every task in the TCTC®, and the coefficient number 3 is utilized only if no line item exists in the TCTC®. The three (3) coefficients will be weighted based on the University's anticipated percentage of applicability. Refer to Attachment E: University of North Texas Construction Task Catalog®.

When preparing the coefficients, the Contractor must take into account all items described in the TCTC® section titled *"Using the Trade Construction Task Catalog"*. Refer to Attachment E, pages 15-20.

Upon award of the Trades Job Order Contract, each job order included in the contract is broken down into individual tasks of work. As projects are identified, the Contractor will jointly scope the work with the UNT Project Manager. The Project Manager will prepare a detailed Scope of Work (SOW). The Contractor will prepare a proposal for the project based upon the CTC® rate and the Contractor's coefficient. As part of the proposal, the Contractor will include, at a minimum, a Job Order Proposal, schedule, sketches or shop drawings, a list of subcontractors, a HUB Sub-Contracting Plan for approval, and any other requested documentation. After Facilities Departmental review, a Job Order (JO) will be authorized for performance of the work.

5.2.1.2.1 The Annual Update of the Construction Task Catalog®

5.2.1.2.1.1 The Construction Task Catalog® issued with the Master Agreement will be in effect for the first year of the Master Agreement

5.2.1.2.1.2 On the anniversary of the Master Agreement, a new Construction Task Catalog® will be furnished. The new Construction Task Catalog® will be effective for the twelve (12) month period after the anniversary of the effective date of the Master Agreement. The Construction Task Catalogs®

that accompany each anniversary shall only apply to Job Orders issued after the effective date of that specific renewal option and shall have no impact on Job Orders issued prior to the effective date of that specific renewal option.

5.2.1.2.1.3 The Adjustment Factors submitted with the Proposal shall be used for the full term of the Master Agreement, plus any Option Terms. On the annual anniversary of the Master Agreement, University of North Texas Facilities shall issue the Contractor a new Construction Task Catalog®. The Contractor will be issued the new Construction Task Catalog® for review prior to accepting new Work. The Contractor shall use the Construction Task Catalog® in effect on the date that the Job Order is issued. However, the Contractor cannot delay the issuance of a Job Order to take advantage of a scheduled update of the Construction Task Catalog®. In that event, the Contractor shall use the Construction Task Catalog® that would have been in effect without the delay.

5.2.1.3 The Trades JOC will have a maximum amount per Job Order of three-hundred-thousand dollars (\$300,000.00).

5.2.1.4 A bid security deposit or payment bond is not required by the Contractor to bid or execute the terms related Trades Job Order Contracting. Per state law, the Contractor for any individual project associated with Trades JOC in which the JO may exceed \$25,000 will be required to provide a Payment Bond. In addition, a Payment Bond and Performance Bond will be required for individual projects equal to or greater than \$100,000. Bonds associated with the JOC are reimbursable. The minimum insurance coverage and bonding requirements are stated in Article 7 & 8 of the UGC's.

5.2.1.5 In the course of executing the Contract, the Contractor agrees to abide by the terms as stated in the University of North Texas System Uniform General Conditions 2017 and any other related documents in effect at the time of award.

5.2.1.6 The Owner's representative will develop specifications necessary for the execution of the Trades JOC. Trades JOC contractors will adhere to Trades JOC program specifications; the University of North Texas System Uniform General Conditions 2017; UNT Design & Construction Guidelines; the most current version of IBC; NFPA 101; and this RFP solicitation.

The intent of the specification(s) is to provide concise institutional and/or industrial standards for maintenance, repair, and construction of University facilities. In the event the CTC does not list a specific task, the procedure for a NPP will be followed. The Owner's decision as to whether an item is a pre-priced task or non-pre-priced task is final, binding, and conclusive to the Contractor.

5.2.1.7 Contractor is solely responsible for the receipt and storage of their own materials, to include the unloading of trucks, checking of deliveries and transportation to the work area. No construction materials are to be delivered to or received by UNTS' Central Receiving warehouse.

5.2.1.8 In the event of a conflict between the JO and plans, the JO prevails.

5.2.1.9 In the event of a conflict between the plans and the specifications, the specifications prevail.

- 5.2.1.10 The University reserves the right to purchase material(s) and/or job-required merchandise. UNTS will deliver any such materials to the jobsite, or compensate the Contractor for providing the labor to relocate Owner-furnished materials to the jobsite. Compensation to Contractor for delivery of said materials will require a modification to the JO. The Contractor will return university-owned materials delivered but not used on the job to the University for credit.
- 5.2.1.11 Contractor will ensure that one (1) of their employees is present on each job site at all times. This individual must have overall project supervisory authority. Supervisory costs are to be included in the Contractor's coefficient and will not be reimbursed as a separate labor cost.
- 5.2.1.12 Contractor may be required to perform the work under this contract in the presence of University employees and/or other University contractors or their subcontractors, whether union or non-union. Contractor shall complete the work assigned in the time required by the JO. In the event off-site work is required, such as site fabrication, the Contractor shall notify UNTS at the time of the issuance of the JO. UNTS reserves the right to inspect such off-site work at any time.
- 5.2.1.13 If the Contractor's principal place of business is not located within fifty (50) miles of the University, the Contractor shall provide its own office and/or storage space for materials and equipment. Contractor is required to provide and maintain telephone, fax, and computer with internet connection, including an email account, at their own expense, as well as personnel competent in the use of office equipment.
- 5.2.1.14 Response to communication between the University and Contractor shall not exceed four (4) hours, Monday-Friday, 8:00 a.m.-5:00 p.m.
- 5.2.1.15 HUB Subcontracting Plan (HSP)-
Individual Job Orders that equal or exceed \$85,000 in value require Contractor to submit an HSP, which is subject to UNTS approval and compliance. Changes to the HSP are allowed only with written approval from UNTS.

Contractor may be required to provide information and/or UNTS may conduct audits to ensure compliance to the HSP. (Projects that are less than \$100,000.00 will require a UNT HUB Sub-Contracting "Short" form; this form will be turned in with the invoice. To prove HUB "goodwill" on all projects. The majority of the projects done using the Trades JOC Contract will be under \$100,000.00.

- 5.2.1.16 Contractor employees and subcontractor employees shall comply with all University policies. These include, but are not limited to, contractor guidelines, safety and work practices, and code of conduct, smoking and/or tobacco policies, and parking regulations. Any citations as a result of violations are the sole responsibility of the Contractor.
- 5.2.1.17 **Subcontracts**
- 5.2.1.17.1 Contractors may use the services of subcontractors, and will be responsible for their reimbursement. UNTS may require Contractor to submit payment affidavit(s) for subcontractors before release of final payment. The use of subcontractors does not alter UPB unit costs or Contractor's coefficient, and subcontractor pricing is not a basis of reimbursement.
- 5.2.1.17.2 As soon as practical, and before execution of contract, the Contractor shall notify UNTS, in writing, the names and phone numbers of all subcontractors proposed for the principal parts of work, as well as for any other as directed by the University. The Contractor may not

employ any subcontractor, to which UNTS objects for any reason, such as incompetent, unfit, irresponsible, or unsafe.

5.2.1.17.3 Contractor shall be solely and fully responsible to the University for any acts and/or omissions of a subcontractor or persons directly employed thereby.

5.2.1.17.4 Neither the JOC nor the contract documents shall create any contract or agreement between any subcontractor and the University. Additionally, there is no intent to designate a subcontractor as a beneficiary of the contract between the University and the Contractor.

Contractor agrees to bind each subcontractor. Furthermore, Contractor shall ensure each subcontractor agrees to be bound by the terms of the JOC and related contract documents, including JOC Program Specifications; the University of North Texas System Uniform General Conditions 2017 ; UNT Design & Construction Guidelines; and individual project specifications, as far as applicable to their work.

5.2.1.18 Procedures: Execution of a Job Order

5.2.1.18.1 Within three (3) working days after notification by UNTS of a pending JO, Contractor shall conduct a joint scope meeting with designated University personnel and/or invited others for a validation site visit and conference. During this meeting, the following will be established:

5.2.1.18.1.1 Project number and title

5.2.1.18.1.2 Site investigation

5.2.1.18.1.3 Methods and alternatives for accomplishing work per the preliminary SOW, estimate, plans, and specifications

5.2.1.18.1.4 SOW, definitions, and refinement of tasks and quantities required

5.2.1.18.1.5 Timeline for completion

5.2.1.18.1.6 Site availability

5.2.1.18.1.7 Staging areas

5.2.1.18.1.8 Hours of operation

5.2.1.18.1.9 Hazardous materials handling

5.2.1.18.1.10 Proposal submittal due date

5.2.1.18.2 UNTS will prepare SOW, referencing any additions and/or deletions identified during the joint scope meeting, and will then issue a RFP, setting forth the proposal due date. This SOW will be the basis for which Contractor will develop a Job Order proposal, and will be the basis of UNTS' evaluation criteria. Contractor cannot refuse to perform any task or work in connection with a project.

5.2.1.18.3 Preparation of the Job Order proposal.

Contractor will prepare their proposal to include and according to the following:

5.2.1.18.3.1 Pre-priced tasks and their quantities shall be identified and stated in the CTC®

5.2.1.18.3.2 Non-pre-priced tasks shall be identified separately and included in the JO price proposal. Tasks shall include, but not limited to, catalog cuts, specifications, technical data, drawings, and/or other information as required to evaluate the task.

5.2.1.18.3.3 NPP tasks performed by the Contractor shall be identified and must include a minimum of three (3) independent quotes for all materials. To the extent possible, pre-priced labor and equipment from the CTC® is to be used.

NPP tasks performed by a subcontractor shall be identified and must include a minimum of three (3) independent quotes from subcontractors.

Contractor shall not submit quotes or bids from any supplier or subcontractor that the Contractor is not prepared to utilize. UNT may require additional quotes and bids from suppliers or subcontractors if the University, at its sole discretion, deems submitted quotes or bids unacceptable.

- 5.2.1.18.3.4 The final price submitted for NPP tasks shall be based on the NPP coefficient multiplied by the selected NPP price quoted.
 - 5.2.1.18.3.5 Once an NPP task has been used on three (3) separate Job Orders and upon approval by UNTS, the unit price for said task is established and will be fixed as a permanent pre-priced task. Price justification will no longer be required.
 - 5.2.1.18.3.6 UNT shall determine an item is a pre-priced task or a non-pre-priced task. Said determination shall be final, binding, and conclusive to the Contractor.
 - 5.2.1.18.3.7 Job Order proposal shall include, at a minimum, the following:
 - 5.2.1.18.3.7.1 Job Order price proposal
 - 5.2.1.18.3.7.2 Required drawings and/or sketches
 - 5.2.1.18.3.7.3 Catalog cuts, technical data, or samples
 - 5.2.1.18.3.7.4 List of proposed subcontractors, anticipated price, and completed HUB Subcontracting Plan (HSP)
 - 5.2.1.18.3.7.5 Construction schedule
 - 5.2.1.18.3.7.6 Sample warranties and/or guarantees for materials, equipment, and/or systems proposed
 - 5.2.1.18.3.8 Contractor is responsible for obtaining all filings and permits required for the work, and is to include, but not limited to, the preparation of all drawings, sketches, calculations and other documents or information that may be required thereof.
- Filing fees and permits paid by the Contractor to the City, State, or any other governmental or regulatory agency is reimbursable, without markup and with a coefficient of 1.0 applied, and with appropriate receipt. Any expediting fees or equipment use fees are not reimbursable.
- 5.2.1.18.3.9 Contractor shall reference the SOW and include the Trades Job Order price and Job Order completion time for each JO. All clauses of the contract shall be applicable to each JO. A Trades Job Order signed by the University and delivered to the Contractor constitutes the University's acceptance of the proposal. Contractor will be provided with a signed copy of the JO, along with an official Purchase Order issued by the Procurement Department.
 - 5.2.1.18.3.10 By submitting a signed Trades Job Order price proposal, Contractor agrees to complete the work encompassed in the SOW, in accordance with the RFP and at the price submitted. It is the Contractor's

responsibility to ensure the necessary tasks and quantities are included in the Job Order price proposal prior to submittal.

5.2.1.18.3.11 Trades Job Order proposal shall be submitted no later than the date and time indicated on the RFP. Incomplete JO proposals will be rejected. Contractor is to allow sufficient time for proposal preparation, which could average between 7-14 days, depending on complexity. Job orders requiring incidental shop drawings or approvals will be allowed adequate time for the submittal of necessary documents.

In emergency situations or on Job Orders requiring minor maintenance and repair needing immediate completion, the Job Order proposal may be needed quickly.

5.2.1.18.3.12 UNTS may hold a retainage for completion of any punch list(s) of items for the estimated cost to complete the punch list, between 200%-300% of said cost.

5.2.1.18.3.13 Upon completion of the project, inclusive of punch-list items, Contractor will submit a Certificate for Final Payment for UNT approval.

5.2.1.18.3.14 UNT reserves the right to reject any Trades Job Order proposal, to cancel any project for any reason, to opt not to issue a Trades Job Order, and/or to perform such work by other means, if it is determined to be in the best interest of the University.

No cost allowance is provided for the recovery of any costs by Contractor resulting from the development of the Job Order. These include but are not limited to, costs associated with attendance to the joint scope meeting, review of the SOW, preparation of proposal, subcontractor costs, and costs associated with reviewing the JO proposal with the Owner.

5.2.1.19 Procedures: Modification of a Trades Job Order

It is the sole responsibility of UNT to request a Change Order to a JO.

5.2.1.19.1 Change orders shall be generated from CTC as the sole basis for pricing.

5.2.1.19.2 In the event of differing site conditions during execution of the JO, or should the Owner desire a change in the quantity or quality of work, a modified or supplement JO is required via Change Order. All supplemental JOs shall be priced accordance with the procedures listed in Section 5.2.1.18.3.

5.2.1.19.3 UNT recognizes three (3) typical circumstances resulting in the modification of a JO: 1) differing site conditions, 2) increased Scope of Work, or 3) decreased Scope of Work. UNT will prepare a supplemental or modified JO resulting from any of the aforementioned circumstances.

5.2.1.19.4 In the event a Change Order causes the value of any Trades Job Order to exceed \$100,000, Contractor is required to submit a revised HUB Subcontracting Plan (HSP) for approval. Any Change Orders require an amended HUB Subcontracting Plan (HSP) be submitted by Contractor and approved by UNTS HUB Dept.

5.2.1.19.5 Contractor, or subcontractors, are not authorized to begin work without a written Change Order issued from the Procurement Department.

5.2.1.19.6 All information, documentation, and/or other materials submitted in response to this solicitation is subject to public disclosure under the Texas Public Information Act, Texas Government Code, Chapter 552.001, et seq. Respondents are hereby notified that UNT adheres to all statutes, court decisions, and opinions of the Texas Attorney General with respect to disclosure of information.

5.2.1.20 Respondent's Qualifications

Respondents shall complete and return with their proposal the Respondent's Qualifications. Refer to Attachment B: Proposers Qualifications. Failure to include this document, or if the document is returned incomplete, the proposal will be considered non-responsive.

5.2.3 Additional Proposal Response Requirements

Respondents are to include the following information, documentation, and/or statements with response submittal. Items in the response are to be numbered corresponding with the list, below.

- 5.2.3.1 Describe the pre-construction and construction phase services provided by your firm.
- 5.2.3.2 Describe the management plan for performing the work required, including your program for managing materials providers.
- 5.2.3.3 Describe your contract award process, including the review and approval by Owner.
- 5.2.3.4 Describe your cost estimating procedure.
- 5.2.3.5 Describe your approach to interfacing with the design team, as well as how you go about influencing the design process, if called upon to do so.
- 5.2.3.6 Describe your approach to value engineering, identifying constructability issues, costing options, and cost projections.
- 5.2.3.7 Describe your start-up and closeout procedures for a project of similar size.
- 5.2.3.8 List all key personnel with name, phone number, and email address. Identify a single point of contact. For each individual listed, indicate if they will be on-site or at your home office. Include resumes for the entire proposed construction team, including relevant experience with similar projects.
- 5.2.3.9 Provide an organizational chart depicting the Project Team and their specific duties.
- 5.2.3.10 Provide evidence of technical competence as a Trades Job Order contractor.
- 5.2.3.11 Describe the project scheduling system or methodology used.
- 5.2.3.12 Provide an example of a proposed project execution plan and schedule.
- 5.2.3.13 Describe your method to assure the project design is achievable under the Owner's contract requirements.
- 5.2.3.14 Describe your procedures for and objectives in reviewing the design and construction documents, and in providing feedback to the Architect and Owner.
- 5.2.3.15 Describe your method to assure that materials, equipment, and construction methods meet the Owner's design requirements.
- 5.2.3.16 Describe your methods of implementing the industry's "best practices", as defined by the Construction Industry Institute™ (CII) and similar organizations.
- 5.2.3.17 Describe your process to establish project objectives.
- 5.2.3.18 Describe your change order management system.
- 5.2.3.19 Describe the types of records, reports, monitoring systems, and information management systems used on a typical project under \$100,000 value.
- 5.2.3.20 List the volume of work completed by your firm over the preceding three (3) years.
- 5.2.3.21 List any Trades Job Order contracts currently in-progress or completed within the preceding three (3) years. Include contract term details, and total cumulative value to date. Also, include company reference information, such as contact name, address, email address, and phone number.
- 5.2.3.22 Describe your approach and methodology to Trades Job Order contracting or similar types of contracts.

- 5.2.3.23 Describe your quality control process throughout the duration of the project. This should be detailed for your phase of the project.
- 5.2.3.24 identify the Quality Control team assigned to this program and list their duties.
- 5.2.3.25 Describe your Quality Control process to monitor work performed by you as a contractor
- 5.2.3.26 Describe the job site safety program for this program. List specific safety policies in which your employees must be in compliance.
- 5.2.3.27 Identify the Safety team assigned to this program .
- 5.2.3.28 State your Experience Modification Rating (EMR) for the past three (3) years.
- 5.2.3.29 Describe your approach to maximizing HUB participation opportunities at the Construction Manager, Subcontractor, Supplier, and Materialman levels. Include your knowledge of unique or innovate programs designed to maximize HUB participation and for which you recommend for consideration.
- 5.2.3.30 Describe how you will commit to UNTS' HUB initiatives throughout the pre-construction and construction phases of this project. Include any contractor insurance programs used, such as a Contractor Controlled Insurance Program and how it is used to assist small and HUB businesses. Describe how this could be used for this program.
- 5.2.3.31 Include an audited financial statement, including a profit and loss statement, and other supporting schedules. If the last audited statement is older than twelve (12) months, also include the most current unaudited statement.
- 5.2.3.32 Gordian will charge each JOC contractor a contractor license fee ("Contractor License Fee") of one percent (1.00%) of the value of each Job Order, Purchase Order, or similar purchasing document issued to the Trades JOC contractor by the University. The Contractor License Fee is assessed to the Trades JOC contractor in return for their access to our proprietary construction data and JOC applications, and is not a direct cost to the University. Gordian is responsible for all administrative duties related to the invoicing and collections of the Contractor License Fee. The Contractor License Fee is payable by the Trades JOC contractor when a Job Order is issued by the University, and will be assessed to the Trades JOC contractor for all work ordered by the University using the Trades JOC program.
- 5.2.2.33 Include a statement that the proposing firm acknowledges that they must submit invoices within 45 days of completion of the Job Order for the full amount owed including required HUB forms and any Certificate of Completion, warranty or drawings required per the Job Order requirements.

5.2.4 Definitions

- 5.2.4.1 **Job Order (JO):** A contractual instrument issued by UNT, also known as "Owner", to the Contractor. The JO represents the Owner's representative estimate of task(s) and quantities of labor, materials, and equipment required to perform the work; plans and specifications; and project timeline. Issued upon agreement between UNT and Contractor regarding scope of work, performance time, and price. The individual JO is a fixed-price lump-sum contract once the purchase order (PO) is issued. Contractor is authorized to begin work only once an official PO is signed and issued by the Procurement Department.
- 5.2.4.2 **Coefficient:** The price multiplier bid by the Contractor. After contract award, the parties use this multiplier to determine the price of work. This is multiplied by the Unit Price Book (UPB) rates listed in the JO. Proposed coefficient shall be a net decrease from or increase to the price in the CTC. Coefficient shall be carried to four (4) decimal places only.
- 5.2.4.3 **Scope of Work (SOW):** A statement or document outlining, in detail, the work the Contractor is obligated to complete or perform for a particular JO.
- 5.2.4.4 **Job Order price:** The dollar amount to be paid to Contractor upon completion of a job order.
- 5.2.4.5 **Job Order completion time:** The timeframe within which the Contractor must complete the SOW.
- 5.2.4.6 **Joint scope meeting:** A meeting held on site prior to finalizing the SOW to discuss the work to be performed.

- 5.2.4.7 **Pre-priced task:** An item of work for which a unit price is stated and included in the Construction Task Catalog®.
- 5.2.4.8 **Job Order price proposal:** Prepared by Contractor and includes the pre-priced tasks, NPP tasks, quantities, and appropriate coefficients that are required to complete a SOW.
- 5.2.4.9 **Proposal:** A set of documents that, at a minimum, include 1) a Job Order price proposal; 2) a proposed project schedule, 3) a list of proposed subcontractors; 4) A HUB subcontracting plan is required regardless of amount of the project; 5) sketches, drawings, or layouts; and 6) technical data or information regarding proposed materials and/or equipment.
- 5.2.4.10 **Non-pre-priced task:** Work that is required by the SOW, but is not included in the TCTC®
- 5.2.4.11 **Normal working hours:**
 - 5.2.4.11.1 Administrative and classroom areas:
6:00 a.m. – 5:00 p.m., Monday – Friday
Other hours may be arranged.
 - 5.2.4.11.2 Research and computing areas:
24x7X365 days
Other hours may be arranged.
- 5.2.4.12 **Other than normal working hours:** work hours outside the defined normal working hours, Saturday, Sunday and holidays.

5.3 Pricing/Fees

See Attachment A: Pricing Sheet

APPENDIX ONE

Section 1: Affirmations and Confirmations

1.1 Purpose

UNTS is soliciting competitive sealed proposals from Proposers having suitable qualifications and experience providing services in accordance with the terms, conditions and requirements set forth in this RFP. This RFP provides sufficient information for interested parties to prepare and submit proposals for consideration by UNTS.

By submitting a proposal, Proposer certifies that it understands this RFP and has full knowledge of the scope, nature, quality, and quantity of the services to be performed, the detailed requirements of the services to be provided, and the conditions under which such services are to be performed. Proposer also certifies that it understands that all costs relating to preparing a response to this RFP will be the sole responsibility of the Proposer.

PROPOSER IS CAUTIONED TO READ THE INFORMATION CONTAINED IN THIS RFP CAREFULLY AND TO SUBMIT A COMPLETE RESPONSE TO ALL REQUIREMENTS AND QUESTIONS AS DIRECTED.

1.2 Inquiries and Interpretations

UNTS may in its sole discretion respond in writing to written inquiries concerning this RFP and mail its response as an Addendum to all parties recorded by UNTS as having received a copy of this RFP. Only UNTS's responses that are made by formal written Addenda will be binding on UNTS. Any verbal responses, written interpretations or clarifications other than Addenda to this RFP will be without legal effect. All Addenda issued by UNTS prior to the Submittal Deadline will be and are hereby incorporated as a part of this RFP for all purposes. This addenda shall be posted to UNTS' Bid Opportunities Web Page located at: <https://www.untssystem.edu/hr-it-business-services/procurement/purchasing/bid-opportunities>. Vendors are strongly encouraged to visit this

page at least four (4) business days prior to submitting your response to ensure that you have received all applicable addenda.

Proposers are required to acknowledge receipt of each Addendum as specified in this Section. The Proposer must acknowledge all Addenda by completing, signing and returning the Addenda Checklist in Section 4 of this appendix. The Addenda Checklist should accompany the Proposer's proposal.

Any interested party that receives this RFP by means other than directly from UNTS is responsible for notifying UNTS that it has received an RFP package, and should provide its name, address, telephone number and FAX number to UNTS, so that if UNTS issues Addenda to this RFP or provides written answers to questions, that information can be provided to such party.

1.3 Public Information

Proposer is hereby notified that UNTS strictly adheres to all statutes, court decisions and the opinions of the Texas Attorney General with respect to disclosure of public information.

All information, documentation, and other materials submitted in response to this RFP is subject to public disclosure under the *Texas Public Information Act (Government Code, Chapter 552.001, et seq.)*. Proposer will be advised of a request for public information that implicates their materials if those materials are marked "Confidential and Proprietary" and will have the opportunity to raise any objections to disclosure to the Texas Attorney General.

1.4 Type of Agreement

Refer to the attached Sample Service Agreement: TRADES JOB ORDER CONTRACT

1.5 Proposal Evaluation Process

UNTS will select Contractor by using the competitive sealed proposal process described in this Section.

UNTS may make the selection of Trade Contractor on the basis of the proposals initially submitted, without discussion, clarification or modification. In the alternative, UNTS may make the selection of Trade Contractor on the basis of negotiation with any of the Proposers. In conducting such negotiations, UNTS will use commercially reasonable efforts to avoid disclosing the contents of competing proposals.

At UNTS' sole option and discretion, UNTS may discuss and negotiate elements of proposals submitted with any or all proposers. Furthermore, UNTS may request presentations or system demonstrations from any or all proposers at no cost or obligation to UNTS.

After submission of a proposal but before final selection of Trade Contractor is made, UNTS may permit a Proposer to revise its proposal in order to obtain the Proposer's best and final offer. In that event, representations made by Proposer in its revised proposal, including price and fee quotes, will be binding on Proposer. UNTS is not obligated to select the Proposer offering the most attractive economic terms if that Proposer is not the most advantageous to UNTS overall, as determined by UNTS according to the evaluation criteria contained herein.

UNTS reserves the right to (a) enter into an agreement for all or any portion of the requirements and specifications set forth in this RFP with one or more Proposers, (b) reject any and all proposals and re-solicit proposals, or (c) reject any and all proposals and temporarily or permanently abandon this selection process, if deemed to be in the best interests of UNTS. Proposer is hereby notified that UNTS will maintain in its files concerning this RFP a written record of the basis upon which a selection, if any, is made by UNTS.

1.6 Proposer's Acceptance of Evaluation Methodology

By submitting a proposal, Proposer acknowledges (1) Proposer's acceptance of [a] the Proposal Evaluation Process (ref. **Section 1.5 of APPENDIX ONE**), [b] the Criteria for Selection (ref. **2.3** of this RFP), [c] the Specifications and, [d] the terms and all other requirements and specifications set

forth in this RFP; and (2) Proposer's recognition that some subjective judgments must be made by UNTS during this RFP process.

1.7 Solicitation for Proposal and Proposal Preparation Costs

Proposer understands and agrees that (1) this RFP is a solicitation for proposals and UNTS has made no representation written or oral that one or more agreements with UNTS will be awarded under this RFP; (2) UNTS issues this RFP predicated on UNTS's anticipated requirements for the Services, and UNTS has made no representation, written or oral, that any particular scope of services will actually be required by UNTS; and (3) Proposer will bear, as its sole risk and responsibility, any cost that arises from Proposer's preparation of a proposal in response to this RFP.

1.8 Proposal Requirements and General Instructions

- 1.8.1 Proposer should carefully read the information contained herein and submit a complete proposal in response to all requirements and questions as directed.
- 1.8.2 Proposals and any other information submitted by Proposer in response to this RFP will become the property of UNTS.
- 1.8.3 UNTS will not provide compensation to Proposer for any expenses incurred by the Proposer for proposal preparation or for demonstrations or oral presentations that may be made by Proposer. Proposer submits its proposal at its own risk and expense.
- 1.8.4 Proposals that (i) are qualified with conditional clauses; (ii) alter, modify, or revise this RFP in any way; or (iii) contain irregularities of any kind, are subject to disqualification by UNTS, at UNTS's sole discretion.
- 1.8.5 Proposals should be prepared simply and economically, providing a straightforward, concise description of Proposer's ability to meet the requirements and specifications of this RFP. Emphasis should be on completeness, clarity of content, and responsiveness to the requirements and specifications of this RFP. Proposers are encouraged to completely address the evaluation criteria
- 1.8.6 UNTS makes no warranty or guarantee that an award will be made as a result of this RFP. UNTS reserves the right to accept or reject any or all proposals, waive any formalities, procedural requirements, or minor technical inconsistencies, and delete any requirement or specification from this RFP or the Agreement when deemed to be in UNTS's best interest. UNTS reserves the right to seek clarification from any Proposer concerning any item contained in its proposal prior to final selection. Such clarification may be provided by telephone conference or personal meeting with or writing to UNTS, at UNTS's sole discretion. Representations made by Proposer within its proposal will be binding on Proposer.
- 1.8.7 Any proposal that fails to comply with the requirements contained in this RFP may be rejected by UNTS, in UNTS' sole discretion.
- 1.8.8 Should a vendor wish to protest or dispute determinations or awards made in connection with this RFP, it shall be done by submitting a Letter of Protest/Dispute to UNTS Senior Director for Procurement Services outlining the issue to be considered.

1.9 Execution of Offer

Proposer must complete, sign and return the attached Execution of Offer (ref. Appendix One, Section 2) as part of its proposal. The Execution of Offer must be signed by a representative of Proposer duly authorized to bind the Proposer to its proposal. Any proposal received without a completed and signed Execution of Offer may be rejected by UNTS, in its sole discretion.

1.10 Pricing and Delivery Schedule

Proposer must complete and return the Pricing Schedule (ref. Section 5 of this RFP), as part of its proposal. In the Pricing and Delivery Schedule, the Proposer should describe in detail (a) the total fees for the entire scope of the Services; and (b) the method by which the fees are calculated. The fees must be inclusive of all associated costs for delivery, labor, insurance, taxes, overhead, and profit.

UNTS will not recognize or accept any charges or fees to perform the Services that are not specifically stated in the Pricing and Delivery Schedule.

In the Pricing and Delivery Schedule, Proposer should describe each significant phase in the process of providing the Services to UNTS, and the time period within which Proposer proposes to be able to complete each such phase.

1.11 Proposer's General Questionnaire

Proposals must include responses to the questions in Section 3 of Appendix 1. Proposer should reference the item number and repeat the question in its response. In cases where a question does not apply or if unable to respond, Proposer should refer to the item number, repeat the question, and indicate N/A (Not Applicable) or N/R (No Response), as appropriate. Proposer should explain the reason when responding N/A or N/R.

1.12 Addenda Checklist

Proposer should acknowledge all addenda to this RFP (if any) by completing, signing and returning the Addenda Checklist (ref. Appendix One, Section 4) as part of its proposal. Any proposal received without a completed and signed Addenda Checklist may be rejected by UNTS, in its sole discretion.

1.13 Submittal

Proposer should submit all proposal materials enclosed in a sealed envelope, box, or container. The RFP No. (Ref. Section 1.3 of this RFP) and the Submittal Deadline (ref. Section 2.1 of this RFP) should be clearly shown in the lower left-hand corner on the top surface of the container. In addition, the name and the return address of the Proposer should be clearly visible.

Proposer must also submit the number of originals of the HUB Subcontracting Plan (also called the HSP), if required, as directed by this RFP (ref. Section 2.5 of the RFP.)

Note: If proposal requires the submittal of an HSP, the completed HSP documents and the proposal response documents must be in separate sealed envelopes. Both envelopes are to be placed in a master container, and such master container should be marked in the lower left-hand corner with the RFP number and name and Submittal Deadline, as stated above.

Upon Proposer's request and at Proposer's expense, UNTS will return to a Proposer its proposal received after the Submittal Deadline if the proposal is properly identified. UNTS will not under any circumstances consider a proposal that is received after the Submittal Deadline or which is not accompanied by the number of completed and signed originals of the HSP that are required by this RFP.

UNTS will not accept proposals submitted by telephone, proposals submitted by facsimile ("fax") transmission, or proposals submitted by electronic transmission (i.e., e-mail) in response to this RFP.

Except as otherwise provided in this RFP, no proposal may be changed, amended, or modified after it has been submitted to UNTS. However, a proposal may be withdrawn and resubmitted at any time prior to the Submittal Deadline. No proposal may be withdrawn after the Submittal Deadline without UNTS's consent, which will be based on Proposer's submittal of a written explanation and documentation evidencing a reason acceptable to UNTS, in UNTS's sole discretion.

By signing the Execution of Offer (ref. Appendix One, Section 2) and submitting a proposal, Proposer certifies that any terms, conditions, or documents attached to or referenced in its proposal are applicable to this procurement only to the extent that they (a) do not conflict with the laws of the State of Texas or this RFP and (b) do not place any requirements on UNTS that are not set forth in this RFP or in the Appendices to this RFP. Proposer further certifies that the submission of a proposal is Proposer's good faith intent to enter into the Agreement with UNTS as specified herein and that such intent is not contingent upon UNTS' acceptance or execution of any terms, conditions, or other documents attached to or referenced in Proposer's proposal.

1.14 Page Size, Binders, and Dividers

Proposals must be typed on letter-size (8-1/2" x 11") paper. Preprinted material should be referenced in the proposal and included as labeled attachments. Sections within a proposal should be divided by tabs for ease of reference.

1.15 Table of Contents

Proposals must include a Table of Contents with page number references. The Table of Contents must contain sufficient detail and be organized according to the same format as presented in this RFP, to allow easy reference to the sections of the proposal as well as to any separate attachments (which should be identified in the main Table of Contents). If a Proposer includes supplemental information or non-required attachments with its proposal, this material should be clearly identified in the Table of Contents and organized as a separate section of the proposal.

1.16 Pagination

All pages of the proposal should be numbered sequentially in Arabic numerals (1, 2, 3, etc.). Attachments should be numbered or referenced separately.

Section 2: Execution of Offer

THIS EXECUTION OF OFFER MUST BE COMPLETED, SIGNED AND RETURNED WITH PROPOSER'S RESPONSE. . FAILURE TO COMPLETE, SIGN AND RETURN THIS EXECUTION OF OFFER WITH THE PROPOSER'S RESPONSE MAY RESULT IN THE REJECTION OF THE PROPOSAL.

2.1 By signature hereon, Proposer represents and warrants the following:

- 2.1.1 Proposer acknowledges and agrees that (1) this RFP is a solicitation for a proposal and is not a contract or an offer to contract; (2) the submission of a proposal by Proposer in response to this RFP will not create a contract between UNTS and Proposer; (3) UNTS has made no representation or warranty, written or oral, that one or more contracts with UNTS will be awarded under this RFP; and (4) Proposer will bear, as its sole risk and responsibility, any cost arising from Proposer's preparation of a response to this RFP.
- 2.1.2 Proposer is a reputable company that is lawfully and regularly engaged in providing the Services.
- 2.1.3 Proposer has the necessary experience, knowledge, abilities, skills, and resources to perform the Services.
- 2.1.4 Proposer is aware of, is fully informed about, and is in full compliance with all applicable federal, state and local laws, rules, regulations and ordinances.
- 2.1.5 Proposer understands (i) the requirements and specifications set forth in this RFP and (ii) the terms and conditions set forth in the Agreement under which Proposer will be required to operate.
- 2.1.6 If selected by UNTS, Proposer will not delegate any of its duties or responsibilities under this RFP or the Agreement to any sub-contractor, except as expressly provided in the Agreement.
- 2.1.7 If selected by UNTS, Proposer will maintain any insurance coverage as required by the Agreement during the term thereof.
- 2.1.8 All statements, information and representations prepared and submitted in response to this RFP are current, complete, true and accurate. Proposer acknowledges that UNTS will rely on such statements, information and representations in selecting Contractor. If selected by UNTS, Proposer will notify UNTS immediately of any material change in any matters with regard to which Proposer has made a statement or representation or provided information.
- 2.1.9 Proposer will defend with counsel approved by UNTS, indemnify, and hold harmless UNTS, The University of North Texas System, the State of Texas, and all of their regents, officers, agents and employees, from and against all actions, suits, demands, costs, damages, liabilities and other claims of any nature, kind or description, including reasonable attorneys' fees incurred in investigating, defending or settling any of the foregoing, arising out of, connected with, or resulting from any negligent acts or omissions or willful misconduct of Proposer or any agent, employee, subcontractor, or supplier of

Proposer in the execution or performance of any contract or agreement resulting from this RFP.

- 2.1.10 Pursuant to Sections 2107.008 and 2252.903, *Government Code*, any payments owing to Proposer under any contract or agreement resulting from this RFP may be applied directly to any debt or delinquency that Proposer 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.
- 2.2 By signature hereon, Proposer offers and agrees to furnish the services to UNTS and comply with all terms, conditions, requirements and specifications set forth in this RFP.
- 2.3 By signature hereon, Proposer affirms that it has not given or offered to give, nor does Proposer intend 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 its submitted proposal. Failure to sign this Execution of Offer, or signing with a false statement, may void the submitted proposal or any resulting contracts, and the Proposer may be removed from all proposal lists at UNTS.
- 2.4 By signature hereon, Proposer certifies that it is not currently delinquent in the payment of any taxes due under Chapter 171, *Tax Code*, or that Proposer is exempt from the payment of those taxes, or that Proposer is an out-of-state taxable entity that is not subject to those taxes, whichever is applicable. A false certification will be deemed a material breach of any resulting contract or agreement and, at UNTS's option, may result in termination of any resulting contract or agreement.
- 2.5 By signature hereon, Proposer hereby certifies that neither Proposer nor any firm, corporation, partnership or institution represented by Proposer, 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., *Business and Commerce Code*, or the Federal antitrust laws, nor communicated directly or indirectly the proposal made to any competitor or any other person engaged in such line of business.
- 2.6 By signature hereon, Proposer certifies that the individual signing this document and the documents made a part of this RFP, is authorized to sign such documents on behalf of Proposer and to bind Proposer under any agreements and other contractual arrangements that may result from the submission of Proposer's proposal.
- 2.7 By signature hereon, Proposer certifies as follows:
- "Under Section 231.006, *Family Code*, relating to child support, Proposer certifies that the individual or business entity named in the Proposer's proposal is not ineligible to receive the specified contract award and acknowledges that any agreements or other contractual arrangements resulting from this RFP may be terminated if this certification is inaccurate."
- 2.8 By signature hereon, Proposer certifies that (i) no relationship, whether by blood, marriage, business association, capital funding agreement or by any other such kinship or connection exists between the owner of any Proposer that is a sole proprietorship, the officers or directors of any Proposer that is a corporation, the partners of any Proposer that is a partnership, the joint ventures of any Proposer that is a joint venture or the members or managers of any Proposer that is a limited liability company, on one hand, and an employee of any component of UNTS of North Texas System, on the other hand, other than the relationships which have been previously disclosed to UNTS in writing; (ii) Proposer has not been an employee of any component institution of the University of North Texas System within the immediate twelve (12) months prior to the Submittal Deadline; and (iii) no person who, in the past four (4) years served as an executive of a state agency was involved with or has any interest in Proposer's proposal or any contract resulting from this RFP (ref. Section 669.003, *Government Code*). All disclosures by Proposer in connection with this certification will be subject to administrative review and approval before UNTS enters into a contract or agreement with Proposer.
- 2.9 By signature hereon, Proposer certifies its compliance with all federal laws and regulations pertaining to Equal Employment Opportunities and Affirmative Action.

- 2.10** By signature hereon, Proposer affirmatively states that it does not boycott Israel, pursuant to Texas Gov't Code Section 2270.001. Additionally, Proposer shall not engage in a boycott of Israel during the term of this Agreement.
- 2.11** By signature hereon, Proposer affirms its compliance with Texas Administrative Code Title 1, Part 10, Chapter 213, Subchapter C, Rule §213.38, Electronic and Information Resources Accessibility Standards for Institutions of Higher Education.
- 2.12** By signature hereon, Proposer represents and warrants that all products and services offered to UNTS in response to this RFP meet or exceed the safety standards established and promulgated under the Federal Occupational Safety and Health Law (Public Law 91-596) and the *Texas Hazard Communication Act*, Chapter 502, *Health and Safety Code*, and all related regulations in effect or proposed as of the date of this RFP.
- 2.13** Proposer will and has disclosed, as part of its proposal, any exceptions to the certifications stated in this Execution of Offer. All such disclosures will be subject to administrative review and approval prior to the time UNTS makes an award or enters into any contract or agreement with Proposer.
- 2.14** If Proposer will sell or lease computer equipment to UNTS under any agreements or other contractual arrangements that may result from the submission of Proposer's proposal then, pursuant to Section 361.965(c), *Health & Safety Code*, Proposer certifies that it is in compliance with the Manufacturer Responsibility and Consumer Convenience Computer Equipment Collection and Recovery Act set forth in Chapter 361, Subchapter Y, *Health & Safety Code* and the rules adopted by the Texas Commission on Environmental Quality under that Act as set forth in Title 30, Chapter 328, Subchapter I, *Texas Administrative Code*. Section 361.952(2), *Health & Safety Code*, states that, for purposes of the Manufacturer Responsibility and Consumer Convenience Computer Equipment Collection and Recovery Act, the term "computer equipment" means a desktop or notebook computer and includes a computer monitor or other display device that does not contain a tuner.
- 2.15** The Proposer shall procure all Insurance and Bonds per Attachment D: UNTS Uniform General Conditions -2017

2.16 Proposer should complete the following information:

If Proposer is a Corporation, then list the State of Incorporation: _____

If Proposer is a Corporation, then list the Proposer's corporate charter number:

RFP No. _____,

Title: _____

NOTICE: WITH FEW EXCEPTIONS, INDIVIDUALS ARE ENTITLED, ON REQUEST, TO BE INFORMED ABOUT THE INFORMATION THAT GOVERNMENTAL BODIES OF THE STATE OF TEXAS COLLECT ABOUT SUCH INDIVIDUALS. UNDER SECTIONS 552.021 AND 552.023, *GOVERNMENT CODE*, INDIVIDUALS ARE ENTITLED TO RECEIVE AND REVIEW SUCH INFORMATION. UNDER SECTION 559.004, *GOVERNMENT CODE*, INDIVIDUALS ARE ENTITLED TO HAVE GOVERNMENTAL BODIES OF THE STATE OF TEXAS CORRECT INFORMATION ABOUT SUCH INDIVIDUALS THAT IS INCORRECT.

Submitted and Certified By:

(Proposer Institution's Name)

(Signature of Duly Authorized Representative)

(Printed Name/Title)

(Date Signed)

(Proposer's Street Address)

(City, State, Zip Code)

(Telephone Number)

(FAX Number)

(Email Address)

Section 3: Proposer's General Questionnaire

NOTICE: WITH FEW EXCEPTIONS, INDIVIDUALS ARE ENTITLED, ON REQUEST, TO BE INFORMED ABOUT THE INFORMATION THAT GOVERNMENTAL BODIES OF THE STATE OF TEXAS COLLECT ABOUT SUCH INDIVIDUALS. UNDER SECTIONS 552.021 AND 552.023, GOVERNMENT CODE, INDIVIDUALS ARE ENTITLED TO RECEIVE AND REVIEW SUCH INFORMATION. UNDER SECTION 559.004, GOVERNMENT CODE, INDIVIDUALS ARE ENTITLED TO HAVE GOVERNMENTAL BODIES OF THE STATE OF TEXAS CORRECT INFORMATION ABOUT SUCH INDIVIDUALS THAT IS INCORRECT.

Proposals must include responses to the questions contained in this Proposer's General Questionnaire. Proposer should reference the item number and repeat the question in its response. In cases where a question does not apply or if unable to respond, Proposer should refer to the item number, repeat the question, and indicate N/A (Not Applicable) or N/R (No Response), as appropriate. Proposer will explain the reason when responding N/A or N/R.

3.1 Proposer Profile

Company's Legal Name:

Address of principal place of business:

Address of office that would be providing service under the Agreement:

Number of years in Business: _____

State of incorporation: _____

Number of Employees: _____

Annual Revenues Volume: _____

Name of Parent Corporation, if any (mark "N/A" if not applicable)

Are you a certified Historically Underutilized Business (HUB)? (check one) ☐ YES ☐ NO

If "Yes", please indicate the issuing authority

_____ and include copy of your certificate in your bid response package.

Section 4: Addenda Checklist

Proposal of: _____
(Proposer Company Name)

To: The University of North Texas System

RFP Title _____

RFP No.: _____

The undersigned Proposer hereby acknowledges receipt of the following Addenda to the captioned RFP (initial where applicable).

Note: Only check the boxes that apply. For example, if there was only one (1) addendum, initial just the first blank after "No. 1", not all five (5) blanks below.

No. 1 _____ No. 2 _____ No. 3 _____ No. 4 _____ No. 5 _____

Respectfully submitted,

Proposer: _____
(Company Name)

By: _____
(Authorized Signature Name, print or type)

(Title)

(Date)

Signature (authorized signature)

-END-

Attachment A Pricing Form

In compliance with the RFP listed immediately below, the undersigned hereby offers and agrees to furnish all labor, equipment and materials and perform all Work for:

Job Order Contract (JOC) For University of North Texas
RFP # 752-20-934DH

In strict accordance with the Contract Documents for the consideration of the amounts listed on the attached Construction Task Catalog ®. The undersigned further agrees that, upon written acceptance of this Bid, mailed or otherwise furnished within ninety (90) calendar days after the date of receipt of Bids, he will, within ten (10) calendar days after notification of award, execute the JOC Contract Agreement and furnish performance and payment bonds in a form satisfactory to the University with good and sufficient surety or sureties and deliver certificate(s) of insurance in full compliance with the Contract Documents.

SCHEDULE OF PRICES

The Contractor shall perform the tasks required by each individual Job Order issued pursuant to this Contract using the following Coefficients:

- A. Normal Working Hours: The undersigned shall perform any and all functions called for in the Contract Documents and the individual Detailed Scope of Work associated with each Job Order, during Normal Working Hours (8:00 a.m. - 5:00 p.m. Monday through Friday, except Holidays) for the Unit Prices specified in the Construction Task Catalog® (CTC®) multiplied by the quantities necessary to complete the Detailed Scope of Work multiplied by the Coefficient below:

| | | | | | |
|--|---|--|--|--|--|
| | . | | | | |
|--|---|--|--|--|--|

(Specify to four decimal places)

- B. Other Than Normal Working Hours: The undersigned shall perform any and all functions called for in the Contract Documents and the individual Detailed Scope of Work associated with each Job Order, during Other Than Normal Working Hours (5:01 p.m. to 6:59 a.m. Monday through Friday and any time Saturday, Sunday, and Holidays) for the Unit Prices specified in the Construction Task Catalog® (CTC®) multiplied by the quantities necessary to complete the Detailed Scope of Work multiplied by the Coefficient below:

| | | | | | |
|--|---|--|--|--|--|
| | . | | | | |
|--|---|--|--|--|--|

(Specify to four decimal places)

- C. Non Pre-priced Coefficient: The undersigned shall perform any and all functions called for in the Contract Documents and the individual Detailed Scope of Work associated with each Job Order to work deemed not to be included in the CTC® but within the general scope of the work.

| | | | | | |
|--|---|--|--|--|--|
| | . | | | | |
|--|---|--|--|--|--|

(Specify to four decimal places)

EXAMPLE: Write the Coefficient to four decimal places as the following example illustrates.

| | | | | | |
|---|---|---|---|---|---|
| 1 | . | 1 | 9 | 9 | 8 |
|---|---|---|---|---|---|

Or

| | | | | | |
|---|---|---|---|---|---|
| 0 | . | 9 | 9 | 9 | 9 |
|---|---|---|---|---|---|

*Note To Bidder: The Coefficients provided for performing Work during Other Than Normal Working Hours must be greater than the Coefficients provided for performing Work during Normal Working Hours for the equivalent sized Job Orders and The Non Pre-priced Coefficient **must** be higher than 1.0500 but **not** higher than 1.2500.*

Transfer below the competitively bid Coefficients that you wrote in and complete the calculation for the Award Criteria Figure.

AWARD CRITERIA FIGURE

The following formula has been developed for the sole purpose of evaluating bids and awarding the Contract. Each bidder must complete the following calculation.

- | | | |
|---------|---|-----------|
| Line 1. | Normal Working Hours Coefficient (A above). | _____ (1) |
| Line 2. | Multiply Line 1 by .70 | _____ (2) |
| Line 3. | Other than Normal Working Hours Coefficient (B above). | _____ (3) |
| Line 4. | Multiply Line 3 by .20 | _____ (4) |
| Line 5. | Non-Prepriced Coefficient (C above). | _____ (5) |
| Line 6. | Multiply Line 5 by .10 | _____ (6) |
| Line 7. | Summation of lines 2, 4, and 6 above. | _____ (7) |
- (Award Criteria Figure)

Contractor shall write in numbers and words the Award Criteria Figure in the spaces below.

| | | | | | |
|--|---|--|--|--|--|
| | . | | | | |
|--|---|--|--|--|--|

Award Criteria Figure in Numbers

Award Criteria Figure in Words

Instructions to Bidder: Specify lines 1 through 7 to four (4) decimal places. Use conventional rounding methodology (i.e., if the number in the 5th decimal place is 0-4, the number in the 4th decimal remains unchanged; if the number in the 5th decimal place is 5-9, the number in the 4th decimal is rounded upward).

Note to Bidder: the weights in lines 2, 4, and 6, above are for the purpose of calculating an Award Criteria Figure only. No assurances are made by the University that Work will be ordered under the Contract in a distribution consistent with the weighted percentages above. The Award Criteria Figure is only used for the purposes of evaluating the bid; when submitting Price Proposals related to Specific Job Orders, the bidder shall utilize one or more of the Coefficients applicable to the Work being performed provided in A, B, or C in the Schedule of Prices above.

Bidder shall make no alterations, changes, or exclusions to the Bid Form or its phraseology. Bids may be rejected if they show any omissions, alterations of form, additions not called for, conditional or alternate Bids, or irregularities of any kind. All blank spaces shall be completed.

The undersigned acknowledges receipt of the following Addenda to the IFB (Give Addendum number, number of pages and date of each Addendum):

Addendum Number____, ____ pages, dated_____

Addendum Number____, ____ pages, dated_____

Addendum Number____, ____ pages, dated_____

Addendum Number____, ____ pages, dated_____

Failure to acknowledge receipt of all Addenda may cause the proposal to be considered non-responsive which would require rejection of the proposal.

Name of person authorized to bind the Firm:_____

Signature:_____Date:_____

Name of Company: _____

Address:_____

ATTACHMENT B
QUALIFICATIONS

ITEMS I THROUGH V TO BE SUBMITTED WITH PROPOSAL

Proposer's Name: _____

Address: _____

City, State, Zip: _____

Telephone No.: _____ Fax No. _____

State Comptroller Vendor Identification Number: _____

1. GENERAL

- A. Qualification information submitted shall be applicable only to the company entity or branch that will perform this Work.
- B. Attach your Project Organization Chart and resumes of individuals who would be assigned to this project.
- C. Proposed construction schedule (Bar chart acceptable).

2. HISTORY

- A. ☐ Corporation ☐ Partnership ☐ Sole Proprietorship ☐ Joint Venture

State of Incorporation: _____

- B. In continuous business since: _____

Remarks (if required):

- C. Corporate Officers, Partners or Owners of Organization:

Name

Branch Manager

Telephone Number

D. Check box(es) corresponding to the nature of your business:

- ☐ Large Business (100 or more employees)
☐ Small Business (fewer than 100 employees)
☐ HUB Business
☐ Other (Define) _____

E. Has your organization ever defaulted or failed to complete any work awarded?

- ☐ Yes ☐ No

If yes, stipulate where and why: _____

F. Has your organization ever paid liquidated damages or a penalty for failure to complete a contract on time?

- ☐ Yes ☐ No

If yes, stipulate where and why: _____

3. EXPERIENCE

A. Normally performs _____ % of the work with own forces. List trades below:

B. Propose to perform _____ % of the work for project with own forces. List trades below:

C. List all major projects of your organization has in-progress. If more space is needed attach pages to this form using format below identified by item and sub-item:

Name and Location of Project: _____

Contract Amount: _____

Percent Complete: _____ Project Completion Date: _____

Owner Reference Contact with Address and Telephone Number:

Architect Reference Contact with Address and Telephone Number:

D. Total number and dollar amount of contracts currently in progress:

Number _____ \$ _____

E. Largest contract currently in-process: _____

Anticipated date of completion: _____

F. Volume of work completed over last 5 years: (Through 12/31)

| | | |
|------|-------|----------|
| Year | _____ | \$ _____ |
| | | \$ _____ |
| | | \$ _____ |
| | | \$ _____ |
| | | \$ _____ |

G. List three (3) major projects of similar scope your organization has completed in the last five (5) years with completion date and references. Other projects of particular significance may also be listed.

i. Name and Location of Project: _____

Contract Amount: _____

Percent Complete: _____

Project Completion Date: _____

Owner Reference Contact with Address and Telephone Number:

| | |
|---------|------------------|
| _____ | _____ |
| Name | Telephone Number |
| _____ | |
| Address | |

Address

Architect Reference Contract with Address and Telephone Number:

Name

Telephone Number

Address

Address

ii. Name and Location of Project: _____

Contract Amount: _____

Percent Complete: _____

Project Completion Date: _____

Owner Reference Contact with Address and Telephone Number:

Name

Telephone Number

Address

Address

Architect Reference Contract with Address and Telephone Number:

Name

Telephone Number

Address

Address

iii. Name and Location of Project: _____

Contract Amount: _____

Percent Complete: _____

Project Completion Date: _____

Owner Reference Contact with Address and Telephone Number:

Name Telephone Number

Address

Address

Architect Reference Contract with Address and Telephone Number:

Name Telephone Number

Address

Address

H. Has your organization had any claims and/or litigations in the last 5 years?

I. If yes, list project name, date or project, owner, owner's contact person with telephone number and summary explanation.

4. SAFETY PROGRAM

A. List your organization's Workers Compensation Experience Modification Rate (EMR) for the last three years, as obtained from your insurance agent.

| YEAR | EMR |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

B. Complete matrix for the three past years, as obtained from OSHA N. 200 Log:

| Year | | | |
|--------------------------------|--|--|--|
| Number of injuries and illness | | | |
| Number of lost time accidents | | | |

| | | | |
|----------------------------|--|--|--|
| Number of recordable cases | | | |
| Number of fatalities | | | |

C. Are regular project safety meetings held for Field Supervisor(s)?

☐ Yes ☐ No

If yes, frequency:

☐ Weekly ☐ Bi-monthly ☐ Monthly ☐ As Needed

D. Are project safety inspections conducted? ☐ Yes ☐ No

If yes, who performs inspection?

How often?

E. Does organization have a written safety program? ☐ Yes ☐ No

If yes, provide a copy. It will become a compliance document upon contract award.

F. Does your organization have a safety orientation program for new employees? ☐ Yes ☐

☐ No For employees promoted to Field

Supervisors?

Yes

No

If yes, does your Supervisor Safety Program include instructions on the following:

| | Yes | No |
|--------------------------|--------------------------|--------------------------|
| Safety work practices | <input type="checkbox"/> | <input type="checkbox"/> |
| Tool box safety | <input type="checkbox"/> | <input type="checkbox"/> |
| meetings First aid | <input type="checkbox"/> | <input type="checkbox"/> |
| procedures Accident | <input type="checkbox"/> | <input type="checkbox"/> |
| investigation Fire | <input type="checkbox"/> | <input type="checkbox"/> |
| protection | <input type="checkbox"/> | <input type="checkbox"/> |
| New worker's orientation | | |

5. FINANCIAL

A. Attach an audited Financial Statement, including a profit and loss statement and other supporting schedules. If the last audited statement is over 12 months old, include the most current unaudited statement.

B. Surety Company: _____

Agent: _____

Name of Contact: _____ Telephone No. _____

C. Bonding Capacity: _____

Limit per project: _____

Unencumbered bonding capacity: _____

D. Trade References (Additional references may be included as attached sheets.)

i. Organization: _____

Agent: _____

Name of Contract:_____Telephone No._____

ii. Organization:_____

Agent:_____

Name of Contract:_____Telephone No._____

iii. Organization:_____

Agent:_____

Name of Contract:_____Telephone No._____

iv. Organization:_____

Agent:_____

Name of Contract:_____Telephone No._____

E. Bank Reference (Additional references may be included as attached sheets).

i. Organization:_____

Agent:_____

Name of Contract:_____Telephone No._____

ii. Organization:_____

Agent:_____

Name of Contract:_____Telephone No._____

iii. Organization:_____

Agent:_____

Name of Contract:_____Telephone No._____



UNIVERSITY OF NORTH TEXAS®

JOB ORDER CONTRACT FOR SINGLE CONSTRUCTION TRADES

This Job Order Contract ("Contract") is made and entered into by **University of North Texas**, 1155 Union Circle #311040, Denton, Texas 76203-5017 ("Owner"), and by **{Firm Name}** ("Contractor"), for the "minor construction, repair, rehabilitation, or alteration of a facility if the work is of a recurring nature but the delivery times are indefinite and indefinite quantities and orders are awarded substantially on the basis of pre-described and pre-priced tasks" as allowed by Section 51.784 of the Texas Education Code. The capitalized term "Party" refers to either Owner or Contractor individually and the term "Parties" refers to Owner and Contractor collectively. The effective date ("Effective Date") of this Contract shall be the date of last signature by the Parties hereto.

ARTICLE 1 TERM OF AGREEMENT

- 1.1 Initial Term: The initial term of this Contract shall begin on the Effective Date and shall expire two (2) years after that date unless renewed or terminated in accordance with the terms herein.
- 1.2 Renewal Option: Owner has three (3) options to renew the term of this Contract in one (1) year increments upon written notice to Contractor prior to the expiration of the initial or subsequent term or until the maximum contract amount is reached, whichever occurs first.

ARTICLE 2 AUTHORIZED CONTRACT SUM

- 2.1 Maximum Cost Per Job Order: Each proposed individual Job Order will not exceed a maximum value of Three Hundred Thousand (\$300,000).

ARTICLE 3 CONTRACT DOCUMENTS

- 3.1 The Contract Documents consist of:
 - 3.1.1 This Contract and all exhibits and attachments listed, contained, or referenced herein;
 - 3.1.2 Each Job Order issued under this Contract;
 - 3.1.3 The Uniform General Conditions for Construction and Design Contracts for the University of North Texas System ("Uniform General Conditions" or "UGC");
 - 3.1.4 Supplementary General Conditions or Special Conditions, if any;
 - 3.1.5 Owner Specifications;
 - 3.1.6 All Change Orders issued after the effective date of each Job Order;
 - 3.1.7 Any Scope of Work, drawings, specifications, details, or other documents developed in connection with each Job Order issued under this Contract;

- 3.1.8 The Historically Underutilized Business (HUB) subcontracting plan submitted or amended and approved by Owner.
- 3.2 The Contract Documents form the entire and integrated Contract between Owner and Contractor and supersede all prior negotiations, representations or agreements, written or oral.

ARTICLE 4 DEFINITIONS

- 4.1 Terms, words, and phrases used in the Contract Documents shall have the meanings given in the Uniform General Conditions.
- 4.2 The following terms, words, and phrases used in the Contract Documents shall have the following meanings, and if more specific than the definition given in the Uniform General Condition, the more specific meaning given in this Contract shall control.
- 4.2.1 Coefficient: Contractor's coefficient is the price multiplier that Contractor bids. After award, the Parties use this multiplier to determine the price of Work. Contractor's coefficient is multiplied by the Construction Task Catalog® (CTC®) rates. Proposed coefficient shall be a net decrease from or increase to the price in the CTC®. Coefficient shall be carried to four (4) decimal places only.
- 4.2.2 Single Trades - Construction Task Catalog® (CTC®): The Gordian Group cost database which contains construction task(s) with preset unit price(s) to be used in the administration of this Job Order Contract.
- 4.2.2.1 Single Trades - Construction Task Catalog® issued with the Request for Proposal No. **{RFP752-20-934DH}** will be in effect for the duration of the Contract.
- 4.2.2.2 The CTC® will be updated annually and furnished to Contractor. The CTC® that accompany each anniversary shall only apply to Job Orders issued after the effective date of that specific renewal option and shall have no impact on Job Orders issued prior to the effective date of that specific renewal option. Contractor shall use the CTC® in effect on the date that the Job Order is issued. Contractor shall not delay the issuance of a Job Order to take advantage of a scheduled update of the CTC®. In that event, Contractor shall use the CTC® that would have been in effect without the delay.
- 4.2.3 Job Order: A contractual instrument issued by Owner to Contractor. A Job Order represents Owner's and Contractor's agreement of task(s) and quantities of labor, materials, and equipment required to perform the Work, plans and specifications, and timeline to complete a project, is issued upon agreement between Owner and Contractor regarding Scope of Work, performance, time, and price, and is a fixed-price lump-sum contract. A Job Order will be in form substantially similar to Exhibit A attached hereto.
- 4.2.4 Joint Scope Meeting: A meeting held on site prior to finalizing the Scope of Work to discuss the Work to be performed.
- 4.2.5 Non-Pre-Priced (NPP) Task: Work that is required by the Scope of Work, but is not included in the CTC®.
- 4.2.6 Pre-priced Task: Work for which a unit price is stated and included in the CTC®.

- 4.2.7 Scope of Work (SOW): A description of specific Work negotiated by Owner and Contractor that contains sufficient detail to determine quantity, quality, and time for performance, which Work will be ordered through an associated Job Order.
- 4.2.8 Work: The provision of all services, labor, materials, supplies, and equipment that are required to complete a project in strict accordance with the requirements of the Contract Documents related to a project. Work includes, without limitation, any additional Work required by Change Orders and any other Work reasonably inferable from the Construction Documents, taking into consideration the understanding of the Parties that some details necessary for completion of the Work may not be expressly stated in the Scope of Work, shown on drawings, or included in specifications, but they are a requirement of the Work if they are a usual and customary component of the Work or otherwise necessary for complete installation and operation of the Work.

ARTICLE 5 PROCEDURES - SPECIFIC JOB ORDER PROJECTS

- 5.1 In General. Contractor agrees to provide general and specific construction services on a per-project basis as requested by Owner in accordance with the terms of this Contract. Owner and Contractor will prepare a detailed Scope of Work. Contractor will prepare a Project Proposal for the project based on the CTC® rate and Contractor's Coefficient. After Owner's review, a Job Order will be authorized for performance of the Work.
- 5.2 Project Proposal.
- 5.2.1 In response to a Project RFP, Contractor shall provide Owner with a written Project Proposal. Contractor shall prepare their proposal to include, at a minimum, the following:
- 5.2.1.1 Job Order Price Proposal
 - 5.2.1.2 Required drawings and/or sketches
 - 5.2.1.3 Catalog cuts, technical data, or samples
 - 5.2.1.4 List of proposed subcontractors, if applicable, anticipated price, and completed HUB Plan, if applicable
 - 5.2.1.5 Construction schedule
 - 5.2.1.6 Sample warranties and/or guarantees for materials, equipment, and/or systems proposed
- 5.2.2 Contractor shall prepare a Job Order Price Proposal for each Project Proposal. The Price Proposal shall identify the Pre-Priced Task, the NPP Tasks, and any other costs of Work proposed for the project. Contractor shall prepare the Job Order Price Proposal according to the following:
- 5.2.2.1 Pre-Priced Tasks and their quantities shall be identified in the CTC®.
 - 5.2.2.2 NPP Tasks shall be identified separately and included in the Job Order Price Proposal. NPP Tasks shall include, but not be limited to, catalog cuts, specifications, technical data, drawings, and/or other information as required to evaluate the task.
 - 5.2.2.3 NPP Tasks performed by Contractor shall be identified and must include a minimum of three (3) independent quotes for all materials. To the extent

possible, pre-priced labor and equipment from the CTC® is to be used. NPP Tasks performed by a subcontractor shall be identified and must include a minimum of three (3) independent quotes from subcontractors. Contractor shall not submit quotes or bids from any supplier or subcontractor that Contractor is not prepared to utilize. Owner may require additional quotes and bids from suppliers or subcontractors if Owner, at its sole discretion, deems submitted quotes or bids unacceptable.

- 5.2.2.4 The final price submitted for NPP Tasks shall be based on the NPP coefficient multiplied by the selected NPP price quoted.
- 5.2.2.5 Once an NPP Task has been used on three (3) separate Job Orders and upon approval by Owner, the unit price for said task is established and will be fixed as a permanent Pre-Priced Task. Price justification will no longer be required.
- 5.2.2.6 Owner shall determine an item is a Pre-Priced Task or an NPP Task. Said determination shall be final, binding, and conclusive to Contractor.
- 5.2.3 By submitting a signed Project Proposal, Contractor agrees to complete the Work encompassed in the SOW, and at the price submitted. It is Contractor's responsibility to ensure the necessary tasks and quantities are included in the Project Proposal prior to submittal.
- 5.2.4 Project Proposal shall be submitted no later than the date and time indicated by the Owner.
- 5.2.5 Contractor shall not refuse to perform any task or Work in connection with a project.
- 5.3 Project Proposal Review. Owner and Contractor shall review Contractor's Project Proposal and negotiate any changes, clarifications or modifications as required. Contractor shall submit a revised Project Proposal incorporating any changes, clarifications, or modifications made in the review process. Owner may accept, reject or seek modification of any Project Proposal.
- 5.4 Job Order. A Job Order signed by Owner and delivered to Contractor constitutes Owner's acceptance of the Project Proposal. Contractor will be provided with a signed copy of the Job Order along with an official Purchase Order issued by the Procurement Department.
- 5.5 Substantial Completion. Contractor shall complete the Work within the number of days specified in the Proposal accepted by Owner, subject to extensions of time approved by Owner through a Change Order. The time set for completion of a Job Order is an essential element of the contract. Contractor shall be subject to the penalties outlined in the UGC for failure to complete Work in the contract time allotted.
- 5.6 Modification of a Job Order.
 - 5.6.1 Change Orders to a Job Order shall be requested, made, and issued in accordance with the UGC.
 - 5.6.2 Change orders shall be generated from CTC® as the sole basis for pricing.
 - 5.6.3 Owner recognizes three (3) typical circumstances resulting in the modification of a Job Order:
 - 5.6.3.1 Differing site conditions
 - 5.6.3.2 Increased Scope of Work

5.6.3.3 Decreased Scope of Work

- 5.7 Project Completion. Upon completion of the project, Contractor will submit a Certificate of Final Completion for approval. Issuance of the Substantial Completion Certificate and Final Completion Certificate will be in accordance with the UGC.

**ARTICLE 6
CONTRACTOR'S GENERAL RESPONSIBILITIES**

- 6.1 In General. Contractor shall manage the Work on any project authorized pursuant to this Contract. Contractor shall provide all labor and material necessary and reasonably inferable for the complete performance of any Job Order authorized pursuant to this Contract. Contractor shall be responsible for the supervision and coordination of the Work, including the construction means, methods, techniques, sequences, and procedures utilized, unless the Contract Documents specify other instructions. In such case, Contractor shall not be liable to Owner for damages resulting from compliance with such instructions unless Contractor recognized and failed to timely report to Owner any error, inconsistency, omission, or unsafe practice that it discovered in the specified construction means, methods, techniques, sequences, or procedures.
- 6.2 Filings and Permits. Contractor is responsible for obtaining all filings and permits required for the Work, and is to include, but not limited to, the preparation of all drawings, sketches, calculations and other documents or information that may be required thereof. Contractor shall bear the cost of providing all drawings, plans, specifications, and other documents used by Contractor and its consultants.
- 6.3 Standard of Care. Contractor shall use its best efforts, skill, judgment, and abilities to perform the Work in an expeditious and timely manner as is consistent with the orderly progress of any project authorized pursuant to this Contract. Contractor shall at all times provide a sufficient number of qualified personnel to accomplish the Work within the time limits set forth in the schedule.
- 6.4 Compliance with Laws. Contractor shall perform the Work in compliance with all applicable national, federal, state, municipal, and State of Texas laws, regulations, codes, ordinances, orders and with those of any other body having jurisdiction over the project. Contractor shall be liable to Owner for all loss, cost, or expense attributable to any acts or omissions by Contractor, its employees, subcontractors, and agents for failure to comply with applicable laws and regulations, including fines, penalties, or corrective measures. Contractor shall also comply with all Owner's policies. These include, but are not limited to, contractor guidelines, safety and work practices, code of conduct, smoking and/or tobacco policies, and parking regulations. Any citations as a result of violations are the sole responsibility of Contractor.
- 6.5 Safety. Contractor shall have overall responsibility for safety precautions and programs in the performance of the Work. Such obligation does not relieve subcontractors of their responsibility for the safety of persons or property in the performance of their Work or for compliance with applicable laws and regulations.
- 6.6 Storage of Materials. Contractor is solely responsible for the receipt and storage of their own materials, including the unloading of trucks, and checking of deliveries and transportation to the work area.
- 6.7 Representative. Before commencing the Work, Contractor shall notify Owner in writing of the name and qualifications of its proposed superintendent(s) and project manager so Owner may review the individual's qualifications. If, for reasonable cause, Owner refuses to approve the individual, or withdraws its approval after giving it, Contractor shall name a different superintendent or project manager for the site. Contractor's superintendent(s) and project manager shall possess full authority to receive instructions from Owner and to act on those instructions. If Contractor changes

its superintendent(s), project manager, or authority for those individuals, Contractor shall immediately notify Owner in writing.

- 6.8 Supervision. Contractor shall provide competent supervision for the performance of each Job Order. Contractor will ensure that one (1) of their employees is present on each job site at all times. This individual must have overall project supervisory authority. Supervisory costs are to be included in Contractor's Coefficient and will not be reimbursed as a separate labor cost.
- 6.9 Off-site Work. In the event off-site Work is required, such as site fabrication, Contractor shall notify Owner at the time of the issuance of the Job Order. Owner reserves the right to inspect such off-site Work at any time.
- 6.10 Principal Place of Business. If Contractor's principal place of business is not located within fifty (50) miles of the project site, Contractor shall provide its own office and/or storage space for materials and equipment. Contractor is required to provide and maintain telephone, fax, and computer with internet connection, including an email account, at their own expense, as well as personnel competent in the use of office equipment.
- 6.11 Existing Conditions. Contractor shall use reasonable efforts to verify the accuracy and suitability of any drawings, plans, sketches, instructions, information, requirements, procedures, and other data supplied to Contractor by Owner, or any other party that Contractor uses for the Work.
- 6.12 Correction of Work. Contractor shall promptly correct any known or discovered error, omission, or other defect in the Work without any additional cost or expense to Owner.
- 6.13 Invoicing. Contractor must submit invoices within 45 days of completion of the Job Order for the full amount owed. Contractor must include any HUB forms, Certificate of Completion, warranty or drawings required per the Job Order requirements.

OWNER'S RESPONSIBILITIES

- 6.14 Owner Specifications. Owner will develop specifications necessary for the execution of this Contract. The intent of the specification(s) is to provide concise institutional and/or industrial standards for maintenance, repair, and construction of Owner's facilities.
- 6.15 Special Information. Owner shall furnish available property, boundary, easement, right-of-way, topographic and utility surveys, and plans and specifications relevant to the project. Contractor shall exercise reasonable care in relying upon this information in the performance of its services under this Contract. Owner makes no warranties or representations as to the accuracy or suitability of information provided to Contractor by Owner.
- 6.16 Time for Response. Owner shall furnish required information and services and shall render approvals and decisions as expeditiously as necessary for the orderly progress of Contractor's services under this Contract.
- 6.17 Representative. Owner reserves the right to designate by notice to Contractor a representative(s) to act partially or wholly for Owner in connection with the performance of Owner's responsibilities. Contractor shall act only upon instructions from the designated representative(s) unless otherwise specifically notified to the contrary.
- 6.18 Owner-Furnished Materials. Owner reserves the right to purchase material(s) and/or job-required merchandise. Owner will deliver any such material(s) to the jobsite, or compensate Contractor for providing the labor to relocate Owner-furnished materials to the jobsite. Compensation to Contractor for delivery of said material(s) will require a modification to the Job Order. Contractor will return Owner-owned materials delivered but not used on the job to Owner for credit.

- 6.19 Review of Proposal. Owner reserves the right to reject any Project Proposal, to cancel any project for any reason, to opt not to issue a Job Order, and/or perform such Work by other means, if it is determined to be in the best interest of Owner. No cost allowance is provided for the recovery of any costs by Contractor resulting from the development of the Job Order. These include but are not limited to, costs associated with attendance to the Joint Scope Meeting, review of the SOW, preparation of Proposal, subcontractor costs, and costs associated with reviewing the Proposal with Owner.

ARTICLE 7 SUBCONTRACTS

- 7.1 In General. Contractor may use the services of subcontractors, and will be responsible for their reimbursement. Owner may require Contractor to submit payment affidavit(s) for subcontractors before release of final payment. The use of subcontractors does not alter the CTC® unit costs or Contractor's Coefficient, and subcontractor pricing is not a basis of reimbursement.
- 7.2 Notice. As soon as practical, and prior to any subcontractor beginning work, Contractor shall notify Owner, in writing, the names and phone numbers of all subcontractors proposed for the principal parts of Work, as well as for any other as directed by Owner. Contractor may not employ any subcontractor, to which Owner objects for any reason, such as incompetent, unfit, irresponsible, or unsafe. Such objection shall not relieve the responsibility of Contractor for Contractor's Work and the Work of the subcontractors.
- 7.3 No Third-Party Beneficiary. The Contract Documents shall not create any contract or agreement between any subcontractor and Owner. Additionally, there is no intent to designate a subcontractor as a beneficiary of the contract between Owner and Contractor. Contractor shall be solely and fully responsible to Owner for any acts and/or omissions of a subcontractor or persons directly employed thereby.
- 7.4 Compliance. Contractor agrees to bind each subcontractor. Furthermore, Contractor shall ensure each subcontractor agrees to be bound by the terms of this Contract and related Contract Documents, including the University of North Texas System Uniform General Conditions, and individual project specifications, as far as applicable to their Work.

ARTICLE 8 HISTORICALLY UNDERUTILIZED BUSINESS PLAN

- 8.1 HUB Plan for Job Order Contract. Contractor agrees to comply with the terms of its Historically Underutilized Business Plan ("HUB Plan"). No changes to the HUB Plan may be made without Owner's written approval. While the Job Order Contract is in effect, Owner may require Contractor to provide information, and may conduct audits of Contractor, to ensure that the HUB Plan is being, and has been, followed.
- 8.2 HUB Plan for Job Order of \$85,000 or more. In the event that the value of any individual Job Order equals or exceeds Eighty-Five Thousand (\$85,000), Contractor must submit a separate HUB Plan, which shall be subject to Owner's approval and compliance efforts.

ARTICLE 9 PAYMENT

- 9.1 Contractor shall submit an invoice to Owner with sufficient documentation, as determined by Owner, to substantiate the completion of a Job Order at the time of billing. Owner shall render payment in accordance with the UGC. Owner will make progress payments based on the UGC and Applications for Payment submitted by Contractor.

ARTICLE 10 BONDS

- 10.1 Contractor shall provide performance and payment bonds in accordance with the requirements set forth in the Uniform General Conditions.
- 10.1.1 Payment Bonds. For any Job Order requiring Work in excess of Twenty-five Thousand (\$25,000.00), Contractor shall provide a Payment Bond in accordance with Texas Government Code Chapter 2253 and documentation of such bonding to Owner.
- 10.1.2 Performance Bonds. In addition to Payment Bond, if a Job Order is in excess of One Hundred Thousand (\$100,000), Contractor must also provide a Performance Bond in accordance with the Texas Government Code Chapter 2253 and documentation of such bonding to Owner.

ARTICLE 11 WARRANTY

- 11.1 In General. Contractor warrants that all materials and equipment shall be new unless otherwise specified, of good quality, in conformance with the Contract Documents, and free from defective workmanship and materials. Contractor shall furnish satisfactory evidence of the quality and type of materials and equipment furnished. Contractor further warrants that the Work shall be free from material defects not intrinsic in the design or materials required in the Contract Documents. Contractor's warranty shall commence on the Date of Substantial Completion of Work.
- 11.2 Special or Extended Warranties. Contractor shall obtain from its subcontractors and material suppliers any special or extended warranties required by the Contract Documents. Contractor's liability for such warranties shall be limited to a one-year period. After that period, Contractor shall provide reasonable assistance to Owner in enforcing the obligations of subcontractors or material suppliers for such extended warranties.
- 11.3 Correction of Work. If Contractor fails to correct defective Work within a reasonable time after receipt of written notice from Owner prior to final payment, Owner may correct it in accordance with Owner's right to carry out the Work. In such case, an appropriate Change Order shall be issued deducting the cost of correcting the defective Work from payments then or thereafter due Contractor. If payments then or thereafter due Contractor are not sufficient to cover such amounts, Contractor shall pay the difference to Owner. If Contractor's correction or removal of defective Work causes damage to or destroys other completed or partially completed Work or existing buildings, Contractor shall be responsible for the cost of correcting the destroyed or damaged property.

ARTICLE 12 INDEMNITY AND INSURANCE

- 12.1 Indemnity. Contractor covenants and agrees to FULLY INDEMNIFY and HOLD HARMLESS Owner, and its Regents, elected and appointed officials, directors, officers, employees, agents, representatives, and volunteers, individually or collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, liability, and suits of any kind and nature, including but not limited to, personal or bodily injury, death, or property damage, made upon Owner directly or indirectly arising out of, resulting from, or related to Contractor's activities under the Contract, including any acts or omissions of Contractor, or any director, officer, employee, agent, representative, consultant, or Subcontractor of Contractor, and their respective directors, officers, employees, agents, and representatives while in the exercise of performance of the rights or duties under the Contract. The indemnity provided for in this paragraph does not apply to any liability resulting from the negligence of Owner or separate contractors in instances where such negligence causes personal injury, death, or property damage. IN THE EVENT CONTRACTOR AND OWNER ARE FOUND JOINTLY

LIABLE BY A COURT OF COMPETENT JURISDICTION, LIABILITY WILL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO THE STATE UNDER TEXAS LAW AND WITHOUT WAIVING ANY DEFENSES OF THE PARTIES UNDER TEXAS LAW.

12.1.1 The provisions of this indemnification are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

12.1.2 Contractor shall promptly advise Owner in writing of any claim or demand against Owner or against Contractor known to Contractor related to or arising out of Contractor's activities under this Contract.

12.2 Insurance.

12.2.1 Contractor shall not commence Work until it has obtained all insurance required in accordance with the Uniform General Conditions.

12.2.2 Owner reserves the right to review the insurance requirements during the effective period of the Contract and to make reasonable adjustments to the insurance coverage and their limits when deemed necessary and prudent by Owner based upon changes in statutory law, court decisions, or the claims history of the industry.

12.2.3 Owner shall be entitled, upon request, and without expense, to receive copies of the policies, all endorsements thereto and documentation to support costs and may make any reasonable requests for deletion, or revision or modification of particular policy terms, conditions, limitations, exclusions and costs, except where policy provisions are established by law or regulation binding upon either of the Parties or the underwriter of any of such policies. Any price credits determined in the insurance review will be refundable to Owner. Actual losses not covered by insurance as required by this Article shall be paid by Contractor.

**ARTICLE 13
MISCELLANEOUS**

13.1 Non-exclusivity. Owner may award additional job order contracts in response to the same Request for Proposal or on the same subject matter upon which this Contract has been awarded. Nothing contained herein limits the right of Owner to request bids for individual projects that may also be performed under this Contract.

13.2 Assignment. This Contract is a personal service contract for the services of Contractor, and Contractor's interest in this Contract, duties hereunder and/or fees due hereunder may not be assigned or delegated to a third party without prior written approval of Owner.

13.3 Certifications.

13.3.1 Pursuant to Texas Family Code, Section 231.006, Contractor certifies that it is not ineligible to receive the award of or payments under this Contract and acknowledges that this Contract may be terminated and payment may be withheld if this certification is inaccurate.

13.3.2 Pursuant to Texas Government Code, Section 2155.004, Contractor certifies that the business entity named in this Contract is not ineligible to receive the award of or payments under this Contract and acknowledges that this Contract may be terminated and payment withheld if this certification is inaccurate.

- 13.3.3 If a corporate or limited liability company, Contractor certifies that it is not currently delinquent in the payment of any Franchise Taxes due under Texas Tax Code, Chapter 171, 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.
- 13.3.4 Pursuant to Texas Government Code Sections 2107.008 and 2252.903, Contractor agrees that any payments owing to Contractor under this Contract may be applied directly toward any debt or delinquency that Contractor 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.
- 13.3.5 By signature hereon, Contractor certifies that no member of the Board of Regents of the University of North Texas System, or Executive Officers, including component institutions, has a financial interest, directly or indirectly, in the transaction that is the subject of this Contract.
- 13.4 Illegal Dumping. Contractor shall ensure that it and all of its subcontractors and assigns prevent illegal dumping of litter in accordance with Title 5, Texas Health and Safety Code, Chapter 365.
- 13.5 Governing Law and Venue. 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 and venue shall be as provided in Texas Education Code Section 105.151 for any legal proceeding pertaining to this Agreement
- 13.6 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 Contract 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.
- 13.7 Records. Records of Contractor's costs, reimbursable expenses pertaining to the Contract and payments shall be kept on a generally recognized accounting basis and shall be made available to Owner or its authorized representative during business hours for audit or other purposes as determined by Owner. Such records shall be maintained by Contractor and shall be available to Owner or his authorized representative for a period of at least three (3) years after the provision of Contractor's Services.
- 13.8 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:

Associate V.P. for Facilities
University of North Texas
1155 Union Circle #311040 (mail)
2204 W. Prairie Street (hand delivery)
Denton, Texas 76203-5017

If to Construction Manager:

{Contact Name}
{Firm Name}
{Street Address}
{City, State Zip}

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

- 13.9 Independent Contractor. Contractor recognizes that it is engaged as an independent contractor and acknowledges that Owner will have no responsibility to provide transportation, insurance or other fringe benefits normally associated with employee status. Contractor, in accordance with its status as an independent contractor, covenants and agrees that it shall conduct itself consistent with such status, that it will neither hold itself out as nor claim to be an officer, partner, employee or agent of Owner by reason hereof, and that it will not by reason hereof 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. Contractor hereby agrees to make its own arrangements for any of such benefits as it may desire and agrees that it is responsible for all income taxes required by applicable law.
- 13.10 Loss of Funding. Performance by Owner under the 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 North 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 Contractor and Owner may terminate the Contract. Contractor acknowledges that appropriation, allotment, and allocation of funds are beyond the control of Owner.
- 13.11 Confidentiality. All information owned, possessed or used by Owner which is communicated to, learned, developed or otherwise acquired by Contractor in the performance of services for Owner, which is not generally known to the public, shall be confidential and Contractor shall not, beginning on the date of first association or communication between Owner and Contractor and continuing through the term of this Contract and any time thereafter, disclose, communicate or divulge, or permit disclosure, communication or divulgence, to another or use for Contractor's own benefit or the benefit of another, any such confidential information, unless required by law. Except when defined as part of the Work, Contractor shall not make any press releases, public statements, or advertisement referring to the Project or the engagement of Contractor as an independent contractor of Owner in connection with the Project, or release any information relative to the Project for publications, advertisement or any other purpose without the prior written approval of Owner. Contractor shall obtain assurances similar to those contained in this subparagraph from persons, and subcontractors retained by Contractor. Contractor acknowledges and agrees that a breach by Contractor of the provisions hereof will cause Owner irreparable injury and damage. Contractor, 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 Contract.
- 13.12 Open Records. Owner shall release information to the extent required by the Texas Public Information Act and other applicable law. If required, Contractor shall make public information available to Owner in an electronic format.
- 13.13 Severability. Should any term or provision of this Contract be held invalid or unenforceable in any respect, the remaining terms and provisions shall not be affected and this Contract shall be construed as if the invalid or unenforceable term or provision had never been included.

IN WITNESS WHEREOF, intending to be bound, the Parties have entered into this Job Order Contract as of the Effective Date.

OWNER:

UNIVERSITY OF NORTH TEXAS

CONTRACTOR:

{FIRM NAME}

By: _____
(signature)

Name: {Name}
Title: {Title}

Date: {Date}

By: _____
(signature)

Name: _____
Title: _____

Date: _____

Street/PO Box

City, State, ZIP

Telephone

State of TX Vendor ID Number

EXHIBIT A

JOB ORDER

This Single Trade Job Order is governed by all the terms and conditions of the Single Trade Job Order Contract ("JOC"), which is incorporated herein for all purposes.

Contractor Name: [Insert Contractor Name Here]

JOC Number: [Insert Job Order Contract Number Here]

Effective Date of JOC: [Insert Effective Date Here]

Job Order Number: [Insert Job Order Number Here]

Job Order Date: [Insert Date Here]

Scope of Work: See Exhibit(s) attached hereto

Value of Pre-priced Work: [Insert Amount Here]

Value of Non-prepriced Work: [Insert Amount Here]

Total Fixed Price of Job Order: [Insert Amount Here]

Notice to Proceed Date: [Insert Date Here]

Completion Date: [Insert Date Here]

Liquidated Damages: [Insert Amount Here (if different than as set forth in JOC)]

UNIVERSITY OF NORTH TEXAS

[INSERT CONTRACTOR NAME]

By: _____
[Name of Authorized Signatory]
[Title of Authorized Signatory]

By: _____
[Name of Authorized Signatory]
[Title of Authorized Signatory]

Date: _____

Date: _____



SYSTEM[™]

**UNIFORM GENERAL CONDITIONS
FOR CONSTRUCTION AND DESIGN CONTRACTS
2017**

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**UNIFORM GENERAL CONDITIONS
FOR CONSTRUCTION AND DESIGN CONTRACTS
2016**

**ARTICLE 1.
DEFINITIONS**

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

- 1.1 “Addendum/Addenda” means formally issued written or graphic modification and/or interpretations of the Construction Documents that may add to, delete from, clarify or correct the description and/or scope of the Work. Addenda are issued during the bidding phase of the project
- 1.2 “Application for Final Payment” means Contractor’s final invoice for payment that includes any portion of the Work that has been completed for which an invoice has not been submitted, amounts owing to adjustments to the final Contract Sum resulting from approved change orders, and release of remaining Contractor’s retainage.
- 1.3 “Application for Payment” means Contractor’s monthly partial invoice for payment that includes any portion of the Work that has been completed and performed in accordance with the requirements of the Contract Documents for which an invoice has not been submitted. The Application for Payment must accurately reflect the progress of the Work, be itemized based on the Schedule of Values, bear the notarized signature of Contractor, and not include subcontracted items for which Contractor does not intend to pay.
- 1.4 “Authority Having Jurisdiction” means a federal, state, local or other regional department, or an individual such as a fire marshal, building official, electrical inspector, utility provider or other individual having statutory authority.
- 1.5 “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 Design Professional and Owner), durations, and sequence of work related to the entire Project to the extent required by the Contract Documents. The schedule clearly demonstrates the critical path of activities, durations, and necessary predecessor conditions that drive the end date of the schedule. The Baseline Schedule shall not exceed the time limit current under the Contract Documents.
- 1.6 “Certificate of Final Completion” means the certificate issued by Design Professional that documents, to the best of Design Professional’s knowledge and understanding, Contractor’s

completion of all Contractor's Punchlist items and pre-final Punchlist items, final cleanup, and Contractor's provision of Record Documents, operations and maintenance manuals, and all other closeout documents required by the Contract Documents.

- 1.7 "Certificate of Substantial Completion" means the certificate executed by the Design Professional, Owner, and Contractor that documents to the best of the Design Professional's and Owner's knowledge and understanding, Contractor's sufficient completion of the Work in accordance with the Contract, so as to be operational and fit for the use intended.
- 1.8 "Change Order" means a written modification of the Contract between Owner and Contractor, agreed to and signed by Owner, Contractor, and Design Professional.
- 1.9 "Change Order Request (COR)" means a Contractor generated document which describes a change in the scope of Work, including a detailed description, Drawings and Specifications, and a request for changes to costs or time, as necessary, to inform Owner of the nature of the requested change to the Contract.
- 1.10 "Close-Out Documents" mean the product brochures, submittals, product/equipment maintenance and operations instructions, manuals, and other documents/warranties, record documents, affidavits of payment, releases of liens and claims, and other documents as may be further defined, identified, and required by the Contract Documents.
- 1.11 "Contract" means the agreement, including all attachments thereto, and all of the Contract Documents between Owner and Contractor.
- 1.12 "Contract Date" is the date when the agreement between Owner and Contractor becomes effective.
- 1.13 "Contract Documents" mean those documents identified as a component of the Contract between Owner and Contractor. These may include, but are not limited to: Drawings; Specifications; Uniform General Conditions; Owner's Special Conditions; Owner's Design Criteria Package for Design-Build Projects; Guaranteed Maximum Price Proposal executed by Owner and Contractor; all Change Orders; all pre-bid and/or pre-proposal addenda; Owner's Request for Proposal and/or Request for Qualifications; and Contractor's response to Owner's Request for Proposal and/or Request for Qualifications.
- 1.14 "Contract Duration" means the period between the start date identified in the Notice to Proceed and the end of the Warranty Period.
- 1.15 "Contract Sum" means the total compensation payable to Contractor for completion of the Work in accordance with the terms of the Contract.
- 1.16 "Contract Time" means the period between the start date identified in the Notice to Proceed with construction and the date to achieve Substantial Completion identified in the Notice to Proceed or as subsequently amended by a Change Order.

- 1.17 “Contractor” means the individual, corporation, limited liability company, partnership, joint venture, firm, or other entity contracted to perform the Work, regardless of the type of construction contract used, so that the term as used herein includes a Construction Manager-at-Risk or a Design-Build firm as well as a general or prime Contractor. The Contract Documents refer to Contractor as if singular in number but shall be interpreted to include the plural. The term “Contractor” shall also be inclusive of and apply to Design Professional in these Uniform General Conditions when the context does not indicate otherwise.
- 1.18 “Construction Change Directive” means an approved change in the Work issued by the Owner without the complete agreement of Contractor as to cost and/or time.
- 1.19 “Construction Documents” mean the Drawings, Specifications, and other documents issued to build the Project. Construction Documents become part of the Contract Documents when listed in the Contract or any Change Order.
- 1.20 “Construction Manager-at-Risk”, in accordance with Tex. Education Code §51.782, means a sole proprietorship, partnership, corporation, or other legal entity that assumes the risk for construction, rehabilitation, alteration, or repair of a facility at the contracted price as a general contractor and provides consultation to Owner regarding construction during and after the design of the facility.
- 1.21 “Coordination Documents” means an ongoing process performed by the Contractor that documents, in a format approved by the Owner, the review of plans and specifications developed by the Design Professional demonstrating the Contractor understands the scope of the project and reviews complex interrelationships among project components.
- 1.22 “Date of Commencement” means the date designated in the Notice to Proceed for Contractor to commence the Work.
- 1.23 “Day” means a calendar day unless otherwise specifically stipulated.
- 1.24 “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. The Design-Build Project delivery shall be implemented in accordance with Tex. Education Code § 51.780.
- 1.25 “Design-Build Firm”, in accordance with Texas Education Code § 51.780, means a partnership, corporation, or other legal entity or team that includes an engineer or architect and builder qualified to engage in building construction in Texas.
- 1.26 “Design Professional” means a person registered as an architect pursuant to Tex. Occ. Code Ann., Chapter 1051, as a landscape architect pursuant to Tex. Occ. Code Ann., Chapter 1052, a person licensed as a professional engineer pursuant Tex. Occ. Code Ann., Chapter 1001, and/or a firm employed by Owner or Design-Build Contractor to provide professional architectural or engineering services and to exercise overall responsibility for the design of a Project or a significant portion thereof, and to perform the contract administration responsibilities set forth in the Contract.

- 1.27 “Drawings” mean that product and set of documents of Design Professional which graphically depicts the Work.
- 1.28 “Final Completion” means the date determined and certified by Design Professional and Owner on which the Work is fully and satisfactorily complete in accordance with the Contract.
- 1.29 “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 including adjustments to the final Contract Sum resulting from approved change orders and release of Contractor’s retainage.
- 1.30 “Float” means the period in the Critical Path schedule that allows an excusable delay when the original schedule allows more than enough time to perform the Work.
- 1.31 “Historically Underutilized Business (HUB)” pursuant to Tex. Gov’t Code, Chapter 2161, means a business that is at least 51% owned by an Asian Pacific American, a Black American, a Hispanic American, a Native American and/or an American Woman; is an entity with its principal place of business in Texas; and has an owner residing in Texas with proportionate interest that actively participates in the control, operations, and management of the entity’s affairs.
- 1.32 “Notice to Proceed” means written document furnished by the Owner informing Contractor of the date to commence the Work and the date anticipated for Substantial Completion.
- 1.33 “Open Item List” means a list of work activities, Punchlist items, changes, or other issues not expected by Owner, Design Professional, and Contractor to be complete prior to Substantial Completion.
- 1.34 “Owner” means the University of North Texas System and/or its component institutions, as a higher education university system and agency of the State of Texas.
- 1.35 “Owner’s Construction Manager (OCM)” means the individual assigned by the Owner to act on its behalf and to undertake certain activities as specifically outlined in the Contract. The OCM does not have the authority to bind the Owner or direct changes to the scope, cost, or time of the Contract.
- 1.36 “Owner’s Designated Representative (ODR)” means the individual assigned by Owner to act on its behalf and to undertake certain activities as specifically outlined in the Contract. The ODR is the only party authorized to direct changes to the scope, cost, or time of the Contract.
- 1.37 “Progress Assessment Report (PAR)” means the monthly compliance report to Owner verifying compliance with the HUB subcontracting plan (HSP).
- 1.38 “Project” means all activities necessary for realization and completion of Owner’s desired building or other structure including all ancillary and related work. This includes design, contract award(s), execution of the Work itself, fulfillment of all Contract and warranty obligations, and work by Owner’s forces or other contractors.

- 1.39 “Project Costs” means all costs necessary for the realization and completion of Owner’s desired building or other structure including all ancillary and related work. This includes design, contract award(s), execution of the Work itself, fulfillment of all Contract and warranty obligations, and work by Owner’s forces or other contractors.
- 1.40 “Proposal Request (PR)” means a document that informs Contractor, Owner, and Design Professional of a proposed change in the Work and appropriately describes or otherwise documents such change including Contractor’s pricing for the proposed change.
- 1.41 “Punchlist” means a list of items of Work to be completed or corrected by Contractor before Final Completion, and indicates items to be finished, remaining Work to be performed, or Work that does not meet quality or quantity requirements as required in the Contract Documents.
- 1.42 “Reasonably Inferable” means a fair, proper, and moderate conclusion reached by considering all of the facts and deducing a logical conclusion from them.
- 1.43 “Record Documents” mean the Drawings, Specifications, and other materials maintained by Contractor during construction and as corrected by Design Professional, that documents all addenda, Architect’s Supplemental Instructions, Change Orders, and postings and markings that record the as-built conditions of the Work and all changes made during construction.
- 1.44 “Request for Information (RFI)” means a written request by Contractor directed to Design Professional and Owner for a clarification of the information provided in the Contract Documents or for direction concerning information necessary to perform the Work.
- 1.45 “Samples” mean representative physical examples of materials, equipment, or workmanship used to confirm compliance with requirements and/or to establish standards for use in execution of the Work.
- 1.46 “Schedule of Values” means the detailed breakdown of the cost of the materials, labor, and equipment necessary to accomplish the Work, submitted by Contractor for approval by Owner and Design Professional.
- 1.47 “Shop Drawings” mean the drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data prepared by Contractor or its agents which detail a portion of the Work.
- 1.48 “Site” means the geographical area of the location of the Work.
- 1.49 “Special Conditions” mean the documents containing terms and conditions which may be unique to the Work or Project.
- 1.50 “Specifications” mean the written product of Design Professional that establishes the quality and/or performance of products utilized in the Work and processes to be used, including testing and verification for producing the Work.

- 1.51 “Subcontractor” means an individual or entity that enters into an agreement with Contractor to perform part of the Work or to provide services, materials, or equipment for use in the Work.
- 1.52 “Submittal Register” means a list provided by Contractor of all items to be furnished for review and approval by Design Professional and Owner and as identified in the Contract Documents including anticipated sequence and submittal dates.
- 1.53 “Substantial Completion” means the date determined and certified by Contractor, Design Professional, and Owner when the Work, or a designated portion thereof, is sufficiently complete, in accordance with the Contract, so as to be operational and fit for the use intended.
- 1.54 “Unit Price Work” means the Work or a portion of the Work, paid for based on incremental units of measurement.
- 1.55 “Work” means the administration, procurement, materials, equipment, construction, and all services necessary for Contractor, and/or its agents, to fulfill Contractor’s obligations under the Contract.
- 1.56 “Work Progress Schedule” means the continually updated time schedule prepared and monitored by Contractor that accurately indicates all necessary and appropriate revisions, including a critical path impact analysis, as required by the conditions of the Work and the Project while maintaining a concise comparison to the Baseline Schedule.

ARTICLE 2.

WAGE RATES AND OTHER LAWS GOVERNING CONSTRUCTION

- 2.1 Environmental Regulations. Contractor shall conduct activities in compliance with applicable laws and regulations and other requirements of the Contract relating to the environment and its protection at all times. Unless otherwise specifically determined, Contractor is responsible for obtaining and maintaining permits related to storm water run-off. Contractor shall conduct operations consistent with storm water run-off permit conditions. Contractor is responsible for all items it brings to the Site, including hazardous materials, and all such items brought to the Site by its Subcontractors and suppliers, or by other entities subject to direction of Contractor. Contractor shall not incorporate hazardous materials into the Work without prior approval of Owner, and shall provide an affidavit attesting to such in association with request for Substantial Completion inspection.
- 2.2 Wage Rates. Contractor shall, and shall cause subcontractors to, comply with the Texas Prevailing Wage law. Contractor shall pay not less than the wage scale of the various classes of labor as shown on the prevailing wage schedule as established by the United States Department of Labor in accordance with the Davis-Bacon Act, as amended. The specified wage rates are minimum rates only. Owner is not bound to pay any claims for additional compensation made by Contractor because Contractor pays wages in excess of the applicable minimum rate contained in the Contract. The prevailing wage schedule is not a representation that qualified labor adequate to perform the Work is available locally at the prevailing wage rates. When requested, Contractor shall furnish

competent evidence of compliance with the Texas Prevailing Wage Law and the addresses of all workers.

2.2.1 Notification to Workers. Contractor shall post the prevailing wage schedule in a place conspicuous to all workers on the Project Site and shall notify each worker, in writing, of the following as they commence Work on the Contract: the worker's job classification, the established minimum wage rate requirement for that classification, as well as the worker's actual wage. The notice must be delivered to and signed in acknowledgement of receipt by the worker and must list both the wages and fringe benefits to be paid or furnished for each classification in which the worker is assigned duties.

2.2.1.1 Contractor shall submit a copy of each worker's wage-rate notification to *Owner* with the application for progress payment for the period during which the worker was engaged in activities on behalf of the Project.

2.2.1.2 Pursuant to Tex. Gov't Code § 2258.024, Contractor shall keep, on site, true and accurate records showing the name and occupation of each worker employed by the Contractor or subcontractors and the actual per diem wages paid to each worker. The record shall be open to inspection by the ODR and their agents at all reasonable hours for the duration of the contract.

2.2.1.3 With each application for progress payment, Contractor shall make available upon request certified payroll records, including from subcontractors of any tier level, on Form WH-347 as promulgated by the U.S. Department of Labor, as may be revised from time to time and in unlocked and unprotected Excel format, along with copies of any and all Contract Documents between Contractor and any Subcontractor. Pursuant to Tex. Penal Code § 37.02 and 37.10, Employees of Contractor and subcontractors, including all tier levels, shall be subject to prosecution for submitting certified payroll records that contain materially false information.

2.2.1.4 The prevailing wage schedule is determined by Owner in compliance with Tex. Gov't Code, Chapter 2258. Should Contractor at any time become aware that a particular skill or trade not reflected on Owner's prevailing wage schedule will be or is being employed in the Work, whether by Contractor or by Subcontractor, Contractor shall promptly inform *Owner* of the proposed wage to be paid for the skill along with a justification for same and *Owner* shall promptly concur with or reject the proposed wage and classification.

2.2.1.5 Contractor is responsible for determining the most appropriate wage for a particular skill in relation to similar skills or trades identified on the prevailing wage schedule. In no case, shall any worker be paid less than the wage indicated for laborers.

- 2.2.1.6 Pursuant to Tex. Labor Code § 214.008, Misclassification of Workers; Penalty. The Owner requires Contractor and all subcontractors properly classify individuals as Employees or Independent Contractors.
- 2.2.2 Penalty for Violation. Contractor, and any Subcontractor, will pay to the State a penalty of sixty dollars (\$60) for each worker employed for each day, or portion thereof, that the worker is paid less than the wage rates stipulated in the prevailing wage schedule.
- 2.2.3 Complaints of Violations.
- 2.2.3.1 Owner's Determination of Good Cause. Upon receipt of information concerning a violation, Owner will conduct an investigation in accordance with Tex. Gov't Code, Chapter 2258, and make an initial determination as to whether good cause exists that a violation occurred. Upon making a good cause finding, Owner will retain the full amounts claimed by the claimant or claimants as the difference between wages paid and wages due under the prevailing wage schedule and any supplements thereto, together with the applicable penalties, such amounts being subtracted from successive progress payments pending a final decision on the violation.
- 2.2.3.2 No Extension of Time. If Owner's determination proves valid that good cause existed to believe a violation had occurred, Contractor is not entitled to an extension of time for any delay arising directly or indirectly from the arbitration procedures.
- 2.2.3.3 Cooperation with Owner's Investigation. Contractor shall cooperate with Owner during any investigation hereunder. Such cooperation shall include, but not necessarily be limited to, timely providing the information and/or documentation requested by Owner, which may include certified payroll records on Form WH-347 as promulgated by the U.S Department of Labor, as may be revised from time to time and in unlocked and unprotected Excel format; and copies of any and all Contract Documents between Contractor and any Subcontractors.
- 2.2.3.4 Notification to Owner. In the event Contractor or Subcontractor elect to appeal an initial determination made pursuant to Paragraph 2.2.3.1, the Contractor and/or Subcontractor, as applicable, shall deliver notice thereof to Owner.
- 2.3 Licensing of Trades. Contractor shall comply with all applicable provisions of State law related to license requirements for skilled tradesmen, contractors, suppliers, and laborers, as necessary to accomplish the Work. In the event Contractor, or one of its Subcontractors, loses its license during the term of performance of the Contract, Contractor shall promptly hire or contract with a licensed provider of the service at no additional cost to Owner.
- 2.4 Royalties, Patents, and Copyrights. Contractor shall pay all royalties and license fees, defend suits or claims for infringement of copyrights and patent rights, and shall hold Owner harmless from loss

on account thereof. Provided, however, if Contractor is a Construction Manager-at-Risk, Contractor shall not be responsible for such defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by Owner or Design Professional; unless Contractor has reason to believe that the required design, process, or product is an infringement of a copyright or a patent then Contractor shall be responsible for such loss unless notice of such information is promptly furnished to Design Professional.

- 2.5 State Sales and Use Taxes. Owner qualifies for exemption from certain State and local sales and use taxes pursuant to the provisions of Tex. Tax Code, Chapter 151. Upon request from Contractor, Owner shall furnish evidence of tax exempt status. Contractor may claim exemption from payment of certain applicable State taxes by complying with such procedures as prescribed by the State Comptroller of Public Accounts. Owner acknowledges not all items qualify for exemption. Owner is not obligated to reimburse Contractor for taxes paid on items that qualify for tax exemption.
- 2.6 Antiquities. Contractor shall take precaution to avoid disturbing primitive records and antiquities of archaeological, paleontological, or historical significance. No objects of this nature shall be disturbed without written permission of Owner and the Texas Historical Commission. When such objects are uncovered unexpectedly, the Contractor shall stop all Work in close proximity and notify the OCM and the Texas Historical Commission of their presence and shall not disturb them until written permission and permit to do so is granted. All primitive rights and antiquities, as defined in Chapter 191, Texas Natural Resource Code, discovered on the Owner's property shall remain property of State of Texas. If it is determined by Owner, in consultation with the Texas Historical Commission that exploration or excavation of primitive records or antiquities on the Project Site is necessary to avoid loss, Contractor shall cooperate in salvage work attendant to preservation. If the Work stoppage or salvage work causes an increase in the Contractor's cost of, or time required for, performance of the Work, Contractor may file with the Owner a Notice of Claim as described in § 21.1.2.2.
- 2.7 Franchise Tax Status. Upon request, the Contractor agrees to execute and provide to the Owner a Certification of Franchise Tax Payment, on a form approved by the Owner.
- 2.8 Conflicts of Interest. Parties shall perform their obligations with integrity, ensuring at a minimum that each: (a) avoids conflicts of interest and promptly discloses any to the other Party; and (b) warrants that it has not and shall not pay or receive any contingent fees or gratuities to or from the other Party, including its agents, officers and employees, subcontractors, sub-consultants or others for whom they may be liable, to secure preferential treatment.

ARTICLE 3.

GENERAL RESPONSIBILITIES OF OWNER

- 3.1 Preconstruction Conference. Prior to, or concurrent with, the issuance of Notice to Proceed, a conference will be convened for attendance by Owner, Contractor, Design Professional and appropriate Subcontractors. The purpose of the conference is to establish a working understanding

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

- 3.2 OCM. Prior to the start of construction, Owner will identify its OCM, who has the express authority to act on behalf of the Owner to the extent and for the purposes described in the Contract, including responsibilities for general administration of the Contract.

- 3.2.1 Point of Contact. Unless otherwise specifically defined elsewhere in the Contract Documents, OCM is the single point of contact between Owner and Contractor. Notice to OCM, unless otherwise noted, constitutes notice to Owner under the Contract.

- 3.2.2 Directives. All directives on behalf of Owner will be conveyed to Contractor and Design Professional by OCM in writing.

- 3.3 Owner Supplied Materials and Information.

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

- 3.3.2 Drawings and Specifications. Owner will furnish or cause to be furnished, free of charge, the number of complete sets, paper or electronic, of the Drawings, Specifications, and addenda as provided in the Contract.

- 3.3.3 Other Information. Owner will provide information, equipment, or services under Owner's control to Contractor with reasonable promptness.

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

- 3.5 Limitation on Owner's Duties.

- 3.5.1 No Control. Owner will not supervise, direct, control or have authority over, or be responsible for Contractor's means, methods, technologies, sequences, or procedures of construction or the safety precautions and programs incident thereto. Owner is not responsible for any failure of Contractor to comply with laws and regulations applicable to the Work. Owner is not responsible for the failure of Contractor to perform or furnish the Work in accordance with the Contract Documents. Except as provided in Section 2.4, Owner is not responsible for the acts or omissions of Contractor, or any of its

Subcontractors, suppliers, or of any other person or organization performing or furnishing any of the Work on behalf of Contractor.

- 3.5.2 No Contravention of Design Professional. Owner will not take any action in contravention of a design decision made by Design Professional in preparation of the Contract Documents, when such actions are in conflict with statutes under which Design Professional is licensed for the protection of the public health and safety.

ARTICLE 4.

GENERAL RESPONSIBILITIES OF DESIGN PROFESSIONAL

- 4.1 Role of Design Professional. Unless specified otherwise in the Contract between Owner and Contractor, in addition to design services Design Professional shall provide general administration services for Owner during the construction phase of the project. Written correspondence, RFIs, and Shop Drawings/submittals shall be directed to Design Professional for determination and action. Design Professional has the authority to act on behalf of Owner to the extent provided in the Contract Documents, unless otherwise modified by written instrument, which will be furnished to Contractor by OCM, upon request.
- 4.2 Site Visits. Design Professional will make visits to the Site at intervals as provided in the Design Professional's Contract with Owner, to observe the progress and the quality of the various aspects of Contractor's executed Work and report findings to OCM.
- 4.3 Inspections. Design Professional has the authority to interpret Contract Documents and inspect the Work for compliance and conformance with the Contract. Except as referenced in Paragraph 3.1.5.2, Owner retains the sole authority to accept or reject Work and issue direction for correction, removal, or replacement of Work.
- 4.4 Clarifications and Interpretations. It may be determined that clarifications or interpretations of the Contract Documents are necessary. Such clarifications or interpretations will be provided by Design Professional consistent with the intent of the Contract Documents. Design Professional will issue these clarifications with reasonable promptness to Contractor as Design Professional's supplemental instruction ("ASI") or similar instrument. If Contractor believes that such clarification or interpretation justifies an adjustment in the Contract Sum or the Contract Time, Contractor shall so notify Owner in accordance with the provisions of Article 14.
- 4.5 Limitations on Design Professional Authority. Design Professional is not responsible for:
- Contractor's means, methods, techniques, sequences, procedures, safety, or programs incident to the Work, nor will Design Professional supervise, direct, control, or have authority over the same;
 - The failure of Contractor to comply with laws and regulations applicable to the furnishing or performing the Work;
 - Contractor's failure to perform or furnish the Work in accordance with the Contract Documents; or

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

ARTICLE 5.

GENERAL RESPONSIBILITIES OF CONTRACTOR

- 5.1 Contractor's General Responsibilities. Contractor is solely responsible for implementing the Work in full compliance with all applicable laws and the Contract Documents and shall supervise and direct the Work using the best skill and attention to assure that each element of the Work conforms to the Contract requirements. Contractor is solely responsible for all construction means, methods, techniques, safety, sequences, coordination, procedures and protection of the installed work as part of the contract until Substantial Completion of the project. Contractor remains responsible for the care and protection of materials and Work in the areas where Punchlist items are completed until Final Completion.
- 5.2 Project Administration. Contractor shall provide Project administration for all Subcontractors, vendors, suppliers, and others involved in implementing the Work and shall coordinate administration efforts with those of Design Professional and OCM in accordance with these Uniform General Conditions and other provisions of the Contract, and as outlined in the pre-construction conference. Contractor's Project Administration includes periodic daily reporting on weather, work progress, labor, materials, equipment, obstruction to prosecution of the work, accidents and injuries in accordance with the Contract and transmitted no less frequently than on a weekly basis.
- 5.2.1 Contractor's Management Personnel. Contractor shall employ a competent person or persons who will be present at the Project Site during the progress of the Work to supervise or oversee the Work. Contractor's management personnel are subject to the approval of OCM, and shall be removed and replaced at the request of OCM. Contractor shall not change approved staff during the course of the Project without the written approval of OCM unless the staff member leaves the employment of Contractor in which case Contractor shall notify OCM and appoint an approved replacement as soon as reasonably possible. Contractor shall provide additional quality control, safety, and other staff as may be stated in the Contract Documents or as may be necessary or advisable for completion of the Work.
- 5.2.2 Labor. Contractor shall provide competent, suitably qualified personnel to survey, lay-out, and construct the Work as required by the Contract Documents and maintain good discipline and order at the Site at all times.
- 5.2.3 Services, Materials, and Equipment. Unless otherwise specified, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities, incidentals, and services necessary for the construction, performance, testing, start-up, inspection, and completion of the Work. The Contractor shall provide, without extra charge, all incidental

items required as a part of the Work, even if not particularly specified or indicated in the Contract Documents.

- 5.2.4 No Substitutions without Approval. Contractor may make substitutions only with the consent of the Owner, after evaluation and recommendation by the Design Professional and in accordance with a Change Order.
- 5.3 Owner Equipment or Material. For Owner furnished equipment or material that will be in the care, custody, and control of Contractor, Contractor will be responsible for any damage or loss.
- 5.4 Non-Compliant Work. Should Design Professional and/or OCM identify Work as noncompliant with the Contract Documents, Design Professional and/or OCM shall communicate the finding to Contractor, and Contractor shall correct such Work at no additional cost to the Owner. The approval of Work by either Design Professional or OCM does not relieve Contractor from the obligation to comply with all requirements of the Contract Documents.
- 5.5 Subcontractors. Contractor shall not employ any Subcontractor, supplier, or other person or organization, whether initially or as a substitute, against whom Owner shall have reasonable objection. Owner will communicate such objections in writing within ten (10) days of receipt of Contractor's intent to use such Subcontractor, supplier, or other person or organization. Contractor is not required to employ any Subcontractor, supplier, or other person or organization to furnish any of the work to whom Contractor has reasonable objection. Contractor shall not substitute Subcontractors without the acceptance of Owner.
- 5.5.1 Contract Documents. All Subcontracts and supply contracts shall be consistent with and bind the Subcontractors and suppliers to the terms and conditions of the Contract Documents including provisions of the Contract between Contractor and Owner.
- 5.5.2 Scheduling. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, suppliers, and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract or subcontract with Contractor. Contractor shall require all Subcontractors, suppliers, and such other persons and organizations performing or furnishing any of the Work to communicate with Owner only through Contractor. Contractor shall furnish to Owner a copy, at Owner's request, of each first-tier subcontract promptly after its execution. Contractor agrees that Owner has no obligation to review or approve the content of such contracts and that providing Owner such copies in no way relieves Contractor of any of the terms and conditions of the Contract, including, without limitation, any provisions of the Contract which require the Subcontractor to be bound to Contractor in the same manner in which Contractor is bound to Owner.
- 5.6 Continuing the Work. Contractor shall carry on the Work and adhere to the progress schedule during all disputes, disagreements, or alternative resolution processes with Owner. Contractor shall not delay or postpone any Work because of pending unresolved disputes, disagreements, or alternative resolution processes, except as Owner and Contractor may agree in writing.

- 5.7 Cleaning. Contractor shall at all times, keep the Site and the Work clean and free from accumulation of waste materials or rubbish caused by the construction activities under the Contract. Contractor shall ensure that the entire Project is thoroughly cleaned prior to requesting Substantial Completion inspection and, again, upon completion of the Project prior to the final inspection.
- 5.8 Acts and Omissions of Contractor, its Subcontractors, and Employees. Contractor shall be responsible for acts and omissions of its employees and its Subcontractors and their agents and employees. Owner may, in writing, require Contractor to remove from the Project any of Contractor's or its Subcontractor's employees or agents whom OCM finds to be careless, incompetent, unsafe, uncooperative, disruptive, or otherwise objectionable.
- 5.9 Ancillary Areas. Contractor shall operate and maintain operations and associated storage areas at the site of the Work in accordance with the following:
- All Contractor operations, including storage of materials and employee parking upon the Site of Work, shall be confined to areas designated by OCM.
 - Contractor may erect, at its own expense, temporary buildings that will remain its property. Contractor will remove such buildings and associated utility service lines upon completion of the Work, unless Contractor requests and Owner provides written consent that it may abandon such buildings and utilities in place.
 - Contractor will use only established roadways or construct and use such temporary roadways as may be authorized by OCM. Contractor will not allow load limits of vehicles to exceed the limits prescribed by appropriate regulations or law. Contractor will provide protection to road surfaces, curbs, sidewalks, trees, shrubbery, sprinkler systems, drainage structures, and other like existing improvements to prevent damage and will repair any damage thereto at the expense of Contractor.
 - Owner may restrict Contractor's entry to the Site to specifically assigned entrances and routes.
- 5.10 Off-Site Storage. With prior approval by Owner and in the event Contractor elects to store materials at an off-site location, Contractor must abide by the following conditions, unless otherwise agreed to in writing by Owner:
- Store materials in a commercial warehouse meeting the criteria stated below.
 - Provide insurance coverage adequate not only to cover materials while in storage, but also in transit from the off-site storage areas to the Project Site. Copies of duly authenticated certificates of insurance must be filed with Owner's representative.
 - Inspection by Owner's representative is allowed at any time. OCM must be satisfied with the security, control, maintenance, and preservation measures.
 - Materials for this Project must be physically separated and marked for the Project in a sectioned-off area. Only materials which have been approved through the submittal process are to be considered for payment.

- Owner reserves the right to reject materials at any time prior to final acceptance of the complete Contract if they do not meet Contract requirements regardless of any previous progress payment made.
- With each monthly payment estimate, Contractor must submit a report to OCM and Design Professional listing the quantities of materials already paid for and still stored in the off-site location.
- Contractor must make warehouse records, receipts, and invoices available to Owner's representatives, upon request, to verify the quantities and their disposition.
- In the event of Contract termination or default by Contractor, the items in storage off-site, upon which payment has been made, will be promptly turned over to Owner or Owner's agents in place or at a location near the jobsite as directed by OCM. The full provisions of performance and payment bonds on this Project cover the materials off-site in every respect as though they were stored on the Project Site.

5.11 Separate Contracts. Owner reserves the right to award other contracts in connection with the Project or other portions of the Project under the same or substantially similar contract conditions, including those portions related to insurance and waiver of subrogation. Owner reserves the right to perform operations related to the Project with Owner's own forces.

5.11.1 Continuation of Contract. Under a system of separate contracts, the conditions described herein continue to apply except as may be amended by Change Order.

5.11.2 Cooperation. Contractor shall cooperate with other contractors or forces employed on the Project by Owner, including providing access to Site and Project information as requested.

5.11.3 Reimbursement. Owner shall be reimbursed by Contractor for costs incurred by Owner which are payable to a separate contractor because of delays, improperly timed activities, or defective construction by Contractor. Owner will equitably adjust the Contract by Change Order for costs incurred by Contractor because of delays, improperly timed activities, damage to the Work, or defective construction by a separate contractor.

ARTICLE 6.

HISTORICALLY UNDERUTILIZED BUSINESS (HUB) SUBCONTRACTING PLAN

6.1 General Description. The purpose of the Historically Underutilized Business (HUB) program is to promote equal business opportunities for economically disadvantaged persons (as defined by Tex. Gov't Code, Chapter 2161) to contract with the State of Texas in accordance with the goals specified in the State of Texas Disparity Study. The HUB program annual procurement utilization goals are defined in 34 T.A.C. § 20.13(b).

6.1.1 Good Faith Effort.

6.1.1.1 State agencies are required by statute to make a good faith effort to assist HUBs in participating in contract awards issued by the State. 34 T.A.C. §

20.13(b) outlines the State's policy to encourage the utilization of HUBs in State contracting opportunities through race, ethnic, and gender neutral means.

- 6.1.1.2 A Contractor who contracts with the State in an amount of \$100,000 or greater is required to make a good faith effort to award subcontracts to HUBs in accordance with 34 T.A.C. § 20.14(a)(2)(A) by submitting a HUB subcontracting plan within twenty-four (24) hours after the bid or response is due and complying with the HUB subcontracting plan after it is accepted by Owner and during the term of the Contract.

6.2 Compliance with Approved HUB Subcontracting Plan. Contractor, having been awarded this Contract in part by complying with the HUB program statute and rules, hereby covenants to continue to comply with the HUB program as follows:

- Prior to adding or substituting a Subcontractor, promptly notify Owner in the event a change is required for any reason to the accepted HUB subcontracting plan.
- Conduct the good-faith effort activities required, and provide Owner with necessary documentation to justify approval of a change to the approved HUB subcontracting plan.
- Cooperate in the execution of a Change Order or such other approval of the change in the HUB subcontracting plans as Contractor and Owner may agree to.
- Maintain and make available to Owner upon request business records documenting compliance with the accepted HUB subcontracting plan.
- Upon receipt of payment for performance of Work, submit to Owner a compliance report, in the format required by Owner that demonstrates Contractor's performance of the HUB subcontracting plan.
- Submit monthly Progress Assessment Reports (PAR) to Owner, verifying compliance with the HUB subcontracting plan, including the use/expenditures made made/to Subcontractors. (The PAR is available at the following link: <http://www.window.state.tx.us/procurement/prog/hub/hub-forms/>).
- Promptly and accurately explain and provide supplemental information to Owner to assist in Owner's investigation of Contractor's good-faith effort to fulfill the HUB subcontracting plan and the requirements under 34 T.A.C. § 20.14(a)(1).

6.3 Failure to Demonstrate Good-Faith Effort. Upon a determination by Owner that Contractor has failed to demonstrate a good-faith effort to fulfill the HUB subcontracting plan or any Contract covenant detailed above, Owner may, in addition to all other remedies available to it, report the failure to perform to the Comptroller of Public Accounts, Texas Procurement and Support Services Division, Historically Underutilized Business Program and may bar Contractor from future contracting opportunities with Owner.

ARTICLE 7.
BONDS

- 7.1 Construction Bonds. Contractor is required to tender to Owner, prior to commencing the Work, performance and payment bonds, as required by Tex. Gov't Code, Chapter 2253.
- 7.2 Bond Requirements. Each bond shall be executed by a corporate surety or sureties authorized to do business in the State of Texas, acceptable to Owner, and in compliance with the relevant provisions of the Texas Insurance Code. If any bond is for more than ten (10) percent of the surety's capital and surplus, Owner may require certification that the company has reinsured the excess portion with one or more reinsurers authorized to do business in the State. A reinsurer may not reinsure for more than ten (10) percent of its capital and surplus. If a surety upon a bond loses its authority to do business in the State, Contractor shall, within thirty (30) days after such loss, furnish a replacement bond at no added cost to Owner.
- 7.2.1 Performance Bonds. A Performance bond is required if the Contract Sum is in excess of \$100,000. The performance bond is solely for the protection of Owner. The performance bond is to be for the Contract Sum to guarantee the faithful performance of the Work in accordance with the Contract Documents. For Design-Build Projects the performance bond is to be for the full amount of both the construction and design services in accordance with the Contract Documents. The form of the bond shall be approved by Owner. The performance bond shall be effective through Contractor's warranty period.
- 7.2.2 Payment Bonds. A Payment bond is required if the Contract Sum is in excess of \$25,000. The payment bond is to be for the Contract Sum and is payable to Owner solely for the protection and use of payment bond beneficiaries. For Design-Build Projects the payment bond is to be for the full amount of both the construction and design services in accordance with the Contract Documents. The form of the bond shall be approved by Owner.
- 7.2.3 When Bonds Are Due. Payment and performance bonds are due before Contractor commences any Work.
- 7.2.4 Power of Attorney. Each bond shall be accompanied by a valid power of attorney (issued by the surety company and attached, signed and sealed with the corporate embossed seal, to the bond) authorizing the attorney-in-fact who signs the bond to commit the company to the terms of the bond, and stating any limit in the amount for which the attorney can issue a single bond.
- 7.3 Bond Indemnification. The process of requiring and accepting bonds and making claims thereunder shall be conducted in compliance with Tex. Gov't Code, Chapter 2253. IF FOR ANY REASON A STATUTORY PAYMENT OR PERFORMANCE BOND IS NOT HONORED BY THE SURETY, CONTRACTOR SHALL FULLY INDEMNIFY AND HOLD HARMLESS OWNER, AND ITS COMPONENT INSTITUTIONS, REGENTS, ELECTED AND APPOINTED OFFICIALS, DIRECTORS, OFFICERS, EMPLOYEES, AGENTS, REPRESENTATIVES, AND VOLUNTEERS, FROM AND AGAINST ANY COSTS, LOSSES, OBLIGATIONS, OR LIABILITIES IT INCURS AS A RESULT.

- 7.3.1 Furnishing Bond Information. Owner shall furnish certified copies of the payment bond and the related Contract to any qualified person seeking copies who complies with Tex. Gov't Code § 2253.026.
- 7.3.2 Claims on Payment Bonds. Claims on payment bonds must be sent directly to Contractor and his surety in accordance with Tex. Gov't Code § 2253.041. All payment bond claimants are cautioned that no lien exists on the funds unpaid to Contractor on such Contract, and that reliance on notices sent to Owner may result in loss of their rights against Contractor and/or his surety. Owner is not responsible in any manner to a claimant for collection of unpaid bills, and accepts no such responsibility because of any representation by any agent or employee.
- 7.4 Payment of Claims when Payment Bond is Not Required. The rights of Subcontractors regarding payment are governed by Tex. Prop. Code § 53.231 – 53.239 when the value of the Contract between Owner and Contractor is less than \$25,000.00. These provisions set out the requirements for filing a valid lien on funds unpaid to Contractor as of the time of filing the claim, and actions necessary to release the lien and satisfaction of such claim.
- 7.5 Sureties. A surety shall be listed on the US Department of the Treasury's Listing of Approved Sureties maintained by the Bureau of Financial Management Service (FMS), www.fms.treas.gov/c570, stating companies holding Certificates of Authority as acceptable sureties on federal bonds and acceptable reinsuring companies (FMS Circular 570). The Owner will consider acceptable any corporate surety which is qualified under this paragraph and which has a rating of at least B in Best's Insurance Reports – Property – Casualty.
- 7.6 Bond Costs. The costs of bonds are a pass through amount to the Owner. No markup amounts are to be included and documentation of bond costs are required in requests for payment. Any costs associated with subcontractor bonds or SubGuard-related items are not paid by the Owner in General Conditions or Cost of Work.

ARTICLE 8. INDEMNITY AND INSURANCE

- 8.1 Indemnification of Owner. Contractor covenants and agrees to **FULLY INDEMNIFY and HOLD HARMLESS** Owner, and its component institutions, Regents, elected and appointed officials, directors, officers, employees, agents, representatives, and volunteers, individually or collectively, from and against any and all costs, claims, liens, damages, losses, expenses, fees, fines, penalties, proceedings, actions, demands, causes of action, liability, and suits of any kind and nature, including but not limited to, personal or bodily injury, death, or property damage, made upon Owner directly or indirectly arising out of, resulting from, or related to Contractor's activities under the Contract, including any acts or omissions of Contractor, or any director, officer, employee, agent, representative, consultant, or Subcontractor of Contractor, and their respective directors, officers, employees, agents, and representatives while in the exercise of performance of the rights or duties under the Contract. The indemnity provided for in this paragraph does not apply to any liability

resulting from the negligence of Owner or separate contractors in instances where such negligence causes personal injury, death, or property damage. **IN THE EVENT CONTRACTOR AND OWNER ARE FOUND JOINTLY LIABLE BY A COURT OF COMPETENT JURISDICTION, LIABILITY WILL BE APPORTIONED COMPARATIVELY IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS, WITHOUT WAIVING ANY GOVERNMENTAL IMMUNITY AVAILABLE TO THE STATE UNDER TEXAS LAW AND WITHOUT WAIVING ANY DEFENSES OF THE PARTIES UNDER TEXAS LAW.**

- 8.1.1 **No Third-Party Beneficiaries.** The provisions of this indemnification are solely for the benefit of the parties hereto and not intended to create or grant any rights, contractual or otherwise, to any other person or entity.
- 8.1.2 **Notice.** Contractor shall promptly advise Owner in writing of any claim or demand against Owner or against Contractor known to Contractor related to or arising out of Contractor's activities under this Contract.
- 8.2 **Insurance Requirements.** Design Professional shall carry insurance in the types and amounts indicated in the Contract for the duration of the Contract. Unless otherwise provide for in the Contract, Contractor shall carry insurance in the types and amounts indicated in these Uniform General Conditions for the duration of the Contract. The insurance shall be evidenced by delivery to Owner of certificates of insurance executed by the insurer or its authorized agent stating coverage, limits, expiration dates, and compliance with all applicable required provisions. Upon request, Owner and its agents shall be entitled to receive, without expense, copies of the policies and all endorsements. Contractor shall update all expired policies prior to submission for monthly payment. Failure to update policies shall be reason for withholding of payment until renewal is provided to Owner.
 - 8.2.1 **Period of Coverage.** Contractor, consistent with its status as an independent contractor, shall provide and maintain all insurance coverages with the minimum amounts described below until the end of the warranty period unless expressly agreed otherwise. Failure to maintain insurance coverage, as required, is grounds for suspension of Work for cause pursuant to Article 17.
 - 8.2.2 **Certificates.** Contractor shall deliver to Owner true and complete copies of certificates and corresponding policy endorsements prior to the issuance of any Notice to Proceed.
 - 8.2.3 **Failure to Provide Certificates.** Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
 - 8.2.4 **Contractor's Liability.** The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

8.2.5 Insurance Limits. The insurance coverage and limits established herein shall not be interpreted as any representation or warranty that the insurance coverage and limits necessarily will be adequate to protect Contractor.

8.2.6 Insurers. Coverage shall be written on an occurrence basis by companies authorized and admitted to do business in the State of Texas and rated A-, VII or better by A.M. Best Company or similar rating company or otherwise acceptable to Owner.

8.3 Insurance Coverage Required.

8.3.1 Workers' Compensation Insurance. Coverage with limits as required by the Texas Workers' Compensation Act, with the policy endorsed to provide a waiver of subrogation as to Owner, and Employer's Liability Insurance of not less than:

- \$500,000 each accident;
- \$500,000 disease each employee; and
- \$500,000 disease policy limit.
- Workers' compensation insurance coverage must meet the statutory requirements of Tex. Lab. Code § 401.011(44), and requirements specific to construction projects for public entities as required by Tex. Lab. Code § 406.096.

8.3.2 Commercial General Liability Insurance. Coverage including premises, operations, independent contractor's liability, products, and completed operations and contractual liability, covering, but not limited to, the liability assumed under the indemnification provisions of this Contract, fully insuring Contractor's liability for bodily injury (including death) and property damage with a minimum limit of:

- \$1,000,000 per occurrence
- \$2,000,000 general aggregate
- \$5,000 Medical Expense each person;
- \$1,000,000 Personal Injury and Advertising Liability
- \$2,000,000 products and completed operations aggregate;
- \$50,000 Damage to Premises Rented by You; and
- Coverage shall be on an "occurrence" basis.
- The policy shall include coverage extended to apply to completed operations and explosion, collapse, and underground hazards. The policy shall include endorsement CG2503 Amendment of Aggregate Limits of Insurance (per Project) or its equivalent.
- If the Work involves any activities within fifty (50) feet of any railroad, railroad protective insurance as may be required by the affected railroad, written for not less than the limits required by such railroad.

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

- The combined single limit for bodily injury and property damage will be a minimum of \$1,000,000 per occurrence.
- Specific requirement for claims-made form: Required period of coverage will be determined by the following formula: continuous coverage for life of the Contract, plus one (1) year (to provide coverage for the warranty period), and an extended discovery period for a minimum of five (5) years which shall begin at the end of the warranty period.
- Employer's liability limits for asbestos abatement will be:
- \$500,000 each accident;
- \$500,000 disease each employee; and
- \$500,000 disease policy limit.

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

- Such insurance is to include coverage for loading and unloading hazards.
- Contractor, or any subcontractor of Contractor, responsible for transporting asbestos or other hazardous materials defined as asbestos shall provide pollution coverage for any vehicle hauling asbestos containing cargo. The policy must include an MCS 90 endorsement with a \$5,000,000 limit and the CA 9948 Pollution Endorsement, or its equivalent.

8.3.5 All-Risk Builder's Risk Insurance. Coverage shall be all-risk (or all-risk installation floater for instances in which the project involves solely the installation of material and/or equipment), including, but not limited to, fire, extended coverage, vandalism and malicious mischief, theft and, if applicable, flood, earth movement and named storm. Builder's risk and installation floater limits shall be equal to 100 percent of the Contract Sum plus, if any, existing property and Owner-furnished equipment specified by Owner. The policy shall be written jointly in the names of Owner and Contractor. Subcontractors shall be named as additional insureds. The policy shall have endorsements as follows:

- This insurance shall be specific as to coverage and not contributing insurance with any permanent insurance maintained on the property.
- This insurance shall not contain an occupancy clause suspending or reducing coverage should Owner partially occupy the Site and before the parties have determined Substantial Completion.
- Loss, if any, shall be adjusted with and made payable to Owner as trustee for the insureds as their interests may appear. Owner shall be named as loss payee.
- For renovation projects or projects that involve portions of Work contained within an existing structure, refer to Supplementary or Special Conditions for possible additional builder's risk insurance requirements.
- For Owner furnished equipment or materials that will be in care, custody or control of Contractor, Contractor will be responsible for damage and loss.

- For those properties located within a Tier 1 or 2 windstorm area, named storm coverage must be provided with limits specified by Owner.
- For those properties located in flood prone areas, flood insurance coverage must be provided with limits specified by Owner.
- Builder's risk insurance policy shall remain in effect until Substantial Completion.
- If this Contract is for asbestos abatement only, the foregoing All-Risk Builder's Risk or All-Risk Installation Floater is not required.

8.3.6 "Umbrella" Liability Insurance. Coverage during the Contract term, insuring Contractor that provides coverage at least as broad as and applies in excess and follows form of the primary liability coverage required above. The policy shall provide "drop down" coverage where underlying primary insurance coverage limits are insufficient or exhausted.

- "Umbrella" Liability Insurance coverage shall be for the following Contract amounts in the corresponding coverage amounts:

| <u>Contract Amount</u> | <u>Occurrence</u> | <u>Annual Aggregate</u> |
|---------------------------------|-------------------|-------------------------|
| < \$1,000,000 | No Umbrella | |
| \$1,000,000 up to < \$3,000,000 | \$1,000,000 | \$2,000,000 |
| \$3,000,000 up to < \$5,000,000 | \$5,000,000 | \$5,000,000 |
| \$5,000,000 or greater | \$10,000,000 | \$10,000,000 |

8.4 Policy Requirements. Policies must include the following clauses, as applicable:

- This insurance shall not be suspended, voided, canceled, materially changed, or non-renewed except after thirty (30) days, or ten (10) days for non-payment of premium, written notice has been given to Owner.
- It is agreed that Contractor's insurance shall be deemed primary with respect to any insurance or self-insurance carried by Owner for liability arising out of operations under the Contract with Owner.
- Owner, its officials, directors, employees, representatives, and volunteers are added as additional insureds as respects operations and activities of, or on behalf of the named insured performed under the Contract with Owner. The additional insured status must cover completed operations as well. This is not applicable to workers' compensation policies.
- A waiver of subrogation in favor of Owner shall be provided in all policies.

8.5 Subcontractor Insurance Coverage. Without limiting any of the other obligations or liabilities of Contractor, Contractor shall require each Subcontractor performing Work under the Contract to maintain during the term of the Contract, the same stipulated minimum insurance including the required provisions and additional policy conditions as shown above. As an alternative, Contractor may include its Subcontractors as additional insureds on its own coverage as prescribed under these requirements. Contractor's certificate of insurance shall note in such event that Subcontractors are included as additional insureds and that Contractor agrees to provide workers' compensation for Subcontractors and their employees. Contractor shall obtain and monitor the certificates of

insurance from each Subcontractor in order to assure compliance with the insurance requirements. Contractor must retain the certificates of insurance for the duration of the Contract plus five (5) years and shall have the responsibility of enforcing these insurance requirements among its Subcontractors. Owner shall be entitled, upon request and without expense, to receive copies of these certificates.

ARTICLE 9.
CONSTRUCTION DOCUMENTS, COORDINATION DOCUMENTS, AND RECORD
DOCUMENTS

9.1 Drawings and Specifications.

9.1.1 Copies Furnished. Design Professional will furnish, free of charge, the number of complete sets of Drawings, Specifications, and addenda as provided in the Contract. Contractor will be furnished, free of charge, the number of complete sets of Drawings, Specifications, and addenda as provided in the Contract. Additional complete sets of Drawings and Specifications, if requested, will be furnished at reproduction cost to the one requesting such additional sets. Electronic copies of such documents will be provided to Contractor without charge.

9.1.2 Ownership of Drawings and Specifications. All Drawings, Specifications and copies thereof furnished by Design Professional shall be property of the Owner. These documents are not to be used by the Design Professional on any other project. Owner may use the Contract record set and electronic versions as needed for warranty operations or future renovations or additions without written approval of the Design Professional. All additional or confirmatory land survey field notes, sketches and related data, and additional or confirmatory soils engineering or investigations, samples, calculations, test results, and reports, for which Owner has paid for such direct services, shall be the sole property of Owner.

9.2 Interrelation of Documents. The Contract Documents as referenced in the Contract between Owner and Contractor are complimentary, and what is required by one shall be as binding as if required by all.

9.3 Resolution of Conflicts in Documents. Where conflicts may exist within the Contract Documents, the documents shall govern in the following order: (a) Change Orders or other written, signed amendments or addenda; (b) the Contract; (c) Uniform General Conditions; (d) Drawings; (e) Specifications (but Specifications shall control over Drawings as to quality of materials); and (f) other Contract Documents. Among other categories of documents having the same order of precedence, the term or provision that includes the latest date shall control. Contractor shall notify Design Professional and Owner for resolution of the issue prior to executing the Work in question.

9.4 Contractor's Duty to Review Contract Documents. In order to facilitate Contractor's responsibilities for completion of the Work in accordance with and as reasonably inferable from the Contract Documents, Contractor shall, prior to commencing the Work, examine and compare

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

- 9.5 Discrepancies and Omissions in Drawings and Specifications. Contractor shall immediately report to OCM and to Design Professional the discovery of any discrepancy, error, omission, or inconsistency in the Contract Documents prior to execution of the Work. When performing as a Construction Manager-at-Risk, Contractor has a shared responsibility with Design Professional for discovery and resolution of discrepancies, errors, omissions, and inconsistencies in the Contract Documents. In such case, Contractor's responsibility pertains to review, coordination, and recommendation of resolution strategies within budget constraints.

9.5.1 Design-Build Firm. It is recognized that Contractor is not acting in the capacity of a licensed design professional, unless it is performing as a Design-Build firm. When performing as a Design-Build firm, Contractor has sole responsibility for discrepancies, errors, and omissions in the Drawings and Specifications.

9.5.2 Construction Manager-at-Risk Examination and Reporting. When performing as a Construction Manager-at-Risk, Contractor has no liability for discrepancies, errors, omissions, or inconsistencies unless Contractor fails to immediately report in writing a discovered or apparent discrepancy, error, omission, or inconsistency to OCM and Design Professional. Should Contractor fail to perform the examination and reporting obligations of these provisions, Contractor is responsible for avoidable costs and direct and/or consequential damages.

9.5.3 Other Limitations. Unless Contractor is performing as a Design-Build Firm or a Construction Manager-at-Risk, Contractor's examination of Contract Documents is to facilitate construction and does not create an affirmative responsibility to detect discrepancies, errors, omissions, or inconsistencies or to ascertain compliance with applicable laws, building codes, or regulations.

- 9.6 No Warranty or Representation by Owner. Owner makes no representations, express or implied, about the adequacy or accuracy of the Drawings, Specifications, or other Construction Documents provided or their suitability for their intended use. Owner expressly disclaims any implied warranty that the Construction Documents are adequate, accurate, or suitable for their intended use.

- 9.7 Requirements for Record Documents.

9.7.1 Contractor shall:

9.7.1.1 Maintain at the Site one copy of all Drawings, Specifications, addenda, approved submittals, Contract modifications, Change Orders, and all Project correspondence and one record copy of approved Shop Drawings, Samples, and similar required submittals.

- 9.7.1.2 Keep current and maintain Drawings and Specifications in good order with postings and markings to record actual conditions of Work, and show and reference all changes made during construction. Provide Owner and Design Professional access to these documents.
- 9.7.1.3 Keep current and maintain the record set of Drawings and Specifications which reflect the actual field conditions and representations of the Work performed, whether it be directed by addendum, Change Order, or otherwise. Make available all records prescribed herein for reference and examination by Owner and Design Professional, and their representatives and agents.
- 9.7.1.4 Be responsible for marking the Record Documents for all Contractor initiated documents and changes to the Contract Documents due to coordination and actual field conditions, including RFIs. During construction, update the Record Documents, including all related RFI's, ASI's CCD's, and CO's, at least monthly prior to submission of periodic partial pay estimates. Failure to maintain current Record Documents constitutes cause for denial of a progress payment otherwise due.
- 9.7.1.5 Within thirty (30) days of Substantial Completion, Contractor shall furnish the Design Professional a copy of its marked-up Record Documents and a preliminary copy of each instructional manual, maintenance and operating manual, parts catalog, wiring diagrams, spare parts, specified written warranties and like publications, or parts for all installed equipment, systems, and like items, and as described in the Contract Documents. A complete set must be provided to the Design Professional within seven (7) calendar days of Final Completion.

9.7.2 Design Professional shall:

- 9.7.2.1 In coordination with Contractor, shall update Record Documents to accurately depict progress of the Work and "as-built" condition of the Project.
- 9.7.2.2 Be responsible for updating the Record Documents for any addenda, Change Orders, Design Professional supplemental instructions, and any other alterations to the Contract Documents generated by Design Professional or Owner. Design Professional shall provide Owner with an electronic copy of the Auto-CADD files, BIM files, and Record Documents in both native format and a reproducible format within thirty (30) days following Final Completion.
- 9.7.2.3 Upon final completion and as a condition of final payment, once Record Documents are determined acceptable by OCM and with input from the Contractor, provide one (1) reproducible copy and one (1) electronic media copy of all Record Documents incorporating all of the above requirements, unless required otherwise.

ARTICLE 10.
CONSTRUCTION SAFETY

- 10.1 General. It is the duty and responsibility of Contractor and all of its Subcontractors to be familiar with, enforce, and comply with all requirements of Public Law No. 91-596, 29 U.S.C. § 651 et. seq., the Occupational Safety and Health Act of 1970, (OSHA) and all amendments thereto. Contractor shall prepare a safety plan specific to the Project and submit it to OCM and Design Professional prior to commencing Work. In addition, Contractor and all of its Subcontractors shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property to protect them from damage, injury, or loss and erect and maintain all necessary safeguards for such safety and protection.
- 10.2 Notices. Contractor shall provide notices as follows:
- 10.2.1 Utilities and Adjacent Properties. Notify owners of adjacent property, including those that own or operate utilities, utility services, and/or underground facilities, when prosecution of the Work may affect them or their facilities, and cooperate with them in the protection, removal, relocation and replacement, and access to their facilities and/or utilities.
- 10.2.2 MSDS. Coordinate the exchange of material safety data sheets (MSDSs) or other hazard communication information required to be made available to or exchanged between or among employers at the site in connection with laws and regulations. Maintain a complete file of MSDSs for all materials in use on site throughout the construction phase and make such file available to Owner and its agents as requested.
- 10.3 Emergencies. In any emergency affecting the safety of persons or property, Contractor shall act to minimize, mitigate, and prevent threatened damage, injury, or loss. Contractor shall:
- 10.3.1 On Call Response. Have authorized agents of Contractor respond immediately upon call at any time of day or night when circumstances warrant the presence of Contractor to protect the Work or adjacent property from damage or to take such action pertaining to the Work as may be necessary to provide for the safety of the public.
- 10.3.2 Notice.
- 10.3.2.1 Give OCM and Design Professional prompt notice of all such events.
- 10.3.2.2 If Contractor believes that any changes in the Work or variations from Contract Documents have been caused by its emergency response, promptly notify Owner within seventy-two (72) hours of the emergency response event.
- 10.3.3 Owner Remedy. Should Contractor fail to respond, Owner is authorized to direct other forces to take action as necessary and Owner may deduct any cost of remedial action from funds otherwise due Contractor.
- 10.4 Injuries. In the event of an incident or accident involving outside medical care for an individual on or near the Work, Contractor shall notify OCM and other parties as may be directed promptly, but

no later than twenty-four (24) hours after Contractor learns that an event required medical care. Contractor shall:

- 10.4.1 Documentation. Record the location of the event and the circumstances surrounding it, by using photography or other means, and gather witness statements and other documentation which describes the event.
- 10.4.2 Incident Report. Supply OCM and Design Professional with an incident report no later than thirty-six (36) hours after the occurrence of the event. In the event of a catastrophic incident (one (1) fatality or three (3) workers hospitalized), barricade and leave intact the scene of the incident until all investigations are complete. A full set of incident investigation documents, including facts, finding of cause, and remedial plans shall be provided within one (1) week after occurrence, unless otherwise directed by legal counsel. Contractor shall provide OCM with written notification within one week of such catastrophic event if legal counsel delays submission of full report.
- 10.5 Environmental Safety. Upon encountering any previously unknown potentially hazardous material, or other materials potentially contaminated by hazardous material, Contractor shall immediately stop work activities impacted by the discovery, secure the affected area, and notify OCM immediately.
 - 10.5.1 Subcontractors. Contractor shall bind all Subcontractors to the same duty.
 - 10.5.2 Owner. Upon receiving such notice, OCM will promptly engage qualified experts to make such investigations and conduct such tests as may be reasonably necessary to determine the existence or extent of any environmental hazard. Upon completion of this investigation, OCM will issue a written report to Contractor identifying the material(s) found and indicate any necessary steps to be taken to treat, handle, transport or dispose of the material.
 - 10.5.2.1 Owner may hire third-party Contractors to perform any or all such steps.
 - 10.5.2.2 Should compliance with OCM's instructions result in an increase in Contractor's cost of performance or delay the Work, upon Contractor's submission of substantiated costs or an updated Work Progress Schedule and substantiated critical path analysis, Owner will make an equitable adjustment to the Contract Sum and/or the time of completion, and issue a Change Order accordingly.
- 10.6 Trenching Plan. When the project requires excavation which either exceeds a depth of four (4) feet, or results in any worker's upper body being positioned below grade level, Contractor is required to submit a trenching plan to OCM prior to commencing trenching operations unless an engineered plan is part of the Contract Documents. The plan is required to be prepared and sealed by a professional engineer registered in the State of Texas and hired or employed by Contractor or Subcontractor to perform the work. Said engineer cannot be anyone who is otherwise either directly or indirectly engaged on this project.

ARTICLE 11.
QUALITY CONTROL

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

11.2 Testing.

11.2.1 Owner. Owner is responsible for coordinating and paying for routine and special tests required to confirm compliance with quality and performance requirements, except as stated below or otherwise required by the Contract Documents.

11.2.2 Contractor shall provide the following testing:

11.2.2.1 Any test of basic material or fabricated equipment included as part of a submittal for a required item in order to establish compliance with the Contract Documents.

11.2.2.2 Any test of basic material or fabricated equipment offered as a substitute for a specified item on which a test may be required in order to establish compliance with the Contract Documents.

11.2.2.3 Preliminary, start-up, pre-functional, and operational testing of building equipment and systems as necessary to confirm operational compliance with requirements of the Contract Documents.

11.2.2.4 All subsequent tests on original or replaced materials conducted as a result of prior testing failure.

11.2.3 Standards. All testing shall be performed in accordance with standard test procedures by an accredited laboratory, or special consultant as appropriate, acceptable to Owner. Results of all tests shall be provided promptly to OCM, Design Professional, and Contractor.

11.2.4 Non-Compliance (Test Results). Should any of the tests indicate that a material and/or system does not comply with the Contract requirements, the burden of proof remains with Contractor, subject to:

11.2.4.1 Contractor selection and submission of the laboratory for Owner acceptance.

11.2.4.2 Acceptance by Owner of the quality and nature of tests.

11.2.4.3 All tests taken in the presence of Design Professional and/or OCM, or their representatives.

- 11.2.4.4 If tests confirm that the material/systems comply with Contract Documents, Owner will pay the cost of the test.
- 11.2.4.5 If tests reveal noncompliance, Contractor will pay those laboratory fees and costs of that particular test and all future tests, of that failing Work, necessary to eventually confirm compliance with Contract Documents.
- 11.2.4.6 Proof of noncompliance with the Contract Documents will make Contractor liable for any corrective action which OCM determines appropriate, including complete removal and replacement of noncompliant work or material.
- 11.2.5 Notice of Testing. Contractor shall give OCM and Design Professional timely notice of its readiness and the date arranged so OCM and Design Professional may observe such inspection, testing, or approval.
- 11.2.6 Test Samples. Contractor is responsible for providing Samples of sufficient size for test purposes and for coordinating such tests with the Work Progress Schedule to avoid delay.
- 11.2.7 Covering Up Work. If Contractor covers up any Work without providing Owner an opportunity to inspect, Contractor shall, if requested by OCM, uncover and recover the work at Contractor's expense.

11.3 Submittals.

- 11.3.1 Contractor's Submittals. Contractor shall submit with reasonable promptness consistent with the Project schedule and in orderly sequence all Shop Drawings, Samples, or other information required by the Contract Documents, or subsequently required by Change Order. Prior to submitting, Contractor shall review each submittal for general compliance with Contract Documents and approve submittals for review by Design Professional and Owner by an approval stamp affixed to each copy. Submittal data presented without Contractor's stamp will be returned without review or comment, and any delay resulting from failure is Contractor's responsibility.
 - 11.3.1.1 Contractor shall within twenty-one (21) days of the effective date of the Notice To Proceed with construction, submit to OCM and Design Professional, a submittal schedule/register, organized by specification section, listing all items to be furnished for review and approval by Design Professional and Owner. The list shall include Shop Drawings, manufacturer literature, certificates of compliance, materials Samples, materials colors, guarantees, and all other items identified throughout the Specifications.
 - 11.3.1.2 Contractor shall indicate the type of item, Contract requirements reference, and Contractor's scheduled dates for submitting the item along with the requested dates for approval answers from Design Professional and Owner. The submittal register shall indicate the projected dates for procurement of all included items and shall be updated at least monthly with actual approval and

procurement dates. Contractor's Submittal Register must be reasonable in terms of the review time for complex submittals. Contractor's submittal schedule must be consistent with the Work Progress Schedule and identify critical submittals. Show and allow a minimum of fifteen (15) days duration after receipt by Design Professional and OCM for review and approval. If re-submittal required, allow a minimum of an additional *seven (7)* days for review. Submit the updated Submittal Register with each request for progress payment. Owner may establish routine review procedures and schedules for submittals at the preconstruction conference and/or elsewhere in the Contract Documents. If Contractor fails to update and provide the Submittal Register as required, Owner may, after seven (7) days' notice to Contractor withhold a reasonable sum of money that would otherwise be due Contractor.

11.3.1.3 Contractor shall coordinate the Submittal Register with the Work Progress Schedule. Do not schedule Work requiring a submittal to begin prior to scheduling review and approval of the related submittal. Revise and/or update both schedules monthly to ensure consistency and current project data. Provide to OCM the updated Submittal Register and schedule with each application for progress payment. Refer to requirements for the Work Progress Schedule for inclusion of procurement activities therein. Regardless, the Submittal Register shall identify dates submitted and returned and shall be used to confirm status and disposition of particular items submitted, including approval or other action taken and other information not conveniently tracked through the Work Progress Schedule.

11.3.1.4 By submitting Shop Drawings, Samples or other required information, Contractor represents that it has determined and verified all applicable field measurements, field construction criteria, materials, catalog numbers and similar data; and has checked and coordinated each Shop Drawing and Sample with the requirements of the Work and the Contract Documents.

11.3.2 Review of Submittals. Design Professional and OCM review is only for conformance with the design concept and the information provided in the Contract Documents. Responses to submittals will be in writing. The approval of a separate item does not indicate approval of an assembly in which the item functions. The approval of a submittal does not relieve Contractor of responsibility for any deviation from the requirements of the Contract unless Contractor informs Design Professional and OCM of such deviation in a clear, conspicuous, and written manner on the submittal transmittal and at the time of submission, and obtains Owner's written specific approval of the particular deviation.

11.3.3 Correction and Resubmission. Contractor shall make any corrections required to a submittal and resubmit the required number of corrected copies promptly so as to avoid delay, until submittal approval. Direct attention in writing to Design Professional and OCM, when applicable, to any new revisions other than the corrections requested on previous submissions.

11.3.4 Limits on Shop Drawing Review. Contractor shall not commence any Work requiring a submittal until review of the submittal under Subsection 11.3.2. Construct all such work in accordance with reviewed submittals. Comments incorporated as part of the review in Subsection 11.3.2 of Shop Drawings and Samples is not authorization to Contractor to perform extra work or changed work unless authorized through a Change Order. Design Professional's and OCM's review, if any, does not relieve Contractor from responsibility for defects in the Work resulting from errors or omissions of any kind on the submittal, regardless of any approval action.

11.3.5 No Substitutions without Approval. OCM and Design Professional may receive and consider Contractor's request for substitution when Contractor agrees to reimburse Owner for review costs and satisfies the requirements of this section. If Contractor does not satisfy these conditions, OCM and Design Professional will return the request without action except to record noncompliance with these requirements. Owner will not consider the request if Contractor cannot provide the product or method because of failure to pursue the Work promptly or coordinate activities properly. Contractor's request for a substitution may be considered by OCM and Design Professional when:

11.3.5.1 The Contract Documents do not require extensive revisions; and

11.3.5.2 Proposed changes are in keeping with the general intent of the Contract Documents and the design intent of Design Professional and do not result in an increase in cost to Owner; and

11.3.5.3 The request is timely, fully documented, properly submitted and one or more of the following apply:

- Contractor cannot provide the specified product, assembly or method of construction within the Contract Time;
- The request directly relates to an "or-equal" clause or similar language in the Contract Documents;
- The request directly relates to a "product design standard" or "performance standard" clause in the Contract Documents;
- The requested substitution offers Owner a substantial advantage in cost, time, energy conservation or other considerations, after deducting additional responsibilities Owner must assume;
- The specified product or method of construction cannot receive necessary approval by an authority having jurisdiction, and OCM can approve the requested substitution;
- Contractor cannot provide the specified product, assembly or method of construction in a manner that is compatible with other materials and where Contractor certifies that the substitution will overcome the incompatibility;

- Contractor cannot coordinate the specified product, assembly or method of construction with other materials and where Contractor certifies they can coordinate the proposed substitution; or
- The specified product, assembly or method of construction cannot provide a warranty required by the Contract Documents and where Contractor certifies that the proposed substitution provides the required warranty.
- The manufacture of the specified product has been removed from production due to cancellation or obsolescence.

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

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

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

11.4.2 No Incorporation Unless Approved. Mock-ups may be incorporated into the Work if allowed by the Contract Documents and if acceptable to OCM. If mock-ups are freestanding, they shall remain in place until otherwise directed by Owner.

11.4.3 Schedule. Contractor shall include field mock-ups in their Work Progress Schedule and shall notify OCM and Design Professional of readiness for review sufficiently in advance to coordinate review without delay.

11.5 Inspection During Construction. Contractor shall provide sufficient, safe, and proper facilities, including equipment as necessary for safe access, at all reasonable times for observation and/or inspection of the Work by Owner or Design Professional and their agents. Contractor shall not cover up any Work with finishing materials or other building components prior to providing Owner and Design Professional and their agents an opportunity to perform an inspection of the Work.

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

11.5.2 Notice. Contractor shall provide notification of at least five (5) working days or otherwise as mutually agreed, to OCM of the anticipated need for an inspection so that Contractor may proceed with cover-up of Work. Should OCM fail to make the necessary inspection within the agreed period, Contractor may proceed with cover-up

Work, but is not relieved of responsibility for Work to comply with requirements of the Contract Documents.

ARTICLE 12.

CONSTRUCTION SCHEDULES

- 12.1 **Contract Time.** **TIME IS AN ESSENTIAL ELEMENT OF THE CONTRACT.** The Contract Time is the time between the dates indicated in the Notice to Proceed for commencement of the Work and for achieving Substantial Completion. The Contract Time can be modified only by Change Order. Failure to achieve Substantial Completion within the Contract Time will cause damage to Owner and may subject Contractor to liquidated damages as provided in the Contract Documents. If Contractor fails to achieve Final Completion within 30 calendar days after Substantial Completion, Contractor shall be responsible for Owner's additional inspection, project management, and maintenance cost to the extent caused by Contractor's failure to achieve Final Completion.
- 12.2 **Notice to Proceed.** Owner will issue a Notice to Proceed which shall state the dates for commencing Work and for achieving Substantial Completion of the Work.
- 12.3 **Work Progress Schedule.** Refer to Division 1 of the Specifications for additional schedule requirements. Unless indicated otherwise in those documents, Contractor shall submit to OCM and Design Professional its initial Work Progress Schedule for the Work in relation to the entire Project not later than twenty-one (21) days after the effective date of the Notice to Proceed. The Work Progress Schedule shall be computerized Critical Path Method (CPM) with fully editable logic. This initial schedule shall indicate the dates for starting and completing the various aspects required to complete the Work, including mobilization, procurement, installation, testing, inspection, delivery of Close-out Documents, and acceptance of all Work. When acceptable to Owner, the initially accepted Work Progress Schedule shall be the Baseline Schedule for comparison to actual conditions throughout the Contract duration.

This section applies to construction phase Work Progress Schedules. Requirements for design phase scheduling for Construction Manager-at-Risk and Design Build contracts are outlined in Division 1 Project Planning and Scheduling Specifications.

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

- 12.3.1.1 Contractor shall re-submit the initial Work Progress Schedule as required to address comments from Design Professional and Owner until such schedule is accepted as the Baseline Schedule.

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

12.3.2 Work Progress Schedule Updates.

- 12.3.2.1 Contractor shall update the Work Progress Schedule and the Submittal Register monthly, at a minimum, to reflect progress to date and current plans for completing the Work, while maintaining the original schedule as the Baseline Schedule, and shall submit electronic and paper copies of the update to Design Professional and OCM as directed but at a minimum with each request for payment. Owner has no duty to make progress payments unless accompanied by the updated Work Progress Schedule.
- 12.3.2.2 Contractor should revise the Work Progress Schedule as necessary or appropriate for the management of the Work. All updated Work Progress Schedules must show the anticipated date of completion and reflect all extensions of time granted through Change Order as of the date of the update.
- 12.3.2.3 Contractor shall identify all proposed changes to schedule logic to Owner and to Design Professional via an executive summary accompanying the updated Work Progress Schedule for review and approval prior to implementation of any revisions to the Baseline Schedule. Schedule changes that materially impact Owner's operations shall be communicated promptly to OCM.

12.3.3 Use of Work Progress Schedules. The Work Progress Schedule is for Contractor's use in managing the Work and submittal of the Work Progress Schedule, and successive updates or revisions, is for the information of Owner and to demonstrate that Contractor has complied with requirements for planning and completing the Work.

- 12.3.3.1 Owner's acceptance of a Work Progress Schedule, and any update or revision, constitutes Owner's agreement to coordinate its own activities with Contractor's activities as shown on the Work Progress Schedule.
- 12.3.3.2 Owner's acceptance of the Work Progress Schedule, or update or revision, does not indicate any approval of Contractor's proposed sequences and duration.
- 12.3.3.3 Owner's acceptance of a Work Progress Schedule update or revision indicating early or late completion does not constitute Owner's consent, alter the terms of the Contract, or waive either Contractor's responsibility for timely completion or Owner's right to damages for Contractor's failure to so do.
- 12.3.3.4 Contractor's scheduled dates for completion of any activity or the entire Work do not constitute a change in terms of the Contract. Change Orders are the

only method of modifying the Substantial Completion Date(s) and Contract Time.

12.4 Ownership of Float. Unless indicated otherwise in the Contract Documents, Contractor shall develop its schedule, pricing, and execution plan to provide a minimum of ten (10) percent total float at acceptance of the Baseline Schedule. Float time contained in the Work Progress Schedule is not for the exclusive benefit of Contractor or Owner, but belongs to the Project and may be consumed by either party. Before Contractor uses any portion of the float, Contractor must submit a written request to Owner and receive Owner's written authorization to use the portion of float. Owner's approval will not unreasonably be withheld.

12.5 Completion of Work. Contractor is responsible and accountable for completing the Work within the Contract Time stated in the Contract, or as otherwise amended by Change Order.

12.5.1 Requirement to Regain Schedule. If, in the judgment of Owner, the Work is behind schedule and the rate of placement of Work is inadequate to regain scheduled progress to insure timely completion of the entire Work or a separable portion thereof, Contractor, when so informed by Owner, shall immediately take action to increase the rate of Work placement by:

12.5.1.1 An increase in working forces.

12.5.1.2 An increase in equipment or tools.

12.5.1.3 An increase in hours of work or number of shifts.

12.5.1.4 Expedited delivery of materials.

12.5.1.5 Other action proposed if acceptable to Owner.

12.5.2 Recovery Schedule. Within ten (10) days after such notice, Contractor shall notify OCM in writing of the specific measures taken and/or plan to increase the rate of progress. Contractor shall include an estimate as to the date of scheduled progress recovery and an updated Work Progress Schedule illustrating Contractor's plan for achieving timely completion of the Work. Should Owner deem the plan of action inadequate, Contractor shall take additional steps or make adjustments as necessary to its plan of action until it meets with Owner's approval.

12.5.3 Owner's Notice Not Acceleration. Owner's notice to Contractor shall not be considered acceleration by Owner and Owner shall not be responsible for any increased costs incurred by Contractor.

12.6 Modification of the Contract Time. Delays and extensions of Contract Time are valid only if properly noticed and documented by Change Order.

12.6.1 Extension Request. When a delay is a Weather Day or an Excusable Delay, and such delay prevents Contractor from completing the Work within the Contract Time, Contractor may

be granted an extension of Contract Time. Owner will extend Contract Time by the number of days lost due to Weather Days or Excusable Delay, as measured by a substantiated critical path analysis of the Work Progress Schedule; provided, however, in no event will an extension of Contract Time be granted for delays that merely extend the duration of non-critical activities, or concurrent delay or which only consume float. All extensions of Contract Time will be granted in calendar days.

12.6.2 Weather Day. A “Weather Day” is a day on which Contractor’s current schedule indicates Work is to be done, and on which inclement weather and related site conditions prevent Contractor from performing critical path activities for seven (7) consecutive hours between the hours of 7:00 a.m. and 6:00 p.m. When a Weather Day prevents critical path activities at the site from proceeding, Contractor shall: (a) immediately notify OCM for confirmation of the conditions and provide a detailed list of critical path activities impacted; and (b) at the end of each calendar month, submit to OCM and Design Professional a list of Weather Days occurring in that month along with documentation of the impact on critical path activities. Based on substantiated critical path analysis to the Work Progress Schedule, Owner will issue a Weather Day Confirmation for any Contract Time extension to be documented by Change Order pursuant to Section 14.6.

12.6.3 Excusable Delay. An “Excusable Delay” is a delay to Contractor’s current schedule caused by circumstances listed below that prevents Contractor from completing the Work within the Contract Time. Based on substantiated critical path analysis to the Work Progress Schedule, any Contract Time extension will be issued by Change Order. Excusable Delay may be caused by the following:

12.6.3.1 Discrepancies, errors, omissions, and inconsistencies in design, which Design Professional corrects by means of changes in the Drawings and Specifications; provided, however, that this does not apply if (a) Contractor is a Design-Build Firm, or (b) Contractor is a Construction Manager-at-Risk and failed to promptly report a discovered or apparent discrepancy, error, omission, or inconsistency during the pre-construction phase.

12.6.3.2 Unanticipated physical conditions at the Site, which Design Professional corrects by means of changes to the Drawings and Specifications or for which ODR directs changes in the Work identified in the Contract Documents.

12.6.3.3 Changes in the Work that delay activities identified in Contractor’s Work Progress Schedule as “critical” to completion of the entire Work, if such changes are directed by ODR or recommended by Design Professional and directed by ODR.

12.6.3.4 Suspension of Work for unexpected natural events, civil unrest, strikes or other events which are not within the reasonable control of Contractor.

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

- 12.7 No Damages for Weather Days. An extension of Contract Time shall be the sole remedy of Contractor for delays in performance of the Work due to Weather Days, and Contractor shall not be entitled to any compensation or recovery of any direct or indirect costs or damages.
- 12.8 Costs for Excusable Delay. In the event that Contractor incurs additional direct costs because of an Excusable Delay (other than described in Subsection 12.6.3.4) within the reasonable control of Owner, in addition to an extension of Contract Time the Contract Sum will be equitably adjusted by Owner pursuant to the provisions of Article 14.
- 12.9 No Damages for Other Delay. Except for direct costs for Excusable Delay as provided above, Contractor has no claim for monetary damages for delay or hindrances to the Work from any cause, whether or not such delays are foreseeable, except for delays caused solely by acts of Owner that constitute intentional interference with Contractor's performance of the Work and then only to the extent such acts continue after Contractor notifies Owner in writing of such interference. For delays caused by any act other than the sole intentional interference of Owner that continues after notice, Contractor shall not be entitled to any compensation or recovery of any damages including, without limitation, direct and indirect costs, consequential damages, lost opportunity costs, impact damages, loss of productivity, or other similar damages. Owner's exercise of any of its rights or remedies under the Contract including, without limitation, ordering changes in the Work or directing suspension, rescheduling, or correction of the Work, shall not be construed as intentional interference with Contractor's performance of the Work regardless of the extent or frequency of Owner's exercise of such rights or remedies.
- 12.10 Concurrent Delay. Notwithstanding anything herein to the contrary, when the completion of the Work is simultaneously delayed by a Weather Day or an Excusable Delay and a delay arising from a cause not designated as excusable, Contractor will not be entitled to an extension of Contract Time for the period of concurrent delay.
- 12.11 Time Extension Requests for Changes to the Work or Excusable Delay. Extensions to Contract Time requested in association with changes to the Work directed or requested by Owner shall be included with Contractor's proposed costs for such change. If Contractor believes that the completion of the Work is delayed by Excusable Delay, Contractor shall give OCM written notice, stating the nature of the delay and the activities potentially affected, within five (5) days after the onset of the event or circumstance giving rise to the Excusable Delay. Contractor shall provide sufficient written evidence to document the Excusable Delay. In the case of a continuing cause of delay, only one claim is necessary. Claims for extensions of time should be made in numbers of whole or half days.
- 12.11.1 Content of Request. Within ten (10) days after the cessation of the Excusable Delay, Contractor shall formalize in writing its request for extension of Contract Time to include substantiation of the excusable nature of the delay and a complete analysis of impact to critical path activities. Based on substantiated critical path analysis to the Work Progress Schedule, any Contract Time extension granted will be issued by Change Order.

- 12.11.2 No Release. No extension of time releases Contractor or the Surety furnishing a performance or payment bond from any obligations under the Contract or such a bond. Those obligations remain in full force until the discharge of the Contract.
- 12.11.3 Critical Path Analysis. Contractor shall provide with each Time Extension Request a quantitative demonstration of the impact of the delay on completion of the Work and Contract Time, based on the Work Progress Schedule. Contractor shall include with Time Extension Requests a reasonably detailed narrative setting forth:
- 12.11.3.1 The nature of the delay and its cause due to a change in the Work or an Excusable Delay and the basis of Contractor's claim of entitlement to an extension of Contract Time.
 - 12.11.3.2 Documentation of the actual impacts of the claimed delay on the critical path in Contractor's Work Progress Schedule, and any concurrent delays.
 - 12.11.3.3 Description and documentation of steps taken by Contractor to mitigate the effect of the claimed delay, including, when appropriate, the modification of the Work Progress Schedule.
- 12.11.4 Owner Response. Owner will respond to the Time Extension Request by providing to Contractor written notice of the number of days granted, if any, and giving its reason if this number differs from the number of days requested by Contractor.
- 12.11.4.1 Owner will not grant time extensions for delays that do not affect the Contract Substantial Completion date.
 - 12.11.4.2 Owner will respond to each properly submitted Time Extension Request within a reasonable time following receipt. If Owner does not have enough information to make a determination or cannot reasonably make a determination within forty-five (45) days, Owner will notify Contractor in writing. If Owner fails to respond within forty-five (45) days from the date the Time Extension Request is received, Contractor is entitled to an extension of Contract Time in the amount requested.
- 12.12 Failure to Complete Work in the Contract Time. **TIME IS AN ESSENTIAL ELEMENT OF THE CONTRACT.** Contractor's failure to substantially complete the Work within the Contract Time or to achieve Substantial Completion as required will cause damage to Owner. These damages shall be liquidated by agreement of Contractor and Owner, in the amount per day as set forth in Section 12.13 below or elsewhere in the Contract Documents.
- 12.13 Liquidated Damages. Unless otherwise stated in the Contract, for each consecutive calendar day beyond the Contract Time that Substantial Completion of the Work is not achieved, Contractor shall pay Owner, within ten (10) days following written demand, an amount determined by the following schedule:

| <u>Project Cost</u> | | <u>Liquidated Damages</u> |
|---------------------|------------------|---------------------------|
| <u>From</u> | <u>To</u> | <u>Per Day</u> |
| | < \$ 1,000,000 | \$ 250 |
| \$ 1,000,000 | < \$ 25,000,000 | \$ 1,000 |
| \$ 25,000,000 | < \$ 50,000,000 | \$ 2,500 |
| \$ 50,000,000 | < \$ 75,000,000 | \$ 5,000 |
| \$ 75,000,000 | < \$ 100,000,000 | \$ 7,500 |
| > \$ 100,000,000 | | \$ 10,000 |

12.13.2 Reasonable Estimate. Not as a penalty but as liquidated damages representing the parties' estimate at the time of Contract execution of the damages that Owner will sustain for late Substantial Completion of Work. The parties stipulate and agree that the actual damages sustained by Owner for late Substantial Completion of the Work will be uncertain and difficult to ascertain, that calculating Owner's actual damages would be impractical, unduly burdensome, and cause unnecessary delay, and that the amount of daily liquidated damages set forth above is a reasonable estimate.

12.13.3 Offset. Owner may also recover the liquidated damages from any money due or that becomes due Contractor. The amount of liquidated damages may be adjusted by the terms of the Contract.

12.13.4 No Waiver. Payment or offset of the liquidated damages does not preclude recovery under the Contract, except for claims related to delays in Substantial Completion or Final Completion. Owner's right to receive liquidated damages shall not affect Owner's right to terminate the Contract as provided in these Uniform General Conditions or elsewhere in the Contract Documents, nor shall termination of the Contract release Contractor from the obligation to pay liquidated damages.

ARTICLE 13.

PAYMENTS

13.1 Schedule of Values. Contractor shall submit to OCM and Design Professional for acceptance a Schedule of Values accurately itemizing material and labor for the various classifications of the Work based on the organization of the specification sections and of sufficient detail acceptable to OCM. The accepted Schedule of Values will be the basis for the progress payments under the Contract.

13.1.1 Requirements.

13.1.1.1 No progress payments will be made prior to receipt and acceptance of the Schedule of Values, provided in such detail as required by OCM, and submitted not less than twenty-one (21) days prior to the first request for payment. The Schedule of Values shall follow the order of trade divisions of

the Specifications and include itemized costs for general conditions, costs for preparing Close-Out Documents, fees, contingencies, and Owner cash allowances, if applicable, so that the sum of the items will equal the Contract Sum. As appropriate, assign each item labor and/or material values, the subtotal thereof equaling the value of the Work in place when complete.

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

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

13.2 Progress Payments. Contractor will receive periodic progress payments for Work performed, materials in place, suitably stored on Site, or as otherwise agreed to by Owner and Contractor. Payment is not due until receipt by Owner or its designee of a correct and complete Pay Application in electronic and/or hard copy format as required by the Contract Documents, and certified by Design Professional. Progress payments are made provisionally and do not constitute acceptance of Work not in accordance with the Contract Documents. Owner will not process progress payment applications for Change Order Work until all parties execute the Change Order.

13.2.1 Preliminary Pay Worksheet. Once each month that a progress payment is to be requested, the Contractor shall submit to Design Professional and OCM a complete, clean copy of a preliminary pay worksheet or preliminary pay application, to include the following:

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

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

13.2.1.3 HUB subcontracting plan Progress Assessment Report;

13.2.1.4 Reimbursable expenses incurred solely and directly in support of the Project within one of the following categories:

- Travel expenditures at State of Texas reimbursement rates, provided that reimbursement will not be granted for travel 1) within the Denton-Dallas-Fort Worth metroplex or 2) involving less than 150 miles round-trip; or
- Reproductions, printing, printing supplies, plotting, photographs, renderings, postage, binding, collating, delivery and handling of reports; Drawings and Specifications or other project-related work product other than that used solely in-house by Contractor at actual expense incurred; or
- Fees and associated reimbursable expenses paid to Consultants hired in accordance with prior written approval from Owner.

13.2.1.5 Such additional documentation as Owner may require in the Contract Documents; and

13.2.1.6 Construction payment affidavit.

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

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

13.3 Owner's Duty to Pay. Owner has no duty to pay the Contractor except on receipt by OCM of: (a) a complete Application for Payment certified by Design Professional; and (b) Contractor's updated Work Progress Schedule.

13.3.1 Retainage. Owner will withhold from each progress payment, as retainage, whichever is more of the following three options: (a) five (5) percent of the total earned amount; (b) the amount authorized by law; or (c) as otherwise set forth in the Contract Documents. Retainage will be managed in conformance with Tex. Gov't Code, Chapter 2252, Subchapter B.

13.3.1.1 Contractor shall provide written consent of its surety and concurrence of Design Professional for any request for reduction or release of retainage.

13.3.1.2 At least sixty-five percent (65%) of the Contract, or such other discrete Work phase as set forth in Subsection 15.1.8 or Work package delineated in the Contract Documents, must be completed before Owner can consider a retainage reduction or release, and only if permissible by law.

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

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

13.3.2.1 Defective or incomplete Work not remedied;

13.3.2.2 Damage to Work of a separate Contractor;

13.3.2.3 Failure to maintain scheduled progress;

13.3.2.4 Reasonable evidence that the Work will not be completed within the Contract Time;

13.3.2.5 Persistent failure to carry out the Work in accordance with the Contract Documents;

13.3.2.6 Reasonable evidence that the Work cannot be completed for the unpaid portion of the Contract Sum;

13.3.2.7 Assessment of fines for violations of prevailing wage rate law; or

13.3.2.8 Failure to include the appropriate amount of retainage for that periodic progress payment.

13.3.3 Title.

13.3.3.1 Title to all material and Work covered by progress payments transfers to Owner upon payment.

- 13.3.3.2 Transfer of title to Owner does not: (a) relieve Contractor and its Subcontractors of the sole responsibility for the care and protection of materials and Work upon which payments have been made until final acceptance; (b) diminish the responsibility of Contractor and its Subcontractors to restore any damaged Work; or (c) waive the right of Owner to require the fulfillment of all the terms of the Contract.
- 13.3.4 Contracts with No Payment Bond. For a Contract in any amount less than \$25,000.00, payment will be made in one lump sum at the Final Completion of the Work, including Punchlist items and change orders.
- 13.3.5 No Release. Progress payments to Contractor do not release Contractor or its surety from any obligations under the Contract.
- 13.3.6 Documentation.
- 13.3.6.1 Upon Owner's request, Contractor shall furnish manifest proof of the status of Subcontractor's accounts in a form acceptable to Owner.
- 13.3.6.2 Pay estimate certificates must be signed by a corporate officer or a representative duly authorized by Contractor.
- 13.3.6.3 Provide copies of bills of lading, invoices, delivery receipts, or other evidence of the location and value of such materials in requesting payment for materials. For purposes of Tex. Gov't Code § 2251.021(a)(2), the date the performance of service is complete is the date when ODR approves the Application for Payment.
- 13.4 Time for Payment by Contractor Pursuant to Tex. Gov't Code § 2255.022. Upon Contractor's receipt of payment from Owner, Contractor shall pay Subcontractor the appropriate share of the payment not later than the tenth (10th) day after the date the Contractor receives the payment. The appropriate share is overdue on the eleventh (11th) day after the date Contractor receives the payment.

ARTICLE 14.

CHANGES

- 14.1 Change Orders. A Change Order issued after execution of the Contract is a written order to Contractor, signed by ODR, Contractor, and Design Professional, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time can only be changed by Change Order. A Change Order signed by Contractor indicates his agreement therewith, including the adjustment in the Contract Sum and/or the Contract Time. ODR may issue a written authorization for Contractor to proceed with Work of a Change Order in advance of final execution by all parties in accordance with Section 14.9 or other contract provisions.

- 14.1.1 Owner Ordered Changes. Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, and the Contract Sum and the Contract Time will be adjusted accordingly. All such changes in the Work shall be authorized by Change Order or CCD, and shall be performed under the applicable conditions of the Contract Documents. If such changes cause an increase or decrease in Contractor's cost of, or time required for, performance of the Work, an adjustment to Contract Sum or Contract Time shall be made and authorized by a Change Order.
- 14.1.2 Corrections. It is recognized by the parties hereto and agreed by them that the Drawings and Specifications may not be complete or free from discrepancies, errors, omissions, or inconsistencies, or that they may require changes or additions in order for the Work to be completed to the satisfaction of Owner and that, accordingly, it is the express intention of the parties, notwithstanding any other provisions in this Contract, that any discrepancies, errors, omissions, or inconsistencies in such Drawings and Specifications, or any changes in or additions to Drawings and Specifications or to the Work ordered by Owner and any resulting delays in the Work or increases in Contractor's costs and expenses arising out of such discrepancies, errors, omissions, or inconsistencies shall not constitute or give rise to any claim, demand, or cause of action of any nature whatsoever in favor of Contractor, whether for breach of Contract, or otherwise; provided, however, that Contractor will be entitled to the time or sum stated to be due Contractor in any Change Order approved and signed by all parties, which shall constitute full compensation to Contractor for all costs, expenses, and damages to Contractor.
- 14.2 Unit Prices. If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a Proposed Change Order that application of the agreed unit prices to the quantities of work proposed will cause substantial inequity to Owner or Contractor, the applicable unit prices shall be equitably adjusted as agreed to by the parties and incorporated into a Change Order.
- 14.3 Claims for Additional Costs.
- 14.3.1 Claim with no Requested Change. If Contractor wishes to make a claim for an increase in the Contract Sum not related to a requested change, Contractor shall give Owner and Design Professional written notice thereof within twenty-one (21) days after the occurrence of the event giving rise to such claim, but, in any case before proceeding to execute the Work considered to be additional cost or time, except in an emergency endangering life or property in which case Contractor shall act in accordance with Section 10.3. No such claim shall be valid unless so made. If Owner and Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined as set forth under Article 18. Any change in the Contract Sum resulting from such claim must be authorized by a Change Order.
- 14.3.2 Miscellaneous Claims. If Contractor claims that additional cost is involved because of, but not limited to: (1) any written interpretation of the Contract Documents; (2) any order by Owner to stop the Work pursuant to Article 17 where Contractor was not at fault; or (3)

any written order for a minor change in the Work issued pursuant to Section 14.4, Contractor shall make such claim as provided in Section 14.3.1.

- 14.3.3 Failure to Notify. Should Contractor fail to call to the attention of Owner and Design Professional to discrepancies, errors, omissions, or inconsistencies in the Contract Documents, but claim additional costs for corrective Work after Contract award or after Owner's acceptance of Contractor's Construction Manager-at-Risk guaranteed maximum price, Owner may assume intent to circumvent competitive bidding for the necessary corrective Work. In such case, Owner may choose to let a separate Contract for the corrective Work, or issue a CCD to require performance by Contractor. Claims for time extensions or for extra cost resulting from delayed notice of patent Contract Document discrepancies, errors, omissions, or inconsistencies will not be considered by Owner.
- 14.4 Minor Changes. Design Professional, with concurrence of OCM, will have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or an extension of the Contract Time. Such changes shall be effected by written order which Contractor shall carry out promptly and record on as-built record documents.
- 14.5 Concealed Site Conditions. Contractor is responsible for visiting the Site and being familiar with local conditions such as the location, accessibility, and general character of the Site and/or building. If, in the performance of the Contract, subsurface, latent, or concealed conditions at the Site are found to be materially different from the information included in the Contract Documents, or if unknown conditions of an unusual nature are disclosed differing materially from the conditions usually inherent in Work of the character shown and specified, OCM and Design Professional shall be notified in writing of such conditions before they are disturbed. Upon such notice, or upon its own observation of such conditions, Design Professional, with the approval of ODR, will promptly make such changes in the Drawings and Specifications as deemed necessary to conform to the different conditions. Any increase or decrease in the cost of the Work, or in the time within which the Work is to be completed, resulting from such changes will be adjusted by Change Order.
- 14.6 Extension of Time. All changes to the Contract Time made as a consequence of requests as required under Section 12.6, must be documented by Change Order.
- 14.7 Administration of Change Order Requests. All changes in the Contract shall be administered in accordance with procedures approved by Owner, and when required, make use of such electronic information management system(s) as Owner may employ.
- 14.7.1 Procedures.
- 14.7.1.1 Procedures for administration of Change Orders shall be established by Owner and stated in the Contract Documents.

- 14.7.1.2 No oral order, oral statement, or oral direction of Owner or his duly appointed representative shall be treated as a change under this article or entitle Contractor to an adjustment.
- 14.7.2 Routine Changes. Routine changes shall be formally initiated by Design Professional or Owner by means of a Proposal Request form detailing requirements of the proposed change for pricing by Contractor, or may be initiated by Contractor by means of a Change Order Request form detailing proposed work, pricing, and time. This action may be preceded by communications between Contractor, Design Professional, and OCM concerning the need and nature of the change, but such communications shall not constitute a basis for beginning the proposed Work by Contractor. Except for emergency conditions described below, approval of Contractor's cost proposal by Design Professional and ODR will be required for authorization to proceed with the Work being changed. Owner will not be responsible for the cost of Work changed without prior approval and Contractor may be required to remove Work so installed.
- 14.7.3 Documentation. All proposed costs or time for Change Order Work must be supported by itemized accounting of material, equipment, and associated itemized installation costs in sufficient detail following the outline and organization of the established Schedule of Values, and be supported by documented impact to critical path activities, to permit analysis by Design Professional and ODR using current estimating guides and/or practices. Photocopies of Subcontractor and vendor proposals shall be furnished unless specifically waived by ODR. Contractor shall provide written response to a change request within twenty-one (21) days of receipt.
- 14.7.4 Emergencies. Emergency changes to save life or property may be initiated by Contractor alone with the claimed cost and/or time of such work to be fully documented as to necessity and detail of the reported costs and/or time.
- 14.7.5 Coordination with Schedule of Values. The method of incorporating approved Change Orders into the parameters of the accepted Schedule of Values must be coordinated and administered in a manner acceptable to Owner.
- 14.8 Pricing Change Order Work. The amounts that Contractor and/or its Subcontractor includes in a Change Order for profit and overhead will also be considered by Owner before approval is given. The amounts established hereinafter are the maximums that are acceptable to Owner.
- 14.8.1 Self-Performance. For Work performed by its forces, Contractor will be allowed its actual costs for materials, the total amount of wages paid for labor, plus the total cost of state and federal payroll taxes and of worker's compensation and comprehensive general liability insurance, plus additional bond and builders risk insurance cost if the change results in an increase in the premium paid by Contractor.
- 14.8.1.1 To the total of the above costs, Contractor will be allowed to add a percentage to cover overhead and profit combined. Allowable percentages for overhead and profit on changes will not exceed fifteen percent (15%) if the total sum of

self-performed Work is less than or equal to \$10,000, ten percent (10%) if the total sum of self-performed Work is between \$10,000 and \$20,000 and five percent (5%) if the total sum of self-performed Work is over \$20,000, for any specific change priced.

- 14.8.2 Overhead. Overhead shall be considered to include insurance beyond the scope of Article 8, field and office supervisors and assistants, including safety and scheduling personnel, use of small tools, incidental job burdens, and general home office expenses. No separate allowance will be made.
- 14.8.3 Subcontractor Performed. For subcontracted Work, each affected Subcontractor shall be allowed to figure costs, overhead, and profit as described in 14.8.1 for Self-Performance.
- 14.8.4 Subcontractor Coordination. Subcontractor costs shall be combined and Contractor will be allowed to add a maximum mark-up of ten percent (10%) if the total sum of all subcontracted Work is less than or equal to \$10,000, seven and one-half percent (7.5%) if the total sum of all subcontracted Work is more than \$10,000 and less than or equal to \$20,000, and five percent (5%) if the total sum of all subcontracted Work is more than \$20,000. This markup will apply to subcontractor's coordination of lesser tier subcontractor Work performed.
- 14.8.5 GMP Limitation. For Contracts based on a GMP, the Construction Manager-at-Risk or Design Builder shall NOT be entitled to a percentage mark-up or additional fee on any Change Order Work unless the Change Order increases the GMP. If the GMP increases, the Construction Manager-at-Risk or Design Builder will be allowed additional fees at the rate specified in the Contract.
- 14.8.6 Net Amount. On changes involving both additions and deletions, percentages for overhead and profit will be allowed only on the net addition. Owner does not accept and will not pay for additional Contract cost identified as indirect or consequential damages.
- 14.9 Construction Change Directive (CCD). Owner may issue a written CCD directing a change in the Work prior to reaching agreement with Contractor on the adjustment, if any, in the Contract Sum and/or the Contract Time. Owner retains sole discretion whether or not to issue any CCD. Owner's issuance of a CCD does not require Owner to issue subsequent CO's. Owner and Contractor shall negotiate for appropriate adjustments, as applicable, to the Contract Sum or the Contract Time arising out of a CCD. Contractor shall not submit its costs for CCD Work with its Application for Payment until a CO has been issued. The Parties reserve their rights as to the disputed amount, subject to Article 18.

ARTICLE 15.

PROJECT COMPLETION AND ACCEPTANCE

- 15.1 Closing Inspections.

- 15.1.1 Purpose of Inspection. Inspection is for determining the completion of the Work, and does not relieve Contractor of its overall responsibility for completing the Work in a good and competent fashion, in compliance with the Contract. Work accepted with incomplete Punchlist items, or the failure of Owner or other parties to identify Work that does not comply with the Contract Documents or is defective in operation or workmanship, does not constitute a waiver of Owner's rights under the Contract or relieve Contractor of its responsibility for performance or warranties.
- 15.1.2 Annotation. Any Certificate issued under this Article may be annotated to indicate that it is not applicable to specified portions of the Work, or that it is subject to any limitation as determined by Owner.
- 15.1.5 Substantial Completion Inspection. When Contractor considers the entire Work or part thereof Substantially Complete, it shall notify OCM in writing that the Work will be ready for Substantial Completion inspection on a specific date. Contractor shall include with this notice Contractor's Punchlist to indicate that it has previously inspected all the Work associated with the request for inspection, noting items it has corrected and included all remaining work items with date scheduled for completion or correction prior to final inspection. The failure to include any items on this list does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents. If any of the items on this list prevents the Project from being used as intended, Contractor shall not request a Substantial Completion inspection. Owner and its representatives will review the list of items and schedule the requested inspection, or inform Contractor in writing that such an inspection is premature because the Work is not sufficiently advanced or conditions are not as represented on Contractor's list.
- 15.1.5.1 Prior to the Substantial Completion inspection, Contractor shall furnish a copy of its marked-up Record Documents and a preliminary copy of each instructional manual, maintenance and operating manual, parts catalog, wiring diagrams, spare parts, specified written warranties, and like publications or parts for all installed equipment, systems, and like items as described in the Contract Documents. Delivery of these items is a prerequisite for requesting the Substantial Completion inspection.
- 15.1.5.2 On the date requested by Contractor, or as mutually agreed upon pending the status of the Open Items List, Design Professional, OCM, Contractor, and other Owner representatives as determined by Owner will jointly attend the Substantial Completion inspection, which shall be conducted by OCM or Owner's representative. If Owner and Design Professional determines that the Work is Substantially Complete, Design Professional will issue a Certificate of Substantial Completion to be signed by Design Professional, Owner, and Contractor establishing the date of Substantial Completion and identifying responsibilities for security and maintenance. Design Professional will provide with this certificate a list of Punchlist items (the pre-final Punchlist) for completion prior to final inspection. This list may include items in addition

to those on Contractor's Punchlist, which the inspection team deems necessary to correct or complete prior to final inspection. If Owner occupies the Project upon determination of Substantial Completion, Contractor shall complete all corrective Work at the convenience of Owner, without disruption to Owner's use of the Project for its intended purposes.

15.1.6 Final Inspection. Contractor shall correct or complete all items on the final Punchlist before requesting a Final Completion inspection and Final Payment. Unless otherwise agreed to in writing by the parties, Contractor shall complete this work within thirty (30) days of receiving the final Punchlist. Upon completion of the final Punchlist, Contractor shall notify Design Professional and OCM in writing stating the disposition of each final Punchlist item. Design Professional, Owner, and Contractor shall promptly inspect the completed items. When the final Punchlist is complete, and the Contract is fully satisfied according to the Contract Documents Design Professional will issue a certificate establishing the date of Final Completion. Completion of all Work is a condition precedent to Contractor's right to receive Final Payment.

15.1.7 Additional Inspections.

15.1.7.1 If Owner's inspection team determines that the Work is not Substantially Complete at the Substantial Completion inspection, Owner or Design Professional will give Contractor written notice listing cause(s) of the rejection. Contractor will set a time for completion of incomplete or defective work acceptable to Owner. Contractor shall complete or correct all work so designated prior to requesting a second Substantial Completion inspection. Owner's or Design Professional's failure to include items as causes of rejection does not constitute a waiver of Owner's right under the Contract or relieve Contractor of its responsibility for performance.

15.1.7.2 If Owner's inspection team determines that the Work is not complete at the Final Completion inspection, Owner or Design Professional will give Contractor written notice listing the cause(s) of the rejection. Contractor will set a time for completion of incomplete or defective work acceptable to Owner. Contractor shall complete or correct all Work so designated prior to again requesting a final inspection. Owner's or Design Professional's failure to include items as causes of rejection does not constitute a waiver of Owner's right under the Contract or relieve Contractor of its responsibility for performance.

15.1.7.3 The Contract contemplates three (3) comprehensive inspections: the Substantial Completion inspection, the Final Completion inspection, and the inspection of completed final Punchlist items. The cost to Owner of additional inspections resulting from the Work not being ready for one or more of these inspections is the responsibility of Contractor. Owner may issue a CO deducting these costs from Final Payment. Upon Contractor's written request,

Owner will furnish documentation of any costs so deducted. Work added to the Contract by Change Order after Substantial Completion inspection is not corrective Work for purposes of determining timely completion, or assessing the cost of additional inspections.

- 15.1.8 Phased Completion. The Contract may provide, or Project conditions may warrant, as determined by ODR, that designated elements or parts of the Work be completed in phases. Where phased completion is required or specifically agreed to by the parties, the provisions of the Contract related to closing inspections, occupancy, and acceptance apply independently to each designated element or part of the Work. For all other purposes, unless otherwise agreed by the parties in writing, Substantial Completion of the Work as a whole is the date on which the last element or part of the Work completed receives a Substantial Completion certificate. Final Completion of the Work as a whole is the date on which the last element or part of the Work completed receives a Final Completion certificate.
- 15.2 Owner's Right of Occupancy. Owner may occupy or use all or any portion of the Work following Substantial Completion, or at any earlier stage of completion. Should Owner wish to use or occupy the Work, or part thereof, prior to Substantial Completion, Owner will notify Contractor in writing and identify responsibilities for security and maintenance. Work performed on the premises by third parties on Owner's behalf does not constitute occupation or use of the Work by Owner for purposes of this Article. All Work performed by Contractor after occupancy, whether in part or in whole, shall be at the convenience of Owner so as to not disrupt Owner's use of, or access to, occupied areas of the Project.
- 15.3 Acceptance and Payment.
- 15.3.1 Request for Final Payment. Following the certified completion of all Work, including all final Punchlist items, cleanup, and the delivery of Record Documents, Contractor shall submit a certified Application for Final Payment and include all sums held as retainage and forward to Design Professional and OCM for review and approval.
- 15.3.2 Final Payment Documentation. Contractor shall submit, prior to or with the Application for Final Payment, final copies of all Close-Out Documents, maintenance and operating instructions, guarantees and warranties, certificates, Record Documents, and all other items required by the Contract. Contractor shall submit evidence of return of access keys and cards, evidence of delivery to Owner of attic stock, spare parts, and other specified materials. Contractor shall submit consent of surety to Final Payment form and an affidavit that all payrolls, bills for materials and equipment, subcontracted work, and other indebtedness connected with the Work, except as specifically noted, are paid, will be paid after payment from Owner, or otherwise satisfied within the period of time required by Tex. Gov't Code, Chapter 2251. Contractor shall furnish documentation establishing payment or satisfaction of all such obligations, such as receipts, releases, and waivers of claims and liens arising out of the Contract. Contractor may not subsequently submit a

claim on behalf of Subcontractor or vendor unless Contractor's affidavit notes that claim as an exception.

- 15.3.3 Design Professional Approval. Design Professional will review a submitted Application for Final Payment promptly but in no event later than ten (10) days after its receipt. Prior to the expiration of this deadline, Design Professional will either: 1) return the Application for Final Payment to Contractor with corrections for action and resubmission; or 2) accept it, note approval, and send to Owner.
- 15.3.4 Offsets and Deductions. Owner may deduct from the Final Payment all sums due from Contractor. If the Certificate of Final Completion notes any Work remaining, incomplete, or defects not remedied, Owner may deduct the cost of remedying such deficiencies from the Final Payment. On such deductions, Owner will identify each deduction, the amount, and the explanation of the deduction on or by the twenty-first (21st) day after Owner's receipt of an approved Application for Final Payment. Such offsets and deductions shall be incorporated via a final Change Order, including a CCD as may be applicable.
- 15.3.5 Final Payment Due. Final Payment is due and payable by Owner, subject to all allowable offsets and deductions, on the thirtieth (30th) day following Owner's approval of the Application for Payment. If Contractor disputes any amount deducted by Owner, Contractor shall give notice of the dispute on or before the thirtieth (30th) day following receipt of Final Payment. Failure to do so will bar any subsequent claim for payment of amounts deducted.
- 15.3.6 Effect of Final Payment. Final Payment shall not constitute a waiver of claims by Owner relating to the condition of the Work including those arising from:
- 15.3.6.1 Faulty or defective Work appearing after Substantial Completion (latent defects);
 - 15.3.6.2 Failure of the Work to comply with the requirements of the Contract Documents;
 - 15.3.6.3 Terms of any warranties required by the Contract, or implied by law; or
 - 15.3.6.4 Claims arising from personal injury or property damage to third parties.
- 15.3.7 Waiver of Claims. Acceptance of final payment constitutes a waiver of all claims and liens by Contractor except those specifically identified in writing and submitted to ODR prior to the application for Final Payment.
- 15.3.8 Effect on Warranty. Regardless of approval and issuance of Final Payment, the Contract is not deemed fully performed by Contractor and closed until the expiration of all warranty periods.

ARTICLE 16.
WARRANTY AND GUARANTEE

- 16.1 Contractor's General Warranty and Guarantee. Contractor warrants to Owner that all Work is executed in accordance with the Contract, complete in all parts and in accordance with approved practices and customs, and of the required finish and workmanship. Contractor further warrants that unless otherwise specified, all materials and equipment incorporated in the Work under the Contract are new. Owner may, at its option, agree in writing to waive any failure of the Work to conform to the Contract, and to accept a reduction in the Contract Sum for the cost of repair or diminution in value of the Work by reason of such defect. Absent such a written agreement, Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute and is not waived by any inspection or observation, or lack thereof, by Owner, Design Professional, or others, by making any progress payment or final payment, by the use or occupancy of the Work or any portion thereof by Owner, at any time, or by any repair or correction of such defect made by Owner.
- 16.1.1 Warranty Period. Except as may be otherwise specified or agreed, Contractor shall repair all defects in materials, equipment, or workmanship appearing within one year from the date of Substantial Completion of the Work. If Substantial Completion occurs by phase, the warranty period for that particular Work begins on the date of Substantial Completion of that phase, or as otherwise stipulated on the Certificate of Substantial Completion for that particular Work.
- 16.1.2 Limits on Warranty. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
- 16.1.2.1 Modification or improper maintenance or operation by persons other than Contractor, Subcontractors, or any other individual or entity for whom Contractor is not responsible, unless Owner is compelled to undertake maintenance or operation due to the neglect of Contractor.
- 16.1.2.2 Normal wear and tear under normal usage after acceptance of the Work by Owner.
- 16.1.3 Events Not Affecting Warranty. Contractor's obligation to perform and complete the Work in a good and workmanlike manner in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of defective Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
- 16.1.3.1 Observations, or lack thereof, by Owner and/or Design Professional;
- 16.1.3.2 Recommendation to pay any progress or final payment by Design Professional;

- 16.1.3.3 The issuance of a certificate of Substantial Completion or any payment by Owner to Contractor under the Contract Documents;
- 16.1.3.4 Use or occupancy of the Project or any part thereof by Owner;
- 16.1.3.5 Any acceptance by Owner or any failure to do so;
- 16.1.3.6 Any review by Owner of a Shop Drawing or sample submittal; or
- 16.1.3.7 Any inspection, test or approval by others.

16.2 Separate Warranties. If a particular piece of equipment or component of the Work for which the Contract requires a separate warranty is placed in continuous service before Substantial Completion, the warranty period for that equipment or component will not begin until Substantial Completion, regardless of any warranty agreements in place between suppliers and/or Subcontractors and Contractor and Contractor shall assume any duty to repair not otherwise covered by those warranty agreements. Owner will certify the date of service commencement in the Substantial Completion certificate.

16.2.1 Assumption. In addition to Contractor's warranty and duty to repair, Contractor expressly assumes all warranty obligations required under the Contract for specific building components, systems, and equipment.

16.2.2 Assignment. Contractor may satisfy any such obligation by obtaining and assigning to Owner a complying warranty from a manufacturer, supplier, or Subcontractor. Where an assigned warranty is tendered and accepted by Owner which does not fully comply with the requirements of the Contract, Contractor remains liable to Owner on all elements of the required warranty not provided by the assigned warranty.

16.3 Correction of Defects. Upon receipt of written notice from Owner, or any agent of Owner designated as responsible for management of the warranty period, of the discovery of a defect, Contractor shall promptly remedy the defect(s), and provide written notice to Owner and designated agent indicating action taken. In case of emergency where delay would cause serious risk of loss or damage to Owner, or if Contractor fails to remedy within thirty (30) days, or within another period agreed to in writing, Owner may correct the defect and be reimbursed the cost of remedying the defect from Contractor or its surety.

16.4 Certification of No Asbestos Containing Materials or Work. Contractor shall provide a notarized certification to Owner that all equipment and materials used in fulfillment of its Contract responsibilities are non-Asbestos Containing Building Materials (ACBM). This certification must be provided no later than Contractor's application for Final Payment.

Contractor shall warrant and ensure compliance with the following Acts by Contractor or Contractor's Subcontractors and assigns:

- Asbestos Hazard Emergency Response Act (AHERA-40 CFR 763-99 (7));

- National Emission Standards for Hazardous Air Pollutants (NESHAP-EPA 40 CFR 61, Subpart M-National Emission Standard for Asbestos; and
- Texas Asbestos Health Protection Rules (TAHPR-Tex. Admin. Code Title 25, Part 1, Ch. 295C, Asbestos Health Protection)

ARTICLE 17. SUSPENSION AND TERMINATION

- 17.1 Suspension of Work for Cause. Owner may, at any time without prior notice, suspend all or any part of the Work, if after reasonable observation and/or investigation, Owner determines it is necessary to do so to prevent or correct any condition of the Work, which constitutes an immediate safety hazard, or which may reasonably be expected to impair the integrity, usefulness, or longevity of the Work when completed.
- 17.1.1 Cease Work. Owner will give Contractor a written notice of suspension for cause, setting forth the reason for the suspension and identifying the Work suspended. Upon receipt of such notice, Contractor shall immediately stop the Work so identified.
- 17.1.2 Investigation. As soon as practicable following the issuance of such a notice, Owner will initiate and complete a further investigation of the circumstances giving rise to the suspension, and issue a written determination of the findings. Contractor shall cooperate with Owner's investigation.
- 17.1.3 Outcome. If it is confirmed that the cause was within the control of Contractor, Contractor will not be entitled to an extension of Contract Time or any compensation for delay resulting from the suspension. If the cause is determined not to have been within the control of Contractor, and the suspension has prevented Contractor from completing the Work within the Contract Time, the suspension shall be considered an Excusable Delay and an extension of Contract Time will be granted through a Change Order.
- 17.1.4 Time. Suspension of Work under this provision will be no longer than is reasonably necessary to investigate and remedy the conditions giving rise to the suspension.
- 17.2 Suspension of Work for Owner's Convenience. Upon seven (7) days written notice to Contractor, Owner may at any time without breach of the Contract suspend all or any portion of the Work for its own convenience. When such a suspension prevents Contractor from completing the Work within the Contract Time, it shall be considered an Excusable Delay. A notice of suspension for convenience may be modified by Owner at any time on seven (7) days written notice to Contractor. If Owner suspends the Work for its convenience for more than sixty (60) consecutive days, Contractor may elect to terminate the Contract pursuant to the provisions of the Contract.
- 17.3 Termination by Owner for Cause.

- 17.3.1 Cause. Upon written notice to Contractor and its surety, Owner may, without prejudice to any right or remedy, terminate the Contract and take possession of the Site and of all materials, equipment, tools, construction equipment, and machinery thereon owned by Contractor under any of the following circumstances:
- 17.3.1.1 Persistent or repeated failure or refusal, except during complete or partial suspensions of work authorized under the Contract, to supply enough properly skilled workmen or proper materials;
 - 17.3.1.2 Persistent disregard of laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction, including Owner;
 - 17.3.1.3 Persistent failure to prosecute the Work in accordance with the Contract, and to ensure its completion within the Contract Time;
 - 17.3.1.4 Failure to remedy defective work;
 - 17.3.1.5 Failure to pay Subcontractors, laborers, and material suppliers pursuant to Tex. Gov't Code, Chapter 2251;
 - 17.3.1.6 Persistent endangerment to the safety of labor or of the Work;
 - 17.3.1.7 Failure to supply or maintain statutory bonds or to maintain required insurance pursuant to the Contract;
 - 17.3.1.8 Any material breach of the Contract; or
 - 17.3.1.9 Contractor's insolvency, bankruptcy, or demonstrated financial inability to perform the Work.
- 17.3.2 No Waiver. Failure by Owner to exercise the right to terminate in any instance is not a waiver of the right to do so in any other instance.
- 17.3.3 Notice. Owner may immediately terminate the Contract under the provisions of this Section 17.3 upon written notice to Contractor and Contractor's sureties. Owner may also give notice to Contractor and Contractor's sureties of Owner's intent to terminate the Contract under the provisions of this Section 17.3 at any later date upon written notice to Contractor and its sureties.
- 17.3.4 Cure. Should Contractor or its surety, after having received notice of Owner's intent to terminate at a later date, demonstrate to the satisfaction of Owner that Contractor or its surety are proceeding to correct such default with diligence and promptness, upon which the notice of intent to terminate was based, the notice of intent to terminate may be rescinded in writing by Owner. If so rescinded, the Work may continue without an extension of Contract Time.

- 17.3.5 Failure to Cure. Should Contractor or its surety fail, after having received notice of Owner's intent to terminate, to commence and continue correction of such default with diligence and promptness to the satisfaction of Owner within the date specified by Owner, Owner may arrange for completion of the Work and deduct the cost of completion from the unpaid Contract Sum.
- 17.3.5.1 This amount includes the cost of additional Owner costs such as Design Professional services, other consultants, and contract administration.
- 17.3.5.2 Owner will make no further payment to Contractor or its surety unless the costs to complete the Work are less than the Contract balance, then the difference shall be paid to Contractor or its surety. If such costs exceed the unpaid balance, Contractor or its surety will pay the difference to Owner.
- 17.3.5.3 This obligation for payment survives the termination of the Contract.
- 17.3.5.4 Owner reserves the right in termination for cause to take assignment of all the Contracts between Contractor and its Subcontractors, vendors, and suppliers. Owner will promptly notify Contractor of the contracts Owner elects to assume. Upon receipt of such notice, Contractor shall promptly take all steps necessary to effect such assignment.
- 17.3.6 Conversion to Termination for Convenience. In the event that any termination of the Contract for cause under this Section 17.3 is later determined to have been improper, the termination shall automatically convert to a termination for convenience of Owner and Contractor's recovery for termination shall be strictly limited to the payments allowable under Subsection 17.4.3.
- 17.4 Termination for Convenience of Owner. Owner reserves the right, without breach, to terminate the Contract prior to, or during the performance of the Work, for any reason. Upon such an occurrence, the following shall apply:
- 17.4.1 Notice. Owner will immediately notify Contractor and Design Professional in writing, specifying the reason for and the effective date of the Contract termination. Such notice may also contain instructions necessary for the protection, storage, or decommissioning of incomplete Work or systems, and for safety.
- 17.4.2 Contractor Action. Upon receipt of the notice of termination, Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due at that point in the Contract:
- 17.4.2.1 Stop all work.
- 17.4.2.2 Place no further subcontracts or orders for materials or services.
- 17.4.2.3 Terminate all subcontracts for convenience.

- 17.4.2.4 Cancel all materials and equipment orders as applicable.
- 17.4.2.5 Take action that is necessary to protect and preserve all property related to the Contract which is in the possession of Contractor.
- 17.4.3 Contractor Remedy. When the Contract is terminated for Owner's convenience, Contractor may recover from Owner payment for all Work completed including the corresponding pro rata portion of Contractor's overhead and profit. Contractor may not claim lost profits on other work or lost business opportunities.
- 17.5 Termination by Contractor. If the Work is stopped for a period of ninety (90) days under an order of any court or other public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of Contractor or Subcontractor or their agents or employees or any other persons performing any of the Work under a contract with Contractor, then Contractor may, upon thirty (30) additional days written notice to ODR, terminate the Contract and recover from Owner payment for all Work completed including the corresponding pro rata portion of Contractor's overhead and profit, but not lost profits on other work or lost business opportunities. If the cause of the Work stoppage is removed prior to the end of the thirty (30) day notice period, Contractor may not terminate the Contract.
- 17.6 Settlement on Termination. When the Contract is terminated for any reason, at any time prior to one hundred eighty (180) days after the effective date of termination, Contractor shall submit a final termination settlement proposal to Owner based upon recoverable costs as provided under the Contract. If Contractor fails to submit the proposal within the time allowed, Owner may determine the amount due to Contractor because of the termination and pay the determined amount to Contractor as final payment.

ARTICLE 18.

DISPUTE RESOLUTION

- 18.1 Contracts Less Than \$250,000. The dispute resolution process provided for in Texas Government Code, Chapter 2260, shall be used by Contractor or Design Professional to attempt to resolve any claim for breach of Contract made by Contractor or Design Professional that is not resolved under procedures described throughout the Uniform General Conditions or any Supplementary or Special Conditions of the Contract, *where the amount in controversy is less than \$250,000.*
- 18.2 Contracts \$250,000 or Greater. Contractor or Design Professional and Owner shall use the following dispute resolution process prior to initiating any litigation or filing suit in a court of competent jurisdiction.
- 18.2.1 Mediation. If a dispute arises out of or relates to the Contract or the breach thereof in which the amount in controversy is \$250,000 or greater, and if the dispute cannot be settled through negotiation, the parties agree first to try to settle the dispute by mediation using the procedures specified in this section prior to the commencement of any legal action.

The parties commit to participate in the proceedings in good faith with the intention of resolving the dispute if at all possible.

- 18.2.1.1 The party seeking to initiate mediation of a dispute shall give written notice to the other party describing the nature of the dispute, the initiating party's claim for relief and identifying one or more individuals with authority to settle the dispute on such party's behalf. The party receiving such notice shall have five (5) business days to designate by written notice one or more individuals with authority to settle the dispute on such party's behalf.
- 18.2.1.2 The parties shall then have ten (10) business days to submit to each other a written list of acceptable qualified mediators not affiliated with any of the parties. The mediator shall possess the qualifications required under Civil Practice and Remedies Code, § 154.052, be subject to the standards and duties prescribed by Civil Practice and Remedies Code, §154.053, and have the qualified immunity prescribed by Civil Practice and Remedies Code, §154.055, if applicable. The parties shall mutually agree on the mediator.
- 18.2.1.3 In consultation with the mediator selected, the parties shall promptly designate a mutually convenient time and place for the mediation, and unless circumstances require otherwise, such time to be not later than (45) days after selection of the mediator.
- 18.2.1.4 The parties agree to participate in the mediation to its conclusion. The mediation shall be terminated (i) by the execution of a settlement agreement by the parties, (ii) by a declaration of the mediator that the mediation is terminated, or (iii) by a written declaration of a party to the effect that the mediation process is terminated at the conclusion of one full day's mediation session. Even if the mediation is terminated without a resolution of the dispute, the parties agree not to terminate negotiations and not to commence any legal action or seek other remedies prior to the expiration of five (5) days following the mediation. Notwithstanding the foregoing, any party may commence litigation within such five (5) day period if litigation could be barred by an applicable statute of limitations or in order to request an injunction to prevent irreparable harm.
- 18.2.1.5 The parties shall share the cost of the mediation process equally although each party's attorneys and witnesses or specialists are the direct responsibility of each party and their fees and expenses shall be the responsibility of the individual parties.
- 18.2.1.6 The entire mediation process is confidential, and no stenographic, visual or audio record shall be made. All conduct, statements, promises, offers, views and opinions, whether oral or written, made in the course of the mediation by any party, their agents, employees, representatives or other invitees and by the

mediator are confidential and shall, in addition and where appropriate, be deemed to be privileged and shall not be discoverable or admissible for any purpose, including impeachment, in any litigation or other proceeding involving the parties.

- 18.3 Owner Retained Rights. Nothing herein shall hinder, prevent, or be construed as a waiver of Owner's right to seek redress on any disputed matter in a court of competent jurisdiction.
- 18.4 No Waiver. Except as may be expressly and specifically provided otherwise by Chapter 114, Texas Civil Practice & Remedies Code, nothing herein shall be construed as a waiver of sovereign immunity; nor constitute or be construed as a waiver of any of the privileges, rights, defenses, remedies, or immunities available to the State of Texas or the University of North Texas System.
- 18.5 No Attorney's Fees. In any litigation between Owner and Contractor or Design Professional arising from the Contract or Project, neither party will be entitled to an award of legal fees or costs in any judgment regardless of which is deemed the prevailing party.
- 18.6 Interest. Pre-judgment and post-judgment interest shall be limited to the rate of one and a half percent (1.5%) per annum.

ARTICLE 19.

MISCELLANEOUS

- 19.1 Right to Audit. Owner, or any of its duly authorized auditors or representatives, shall during regular business hours and upon reasonable notice have access to and the right to examine, and be permitted to audit and copy, any directly pertinent books, documents, papers, and records of Contractor, including, without limitation, complete documentation supporting accounting entries, books, correspondence, instructions, drawings, receipts, subcontracts, Subcontractor's quotes, proposals, purchase order, vouchers, memoranda, schedules, electronic data, pictures, videos, logs, minutes, notes, reports and other data relating to the Project. Further, Contractor or Design Professional agree to include in all subcontracts a provision to the effect that Subcontractor agrees that Owner or any of its duly authorized representatives shall have access to and the right to examine any directly pertinent books, documents, papers, and records of such Subcontractor relating to any claim arising from the Contract and subcontract, whether or not the Subcontractor is a party to the claim. The period of access and examination described herein shall continue until the later of three years after Final Payment or final disposition of any disputes, claims, litigation, or appeals arising out of the Contract.
- 19.2 Supplementary or Special Conditions. When the Work contemplated by Owner is of such a character that the foregoing Uniform General Conditions of the Contract cannot adequately cover necessary and additional contractual relationships, the Contract may include Supplementary General or Special Conditions as described below:
- 19.2.1 Supplementary Conditions. Supplementary Conditions may describe the standard procedures and requirements of contract administration. Supplementary Conditions may

expand upon matters covered by the Uniform General Conditions, where necessary, provided the expansion does not weaken the character or intent of the Uniform General Conditions. Supplementary Conditions are of such a character that it is to be anticipated that Owner may normally use the same, or similar, conditions to supplement each of its several projects.

19.2.2 Special Conditions. Special Conditions shall relate to a particular Project and be unique to that Project but shall not weaken the character or intent of the Uniform General Conditions.

19.3 Federally Funded Projects. On federally funded projects, Owner may waive, suspend, or modify any provision in these Uniform General Conditions which conflicts with any federal statute, rule, regulation, or procedure, where such waiver, suspension, or modification is essential to receipt by Owner of such federal funds for the Project. In the case of any Project wholly financed by federal funds, any standards required by the enabling federal statute, or any federal rules, regulations, or procedures adopted pursuant thereto, shall be controlling.

19.4 Internet-based Project Management Systems. At its option, Owner may administer its design and construction management through an Internet-based management system. In such cases, Contractor shall conduct communication through this media and perform all Project related functions utilizing this database system. This includes correspondence, submittals, Requests for Information, vouchers, or payment requests and processing, amendment, Change Orders, and other administrative activities.

19.4.1 Accessibility and Administration.

19.4.1.1 When used, Owner will make the software accessible via the Internet to all Project team members.

19.4.1.2 Owner shall administer the software.

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

19.5 Computation of Time. In computing any time period set forth in this Contract, the first day of the period shall not be included, but the last day shall be.

19.6 Survival of Obligations. All representations, indemnifications, warranties and guarantees made in accordance with the Contract Documents will survive final payment, completion and acceptance of the Work, as well as termination for any reason. All duties imposed upon the Contractor by reason of termination, including without limitation the duty to assign subcontracts and contracts with vendors and suppliers, shall likewise survive the termination of the Contract.

19.7 No Waiver of Performance. The failure of either party in any instance to insist on the performance of any of the terms, covenants or conditions of the Contract Documents, or to exercise any of the rights granted thereunder, shall not be construed as waiver of any such term, covenant, condition or right with respect to further performance.

- 19.8 Governing Law and Venue. This Contract shall be governed by the laws of the State of Texas. Venue for any suit arising from the Contract will be in a court of competent jurisdiction subject to the mandatory venue statute set forth in § 105.151 of the Texas Education Code, or if mandatory venue is not applicable in the county in which the Project is located.
- 19.9 Captions and Catch Lines. The captions and catch lines used throughout the Uniform General Conditions and elsewhere in the Contract Documents are for ease of reference only and have no effect on the meaning of the terms and conditions set forth herein.
- 19.10 Independent Contractor Status. The Contract Documents create an independent contractor relationship between the Owner and Contractor and neither party's employees or contractors shall be considered employees, contractors, partners or agents of the other party.
- 19.11 No Third-Party Beneficiaries. The parties do not intend, nor shall any clause be interpreted to create in any third party, any obligations to, or right of benefit by, such third party under these Contract Documents from either the Owner or Contractor.
- 19.12 Child Support Obligor. Notwithstanding anything to the contrary within the Contract Documents, it is understood and agreed between the parties that in accordance with the laws of the State of Texas, a child support obligor who is more than thirty (30) days delinquent in paying child support, and a business entity in which an obligor is a sole proprietor, partner, shareholder, or owner with an ownership interest of at least twenty-five percent (25%), is not eligible to receive payments from state funds under a contract to provide property, materials or services until all arrearages have been paid or the obligor is in compliance with a written repayment agreement.
- 19.13 No Assignment. This Contract may not be assigned by either party without the prior written consent of the other, except either party may, upon notice to the other party but without the other party's consent, assign this Contract to a present or future affiliate or successor, provided that any such assignment by Contractor shall be contingent on Owner's determination that the assignee is qualified to perform the Work, is in good standing with the State of Texas and otherwise eligible to do business with the State of Texas.
- 19.14 Severability. If any provision, sentence, clause or article of this Contract is found to be invalid or unenforceable for any reason, the remaining provisions shall continue in effect as if the invalid or unenforceable provision were not in the Contract. All provisions, sentences, clauses and articles of this Contract are severable for this purpose.
- 19.15 Parties Bound. Execution of this Contract by each party binds the entity represented as well as its employees, agents, successors and assigns to its faithful performance.
- 19.16 Public Information. Owner shall release information to the extent required by the Texas Public Information Act and other applicable law. If requested, Contractor shall make public information available to Owner in an electronic format.
- 19.17 Entire Agreement. These Contract Documents supersede in full all prior discussions and agreements (oral and written) between the parties relating to the subject matter hereof and constitute the entire agreement.

DESIGN & CONSTRUCTION GUIDELINES

The University of North Texas

March 28, 2018

DESIGN & CONSTRUCTION GUIDELINES

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INTRODUCTION

This handbook, ***Design and Construction Guidelines***, is prepared to assist Architects and Engineers in the design and construction of physical facilities for The University of North Texas. The information collected in this manual is based upon past experience with design practices, maintenance issues, construction methods, equipment and materials which have provided the quality of construction the University requires.

These guidelines are designed to supplement the policies and the procedures of the Texas State Building Commission, the latest edition of the UNT System Uniform General Conditions and the Supplementary General Conditions for Construction and Design Contracts. It is assumed that all professionals providing design services for the University are familiar with these policies and procedures.

It is recognized that particular project situations shall, in the judgment of the Designer, warrant deviations from these standards. We welcome any such recommendations and shall consider each of them carefully. However, unless the University gives specific approval for alternatives prior to implementation, the Designer must comply with the guidelines in this publication.

We also welcome recommendations for additions or improvements of this document from users. Please submit any comments or suggestions to the Director of Facilities Planning, Design & Construction.

The information in this manual is organized to follow the sequence of the design process. The first section outlines the **Planning Procedures** which are followed for every University capital project, and it is organized by the phases of the planning process: Schematic Design, Design Development, Construction Documents, Bidding, Construction, and Project Close-out.

The second section contains **Design Guidelines** that represent the University's expectations regarding the design of the specific elements and systems typically involved in University projects.

The third section, **The Construction Contract**, outlines specific requirements pertaining to the nature of the construction contract and to the conduct of construction work at the University.

The fourth section, **Selection and Evaluation Policy**, contains information about the procurement of Architectural and Construction Services. The University of North Texas has established these policies in order to provide fair and equitable evaluation of the firms that are soliciting these opportunities.

The fifth section collects **Standard Details** that are referenced throughout the manual.

A. PLANNING PROCEDURES

1.0 Designer's Relationship to the University

The Designer should understand that all UNT Campus Buildings are under the authority of the University President. UNT Facilities is responsible for the operations and maintenance of all non-Auxiliary buildings and therefore should be considered the "owner" – even though project planning and design for the University is a cooperative procedure involving many persons within the UNT System, Campus, State Agencies and other reviewing authorities.

At any point in time there is a single representative assigned to each project. This is the person through whom the Designer is required to work and to whom the Designer should turn for authoritative information on all matters and questions involving the University. Many other individuals and groups within the University will participate in the capital improvement planning process, but the Designer should not act on any information other than that received from, or coordinated through, the designated project representative – herein referred to as the Project Manager.

The Project Manager is the contact for all information during the initial phases of a project--the programming phase, the designer selection, the design, and the bidding phases. This individual coordinates and monitors all project activities for the University. The Designer shall designate an individual within his or her firm who is directly responsible for the project, and who can be contacted on any matter pertaining to the project.

2.0 Initial Planning Conference

An initial planning conference will be scheduled to discuss general requirements of the program and procedures for facilitating the Designer's work. This conference is held as soon as possible after selection of a Designer for the project. The Designer's professional consultants for plumbing, HVAC, and electrical design should attend this conference as necessary.

3.0 Site & Existing Conditions Information

The University shall furnish topographic surveys and other existing information for new construction; including record drawings for remodeling projects. The University cannot warrant that this information is correct. The Designer shall supplement this information with his or her own field surveys and measurements. The Designer is responsible for reporting to the owner any inaccuracy in the information shown on the construction contract drawings.

3.1 Survey Criteria

Surveyors contracted by the University shall comply with the following guidelines:

- A. Digital Data Requirements
 - Provide AutoCAD format electronic file with each feature, e.g., sidewalks, roads, buildings, fences, trees, etc, on separate layers.
 - Surveys must be referenced to one of the three UNT GIS benchmarks. UNT Campus Facilities will provide the metadata as needed.
 - Coordinate system must be State Plane 4202 TXNC Zone, with units of feet. Elevations must be based on GEOID03 NAVD88 as the datum. Latitude and Longitude should be based on NAD 83 (CORS96) (EPOCH:2002.0) as the datum.
 - Data attribute formats must be in Excel, DBF4, or tab/comma delimited text files.
 - Pertinent metadata must be provided.
- B. Length of each property line
- C. Measure angle at each property corner
- D. Iron pin set at each corner
- E. Indicate any corner radius
- F. Location of any existing buildings, driveways, sidewalks, etc.
- G. Location of any fences or structures within 50' outside of property line
- H. Indicate any easements, right of ways, and building set back lines
- I. Establish permanent benchmark location and note on survey
- J. Width of street
- K. Type of pavement for each street
- L. Height and type of curb and show existing curb cuts
- M. Width and type of sidewalks
- N. Location and size of gas, water, and other know underground utilities including storm and sanitary sewer lines with flow lines and top of manholes
- O. Location of existing gas and water meters
- P. Show catch basins with size and elevation of grating and flow line

- Q. Location of fire hydrants, traffic signs, street light, power and telephone poles, guy wires, etc.
- R. Location of trees and type and size
- S. Show depth and size of basements
- T. Give elevations in 1' intervals. Show any unusual grade changes
- U. If a drainage ditch is along any side of the property line, give elevations of bottom and crest of ditch
- V. Coordinate with Facilities Maintenance for locations and tie-ins of underground utilities

3.2 Geotechnical Engineer (if employed by Designer)

In addition to providing the normal sub-surface investigation written report, the Geotechnical Engineer is thoroughly involved in the design process and shall complete the following tasks prior to submittal of Construction Documents.

- A. Review and edit the project's earthwork specifications, final site and structural foundation drawings for compliance with the soils report recommendations.
- B. Estimate the quantities of weathered and bedrock excavation for bid purposes.
- C. Any special analysis or report as required by special circumstances, situations or projects.

4.0 Project Development Schedule

The Designer shall prepare and submit a proposed Project Development Schedule to the Project Manager for approval. This schedule is submitted within twenty-one (21) calendar days of the date of the Design Contract, and it shall incorporate the end-of-phase milestone dates stipulated in the Design Contract. In addition, this schedule shall show:

- A. The start dates and duration of each major phase of design.
- B. The duration and completion dates of each design review period, which are required to maintain the project schedule. For most projects, the normal design review periods are: Schematic Design Review (ten calendar days), Design Development Review (two weeks), Construction Documents Review (thirty calendar days) and Final Review and Approval (two weeks).
- C. The projected duration and completion dates of other project-related activities, such as funding decisions, surveys, sub-surface investigations and zoning approvals.
- D. The estimated duration of the construction contract award process and the construction period.

The Project Development Schedule is up-dated and re-submitted with each end-of-phase submittal described below.

5.0 Review of Design

The Designer is required to make submittals and presentations, and to participate in review conferences at various stages of the project planning process.

- A. Presentations and Review Conferences
During the design process, the Designer is expected to make presentations to various groups who must review and approve the proposed project designs. These groups include the user group, various groups of UNT System and Campus Facilities, other officials of the University, and the Board of Regents of the University. The Project Manager schedules all conferences and presentations.
- B. Schematic Design Conferences
Normally several conferences precede the approval of Schematic Design documents. Conferences are required to clarify the program of requirements, to review and discuss the Designer's design proposals, to discuss the Designer's evaluation as to whether the program requirements are achievable within the project budget and to assist in the definition of alternates which shall become an important component of the Construction Documents.
- C. Presentation to Board of Regents
The Designer may be asked to make a presentation of the project design to the Facilities Committee of the Board of Regents for their comments and approval. The following exhibits are typically required for these presentations: A simple scale model showing the siting and vicinity of the project (except for renovation projects), the building floor plans, the exterior elevations and possibly a sketch or rendering. These presentations are scheduled to occur as early as possible in the Design Development Phase of project.
- D. End-of-Phase Reviews
At least one conference is devoted to the end-of-phase reviews of the Design Development submittal and Construction Documents submittal for the purpose of discussing any areas of concern that arise during the review process. The Designer and the Designer's primary consultants are expected to attend these review conferences.

5.1 Conference Memoranda

The Designer is expected to record the content of all conferences and, within seven (7) days, provide a memorandum containing a complete summary of the decisions and actions that will affect the project. This memorandum is distributed to all conferees.

5.2 Submittals for Outside Review

Local building permits are not required. The designer shall submit plans to all appropriate agencies for review and approval, except as noted below. The owner shall submit plans and documentation to the Texas Higher Education Coordinating Board for review and approval. The Designer is required to provide the background and technical materials necessary to support

these submittals; including a storm water management plan, erosion control plan, and/or traffic control plan. The Designer shall attend public hearing(s) related to these submittals, as required.

5.3 Submittals for University Review

In addition to the various State and Local agencies that may exercise plan review authority over the project, various departments within the University also participate in plan reviews at stages specified in the Designer's contract. The University's Project Manager shall coordinate these reviews. The review team consists of the following UNT departments. Though individual titles may change, the current review team is as follows:

System Facilities

| | |
|---|---------------------------|
| Associate Vice Chancellor | Project Manager/Architect |
| Director of System Planning and Development | Construction Manager |

Campus Facilities

| | |
|--|--|
| Vice President for Facilities | Grounds Maintenance Manager |
| <u>Dir. Facilities Planning, Design & Construction</u> | Door Systems |
| Director of Facilities Maintenance | Project Coordinator (for furniture and finishes) |
| <u>Structural Maintenance Manager</u> | |
| Maintenance Manager | |
| Utilities Manager | |
| Fire Systems Supervisor | Custodial Services Manager |

Police, Parking & Transportation

Dir/Chief, Police & Traffic

Communications & Information Technology

| | |
|---|----------------------|
| Communications Managers (Telecom & Datacom) | |
| Dir Communications Services | Computer Systems Mgr |

Risk Management & Environmental Services

Dir Risk Mgmt/Environmental Services
Asst Dir Risk Mgmt & Environmental Services Life Safety

Classroom Support Services

Dir. Micro Computer Maintenance/ Classroom Support

Office of Disability Accommodation

Disabilities Accommodations Dir.

Departmental Dean (if it is an academic project) & Primary Departmental Contact

The University review team will submit comments as necessary. Upon receipt of the review comments, the Designer shall revise the Design Documents in accordance with the review comments. The Designer shall prepare a written summary of his or her response to the University's review, and the Designer shall provide a copy of this to the Project Manager within two weeks of the Designer's receipt of the review comments.

The Designer shall not proceed to the next phase before receiving written approval of the previous phase from the University's Project Manager.

5.4 Payments to Designer

The Designer shall submit invoices to the Project Manager for approval. Invoice formats shall comply with the following format. The Designer may submit invoices on a monthly basis for up to 90% completion of design phase. The remaining 10% is invoiced upon written approval of design submission.

6.0 Project Development Phases

6.1 Schematic Design Phase

At the beginning of the Schematic Design Phase, the Designer shall confer with the Project Manager and the users to review the program and establish the project requirements. Based on an approved summary of the project requirements, the Designer shall prepare a Schematic Design illustrating the recommended implementation of the program and project requirements.

The Designer is expected to involve the assigned Project Manager – and through that individual, the user group and other appropriate members of the University's Facilities – during the development of the schematic design. The Designer is expected to explore a range of alternatives that best implement the program and project requirements.

Schematic Design Submittal

The Schematic Design Submittal to the University shall be per contract or as discussed prior to submittal. Include the following information as a minimum:

- A. Show proposed walkways, vehicular and service access on the site plan. Include existing landscape.
- B. Identification of each room or space by functional name on floor plans.
- C. An updated Project Design Schedule.

6.2 Design Development Phase

Based upon the approved schematic submittal, the Designer shall prepare the Design Development documents.

Design Development Submittal

The Design Development Submittal to the University shall be per contract or as discussed prior to submittal. Include the following information as a minimum:

- A. Site drawing(s) showing adjacent buildings, significant existing features including existing landscaping, site utilities, proposed construction limits, proposed site improvements, and other site data furnished on the previous submittal.
- B. Floor plans shall identify each room or space by name and number. All room numbers must reflect the permanent room numbering signage system. The University will establish the room numbering system prior to committing to the drawings (See Section B, 5.11)
- C. Elevation drawings of every exterior side of each structure showing materials, features, openings, floor and rooflines, grade lines, footings, and everything exposed to view above eaves or parapets. Show partial elevations of adjacent campus buildings on elevation drawings.
- D. Section(s) through the entire building selected to best show the relationships of architectural and engineering features.
- E. A room finish schedule showing the type of material to be used for floors, walls, and ceilings. The proposed interior finishes concept shall be presented to the University for approval. The University must approve all finish materials selections prior to their specification by the Designer. This shall include concepts for the following:
 - All floor material types and locations.
 - All wall finish materials and locations.
 - Identify exterior materials, including wood species, brick and/or stone.
 - Identify millwork locations and materials
 - Identify ceiling materials and locations.
- F. Equipment and furniture layouts for all rooms indicating the adequacy of the arrangement and configuration of such rooms for planning telephone and data requirements.
- G. An outline specification indicating materials, types of construction, and equipment to be used. Include a description of each plumbing, HVAC, fire protection and electrical system design concept. Include elevator characteristics, and include the names of proposed manufacturers of HVAC, plumbing, fire protection, special systems, electrical equipment and fixed equipment.
- H. The maximum hot water and chilled water demand--for the purpose of determining whether the existing heating and cooling systems will be adequate to meet anticipated demand or whether modifications to these systems or a new stand alone system will be required.
- I. A tabulation of building data, including square feet of floor area, cubic content, roof deck "U" factor, heating load in BTUH, air conditioning in tons, plumbing load in drainage fixture units, water demand in peak GPM, electrical loads in KVA, the design live loads and number of occupants.
- J. An up-dated Project Design Schedule.

6.3 Construction Documents Phase

Based upon the approved Design Development Submittal and written notice to proceed, the Designer shall prepare the Construction Documents. As stated in the Designer's contract, the building design must be in compliance with all applicable codes, laws, ordinances, and regulations.

- A. Owner's reviews of Working Drawings are required at stages per the Designer's contract. See Section B, 5.3.
- B. At 50% and 100% Final Construction Documents, provide the Project Manager with electronic floor plans in AutoCAD format that include electrical, data, and intended furniture layout.
- C. Final Construction Documents Submittal
The Final Construction Documents shall be prepared as per contract or as discussed prior to submittal on sheets specified
 - The first sheet of drawings shall include the following information: a tabulation of building data, including square feet of floor area, cubic content, roof deck "U" factor, maximum heating load in BTUH, air conditioning in tons, plumbing load in drainage fixture units, water demand in peak GPM, electrical loads in KVA, the design live loads and applicable codes, laws, ordinances, regulations and number of occupants.
 - Provide a "color board" (2 copies) accurately depicting the interior and/or exterior materials, colors and finishes used on the project as well as their location within the project. As previously stated, all material selections must be reviewed and approved by the University prior to submittal of a "color board."
 - An up-dated Project Design Schedule.
- D. Specifications – UNT has limited storage space so attic stock shall be limited to certain items only. All new buildings are required to provide a storage room specifically for permanent storage of attic stock materials. Please reference Appendix J for attic stock requirements.

6.4 Bidding Phase

The Designer, in consultation with the project manager, shall establish the date for receipt of bids. A period of four to six weeks is normally required between the publication of the advertisement for bids and the receipt of bids.

Newspaper notice of bidding the project is not required by law, although the Owner may choose to do so. The University will advertise in the Electronic State Business daily as required by law. **The Designer will place adequate copies of all bid documents in the Dallas - Fort Worth metropolitan area plan rooms.** The following plan rooms are to be used:

DFW Minority Business Development Council
1000 Stemmons Tower South
2720 Stemmons Freeway
Dallas, Texas 75207-2212
(214) 630-0747

CMD/AGC Plan Room
11102 Stemmons Freeway, Suite 101
Dallas, Texas 75229
(972) 484-2030

Dodge FW McGraw Hill Construction Information
1341 W. Mockingbird Lane
Dallas, Texas 75247

In addition, the Designer will notify general contractors known to the Designer or the University to be capable of doing the project. Written invitations to bid will state the name and location of the project, the owner, the designer and the pre-bid and bid opening dates, times and location.

See UNT/HSP Policy in Section C, 10.0

A pre-bid conference will be scheduled to occur after bid documents have been available long enough for bidders to review and develop questions, but far enough before bid opening that bidders can adjust to a formal addendum from the designer answering all questions raised at the pre-bid.

The Designer shall provide bid tabulation forms and conduct the bid opening. Designer will advise the University on the implication of any irregularities or unexpected results of the bidding.

7.0 Construction Phase

The Construction Phase begins with the University's receipt of the fully executed copy of the construction contract(s), performance bond, payment bond and insurance certificate. Upon approval of insurance coverage by the University of North Texas Risk Manager, the University will send a Notice To Proceed to the Contractor.

7.1 Pre-Construction Conference

The Designer, in consultation with the Project Manager, shall arrange for a pre-construction conference. The purpose of this meeting is to review the requirements of the project and to provide a framework for the coordination of all construction activities. The Designer shall invite all contractors, the University's Construction Manager and all other interested parties to this conference. The Designer shall distribute copies of meeting minutes to the parties outlined above.

7.2 Periodic Observations

The Designer, where required by the design contract, shall provide liaison and necessary observation of the project to ensure compliance with plans and specifications. The University's Construction Manager will also observe work progress periodically and will provide comments to the Designer through the Project Manager.

7.3 Submittal Review

The University's Construction Manager will be responsible for coordinating in-house reviews of submittals with the necessary individuals at the University. **Facilities Maintenance shall have an opportunity to review submittals before final is approved.** After University approval, the Designer shall provide the Construction Manager with a copy of the final approved submittal. The Construction Manager will also coordinate material samples or mock-ups requiring University approval, including, if necessary, appropriate mock-up location.

7.4 Project Close-out Responsibilities

The Designer shall provide the following project closeout services upon completion of the project:

- A. Assemble and forward closing papers.
- B. Computation and disposition of liquidated damages (if required).
- C. Issue Certificate of Substantial Completion & Compliance including punch list / completion list.

- D. Provide Electronic CAD Format Record Drawings as stated in Contract. The drawings should accurately reflect the project as constructed including finish materials, colors and any other architectural and MEP changes that occurred during construction.
- E. Provide Facilities a separate list of all major fixtures & finishes (i.e., lights, wall paints, flooring, laminates, etc.) installed as part of the project.
- F. Complete construction documents including as-built drawings prepared and provided to University archivist.
- G. Attic Stock – Please reference Appendix J for attic stock procedures.

End of Planning Procedures

B. DESIGN GUIDELINES

1.0 Designer's Relationship to the University

1.1 Campus Design

The underlying goal of the architectural design of any new construction is to enhance and unify the campus. New construction should relate to adjacent buildings in character, mass, dimension, scale, building materials and fenestration.

The Designer must consider the impact of new construction on the existing campus infrastructure. This includes careful consideration of the project's utility, pedestrian, parking, vehicular access and open space requirements. The project development must be consistent with the vehicular/pedestrian open space and utility systems proposed in the long-range plan.

The design must also consider the long term health and retention of mature tree specimens on campus. Do not design any utility lines to be installed under tree canopies. If any trenching absolutely must occur under ANY tree, then utilize AIR SPADE trenching technology, offered by Root Flare Services of Dallas to open the trench.

For projects on peripheral campuses, such as UNT Discovery Park and UNT Fort Worth Health Science Center, refer to the Supplemental Design Standards in Appendix A.

1.2 Drawings and Specifications Formats

Drawings will be prepared on 30" x 42", black line on white paper, or as specified in the Designer's contract. All specifications shall be prepared in bound form.

Drawings will follow the CAD Standards implemented by Facilities Planning, Design and Construction. See Appendix H for information.

1.3 Design Within Available Funds

The Total Project Budget of a Capital Improvement Project includes the project construction cost, the design fee, a construction contingency fee and a number of project reserves. The reserves respond to local requirements and requirements established by the University. Among the University reserves itemized in the project budget are Utilities, Testing, Air Balance, Construction Supervision, Telecommunications and Moveable Equipment. These reserves are excluded from the funding allotted to the designer for construction.

Designers are directed and required to base their designs upon the budgeted funds available. The Designer shall continually monitor program requirements and cost estimates to assure that the project is designed within the available funds and does not deviate from the quality standards established herein. If at any time the Designer believes that satisfying the stated program requirements at the level of quality desired will exceed the budgeted funds available, then s/he must inform the University's Project Manager without delay.

1.4 Building Codes & Project Standards

The following building codes must be followed for all UNT projects. The Board of Regents adopts the latest edition of the International Building Code for all new construction and major renovations and the current edition of the NFPA 101 Life Safety Code used in a secondary role as a guide to interpretation of the IBC

(NOTE – latest edition of codes/standards at commencement of project schematic design apply unless otherwise noted below):

- International Building Code (IBC)
- International Mechanical Code (IMC)
- International Plumbing Code (IPC)
- International Energy Conservation Code (IECC)
- International Existing Building Code (IEBC)
- International Fire Code (IFC)
- National Electric Code (2014) or other applicable electric code
- Texas State Energy Code
- Texas Accessibility Standards
- ADA (Americans with Disabilities Act)
- NFPA 101 Life Safety Code
- NFPA 70E Arc Flash Safety (2017)
- ASTM 17.1-2007 Elevator and Escalator

NOTE – Please list all applicable codes on cover sheet of construction documents.

The following project standards apply to all projects managed by UNTS, UNT and Non-UNTS Builder/Developer on the UNT campus:

UNT Master Plan (Latest Edition)
 UNT Design & Construction Guidelines (Latest Edition)
 UNT Tree Preservation Policy (2009)
 UNT practice for LEED Silver minimum
 UNT Campus Parking & Transportation Master Plan
 UNT & UNT System Policies as applicable
 Applicable Building Codes as amended by variance by UNTS AHJ
 Applicable City of Denton requirements related to easements, Row's and connectivity to city
 infrastructure (water, sewer)
 City Tap & Impact Fees

1.5 Energy and Materials Conservation

The University is dedicated to the principle of conserving materials and energy. The Designer should scrutinize proposed construction for means of reducing not only the initial cost of energy and non-renewable resources, but also long-range reduction of operating costs. In addition to basic conservation requirements, the Designer should primarily consider the long-term maintenance and operations needs of the facility and apply advanced design technologies in renewable energy sources, recycled materials content and non-conventional materials while not compromising the practical maintenance and operations requirements of the facility. Take into account the climate of the southwest region of the United States and make sure the design reflects that consideration. For instance, windows may be recessed for shading. In the Specification, the Designer should encourage the Contractor to salvage scrap material to the maximum extent practical, especially scrap metals and lumber. In the product specifications, encourage vendors to offer products having recycled content.

Texas Law now requires that all new construction or major renovation undertaken by state agencies and state-supported institutions of higher education comply with the Texas State Energy Conservation Design Standards. The State Energy Conservation Office (SECO) through administrative rule adopted these standards effective September 1, 2011. An overview of the statute and rule follows:

Statutory Reference: Texas Government Code, 447.004

Rule Cite: Texas Administrative Code Title 34, Part 1, Chapter 19, Subchapter C, Rule 19.31-19.34

Applicability: This applies to all new construction or major renovation projects undertaken by state agencies and state-supported Institutions of Higher Education.

Major Renovation Project: A building renovation or improvements that affects the energy or water use of the facility. For instance, a lighting project that requires engineering drawings would require certification, replacing lamps would not. For the purposes of 34 TAC Chapter 19, Subchapter C, a major renovation project is a building renovation or improvement where the implementation cost is \$2 million or more, based on the initial cost estimate.

Standards:

- a. For any new construction or major renovation project, except low-rise residential buildings, with a design assignment made on or after September 1, 2011, the energy conservation design standard of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) / Illuminating Engineering Society of North America (IESNA), Energy Standard for Buildings, ASHRAE/IESNA Standard 90.1-2010.
- b. For public low rise residential buildings, the energy conservation design standard of the International Energy Code Council as published in the International Energy Conservation Code for 2000.
- c. Effective September 1, 2011, SECO adopts by reference the "Water Efficiency Standards for State Buildings and Institutions of Higher Education Facilities" prepared by the Office of the Comptroller, State Energy Conservation Office dated January 2011 as the water conservation design standards for new state buildings and major renovation projects.

Certification: Before beginning construction of a new state building or a major renovation project, including a new building or major renovation project of a state-supported institution of higher education, a state agency or an institution of higher education shall submit to the State Energy Conservation Office (SECO) a copy of the certification by the design architect or engineer that verifies to the agency or institution that the construction or renovation complies with the standards that are established under this chapter, including engineering documentation. This certification form can be found on the SECO website: <http://www.seco.cpa.state.tx.us/>

Routine maintenance and operational change out of material and equipment, where no engineering or architectural design assignment is necessary, are exempt from the submission of the compliance certification.

All materials used for construction must not contain asbestos.

Contractors are required to provide MSDS sheets for all materials used on a job as part of the submittal deliverable.

1.6 Flexibility by design

Flexibility in the arrangement and use of a building is a fundamental requirement, and the ability to accommodate growth and change is an important criterion in the design of the structural, mechanical, and electrical systems and the selection of

materials. The Designer is encouraged to locate stairs and elevators on the periphery of the building to allow large blocks of continuous space inside the building. Flexibility of future use favors the creation of large free span areas of monolithic surface, so long as the design can carry the load.

Recommended building heights are limited to three stories. In no case shall a building exceed five stories. Where expansion at a later time is considered, lateral, rather than vertical expansion is recommended.

1.7 Maintainability

Designers are required to consider long-term durability and maintainability, when selecting and specifying equipment, materials, and finishes. Initial cost is not the over-riding consideration.

Allow service personnel access to equipment without disruption to campus activities. Size equipment rooms to permit maintenance, repair and easy removal of equipment. Locate equipment so that service personnel can easily gain access. Provide permanent ladders and platforms as required. Designers should comply with OSHA regulations for employee access to equipment via industrial stairs, working platform, ladder, etc., as well as NFPA working clearances for all equipment electrical cabinets. Locate mechanical and electrical equipment rooms with access to the exterior; provide convenient service vehicle access. Do not combine service closet and equipment room functions. Provide direct access to each individual service closet and equipment room. Sub-grade mechanical equipment rooms in new buildings are not allowed. Basements are not allowed. Fan and oil units will not be placed on the roof. No exterior part of the building should have any surface that requires painting.

1.8 Accessibility

The University is committed to making all buildings and areas of the campus physically accessible to all students, faculty and staff. Therefore, Designers are required to accommodate the special requirements of all segments of the University population – including wheelchair users, those who use walking aids and the hearing and visually impaired – in their design. All new construction shall fully comply with the Americans with Disabilities Act (ADA) of 2010. To the greatest extent possible, renovation projects shall bring the project areas within the facility to full ADA compliance.

1.9 Exterior Windows

Windows are not desirable in auditoriums, but they are desirable in public areas and offices. In general, do not extend windows below 30 inches above the floor or more than seven feet above the floor in offices. The general orientation of the building should consider the east and west solar exposure in the arrangement of windows and glass to minimize direct sunlight.

1.10 Standard Stock Items

Designers are directed and required to base their designs upon standard stock items whenever possible. Where custom-built items are required, the designer shall clearly state this fact.

1.11 Dangerous Chemicals, Liquids and Gases

The floor plans and storage arrangement of chemicals, flammable liquids and gases are subject to review for compliance with all applicable codes, and for common sense.

1.12 Radiation Sources

The floor plans and equipment arrangement of all radiation sources are submitted to the Radiation Safety Officer, UNT Risk Management Office, for their review and approval. The Radiation Safety Officer shall submit safety recommendations as required.

1.13 Special Scheduling and Construction Constraints

Projects on campus require special steps to avoid or minimize interference with on-going campus operations. See Section C – The Construction Contract.

1.14 Colors: Materials/Finishes

The University encourages the use of UNT thematic colors for interior finishes and UNT branding for graphics. Refer to UNT identity guide at <https://identityguide.unt.edu>. The Designer should refrain from using any finish and material colors that might resemble those that are representative of other universities in the region.

2.0 Site Design

2.1 Project Site

The Designer may be asked to participate in the siting of the project. The Designer shall visit the site and evaluate proposed possible locations for the project, coordinate existing utilities, right of ways, easements, and discuss issues related to siting with the Project Manager before beginning design work. The Designer may suggest arrangements differing from those shown in the program requirements if site conditions warrant.

2.2 Site Limits

The Designer shall establish the limits of the construction site in coordination with the University. Indicate these limits on the design development drawings. If use of parking lots for staging is required by the project, show the location of site fences, staging area. Enclose the construction area with a six feet (6') high (minimum) chain link type fence with top rail. The Contractor is required to remove the construction fence completely, including all portions of footings below ground level, at completion of the project. Remove fence posts -- do not saw off flush with the soil line. Drawings shall also specify the area used for material storage during construction.

Dimensional Control

As part of project site preparation, the Contractor will install in the ground geodetic benchmark caps set in concrete to be used as dimensional control, as opposed to iron rods, concrete x-cuts or other benchmark objects. The Contractor must use a cap with a minimum 2" diameter and a 1.75" stem. Material may be aluminum or brass. The cap must be stamped with "University of North Texas" on the outer ring, "Secondary Point" on the inner ring, a point mark in the center, and a benchmark number below the point. Contractor must contact Facilities GIS to obtain available benchmark numbers for the project.

Once set, a licensed surveyor must occupy these points and provide the metadata to the Contractor for use in the project. The coordinate system must be State Plane 4202 TXNC Zone, with units of Survey Feet. Vertical datum must be GEOID03 NAVD88. Horizontal datum must be NAD 83 (CORS96) (EPOCH:2002.0). Both Surface and grid values of horizontal and vertical positions must be provided, including the scale factor for conversion between the two values.

2.3 Walks, Ramps, Steps and Building Entry

Walkways

- Carefully plan new walkways that connect major destinations and offer pedestrians a safe, accessible and relatively direct means of travel. Indicate these new walkways on the schematic design site plan.
- Give special consideration to locations where pedestrian pathways cross vehicular routes. Avoid steps and other features hazardous to the visually impaired. Crosswalks must conform to city of Denton standards. Replace any exposed aggregate sidewalks within project limits. In other situations, mark the pedestrian crossing with generally recognized "cross-walk" stripes on the asphalt-paving surface (see Appendix G, Figure 3).
- Maintain consistent walkway widths across the campus. Remove walkways not in use.
- The standard walkway widths are:

| | |
|--------------------------------|--------------|
| Major pedestrian corridors | 16 feet wide |
| All other pedestrian sidewalks | 8 feet wide |

Ramps and Steps

- Ramps and steps shall meet accessibility requirements in all locations. Provide railings and guards at stairwells, steps, bridges, loading docks and ramps per accessibility requirements. Treads and landings are to have positive drainage away from the building. Provide runways and ramps in all buildings where bulk supplies are handled. Ramps should have a non-slip surface attached Appendix G Figure 4. Carborundum or similar abrasives are not permitted. (eg. broom finish)

Building Entry

- All public entrances should be on grade, no monumental stairs, and meet accessibility requirements.

2.4 Parking

Parking areas must be clearly defined and physically separated from roads. Preserve existing trees to the greatest extent possible. Visually separate large parking lots into smaller modules (see Appendix G, Figure 5). Major lots should be paved, striped, delineated with curbs and gutters and proper illumination for safe evening use is required (see Section B, 2.10)

The Designer must provide parking for emergency and delivery vehicles, as well as University service vehicles. In the case of dormitories and similar buildings, provide for the significant loading and unloading parking demands associated with student move-in/move-out days.

See Section B, **Error! Reference source not found.** for parking lot painting requirements.

2.5 Paving

All paving repairs shall match existing materials. Exposed aggregate will not be used.

2.6 Outdoor Spaces

Careful design of spaces in between buildings will integrate these interstitial spaces into the network of campus open spaces. Within these spaces there is the opportunity to create gathering spaces - "outdoor rooms." Take care to locate these outdoor rooms where their activity and use will not disrupt or distract nearby classrooms or similar established activities. In developing outdoor spaces, the designer should look to the existing campus for precedents of form and material as well as lighting, signage and landscaping.

2.7 Site Drainage

Grade the site, including paved areas, loading dock, service yards, and landscaped areas, so that gravity runoff occurs at all points. Slope all areas away from the building at a minimum gradient of 1/4 inch per foot. Grade all terrain surrounding the building, including loading and parking areas, in such a manner as to prevent water flow into the building should storm drains serving the area become stopped up. Provide an underground storm sewer system to accommodate the roof drainage system.

Tie drainage from new construction into existing underground storm drains – Day-lighting of building sump pump discharge is not acceptable. Design the storm drainage system for assumed minimum rainfall intensity of two inches per hour for a five-hour storm. In addition, use 2.0 cubic feet per second per acre as the minimum runoff value in the storm drainage design.

The maximum permissible horizontal distance between a catch basin and other inlet shall not exceed 75 feet. This applies to grass areas, paved areas, elevated parking areas, etc.

2.8 Erosion and Sediment Control

The Designer's Erosion and Sediment Control Plan for the project shall follow UNT's storm water pollution prevention plan (SW3P) and should clearly delineate between which measures are temporary and which are permanent.

2.9 Landscaping

Landscape Design:

Design is to be water saving in nature. All plants are to be native or indigenous to the area that can survive with minimal additional water (with exception of establishment year). Beds are to be curvilinear in nature and design – no square corners, radius corners please. Designs are to draw the eye to various points or flow from point to point and lead to entry/exits and offer exciting visual vistas as pedestrians walk through the campus. Designs are to be interesting and relaxing to the viewer and should complement the building and surrounding landscape. Designs are to include sitting areas – or areas of reflection, quiet or study. Designs are to cascade from the building in stair step fashion – tall, medium and short in order to make the building a part of the landscape and not rigidly separate. Soften all vertical corners whenever possible. Designs are to include seasonal native perennial color for interest. Avoid continual 'line of sight/view' obstructions. Occasional tall accent plants are acceptable. For examples see Appendix G, Figures 6 & 7.

LANDSCAPE PLANTING:

General Conditions

The requirements of the University of North Texas System Uniform General Conditions and Supplementary General Conditions, 2013 Amended shall apply to all work of this section with the same force and effect as though repeated in full herein.

Scope of Work

Furnish all labor, materials, equipment, and services necessary to provide all landscape planting for trees, shrubs, and ground covers, complete in place as shown on the plans and specified herein.

Definitions

AAN: American Association of Nurserymen.

Final Acceptance of Installation: This acceptance will be granted upon completion of installation of all plant materials according to the plans and as specified herein. Final Acceptance of Installation will not occur before the Final Inspection.

Final Inspection: The last inspection immediately prior to Final Acceptance of Installation.

Owner: University of North Texas System.

Quality Assurance

Contractor's Qualification: Demonstrated experience on projects of similar characteristics and size.

Referenced Standards: the following references form a part of these specifications to the extent to which they are referenced:

1. American Association of Nurserymen, Inc., American Standard for Nursery Stock, 2004 edition.
2. Plant names are to comply with the standards of Hortis Third, 1976, Cornell University.

Quality Control

1. Contractor shall be responsible for all plant material shown on the plans. If discrepancies exist between the count of plant materials as shown on the plans and listed on the plant list or bid items, the actual count on the plans shall be considered correct. Submit documentation to the Owner within 15 days after the award of the contract that all plant material is available. Any and all substitutions due to unavailability must be requested in writing and submitted with plant documentation mentioned above. All plant materials shall be subject to inspection and approval by the Owner at the place of growth or upon delivery to the site for conformity to the plans and specifications. Such approval shall not impair the right of inspection and rejection during progress of the work.
2. Contractor shall submit specifications of any item being used on-site upon the request of the Owner.

Substitutions

- Substitution request for any material must be made in writing to Owner within 15 days after the award of the bid.

- Substitutions must possess same characteristics as material for which are to be substituted.
- Substitutions submitted on materials of greater value than specified materials shall be provided at no additional cost to the Owner.

Damage to Existing Site Amenities

Damage to existing irrigation and electrical lines to remain shall be repaired within 24 hours of damage occurrence. If not repaired within the specified time, the Owner has the right to make such repairs as necessary and all costs incurred shall be charged to the Contractor.

Samples and Tests

1. Owner reserves the right to take and analyze samples of materials for conformity to specifications at any time. Contractor shall furnish samples of materials for testing upon request of the Owner. Rejected materials shall be immediately removed from the site at Contractor's expense. Cost of testing of materials not meeting specifications shall be paid by the Contractor.
2. Provide representative quantities (1 gallon plastic bag or container each) of each type of aggregate, imported topsoil, expanded shale, organic compost, and hardwood mulch. Attach product name, address of manufacturer and/or supplier and appropriate literature to each sample. Samples shall be submitted within 15 calendar days after contract award.
3. Plant Material samples: submit documentation within 15 calendar days after award of contract that all plant materials have been located and are ready to be secured. Arrange specific review procedure of plant materials at time of submission. Submittals and review shall be organized as follows:
 - a. Preliminary Review: submit representative photograph for review of all plant materials in the required sizes and in available quantity within 25 calendar days after award of contract.
 - b. Submittal shall include two color photographic images of each plant type and size, include the name and address of the supplier, size of the plant in the picture and botanical and common name for the plant.
 - c. Photographic images shall include a person or device to determine scale. Each image shall be taken 90 degrees from the other.
 - d. Provide any additional tree groups and specimen photographs as required to illustrate the quality and/or quantity of material.
 - e. Photograph Acceptance and Nursery Review: acceptance of material through photographs does not preclude rejection of unsatisfactory material upon delivery. The Owner's Representative reserves the right to refuse review from photographs or at the grower if, in his judgment, suitable material or sufficient quantities are not available. Contract shall insure a sufficient quantity of plants will be available whenever trips are arranged to a nursery for the purposes of tagging material for the project.
 - f. Unavailable Material: If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety with corresponding adjustment of Contract price. Substantiate such proof in writing no later than 15 calendar days after award of contract.

Guarantee

1. The Contractor shall guarantee the plant materials for a period of one (1) year after final acceptance. Replace all dead or defective plant materials not in vigorous, thriving condition within two (2) weeks after notification from Owner. Plant materials which have partially died so that shape, size, or symmetry has been damaged shall be considered subject to replacement. Rejection of plant materials by the Owner shall be final.
2. Contractor shall replace plant material with same kind and size as originally planted at no cost to the Owner. Repair any damage, including ruts in turf or bed areas, incurred in making replacement. Provide one year warranty on replacement plants.
3. Replacement Quantities: Contractor shall be held responsible for a maximum of two (2) replacements for each failed tree and shrub, and same area of groundcover planting after final acceptance during the warranty period.
4. At the direction of the Owner, plant material may be replanted at the start of the next planting season. In such cases, remove dead plant materials within one (1) week of notification from the Owner.
5. Guarantee after final acceptance excludes replacement of plant materials because of injury by storms, drowning, drought, hail, freeze, insects, diseases, mechanical injury by humans or machines, and theft.
6. Plants shall be guaranteed to be true to species, variety or cultivar as specified.

Maintenance Until Final Acceptance

1. The Contractor shall maintain all plant materials from time of planting until final acceptance.
2. Maintenance shall consist of, but is not limited to:
 - Weeding
 - Watering
 - Pruning (with the consultation of the Owner)
 - Spraying
 - Disease and Insect Control
 - Tightening and Repairing Stakes and Guys
 - Resetting and Straightening Plants
 - Replacement of Unacceptable Materials
 - Mowing of Adjacent Turf Areas (within project site limits)

3. Plant materials shall be tended to at least weekly by the Contractor necessary to insure normal, vigorous, healthy growth.
4. At Final Acceptance, all plant materials and plant areas must be in healthy growing condition, insect free, weed free, pruning complete, and tree staking secure.

Product Delivery, Handling, and Storage

Delivery

1. Deliver all plant materials with legible identification labels:
 - a. Label trees, groups of containers of like shrubs and ground covers.
 - b. State on each label the correct plant name and size indicated on the plant list.
 - c. Use durable, waterproof labels with water-resistant ink which will remain legible for a minimum of 60 days.
2. Protect plant materials during delivery to prevent damage to root ball or desiccation of leaves.
3. The Contractor shall notify the Owner ten (10) days in advance of delivery of all plant materials.
4. Owner reserves the right to inspect all delivered materials. If determined by the Owner that delivered materials are non-conforming to the plans and specifications, Contractor shall remove the rejected materials immediately from the site.
5. Deliver soil amendments to site and include with the delivery ticket the manufacturer's guaranteed chemical analysis, name, trademark and conformance to state law.

Storage

1. If a storage site is necessary, the Owner will determine the storage site at the Pre-Construction meeting after the award of the contract.
2. Contractor shall erect a temporary fence and store material inside of the fenced area.
3. Contractor shall be fully responsible for the storage site.
4. Storage at the planting site shall not be permitted without written consent of the Owner.
5. Plant materials will be stored in partial shade and protected from the weather.
6. Contractor shall provide water for irrigating and maintaining stored materials.
7. Any Balled & Burlapped (herein referred to as B & B) plants not installed on the same day they are delivered shall be heeled in on the day of receipt at storage area to protect them from drying. The root ball shall be completely covered with moist sawdust, bark mulch, wood chips, peat moss, or other similar material, and kept covered until planted. The B & B plants shall be immediately watered in and kept moist until planting.
8. No B & B material shall be left with the root ball not heeled in for more than twelve (12) consecutive hours. Such plants shall be rejected, removed from the site, and replaced at the Contractor's expense.
9. All stored plant materials shall be maintained by the Contractor in a healthy, vigorous condition until planting.
10. The Contractor shall maintain the storage area in a neat and orderly manner. If, in the opinion of the Owner, the storage area becomes unsightly, the Contractor shall clean up the storage area within two (2) days of notification.
11. At the completion of the contract, the Contractor shall remove the temporary storage fence and all debris in the area. The Contractor shall restore the storage area to original condition including, if necessary, grading and turf re-establishment.

Handling

1. The Contractor is cautioned to exercise care in handling, loading, unloading, storing, and planting of plant materials. Plant materials that have been damaged in any way will be discarded and if installed, shall be replaced with undamaged materials at the Contractor's expense.
2. B & B plants shall be lifted by use of a tree sling around the root ball by either physical or mechanical power to lift, whichever is appropriate.
3. Do not pick up container or B & B materials by the stem or trunk.
4. Do not drop plant materials.
5. Plant materials having a root ball which is loose, cracked, broken, or "mushroomed" either before or during the process of planting shall be rejected, removed, and replaced at the Contractor's expense.

Materials

Plant Materials (see plans for types and sizes)

1. All plants shall have a habit of growth which is normal for the species and cultivar and shall be sound, healthy, vigorous, full, well branched and well formed.
2. Plant materials shall be free of disease or prior disease damage, sun scald, windburn, abrasion, harmful insects or insect eggs, prior insect damage, knots, fresh abrasions of the bark, and other objectionable disfigurements.
3. Tree trunks shall be sturdy, single leader, straight, free of weak crotches, scars, dead wood, crossed or broken branches and mistletoe infestation.
4. Plant materials shall have well "hardened" systems and vigorous and fibrous root systems which are not root or pot bound.
5. In the event of disagreement as to the condition of the root system, the root systems of the plants will be determined by removal of earth from the roots of no less than two (2) plants nor more than two percent

(2%) of the total number of plants of each species or variety. Where container grown plants are from several sources, the roots of not less than two (2) plants of each species or variety from each source will be inspected.

6. In case the sample plants inspected are found to be defective, the Owner reserves the right to reject the entire lot or lots of plant materials represented by the defective samples.
7. Plants shall bear label from the grower certifying genus and species. Labels should be securely attached and waterproof bearing legible designation of botanical and common name.
8. Any plant materials rendered unsuitable for planting because of this inspection will be considered as samples and will be provided at the Contractor's expense.
9. All plant materials shall equal or exceed the minimum measurements specified in the plant list. They shall be measured with the branches in normal positions before any pruning is done. Plant materials of the same variety used in a single project shall be of a uniform size.
10. Plant materials larger than specified in the plant list may be used if approved by the Owner but use of such plant materials shall not increase the contract price. If larger plant materials are approved, the root ball shall be increased in proportion to the size of the plant according to the American Standard for Nursery Stock.
11. All plant material not conforming to the requirements herein specified shall be considered defective and such plant material, whether in place or not, shall be marked rejected and immediately removed from the site and replaced with new plant material at the Contractor's expense.
12. Pruning: at no time shall plant material be pruned, trimmed or topped prior to delivery and any alteration of their shape shall be conducted only with the approval and when in the presence of the Owner.
13. Plant materials designated B & B in the plant list shall be balled and burlapped with the root ball sizes and ratios conforming to the American Standard for Nursery Stock. They shall be dug with firm natural balls of soil for full recovery for the plant. Root balls shall be firmly wrapped with burlap or similar biodegradable material and bound with twine or wire mesh.
14. Container grown plants shall have sufficient root growth throughout the root ball to hold the soil intact when removed from containers, but shall not be root bound. They shall have been grown in the containers in which they are received for a period of no less than 6 months and no more than two years with the exception of large container grown shrubs, small ornamental trees or specimen plants in 20 gallon or larger containers. Plants designated as container grown shall have been produced from seedlings, bare root whips or rooted cuttings which were originally potted into containers and have never been field grown. Containerized plants (B&Bs which have been dug, placed into a container and grown on) will not be acceptable as a substitute for container grown plants.
15. Ground covers shall be established and well-rooted, and shall have sufficient roots throughout the root ball to hold the soil intact after removal from the pot without being root bound. Plants shall have runners meeting the minimum requirements for number and length as listed in ANSI Z60.1-2004. Species which are not listed there shall have minimum requirements stated in the Plant List. If discrepancies exist between the minimum sizes specified in the Plant List and in the ANSI list, the larger sizes shall be considered the minimum.
16. Plants meeting the requirements specified in the Plant List but not possessing a normal balance between height and spread according to the American Standard for Nursery Stock will be rejected.
17. All plants shall have been grown or acclimatized under climatic conditions similar to those in the locality of the project.
18. B&B plants shall be dug and prepared for shipment in a manner that will not cause damage to future development after planting. Loose, off-centered, or flattened root balls will not be accepted. No plant shall be bound with wire, rope or other material at any time so as to damage the bark, break the branches or destroy the plant's natural shape.
19. Root balls of all plant materials are to be free of established weeds including but not limited to briars, bindweed, poison ivy, poison oak, nut sedge, dallis grass and Johnson grass.
20. Plant material shall be true to botanical and common name and variety. Deciduous plant materials found to be not true in name and variety after leafing out stage or blooming time will be rejected by the Owner and replaced with the proper plant material at the Contractor's expense.
21. Any plant material failing to meet all applicable specifications as outlined shall be rejected and removed from the planting site and/or storage area within 5 days after rejection by the Owner.
22. All plant material shall be nursery grown stock except as noted on the plans or as approved in writing by the Owner. If required, provide proof that material was nursery grown. All rejected stock shall be replaced at Contractor's expense.
23. Trees with a specified trunk caliper of 3 inches or greater shall not branch less than 4 feet above finish grade unless specified as multi-trunk.
24. 25. Any plant materials grown in "grow bags" shall have the bags removed before planting.
25. 26. B&B materials shall have all wire, twine, burlap removed to the bottom of the root ball prior to backfill.

Imported Topsoil

- Screened sandy loam from a source approved by the Owner, 100% passing through a 1" screen and 95% passing through a 2mm sieve.
 - Sand (2.00mm to 0.50mm) 40%-50%

- Silt (0.050mm to 0.005mm) 30%-40%
- Clay (0.005mm and smaller) 10%-30%
- pH range from 6.5 to 8.0
- Free of subsoil, brush, stumps, roots, organic litter, objectionable weed, clods, shale, stones 1" diameter and larger, extraneous or toxic substances harmful to plant growth.
- Presence of vegetative parts of Bermuda grass, Johnson grass, nut grass (Cyperus rotundus), and other hard to eradicate weeds or grass will be cause for rejection of topsoil. Topsoil found to be bearing these materials which has been incorporated into planting site shall cause all of the soil from that part of the site to be removed and replaced at the Contractor's expense with soil mix meeting specifications.
- In order to insure conformance, samples of the import topsoil shall be submitted by the Owner, after award of the contract, to a laboratory for analysis prior to and following backfilling. Contractor shall make available to the Owner information regarding time and location at which topsoil will be available for sampling. Cost of testing soil samples not meeting specifications shall be paid by the Contractor.

Compost:

- pH balanced; fully finished compost that meets or exceeds the requirements set forth by the United States Department of Agriculture, the United States Composting Council, and State composting requirements. Acceptable compost is as supplied by Soil Building Systems, Dallas, Texas, (972) 831-8181 or equivalent as determined by the Owner.

Expanded Shale:

- shall be rotary kiln expanded shale and clay lightweight aggregate as manufactured and supplied by Texas Industries, Inc. (TXI), Dallas, (972) 647-3806 or approved equal by as determined by Owner.

Sharp Sand:

- cleaned, washed sand, fine to coarse sizes, free of clay lumps or other objectionable materials.

Water:

Contractor shall furnish temporary hoses and connections as required. If water is not readily available on site, Contractor shall furnish water to insure that all plant materials remain in vigorous, healthy growing condition.

Tree Paint:

Morrison Tree Seal, Cabots Tree Paint or approved equal.

Soil Erosion Netting:

"Soil Saver" or approved equal.

Steel Edging:

4inches by 3/16 inch, (heavy gauge) with stakes as approved by the Owner.

Staking Materials:

Below Grade Nail Stake (www.treestakesolution.com) or approved equal

Mulch:

Coarsely shredded decomposed (heat sterilized) hardwood mulch with frayed edges. No soft green or unprocessed materials allowed. Jemasco or Soil Building Systems mulch is acceptable or equivalent as approved by Owner.

Execution

Inspection

1. Contractor shall verify that established grades are correct.
2. Contractor shall verify all underground utilities with the appropriate utility owners. Neither the Owner nor the Owner takes responsibility for utility information on the plans.
3. Contractor shall see that all planting areas are free of all weed and foreign material prior to beginning planting.
4. Contractor shall inspect trees, shrubs, and ground cover plants for injury, insect infestation, and trees and shrubs for proper size and shape.
5. E. Contractor shall not begin planting until deficiencies are corrected or plants replaced. To begin work indicates acceptance of site conditions by Contractor.
6. Obtain written approval from Owner of planting location layouts, and bed preparation prior to installation of trees, shrubs, and ground cover.

Tree Protection

The following provisions apply to existing trees adjacent to the line of work which are to remain on site through construction and after the project is finished.

1. Tree protection will be constructed using metal posts and chain link fence. Fence shall be a minimum of 3' outside of the drip line of the tree. Fence will be maintained and not taken down for any reason without approval from UNT Grounds Manager or UNT System Landscape Architect. Install and maintain a minimum of 3" composted material comprised of shredded hardwood mulch. City of Denton, Jemasco and Living Earth are examples of materials available for use.
2. Water trees during construction to maintain moisture levels enjoyed by the tree prior to construction.

3. Any roots broken and disturbed during construction operations shall be immediately cleanly cut back to solid wood and sprayed with root sealant. Do not leave uncut, frayed roots without immediate treatment and UNT is to inspect any trench before filling occurs.
4. Do not mechanically trench under trees. Trench using Air Spade Technology offered by Root Flare Services, Dallas, TX, or bore underneath.
5. Do not pile any soil, equipment or materials under drip lines of trees - maintain original soil level for any tree remaining on site during construction.
6. Contractor shall prune low hanging limbs to provide ground clearance and avoid being broken off by heavy equipment. Tree work to be done by an established, experienced tree care company to proper arborological standards. All cuts to be slightly outside the collar of the limb, 1/8-1/4 inch, cuts over 3/4" to be painted with a tree pruning paint, cut limbs to be removed from site. Pruning for ground clearance shall be completed prior to demolition/construction.
7. When the proximity of the project to an existing tree does not require work to be done within the tree's drip line or CRZ-Critical Root Zone, the Contractor shall take all necessary precautions to protect this area from equipment damage. The area within the CRZ shall not be used for storage of any material, trash or rubbish, dumping nor travel or parking of any equipment. Any trash or other materials found within the drip line shall be removed on the same day as it is found. If in the opinion of the Owner, the Contractor has not taken the necessary precautions to protect the area within the drip line, a chain link fence shall be constructed around the tree under the drip line at the direction of the Owner. Any damage caused by such materials, its placement or removal shall be repaired, or if repairable and a major hazard to the tree's health, Owner may order that the tree be removed and replaced with a comparable tree all at Contractor's expense.
8. Any damage caused to an existing tree's canopy, limbs, trunk(s) or root system shall be repaired at Contractor's expense and such repairs included in the one year guarantee of the project.

Plant Locations and Measurements

1. Stake outline of planting beds on ground.
2. Stake locations of trees.
3. Place shrubs and ground cover in indicated locations.
4. Notify the Owner of discrepancies between plant quantities or types indicated on the plans and actual conditions prior to planting.
5. Plants, locations, bed outline, and bed preparation must be approved by the Owner in writing, prior to beginning planting operations.

Final Grades

1. Minor modification to grade may be required to establish the final grade.
2. Fine grading shall insure proper drainage of the site as determined by the Owner.
3. All areas shall be fine graded so that finished grades will be a minimum 1" in lawn areas and 2" in shrub and ground cover areas, below adjacent paved areas, sidewalks, headers, cleanouts, drains, manholes, etc. or as indicated on the plans.
4. Surface drainage shall be away from all building foundations at a 2% minimum for 5' minimum.
5. All erosion scars shall be filled and compacted prior to planting installation.
6. Disposal of any unacceptable or excess soil shall be done at a location approved by the Owner at the expense of the Contractor within 48 hours of notification by the Owner.

Excavation

Under Existing Trees to Remain

1. Soil shall not be excavated for soil preparation purposes from anywhere within the CRZ – Critical Root Zone of any existing tree which is to remain on site.
2. Tree canopy shall be thinned up to 25% to compensate for feeder root loss due to tilling. Pruning shall conform to specifications.
3. Where the Planting Plan designates plantings to be added to the project under existing trees, the soil preparation in those areas shall be as follows:
 - a. Air spade the soil loose to three (3) inch depth around the base of the tree within the existing root system-no rototilling.
 - b. Remove all weeds by hand once soil is loosened.
 - c. Install one half (1/2) inches settled depth of compost to loose soil.
 - d. Hand mix compost with loose soil OR air spade mix the two soils together.
 - e. Water beds to promote weed germination of dormant weeds and grasses
 - f. Treat weeds in beds with an application of organic herbicide and hand pull.
 - g. Remove weeds after recommended herbicide treatment period by hand digging.
 - h. Remove rocks, loose root pieces, trash, dirt clods or other objects 1" and greater in size from the planting bed.

Pits

1. Shape
 - a. Vertical sides with roughened edges and flat bottoms
 - b. Tree pits to be SQUARE

2. Size for Trees: Trees with root balls less than 4' in diameter shall be planted in square pits at a minimum of at least twice the size of the root ball but in no case shall the pit be less than 2' wider than the root ball. Pit to be no deeper than 2" shorter than the height of the root ball.
3. Size for B & B shrubs: 1' wider than the root ball.
4. Size for container grown shrubs and ground covers: twice the diameter of the root ball but the root ball shall not be less than 3" from the side of the pit.
5. Planting pits shall be dug to a depth necessary that plant materials are slightly above finish grade of the mulch.
6. Planting pits found to be surrounded by soil, rock, or other materials of a density sufficient to prevent proper drainage shall have some suitable alternate drainage system approved by the Owner installed to provide adequate drainage. Such situations shall be brought to the attention of the Owner for correction before planting.

Ground Cover Beds: excavate existing soil to the depth noted in SECTION 3.06 of these specifications.

Obstructions Below Ground

1. Remove rock or underground obstructions to a depth of 6" below bottom of plant ball or root ball, measured when plant is properly set at the required grade.
2. If underground obstructions cannot be removed, notify the Owner for new instructions.
3. Do not damage underground utility lines.
4. If utility lines become damaged, repair damage to the lines the same day they are damaged at no additional expense to the Owner.

Disposal of Excess Soil

1. Use acceptable, excess excavated topsoil for filling holes, pits, and beds as directed by the Owner.
2. Any topsoil scraped from the site, stored, and not re-used within the new landscape is to be delivered to Owner's storage facility.
3. Dispose of unacceptable or unused soil at an off-site location, as approved by the Owner, at the expense of the Contractor.

Soil Preparation

Soil Preparation for Shrub and Ground Cover Beds

1. Pre-Plant Weed Control
 - a. If live perennial weeds exist on site at the beginning of work, spray with a non-selective systemic contact herbicide as recommended and applied by an approved licensed landscape pesticide applicator. Leave sprayed plants intact for at least fifteen (15) days to allow systemic kill. Apply herbicide in strict accordance with manufacturer's instructions.
 - b. Clear and remove these existing weeds by scraping or grubbing off all plant parts at least 1" below the surface of the soil over the entire area to be planted.
2. Backfill for Shrub and Ground Cover Beds
 - a. Remove existing soil to an overall depth equal to ten (10) inches below finish grade.
 - b. Till exposed soil to a minimum depth of six (6) inches.
 - c. Add three (3) inches of expanded shale and rototill to a depth of six (6) inches.
 - d. Add three (3) inches of pH balanced compost and rototill to a depth of six inches.
 - e. Mulch all planting areas when plant installation is complete with a minimum settled depth of three (3) inches of composted shredded hardwood mulch.
 - f. Notify Owner for soil inspection after initial excavation and prior to loosening the exposed soil.
3. At time of planting, all areas to be planted shall be free of stones, stumps, or other deleterious matter 1" in diameter or larger and shall be free from all wire, plaster or similar objects including construction debris that would be a hindrance to planting or maintenance.

Prepared Backfill for Trees

Backfill with native soil to within 9" of finish grade. Final 9" to be 1 part native soil to 1 part compost.

Planting Installation

General

1. Actual planting shall be performed during those periods when weather and soil conditions are suitable and in accordance with locally accepted practice or approved by the Owner. Do not install plant materials when ambient temperature may drop below 35 degree F or above 100 degrees F. Commence landscaping work when the site is free of rocks and debris.
2. Only as many plants as can be planted and watered on that same day shall be distributed in a planting area.
3. Containers shall be opened and plants shall be removed in such a manner that the ball of earth surrounding the roots is not broken. Scarify/loosen/gently cut roots on the outside of the rootball just prior to planting. Plant materials shall be planted and watered as herein specified immediately after removal from the containers. Containers shall not be opened prior to placing the plants in the planting area.
4. Set plants plumb and rigidly braced in position until planting mixture has been tamped solidly around plant material.
5. Thoroughly settle plant by watering and tamping planting mixture.
6. Rake planting beds level before and after planting.

7. Thoroughly water all plant materials after planting.
8. Rootball stake all trees according to the specifications.
9. Protect all areas from excessive soil compaction when trucking plants or other material within the project site.

Balled and Burlap Plants (B & B)

1. Place on undisturbed soil in square pit.
2. Place in center of pit, set plumb with best, most full side to the front of the bed where such a front exists.
3. Root ball shall stand, after settlement, at the same depth at which it originally grew or maximum 2" above finish grade.
4. Materials planted either too deep or too shallow shall be reset to proper depth. Loose or broken root balls due to resetting shall be replaced at Contractor's expense.
5. The pit shall be backfilled halfway with specified soil mix, the soil tamped down and watered in to settle the backfill.
6. Cut and remove all binder rope, twine, and wire from around the trunk to the bottom of the root ball.
7. Tree shall not be moved, turned or picked up after the binding rope and burlap has been cut and removed.
8. Use amended backfill soil to construct an earthen watering basin around each tree. Basin shall hold 5" of water above finish grade and shall be constructed just around the outside diameter of the planting pit.
9. Each tree shall be watered with enough water to fill the basin and left to soak into the ground.
10. Mulch each tree with a 3" layer of mulch within the water basin, keep mulch 3" 6" from the base of the trunk.
11. Construct watering basins around all newly planted trees.

Container Grown Plants and Ground Covers

1. Shrubs and ground covers shall be planted at the on-center spacing distances specified. Except where the design indicates single rows of plants, all shrubs and ground covers shall be planted on triangular spacing.
2. Plant in pits six (6) inches greater in diameter than root balls or container diameter.
3. Score rootball vertically at four (4) equal points around the edge prior to planting.
2. All plants shall be planted upright, except where instructed otherwise, and faced to give the best appearance or relationship to adjacent plants or structures.
3. Plants shall be placed in the center of each hole and set plumb. The root ball shall stand, after settlement, 1" higher than it originally grew. Plants planted either too deep or too shallow shall be reset at the proper depth by the Contractor at his expense. Plants which are damaged by the resetting operation shall be replaced at Contractor's expense.
4. On B&B shrubs, cut and remove all binder rope, twine, burlap or wire from around the shrub crown to the bottom of the root ball. B&B shrubs shall not be moved, turned or picked up after the binding rope and burlap have been cut.
5. Planting holes shall be backfilled with approved soil. Backfill shall be carefully compacted so as to avoid injury to the roots while filling all voids.
6. All shrub and ground cover planting areas shall be thoroughly watered immediately after planting so that the soil is moistened to the full depth of the root ball. After settling, plants shall be checked for proper planting depth and soil mix added to bring any low areas to proper level.
7. After planting, soil in the shrub/ground cover beds between the plants shall be cultivated and raked smooth and level.
8. Mulch the entire bed with a 3" settled layer of shredded hardwood bark mulch. Keep mulch approximately 2" away from plant crowns to avoid rot. Rake mulch layer smooth.

Seasonal Color - Bedding Plants

Seasonal Color - Bedding Plants shall be installed only if indicated on the plans. Seasonal Color - Bedding Plants shall be installed in planting beds as prepared for shrubs and ground covers.

1. Bedding plants must not be pulled from their containers by stems or foliage; they are to be removed in a manner which will avoid damaging either the plant stems, leaves or roots.
2. All plants shall be planted so that, after settlement, the root ball will be at the same level as that at which it originally grew. Root balls must not be flattened nor plants pushed down into the soil in order to achieve correct planting depth.
3. On-center spacing shall be as indicated on the landscape plan and shall be in a triangular pattern. Rows shall be straight and even.
4. Planting holes shall be 2" larger than the root ball of the bedding plants. Plants shall be gently placed in the holes and backfill soil mix firmed around each one in a manner which will avoid injuring roots while filling all voids.
5. Plants shall be watered in thoroughly immediately after planting to a depth greater than that of the root ball of the plants.
6. After planting, soil areas between plants shall be raked smoothed to an even, level surface.
7. Bedding plant beds shall receive a 3" layer of shredded hardwood mulch. After excavation for bed preparation accordingly.

8. Care shall be exercised at all times to protect the plants after planting. Any damage to bedding plants caused by trampling or other operations of this Contract shall be repaired immediately at Contractor's expense.

Seasonal Color - shall be installed only if indicated on the plans. Seasonal Color shall be installed in planting beds as prepared for shrubs and ground covers.

Mulching

1. Cover watering basins and/or planting beds evenly with a layer mulch a minimum of 3" deep. Do not place mulch within 3" - 6" of tree trunks or within 2" of shrub crowns.
2. If the plans designate areas on slopes to receive erosion control netting, do not mulch.
3. Water immediately after mulching.
4. Hose down planting area with a fine spray to wash mulch off leaves of plants.
5. Pruning and Repair
 - a. After planting, trees shall be pruned and injuries repaired.
 - b. Other than collected B & B materials, the amount of pruning shall be limited to the minimum necessary to remove dead, damaged or conflicting branches.
 - c. Do not prune evergreens, except to remove injured branches.
 - d. All cuts shall be made just outside the natural growth collar at the base of the branch where it emerges from an adjacent trunk or branch.
 - e. Typical growth habit of each plant shall be retained as much as possible.
 - f. All cuts larger than 3/4" in diameter shall be trimmed back to healthy tissue if needed, smoothed so as not to retain water and painted with tar base tree pruning paint.
 - g. All pruned materials shall be removed from the site daily.

Soil Erosion Netting

1. Install where shown on plans, prior to planting.
2. Install soil erosion netting per manufacturer's instructions.

Steel Edging

1. All planter beds which contact turf areas shall be edged between bed and turf, whether or not indicated on the plans, with specified steel edging. Set edging 2" above the turf finish grade. Top of mulch in planter beds will be level with top of steel edging.
2. Edging shall conform smoothly to any planned curves or straight areas along the bed's edge and shall be uniformly level.
3. Install per manufacturer's instructions.

Staking

Root ball stakes shall be provided as indicated on the tree planting details.

Watering

1. Water as required when soil moisture is below optimum level for best plant growth.
2. If an existing irrigation system is not available at time of planting installation, Contractor shall be responsible for providing water for planting procedures and maintenance through to final acceptance.

Weed Control

1. Contractor shall maintain all planting areas free of weeds from the beginning of construction until final acceptance and assumption of maintenance by the Owner.
2. Weeds germinating from seed blown into planting areas either before, during or after approved soil mix is placed shall be controlled by chemical application. At no time will weeds be allowed to form seed in the project area.
3. Existing turf areas within the project limits which are to remain shall be maintained weed free during the course of construction and until final acceptance and assumption of maintenance by the Owner. Applications of appropriate herbicides which will kill weeds while not injuring the desired turf grass species shall be made on a periodic and timely basis, but at no time will weeds be allowed to form seed in the project area.
4. All chemicals used shall be applied in a manner and rate consistent with manufacturer's label directions and with such care that desired plant material either existing or being installed will sustain no injury from the chemical. Any plant which does sustain injury due to incorrect usage, application or choice of chemical shall be replaced at Contractor's expense. Any soil which may become contaminated due to the type or rate of chemical used shall be removed from the site, disposed of in a legal manner and replaced with uncontaminated, approved soil mix. The Contractor assumes all responsibility for any costs associated with chemical application during the construction of the project.
5. Weeds which may not have yet formed seed but have reached such a size as to be unsightly shall be immediately removed by hand pulling. The entire weed plant shall be removed including both top-growth and roots.

Clean Up

1. Excess and waste materials including plants, containers, excess soil, bags, trash, etc. shall be removed completely from the worksite daily.
2. All scars, ruts or other marks in the ground caused by this work shall be repaired and the ground left in a neat and orderly condition throughout the site.

3. At the end of each work day Contractor shall leave the site area broom-clean and shall wash down all paved areas within the Contract area, leaving the premises in clean condition. All sidewalks, paths, curbs and roads shall be left in a clean and safe condition.

Measurement and Payment:

Work and acceptable material shall be measured and payment made as specified in the Bid Documents. Price bid shall be full compensation for furnishing labor, materials, equipment and performing operations necessary to install the work, complete in place, in accordance to the plans and specifications

Site work:

Remove 6 inches of acceptable topsoil from building site, if available, and store on UNT property for future use in the landscape. Should any asphalt parking lots be removed from the site, grind up the material and provide UNT with first option of such material for use on UNT land. Removal of concrete site work to be complete and will be removed from UNT property and disposed of in an appropriate environmentally sound manner. Transfer of this material to a company that crushes the concrete for reuse is the most environmentally sound solution for the proper disposal of said material. Simply burying the material in a landfill is not a suitable alternative. Trees that will be saved should be protected during excavation of the site.

Tree Protection: *See Landscape Planting Section above.*

General:

Plants need triangular spacing – do not plant on square patterns. Plan the spacing for mature size of the plants – DO NOT CROWD plantings. Shrubs that will be large at maturity should be planted at 4' O.C. (on center) or greater spacing. Most small and medium shrubs should be planted a minimal 3" O.C. See appendix G, Figure 8 for shrub planting detail. Plant spacing to be verified by Landscape Architect and the UNT Grounds Manager prior to installation as site adjustments may be needed. Ground covers can be as close as 6" O.C. if in small containers or as much as 18-24" O.C. if one gallon size or larger. Trees should be planted in square holes and a reasonable distance from the building as determined by the mature size of the tree, so as to minimize maintenance requirements in future years. See Appendix G, Figures 9 & 10 for tree planting details. Plants/shrubbery located next to buildings, walls, fences, etc., need to be a minimum 3' from those surfaces; and shrubs should be planted a minimum of ½ their mature size/width from sidewalks so as to prevent constant maintenance of said shrub off the walk. Plants/shrubbery with sticker type leaves need to be a minimum of ½ half the diameter of a mature plant size plant x1.5 away from a sidewalk or pedestrian pathway (e.g.: 4' wide mature Yucca would be 2'(diameter) x 1.5 = 3' from a sidewalk minimum. Spreading groundcovers shall be planted 2 feet off edges or other hard surfaces to allow for growth. Groundcovers such as clump grasses may be as close as 6 inches from a hard surface. No climbing vines are allowable (e.g., ivy).

Bed preparation to be Earth Kind Bed Prep Method (Aggie Horticulture) and shall include amending the existing site soil to a minimum depth of 14 inches. Acceptable bed preparation is the following: Once construction is complete, remove the top 8 inches of garbage soil and trashy materials in all areas to be landscaped. Add 3 inches of expanded shale and rototill 8 inches into the subsoil. Then add 3 inches of pH balanced compost and rototill that into the top 6 inches of subsoil /shale mixture.

The expanded shale can be purchased from TXI Materials and the pH balanced compost can be purchased from Soil Building Systems – both companies are Dallas based.

All landscape beds to receive 3 inches of shredded hardwood mulch, such as Jemasco or equivalent. A sample should be provided for approval.

Sidewalks:

See Section B 2.3.

TURF ESTABLISHMENT / SOD:

General Conditions

The requirements of the University of North Texas Uniform General Conditions and Supplementary General Conditions, 2013 Amended shall apply to all work of this section with the same force and effect as though repeated in full herein.

Scope of Work

Furnish all labor, materials, and equipment necessary to install, maintain, and establish the solid sod in accordance with the plans and as specified herein.

Definitions

Final Acceptance of Installation: this acceptance will be granted upon completion of installation of all sod according to the plans and as specified herein.

Final Acceptance of Installation shall not occur before the Final Inspection.
Final Inspection: the last inspection immediately prior to Final Acceptance of installation.
Architect: Architect or Architect's Representative
Owner: University of North Texas.
Contractor: General Contractor or any sub-contractor responsible for the work specified herein.

Quality Assurance

1. Contractor's Qualification: Demonstrated experience on projects of similar characteristics and size.
2. Source Quality Control
 - a. The Owner reserves the right to inspect and approve the source of the sod before it is cut, after it is cut and upon delivery to the site.
 - b. Inspection at the source does not preclude the Owner's right to reject the sod at the job site.
3. Reference Standards
4. Official Method of Analysis of the Association of Official Analytical Chemists
5. Substitutions
6. Substitution request for any material must be made in writing to Owner within 15 days after the award of the bid.
7. Substitutions must possess same characteristics as material for which are to be substituted.
8. Substitutions submitted on materials of greater value than specified materials shall be provided at no additional cost to the Owner.
9. Submit to the Owner, prior to delivery to the site, a Grower's certification that the sod meets the specification requirements.
10. Damage to Existing Site Amenities
 - a. Repair of damage to existing site amenities to remain shall be repaired to equal or better condition prior to construction activity.
 - b. Damage to existing irrigation and electrical lines to remain shall be repaired within 24 hours of damage occurrence. If not repaired within the specified time, the Owner has the right to make such repairs as necessary and all costs incurred shall be charged to the Contractor.

Guarantee

Contractor shall guarantee the turf establishment-solid sod for a period of one (1) year after final acceptance of the entire project.

Maintenance Until Final Acceptance

1. The Contractor shall maintain all sodded areas from the time of application until final acceptance of the entire project.
2. Maintenance shall consist of, but is not limited to:
 - a. Weeding
 - b. Watering
 - c. Mowing
 - d. Edging

Products

Materials

Sod

1. Species: Celebration Bermuda Grass (Cynodon dactylon 'Celebration') unless specified otherwise on the plans. Sod shall not be over seeded. Provide certification ticket from grower at time of delivery.
2. A minimum of 90% of the plants in cut sod shall be species as specified. The sod shall be free of weeds or undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance.
3. Sod shall be cut with approved machine sod cutters and shall have a uniform soil thickness of $\frac{3}{4}$ inch.
4. Sod shall be cut into 12" x 24" rectangles or rolled sod as approved by the Owner.
5. Sod shall be uniform in color, leaf texture, and shoot density, and shall be in healthy vigorous growing conditions, free of diseases and insects.

Fertilizer

1. 3-1-2 ratio multipurpose organic fertilizer, or approved equal.
2. The fertilizer shall be delivered to the site in bags or other convenient containers,

each fully labeled, conforming to the applicable state fertilizer laws, and bearing the name, trade name or trademark, and warranty of the producer.

6. NO Petrochemical fertilizers are to be used.

Water: Contractor shall be responsible to provide potable water for the installation of the sod if no irrigation system exists at the time of sod planting.

Import Topsoil

1. Friable, fertile, dark screened sandy loam from a source approved by the Owner, 100% passing through a 1" screen and 95% passing through a 2mm sieve.
 - a. Sand (2.00mm to 0.50mm) 40%-50%
 - b. Silt (0.050mm to 0.005mm) 30%-40%
 - c. Clay (0.005mm and smaller) 10%-30%
 - d. pH range from 6.5 to 8.0
2. Free of subsoil, brush, stumps, roots, organic litter, objectionable weed, clods, shale, stones 1" diameter and larger, extraneous or toxic substances harmful to plant growth.
3. Presence of vegetative parts of Common Bermuda grass, Johnson grass, nut grass (Cyperus Rotundus), and other hard to eradicate weeds or grass will be cause for rejection of topsoil.
4. The presence of any of the above mentioned materials shall cause the topsoil to be rejected and immediately removed from the site. Topsoil found to be bearing these materials which has been incorporated into planting site shall cause all of the soil from that part of the site to be removed and replaced at the Contractor's expense with soil mix meeting specifications.
5. After the award of the contract, the Owner reserves the right to submit samples of the topsoil to a laboratory for analysis prior to and following backfilling. Contractor shall make available to the Owner information regarding time and location at which topsoil will be available for sampling. Cost of testing soil samples not meeting specifications shall be paid by the Contractor.

Execution

Soil Preparation

1. Eradicate all vegetative materials from the areas to be sodded. The area shall be weed free for a minimum of two weeks prior to completing the soil preparation and sod planting.
2. All areas to be sodded shall be tilled a minimum of 6", raked to true lines and grades, free from all slight grade variations, bumps, ridges and depressions in soil surface. **All sticks, stones, roots, clay clods or other objectionable material over 1 inch in diameter which might interfere with the formation of a finely pulverized soil bed shall be removed from the soil prior to raking and planting. Soil is to be loose and friable, not compacted.**
3. Once subsoil has been de-compacted and objectionable material 1" and greater removed, add a minimum depth of 4" settled depth of topsoil to loose and friable subsoil prior to placing the sod.

Inspection

1. Contractor shall verify that preceding work affecting subsoil scarification is complete. Request inspection by UNT System Landscape Architect or UNT Ground Manager prior to placing topsoil.
2. Contractor shall verify that soil is within allowable range of moisture content.
3. Contractor shall see that the soil is free of weeds and foreign material immediately before sod application. Remove objectionable material which is larger than 1 inch in diameter and remove from the site. Request inspection by UNT System Landscape Architect or UNT Ground Manager prior to placing sod.

Application

1. Apply a 3-1-2 ratio multipurpose organic fertilizer or approved equal, after placing sod.
2. Sod shall be moist and shall be placed on a moist soil bed.
3. Sod shall be harvested, delivered and transplanted within a period of 24 hours unless a suitable preservation method is approved prior to delivery. Sod not transplanted within this period shall be inspected and approved the Owner prior to its installation.
4. Sod shall be planted end to end, in a running bond pattern, solid over the areas to accept sod as delineated on the plans, firmly pressed into the prepared topsoil with tight/no gap joints between sod pieces. Gaps that develop between sod pieces will be filled with a suitable top dressing material.
5. When roll sod is used, remove netting material prior to placing sod.
6. Upon completion of sodding each contiguous area, the entire area shall be watered in until the soil beneath the sod is moist and then hand rolled with a roller weighing at least 80 lbs. but no more than 100 lbs. All uneven or lumpy areas shall be flattened to a uniform level before the installation will be accepted.
7. No area smaller than one (1) square foot shall be planted with more than three individual trimmed sections of sod and no individual section shall be smaller than six (6) square inches.
8. The top of sod soil shall be ½" below adjacent paving/hard surface..

Sod Establishment – also refer to section *Maintenance until final acceptance*.

1. Watering
 - a. The sod shall be kept moist from the time of its placement until final acceptance of the entire project, and its continued growth is assured.
2. Watering shall be done in a manner which will prevent erosion.
3. Mowing/Edging
 - a. Contractor shall be required to mow the sodded areas as needed, minimum 1x/week, from time of application until final acceptance of entire project.

- b. When sod reaches 3 inches in height, mow to 2 to 2 1/2 inches in height.
4. Do not cut off more than 30% of grass leaf in single mowing.
5. Remove grass clippings and dispose of off-site.
6. Edge as necessary to maintain adjacent edge.
7. Weeding: Sod to remain weed free from time of installation to final acceptance.
8. Repairing: Any areas that become gullied or otherwise damaged, or any areas of sod that fail to become established satisfactorily, according to the Owner, shall be repaired and/or replaced at the Contractor's expense.

Clean Up

1. Remove trash and excess materials from site.
2. Maintain paved areas in clean condition.

Measurement and Payment

Work and acceptable material shall be measured as one lump sum. The work performed and materials furnished will be paid for at the contract price. Bid price shall be full compensation for furnishing labor, materials, equipment, and performing operations necessary to install the irrigation system, complete in place, in accordance with the plans and specifications.

Miscellaneous:

UNT will only accept Balled and Burlap trees (B&B).

UNT DOES NOT WANT container grown trees due to the typical circular nature of roots having been grown in pots. Tree planting holes to be dug 3X's the width of the ball (minimum) and 1 inch short of the height of the ball. Amend the removed clay soil with ¼ by volume compost or other accepted amendments. Stake newly planted trees with 2 – 6 foot metal t-posts, wire and rubber hose. Perform percolation test on each tree hole to verify water drainage. Test to be filled and 24 hours later reviewed to determine water retention. If water is retained, determine why and make adjustments to site or provide the ability to drain the excess water.

Planting bed preparation details: see GENERAL above for detail

LANDSCAPE IRRIGATION:

General Conditions

The requirements of the University of North Texas Uniform General Conditions and Supplementary General Conditions, 2013 Amended shall apply to all work of this section with the same force and effect as though repeated in full herein.

Scope of Work

Furnish all labor, materials, equipment, transportation, and services necessary to furnish and install the Irrigation System complete in place, as shown on the drawings and specified herein.

Definitions

Owner: University of North Texas System

Architect: Architect or Architect's Representative

Contractor: General Contractor or any sub-contractor responsible for the work specified herein.

Final Acceptance of Installation: This acceptance will be granted upon completion of installation of the complete irrigation system according to the plans and as specified herein. Final Acceptance of Installation will not occur before the Final Inspection.

Final Inspection: The last inspection immediately prior to Final Acceptance of Installation.

Standards:

ASTM D1785 (ANSI B72.7): Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.

ASTM D2241 (ANSI B72.2): Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR).

ASTM D2466: Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.

ASTM D2564 (ANSI B72.16): Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.

ASTM D2855 (ANSI K65.55): Standard Recommendation Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.

Quality Assurance and Requirements

1. Contractor's Qualifications: Demonstrated experience on projects of similar characteristics and size.
2. Licensed Irrigator: Installation of the irrigation system shall be under the supervision of a superintendent or foreman currently licensed as an Irrigator/Irrigation Installer by the State of Texas.
3. Permits and Inspections

- a. In all cases, where inspection of the irrigation system is required and/or where portions of the work are specified to be performed under the direction and/or inspection of the Owner, the Contractor shall notify the Owner at least 24 hours in advance of the time when inspection and/or direction is required, or as specified under "Observation Schedule".
 - b. Any necessary re-excavation or alterations to the system needed because of the failure of the Contractor to have the required inspections shall be performed at the Contractor's expense.
4. Ordinances and Regulations: All local, municipal and state laws, and rules and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these specifications, and their provisions shall be carried out by the Contractor. Anything contained in these specifications shall not be construed to conflict with any of the above rules and regulations or requirements of the same. However, when these specifications and drawings call for or describe materials, workmanship, or construction of a better quality, higher standard, or larger size than is required by the above rules and regulations, the provisions of the specifications and drawings shall take precedence.
5. Manufacturer's Directions: Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturers of articles used in this contract furnish directions covering points not shown in the drawings and specifications.
6. Explanation of Drawings:
 - a. Due to the scale of drawings, it is not possible to indicate all offsets, fittings, etc. which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of their work and plan their work accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting, and architectural features.
 - b. All work called for on the drawings by notes or details shall be furnished and installed whether or not specifically mentioned in the specifications.
 - c. The Contractor shall not willfully install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered. Such obstructions or differences should be brought to the attention of the Owner. In the event this notification is not performed, the Contractor shall assume full responsibility for any revision necessary.
7. Damage to Existing Site Amenities
8. Damage to existing irrigation and electrical lines to remain shall be repaired within 24 hours of damage occurrence. If not repaired within the specified time, the Owner has the right to make such repairs as necessary and all costs incurred shall be charged to the Contractor.

Contractor's Responsibility

1. Prior to submittal of bids, Contractor shall acquaint himself with all matters and conditions concerning the site and existing conditions.
2. Contractor shall be responsible for coordinating his work with the other trades so that all phases of the work may be properly coordinated without delays or damage to any parts of the work.
3. The Contractor shall be responsible for all sleeves and chases under paving, through walls, etc., unless otherwise noted on the plans.

Submittals

Material List:

1. The Contractor shall furnish the articles, equipment, materials, or processes specified by name in the drawings and specifications. No substitution will be allowed without prior written approval by the Owner.
2. Complete material list shall be submitted prior to performing any work if different from the plans. Material list shall include the manufacturer, model number and description of all materials and equipment to be used.
3. Equipment or materials installed or furnished without prior approval of the Owner may be rejected and the Contractor required removing such materials from the site at his own expense.
4. Approval of any item, alternate or substitute indicates only that the product or products apparently meet the requirements of the drawings and specifications on the basis of the information or samples submitted.
5. Manufacturer's warranties shall not relieve the Contractor of their liability under the guarantee. Such warranties shall only supplement the guarantee.
 - a. Record and As-Built Drawings:
6. The Contractor shall provide, and keep up to date, a complete "as-built" set of black or blue line prints which shall be corrected daily and show every change from the original drawings and specifications and the exact "as-built" locations, sizes, and kinds of equipment. Prints for this purpose may be obtained from the Owner. This set of drawings shall be kept on the site and shall be used only as a working set.
7. These drawings shall also serve as work progress sheets and shall be the basis for measurement and payment for work completed. These drawings shall be available at all times for inspection and shall be kept in a location designated by the Owner. Should these "as-built" progress sheets not be available for review or not be up-to-date at the time of any inspection, it will be assumed that no work is completed.
8. The Contractor shall make neat and legible notations on the "as-built" progress sheets daily as the work proceeds, showing the work as actually installed. For example, should a piece of equipment be installed in a location that does not match the plan, the Contractor must indicate that equipment has been relocated in a graphic manner so as to

match the original symbols as indicated in the irrigation legend. The relocated equipment and dimensions will then be transferred to the original Record plan at the proper time.

9. After final inspection, but before final acceptance, the Contractor shall submit to the Owner the "as-built" prints. These prints shall be submitted before final payment will be made.
10. The Contractor shall dimension from two (2) permanent points of reference, building corners, sidewalk, or road intersections, etc., the location of the following items:
 - a. Connections to water lines.
 - b. Connection to electrical power.
 - c. Gate valves.
 - d. Routing or sprinkler pressure lines (dimension maximum. 100 along routing.)
 - e. Sprinkler control valves.
 - f. Routing of control wiring.
 - g. Quick coupling valves.
 - h. Other related equipment as directed by the Owner.
 - i. Operation and Maintenance Manuals:
11. Prepare and deliver to the Owner within ten calendar days prior to final inspection, one digital copy and two hard cover binders with three rings containing the following information and :
 - a. Index sheet stating Contractor's address and telephone number, list of equipment with name and address of local manufacturer's representative.
 - b. Catalog and parts sheets on every material and equipment installed under this contract.
 - c. Complete operating and maintenance instructions on all major equipment.
12. In addition to the above mentioned maintenance manuals, provide the Owner with instructions for major equipment.
 - a. Equipment to be furnished if requested by the Owner:
13. Supply as a part of this contract the following:
 - a. Two (2) sets of special tools required for removing, disassembling and adjusting each type of irrigation head and valve supplied on this project, including solenoid wrenches.
 - b. Two (2) keys for each automatic controller.
 - c. Two (2) quick coupler keys with ells.
14. The above mentioned equipment shall be turned over to the Owner at the conclusion of the project before final inspection can occur.

Delivery, Handling, and Storage

Delivery and Handling

1. Contractor is cautioned to exercise care in handling, loading, unloading, and storing of PVC pipe and fittings.
2. All PVC pipe shall be transported in a vehicle which allows the length of pipe to lie flat so as not to subject it to undue bending or concentrated external load at any point.
3. Any section of pipe that has been dented or damaged will be discarded and, if installed, shall be replaced with new piping at the expense of the Contractor.

Storage

If a storage site is necessary, the Owner will determine the storage site at the Pre-Construction Meeting after the award of the contract.

1. Contractor shall erect a temporary fence and store material inside of the fenced area.
2. Contractor shall be fully responsible for the storage site.
3. Storage at the irrigation site shall not be permitted without written consent of the Owner.
4. All PVC pipe shall be covered or otherwise protected from ultraviolet light during storage.
5. Contractor shall maintain the storage area in a neat and orderly manner. If, in the opinion of the Owner, the storage area becomes unsightly, the Contractor shall clean up the storage area within two (2) days of notification.
6. At the completion of the contract, the Contractor shall remove the temporary storage fence and all debris in the area. The Contractor shall restore the storage area to original condition including, but not limited to, grading and turf re-establishment.

Public Convenience and Safety

1. Materials stored about the work shall be so placed and work shall at all times be so conducted as to cause no greater obstruction to the travelling public than is considered necessary by the Owner.
2. The materials excavated, and the construction materials used in the construction of the work, shall be placed so as not to endanger the work or prevent free access to all fire hydrants, water valves, gas valves, manholes for the telephone, telegraph signal or electric conduits, sprinkler systems, sanitary sewers, and fire alarm or police call boxes in the vicinity.
3. The Owner reserves the right to remedy any neglect on the part of the Contractor as regards the public convenience and safety which may come to its attention, after twenty-four hour notice in writing to the Contractor, save in cases of emergency, when it shall have the right to remedy any neglect without notice and, in either case, the cost of such work done by the Owner shall be deducted from the monies due the Contractor.
4. This project is located on property which could be used by the Public during the course of this agreement. For this reason, the Contractor must observe the utmost care in regards to the Public's safety. Any possible hazards which could result in injury must be eliminated as soon as possible.

5. No trenches, ditches, etc. shall remain open overnight without approval from the Owner.
6. Any ditches which are left open must be covered securely so as to prevent any possibility of injury. It shall be the Contractor's responsibility to eliminate any hazards during and after working hours, and the Contractor must have personnel available who can eliminate hazards which are discovered after normal working hours and on the weekends and holidays.
7. Contractor assumes all responsibility for open trenches, ditches etc.

Substitutions

1. If the Contractor wishes to substitute any equipment or materials for the equipment or materials listed on the irrigation drawings and specifications, they may do so by providing the following information to the Owner for approval:
 - a. Substitution requests will be considered only after award of the contract.
 - b. Substitution requests must be made within 30 days after award of the contract.
 - c. Provide a statement indicating the reason for making the substitution. Use a separate sheet of paper for each item to be substituted.
 - d. Provide descriptive catalog literature, performance charts, and flow charts for each item to be substituted.
 - e. Provide the amount of cost savings if the substituted item is approved.
2. The Owner shall have the sole responsibility in accepting or rejecting any substituted item as an approved equal to those equipment and materials listed on the irrigation drawings and specifications.
3. Decisions on substitutions by the Owner are final.

Changes in the Work

1. The Owner may, without invalidating the contract, order additional work or alterations to the contract.
2. Minor changes, such as head locations and controller location, which do not involve extra cost and are consistent with the purpose of the work may be ordered by the Owner and no claim for an addition to the contract sum or time schedule will be considered.
3. Any changes which affect the contract price shall be requested in writing and the contract sum shall be adjusted. Any extension of time due to additions in work shall be adjusted at the time of the change order.

Final Inspection

1. A qualified person duly authorized in writing to represent the Contractor shall be present at the final inspection to demonstrate the system and prove the performance of the equipment.
2. Prior to the final inspection, all work under this division shall have been completed, tested, balanced and adjusted and in final operation condition.

Guarantee

1. Materials and workmanship shall be fully guaranteed for one year after final acceptance. All material will be new and the current production model of the material specified.
2. Guarantee is limited to repair and replacement of defective materials or workmanship, including repair of backfill settlement.
3. The Contractor, at his expense, shall repair any defects or replace any defective parts found or occurring during the one year guarantee period within 48 hours of notification by the.

PRODUCTS

Materials

1. General: All materials and accessories shall be of new and unused material. Any section of pipe found to be defective before or after installation shall be replaced with new pipe at the expense of the Contractor. All new irrigation equipment shall be essentially the standard product of the manufacturer. All new equipment furnished shall have in-service performance records sufficient to verify published capabilities.
2. PVC Pressure Main Line Pipe and Fittings:
 - a. Pressure main line piping shall be PVC Schedule 40, solvent weld joints.
 - b. Pipe shall be made from an NSF approved Type I, Grade II, PVC compound conforming to ASTM resin specification D1784. All pipe must meet requirements as set forth in Federal Specification PS-22-70, with an appropriate standard dimension ratio (SDR) (Solvent-weld pipe).
 - c. PVC solvent-weld fittings shall be Schedule 40, 1-2, II-I NSF approved conforming to ASTM test procedure D2466.
 - d. Solvent cement and primer for PVC solvent-weld pipe and fittings shall be of type and installation methods prescribed by the manufacturer. Primer must be purple IPS Weldon P-68 or approved equal.
 - d. All PVC pipe must bear the following markings:
 - i. Manufacturer's name
 - ii. Nominal pipe size
 - iii. Schedule or class
 - iv. Pressure rating in P.S.I.
 - v. NSF (National Sanitation Foundation) approval
 - vi. Date of extrusion
 - e. All fittings shall bear the manufacturer's name or trademark, material designation, size, applicable I.P.S schedule, and NSF seal of approval.

3. PVC Non-Pressure Lateral Line Piping:
 - a. Non-pressure lateral line piping shall be PVC Schedule 40, solvent-weld joints.
 - b. Pipe shall be made from NSF approved, Type I, Grade II PVC compound conforming to ASTM resin specification D1784. All pipe must meet requirements set forth in Federal Specification PS-22-70 with an appropriate standard dimension ratio.
 - d. Except as noted in paragraphs 1 and 2 of section 2.01B, all requirements for non-pressure lateral line pipe and fittings shall be the same as for solvent-weld pressure main line pipe and fittings as set forth in section 2.01B of these specifications.
 - e. Solvent cement and primer for PVC solvent-weld pipe and fittings shall be of type and installation methods prescribed by the manufacturer. Primer must be purple IPS Weldon P-68 or approved equal.
4. Ball Valves:
Install one ball valve prior to each electric valve location for isolation purposes. Ball Valves shall be of size and type as indicated on the irrigation drawings.
5. Quick coupling Valves:
Quick coupling valves shall have a brass two-piece body designed for working pressure of 150 P.S.I. with a .75 inch diameter outlet. Key size and type shall match the valve. Rainbird 33DRC with 33DK valve key, or approved equal.
6. Backflow Prevention Units:
Backflow prevention units shall be of size and type indicated on the irrigation drawings. Install backflow prevention units in accordance with irrigation construction details.
7. Control Wiring:
 - a. Connections between the automatic controllers and the electric control valves shall be made with direct burial copper wire AWG-U.F. 30 volt. Pilot wires shall be a different color wire for each automatic controller. Common wires shall be white with a different color stripe for each automatic controller. Install in accordance with valve manufacturer's specifications and wire chart. In no case shall wire size be less than #14. All electrical work shall conform to code.
 - b. Lay one additional control wire from each controller to the farthest valve in each direction from the controller. This wire control is to be a different color from the other control and common wire.
 - c. Wiring shall occupy the same trench and shall be installed along the same route as pressure supply or lateral lines wherever possible. All wire shall be placed under all pipes in the trench.
 - d. Where more than one (1) wire is placed in a trench, the wiring shall be taped together at intervals of ten (10) feet.
 - e. An expansion curl/coil shall be provided within three (3) feet of each wire connection. Curl must be 10 to 15 wraps around a .75 inch pipe. Expansion curl shall be of sufficient length at each splice connection at each electric control, so that in case of repair, the valve bonnet may be brought to the surface without disconnecting the control wire. Control wires shall be laid loosely in trench without stress or stretching of control wire conductors.
 - f. An expansion curl shall be provided every 125-150 feet along all wire runs.
 - g. All splices shall be made with Scotch-Lok #3576 Connector Sealing Packs, Rainbird Snap-Tite wire connector, or approved equal. Use one splice per connector sealing pack.
 - h. Limit wire splices between the automatic controller and electrical control valves, locate on "as built" drawings.
8. Automatic Controllers:
 - a. Automatic controllers shall be of size and type shown on the plans. Ground according to manufacturer's directions.
 - b. Final location of automatic controllers shall be approved by the Owner.
 - c. Install controller pedestal per the manufacturer's instructions.
9. Electrical Control Valves:
 - a. All electric control valves shall be as called for on the plans.
 - b. All electric control valves shall have a manual flow adjustment.
 - c. Provide and install one control valve box for each electric control valve.
10. Control Valve Boxes:
 - a. Use a 10 inch round box with green locking cover for all gate valves, NDS, or approved equal. Extension sleeve shall be used where needed.
 - b. Use 12 X 17 valve boxes for valves up to 1 ½"; 17 X 30 for valves 2" and greater with green locking cover for all electrical control valves, NDS or approved equal.
11. Irrigation Heads:
 - a. All irrigation heads shall be of the same size, type, and deliver the same rate of precipitation with the diameter (or radius) of throw and discharge as shown on the plans and/or as specified herein.
 - b. Spray nozzles shall have a screw adjustment.
 - c. Riser units shall be fabricated in accordance with the details shown on the plans.
 - d. Riser nipples for all irrigation heads shall be the same size as the riser opening in the body of the head.
 - e. All irrigation heads of the same type shall be of the same manufacturer; pop-up spray heads: Irritrol, large turf heads/rotors: Rainbird 5004 series; athletic field turf heads/rotors: Hunter I series (25, 40, 60, 90) or approved equal.

EXECUTION

Inspection

Site Conditions:

1. All scaled dimensions are approximate. The Contractor shall check and verify all size dimensions and receive Owner's approval prior to proceeding with work under this section.
2. Exercise extreme care in excavating and working near existing utilities. Contractor to call Texas811 prior to any digging. Contractor shall be responsible for damages to utilities which are caused by their operations or neglect. Verify existing utilities with the appropriate utility owner i.e.: electricity, gas, cable, telephone.
3. Damaged utilities shall be repaired by the Contractor the same day they are damaged.
4. Coordinate installation of irrigation materials including pipe, so there shall be NO interference with utilities or other construction or difficulty in planting trees, shrubs, and ground covers.
5. The Contractor shall carefully check all grades to satisfy themselves that they may safely proceed before starting work on the irrigation system.

Preparation

Physical Layout:

1. Prior to installation, the Contractor shall stake out all pressure supply lines and valve locations.
2. All layouts shall be approved by the Owner prior to installation.

Water Supply:

1. Landscape Irrigation system shall be connected to water supply points of connection as indicated on the drawings.
2. Contractor shall verify static water pressure prior to commencement of construction/installation. Should there be a discrepancy between the design pressure and the actual pressure, contact the Landscape Architect before proceeding with the work. Failure to do so will result in the Contractor making necessary changes to the irrigation system without additional cost to the Owner.
3. The Contractor shall provide all required water taps and water meters necessary for the project as indicated on the plans.
4. Connections shall be made at approximated locations as shown on drawings. Contractor is responsible for minor changes caused by actual site conditions.

Electrical Supply:

1. Electrical service must be provided to the controllers by the Contractor. The Contractor shall make the final wiring of the controller. Electrical work shall conform to applicable codes.
2. Connections shall be made at approximate locations as shown on drawings. Contractor is responsible for minor changes caused by actual site conditions.

Installation

Trenching:

1. Dig trenches straight and support pipe continuously on bottom of trench. Lay pipe to an even grade. Trenching excavation shall follow layout indicated on drawings and as noted.
2. Provide for a minimum of eighteen (18) inches cover for all pressure supply lines.
3. Provide for a minimum cover of twelve (12) inches for all non-pressure lines.
4. Provide for a minimum cover of eighteen (18) inches for all control wiring.
5. Install pipe so that writing on pipe can be seen during inspection.
6. DO NOT trench across the critical root zone of a tree. The only permitted trenching under a tree shall be done in wagon-spoke configuration. Trench using AIR SPADE technology or bore under the critical root zone.

Backfilling:

1. The trenches shall not be backfilled until all required tests are performed and inspections are made by UNT staff. Partial backfilling between joints is acceptable to prevent pipe from floating. Trenches shall be carefully backfilled with the excavated materials approved for backfilling, consisting of earth, loam, sandy clay, sand, or other approved materials, free from large clods of earth or stones. Backfill shall be mechanically compacted in landscaped areas to a dry density equal to adjacent undisturbed soil in planting areas. Backfill will conform to adjacent grades without dips, sunken areas, humps or other surface irregularities.
2. Flooding of trenches is an acceptable means of settling soil in the trench.
3. If settlement occurs and subsequent adjustments in pipe, valves, sprinkler heads, lawn or planting, or other construction are necessary, the Contractor shall make all required adjustments without cost to the Owner.

Trenching and Backfill under Paving:

1. All piping and wiring under existing and proposed paving shall be in appropriate sized sleeves.
2. Trenches with pipe and wire to be located under areas where paving, asphaltic concrete or concrete will be installed shall be backfilled with sand (a layer three {3} inches below the pipe and six {6} inches above the pipe) and compacted in layers to 95% compaction, using manual or mechanical tamping devices. Trenches for piping shall be compacted to equal the compaction of the existing adjacent undisturbed soil and shall be left in a firm unyielding condition. All trenches shall be left flush with the adjoining grade. The Contractor shall set in-place, cap, and pressure test all piping under paving.

3. Generally, piping under existing walks is done by jacking or boring, but where any cutting or breaking of sidewalks and/or concrete is necessary, it shall be done and replaced by the Contractor as a part of the contract cost. Permission to cut or break sidewalks and/or concrete shall be obtained from the Owner.
4. Provide for a minimum cover of eighteen (18) inches between the top of the pipe and the top of pavement for all pressure and non-pressure piping installed under any paving.

Assemblies:

1. Routing irrigation lines as indicated on the drawings is diagrammatic. Install lines (and various assemblies) in such a manner as to conform to the details and plans.
2. Install NO multiple assemblies in plastic lines. Provide each assembly with its own outlet.
3. Install all assemblies specified herein in accordance with respective detail. In absence of detail drawings or specifications pertaining to specific items required to complete work, perform such work in accordance with best standard practice with prior approval of Owner.
4. PVC pipe and fittings shall be thoroughly cleaned of dirt, dust, and moisture before installation. Installation and solvent welding methods shall be as recommended by the pipe and fitting manufacturer.
5. On PVC to metal connections, the Contractor shall work the metal connections first. Teflon paste shall be used on all threaded PVC to PVC, and on all threaded PVC to metal joints. Light wrench pressure is all that is required. Where threaded PVC connections are required, use threaded PVC adapters into which the pipe may be welded.

Automatic Controller:

Install as per manufacturer's instructions. Remote control valves shall be connected to controller in numerical sequence as shown on the drawings.

120 Volt wiring for Automatic Controller: Wire controllers per appropriate code. Install liquid tight conduit when wire must be run above the ground.

Remote Control Valves:

Acquire approval from Owner for all valve locations prior to installation. When grouped together, allow at least twenty-four (24) inches between valve boxes. Install each remote control valve in a separate valve box

Flushing of System:

1. After all new irrigation pipe lines and risers are in place and connected, all necessary diversion work has been completed, and prior to installation of irrigation heads, the control valves shall be opened and full head of water used to flush out the system.
2. Irrigation heads shall be installed only after flushing of the system has been accomplished to the complete satisfaction of the Owner.

Irrigation Heads:

1. Install the irrigation heads as designated on the drawings.
2. Spacing of heads shall not exceed the maximum indicated on the drawings and shall achieve head to head coverage. In no case shall the spacing exceed the maximum recommended by the manufacturer.

Temporary Repairs

The Owner reserves the right to have made temporary repairs as necessary to keep the irrigation system equipment in operating condition. The exercise of this right by the Owner shall not relieve the Contractor of their responsibilities under the terms of the guarantee as specified herein. Costs incurred from these repairs shall be charged to the Contractor, or withheld from monies due to the Contractor.

Field Quality Control

Adjustment of the System:

1. The Contractor shall flush and adjust all irrigation heads for optimum performance and to prevent over-spray onto walks, roadways, and buildings.
2. If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, the Contractor shall make such adjustments. Adjustments may also include changes in nozzle sizes and degrees of arc as required. Any and all changes shall be recorded on the Record Drawings.
3. All irrigation heads shall be set perpendicular to finished grades unless otherwise designated on the plans.

Testing of Irrigation System:

1. The Contractor shall request the presence of the Owner in writing at least 48 hours in advance of testing for inspection and witness of test.
2. Test all pressure lines under hydrostatic pressure at operating pressure, and prove watertight.
Note: Testing of pressure mainlines shall occur after installation of electric control valves.
3. All piping under paved areas shall be tested under hydrostatic pressure at operating pressure and proved watertight.
4. Sustain pressure in lines for not less than two (2) hours. If leaks develop, replace joints and repeat test until entire system is proven watertight.

5. All hydrostatic tests shall be made in the presence of the Owner. No pipe shall be backfilled until it has been inspected, tested, and approved in writing. It is permissible to backfill between pipe joints to prevent pipe float. Leave all joints and connections exposed for inspection.
6. When the irrigation system is completed, perform a coverage test in the presence of the Owner, to determine if the water coverage for planting areas is complete and adequate. Furnish all materials and perform all work required to correct any inadequacies of coverage due to deviations from plans, or where the system has been willfully installed as indicated on the drawings when it is obviously inadequate, without bringing this to the attention of the Owner. This test shall be accomplished before any planting takes place.
7. Upon completion of each phase of work, the entire system shall be tested and adjusted to meet site requirements.

Maintenance

1. The entire irrigation system shall be under full automatic operation for a period of seven (7) days prior to any planting.
2. The Owner reserves the right to waive or shorten the operation period.

Clean-Up

1. Clean-up shall be made as each portion of work progresses. Refuse and excess dirt shall be removed from the site and disposed of at the Contractors expense.
2. At the end of each work day, the Contractor shall leave the site area broom-clean and shall wash down all paved areas within the contract area, leaving the premises in clean condition. All sidewalks, paths, curbs and roads shall be left in a clean, safe condition.
3. All scars, ruts or other marks in the ground or surrounding area caused by this work shall be repaired to the original condition.

Final Inspection Prior to Final Acceptance

The Contractor shall operate each system in its entirety for the Owner at time of final inspection. Any items deemed not acceptable by the Owner shall be reworked to the complete satisfaction of the Owner.

Observation Schedule

Contractor shall be responsible for notifying the Owner in advance for the following observation meetings, according to the time indicated:

- Pressure supply line installation and testing--48 hours
- Automatic controller installation--48 hours
- Control wire installation--48 hours
- Lateral line and head installation--48 hours
- Coverage test--48 hours
- Final inspection--7 days

Measurement and Payment

Work and acceptable material shall be measured as one lump sum. The work performed and materials furnished will be paid for at the contract price. Bid price shall be full compensation for furnishing labor, materials, equipment, and performing operations necessary to install the irrigation system, complete in place, in accordance with the plans and specifications.

END OF SECTION

The following is the plant list approved by the University:

Perennials

| | |
|-----------------------------------|-----------------------|
| Achillea 'Coronation Gold' | Yarrow |
| Aniscanthus quadrifidus | Flame Acanthus |
| Aquilegia chrysantha 'Hinkleyana' | Texas Gold Columbine |
| Aster oblongifolia | Fall Aster |
| Coreopsis auriculata 'nana' | Mouse Ear Coreopsis |
| Coreopsis lanceolata | Pure yellow Coreopsis |
| Coreopsis rosea 'Lime Rock Ruby' | Thread Leaf Coreopsis |
| Dicentra suberecta | Mexican Honeysuckle |
| Echinacea angustifolia | Purple Coneflower |
| Echinacea purpurea 'White Swan' | White Cone Flower |
| Gaura lindheimeri 'Siskiyou Pink' | Pink Gaura |
| Lantana horrid | Lantana |
| Liatris spicata 'Kobold' | Gayfeather |

| | |
|-------------------------------------|-----------------------|
| Lupinus texensis | Bluebonnet |
| Malvaviscus drummondii | Turk's Cap |
| Melampodium leucanthum | Blackfoot Daisy |
| Pavonia lasiopetala | Rock Rose |
| Phlomis russellian | Jerusalem Sage |
| Plumbago spp. | Plumbago |
| Rudbeckia hirta | Glorioso Daisy |
| Ruellia brittoniana 'Katie's Dwarf' | Dwarf Mexican Petunia |
| Salvia coccinea | Scarlet Sage |
| Salvia darycii | Red Flowering Sage |
| Salvia farinacea | Mealy Blue Salvia |
| Salvia gregii | Autumn Sage |
| Salvia leucantha | Mexican Bush Sage |
| Scutellaria suffrutescens | Pink Scullcap |
| Tagetes lucida | Mexican Marigold Mint |

Groundcovers

| | |
|-----------------------------|-------------------|
| Liriope muscari | Liriope |
| Ophiopogon japonicum | Mondo grass |
| Ophiopogon japonicum 'Nana' | Dwarf Mondo Grass |

Ornamental Grasses

| | |
|---|--------------------------|
| Calamagrostis acutiflora | Feather Reed Grass |
| Chasmanthium latifolium | Inland Sea Oats |
| Imperata cylindrical | Japanese Blood Grass |
| Liriope gigantean | Giant Liriope |
| Miscanthus sinensis 'Cabaret' | Japanese Silver Grass |
| Miscanthus sinensis 'Gracillimus' | Maiden Grass |
| Miscanthus sinensis 'Peunktchen' | Little Dot Grass |
| Muhlenbergia rigens | Deer Grass |
| Nassella tenuissima | Mexican Feather Grass |
| Pennisetum alopecuroides 'Little Bunny' | Miniature Fountain Grass |
| Pennisetum alopecuroides 'Moudry' | Black Fountain Grass |

Shrubs

| | |
|--------------------------------------|-----------------------------------|
| Berberis trifoliata | Agarita |
| Callicarpa Americana | American Beautyberry |
| Hesperaloe parviflora | Red Yucca |
| Hydrangea quercifolia | Oak Leaf Hydrangea |
| Hypericum patulum 'Henryii'; | Saint John's Wort |
| Ilex vomitoria 'Nana' | Dw. Yaupon Holly |
| Leucophyllum frutescens | Texas Sage |
| Myrica pusilla | Dwarf Wax Myrtle |
| Rhapiolepis indica | Indian Hawthorn (okay to use) |
| Rhus virens | Evergreen Sumac |
| Rosmarinus officinalis 'Hills Hardy' | Rosemary (prostrate is preferred) |
| Salvia greggii | Autumn Sage |
| Santolina chamaecyparissus | Gray or green Santolina |
| Symphoricarpos orbiculatus | American Coralberry |
| Yucca pendulosa | Soft Leaf Yucca |

Trees

| | |
|------------------------------|-----------------|
| Cercis canadensis 'texensis' | Texas Redbud |
| Chilopsis linearis | Desert Willow |
| Diospyros texana | Texas Persimmon |
| Ilex deciduas | Deciduous Holly |
| Ilex vomitoria | Yaupon Holly |
| Lagerstoemia indica | Crape myrtle |

| | |
|----------------------|-------------------------|
| Myrica cerifera | Wax Myrtle |
| Prunus Mexicana | Mexican Plum |
| Quercus accutissima | Sawtooth Oak |
| Quercus macrocarpa | Bur Oak |
| Quercus muhlenbergii | Chinkapin Oak |
| Quercus shumardii | Red Oak |
| Quercus virginiana | Live Oak |
| Sophora affinis | Eve's Necklace |
| Taxodium distichum | Bald Cypress (no knees) |
| Ulmus crassifolia | Cedar Elm |
| Ungnadia speciosa | Mexican Buckeye |
| Viburnum rufidulum | Rusty Blackhaw |
| Vitex agnus-castus | Vitex |

Lawn Grasses

| | |
|---------------------------------|--------------|
| Cynodon dactylon v. Celebration | Bermudagrass |
| Zoysia – Zorro Blade, El Toro, | Zoysiagrass |
| Palisades or Crowne | |
| Buchloe dactyloides | Buffalograss |

2.10 Exterior Lighting (Street, Walkway, Parking Lot and Area Lighting)

Lighting constitutes the first line of defense in the overall security and safety plan of the campus. Lighting provides the needed visibility for vehicles, and more importantly, pedestrians to safely travel around the campus. The University has an on-going project to upgrade the campus site lighting. This project was established in order to improve the overall safety of the campus for students and other pedestrians after dark.

Lighting typically falls into the following categories: (a) streets, (b) parking lots, (c) walkways, (d) athletic, (e) common areas around buildings. It is the goal of the University to preserve the ambiance of the campus while ensuring well-lit areas of travel about the campus. This requires the continuity of fixture types and luminaries. The majority of campus is currently lit with high mast lighting. As part of the project, high mast light poles serving the project area should be removed. New light poles should be “pedestrian friendly” to achieve a more human scale and characteristic campus lighting. New lighting temperature shall be 5000 Kelvin.

The standard specification for exterior campus pedestrian lighting is as follows:

Hubbell WMA-GL-STL-UNT-CAMSTD-Pulse-CUS14-47LED-5K-BL (or equivalent) color: gloss black, PSTS straight steel arm, LED 5000K, 48w/LED lamps 120/277v, luminous rings.

One out of every five light poles is required to have a 120 volt GFI outlet.

See [Appendix G Figure 50](#) for specifications.

Bollard lights where 12' poles are not suitable will have 55-watt LED lamps.

Parking lot lighting should be LED whenever possible.

Outdoor lighting systems shall be designed to provide the illumination levels in the chart at the end of this section using the following University standard poles and luminaries. New lighting should be LED. Lights in pedestrian walkways, bicycle paths and bicycle rack areas should be 12' poles with 85w/Magnetic Induction. Lights at roadways and parking lots should be 30' or 35' poles with 200-watt LED lamps for voltages 277 and below. 480 volt lighting use Cree 267w LED, RAB ALED, or equivalent. New and/or replacement fixtures shall conform to existing fixtures in and around the general area under consideration and shall be of equal or better quality. An example of an acceptable fixture is Hess America Valencia Series or approved equal. The use of lighting bollards is discouraged. Fixtures should be of the extruded type and represent a minimum maintenance item for the long term. Average: evaluate project specific. As a minimum, lighting levels should conform to the following:

| Location | Min. Footcandle Level | Average Footcandle Level |
|---------------------|-----------------------|---|
| Pedestrian Walkways | 1.0 | -- |
| Exterior Egress | 1.0 | -- |
| Bicycle Paths | 1.0 | -- |
| Bike Racks | 1.0 | -- |
| Roadways | .25 | 1.0 to 1.5 |
| Parking Lots | 1.0 | Evaluate project specific |
| Building Entrances | 5.0 | 1.5 times floodlighting design levels if the building has floodlights |

All outdoor fixtures shall be photocell relay operated. Multiple lighting fixtures shall be on a contactor that should be operated with photocells tied into EMS campus controls.

All new lighting circuits will be installed in schedule 40 PVC conduit, ¾" inch minimum.

Lighting in relationship to a new or remodeled facility may typically involve removal of existing fixtures, addition of new self-standing fixtures and addition of new wall-mounted fixtures.

A. Removal of Existing Fixtures

It may be necessary to remove some existing fixtures to facilitate the transition between a new fixture and the existing fixtures, or to improve the lighting level. Removal of all existing fixtures is accomplished by the contractor and delivered to the UNT Facilities, or relocated as specified in the construction documents. Include associated costs for this work within project budgets. There are many fixtures on campus that are very old, and as such, almost impossible to replicate. Exercise great care when handling these fixtures. The preferred electric distribution allows for power to be supplied to all fixtures from the respective building load center. Fixtures may or may not be all on one circuit. Use appropriate breakers and contactors in conjunction with rated photocells.

B. Addition of New Free Standing Fixtures

When the need arises for adding new free standing fixtures, care should be given to ensure uniformity in fixtures and lighting levels with surrounding fixtures and lighting levels. Detail should be given to all obstructions which result in a "cutoff" of the required light pattern. Electric distribution prefers that power is supplied to all fixtures from the respective building load center.

C. Addition of New Wall Mounted Fixtures

Wall -mounted fixtures other than decorative, such as wall-packs are strongly discouraged. When the need arises for mounting fixtures on an outside wall of a building, design the lighting system to ensure adequate lighting levels without creating glare or nuisance lighting in other areas. Mount these lights for ease of maintenance and connect to a source in the building load center. Contact the Project Manager regarding available voltages and sources, fixture styles, types and placement prior to preliminary design.

Provide cast-in-place concrete light pole bases. Bases should be embedded no less than 1/3 the height of the pole. Consult with structure engineer for required depth as required.

2.11 Outdoor Solid Waste Collection

The University is dedicated to maximize efforts to (1) reduce the amount of solid waste the University generates, (2) recycle material recoverable from solid waste originating at University facilities and (3) purchase and use products made wholly or in part from recycled materials.

A. Waste Receptacles

Depending on the location and type of use, use either:

- Standard Receptacles manufactured by Wabash Valley Manufacturing, Inc. with rib (R) finish. 32 Gallon size. Model Number LR300R.
- or
- Solar powered side-by-side Big-Belly waste/recycle bins (specification provided by UNT)
- Locate waste receptacles where the need is observed, but keep them visually inconspicuous. Locate receptacles at the intersections of major pedestrian corridors, plaza areas and entries to major student areas. The units should be contiguous to walks and on a paved area extending outward from the walk. The unit should be level and firmly secured to the ground.
- Need approval from Project Manager for waste receptacle locations and number of receptacles.

B. Dumpsters

Locate dumpsters at major building service areas where their need is observed or anticipated. Locate sites as visually inconspicuous as possible. Gates are preferred when practical. All sites shall accommodate pick-up by a 40 foot long by 8 foot wide truck, including turn around space. Screen all sites from public view with constructed elements compatible with the architectural character of adjacent buildings. Landscape planting shall supplement these screens.

Allow a 25 foot clearance above the dumpsters for servicing by dumping truck. Provide a service ramp and pathway to transport service equipment from the building's service door or loading dock to outdoor recycling and solid waste collection site. This service ramp and pathway shall have a minimum width of 6 feet.

When planning a dumpster, refer to Appendix G, Figures 11-14.

2.12 Site Accessories

Benches and Tables

- The preferred means for providing informal seating are seating walls (see below specification for Seating Walls) and
- If it is determined that freestanding furniture is necessary for a particular environment, then park benches, tables, trashcans are to be:

- Prestige Single – Pedestal Octagon Tables manufactured by Wabash Valley Manufacturing, Inc. Premium Frame with perforated (P) finish. Model PP202(P)
- Pedestal Octagon Tables manufactured by Wabash Valley Manufacturing, Inc. with perforated (P) finish. Model PP203(P) (Use this table for wheel chair access)
- Bench with back manufactured by Wabash Valley Manufacturing, Inc. with rib (R) finish. 4' Model Number ES401R. 6' Model Number ES420R.
- Swing with Chain manufactured by Wabash Valley Manufacturing, Inc. with rib (R) finish. 6' Model Number SP305R.

Bicycle Racks

- The University campus standard for bicycle racks has been adopted for use at the UNT main campus buildings and locations. Every bicycle parking rack shall be a 'wave' style galvanized pipe or brushed stainless steel in an "M" or inverted "U" shape. See Appendix G, Figure 15. All new buildings and structures shall include on the final construction and bid documents a budgeted line item for bicycle parking racks. Include bicycle parking racks and parking surface in the bid documents and consider it as part of the construction costs. The number of bicycle racks for new construction is determined in joint consultation with the Project Manager.
- Locate each bicycle rack site as close as possible to the perceived destination of the bicyclist (doorways, entranceways, etc.). Use building overhangs and other sheltered locations for bicycle racks when possible to afford protection from the elements. Include street curb cuts and ramps for bicycle riding access to buildings and structures. When siting bicycle racks, choose locations that are accessible by bicycle - avoid paths with outdoor stairways. Bicycle parking sites shall be considered at the schematic design phase, and final site locations determined before the final construction documents are let out for bid.
- Every campus bicycle parking rack is to be installed on a paved surface, concrete or asphalt is preferable. See Appendix G, Figure 15 for installation details.

Bollards

- Bollards restrict vehicular movement while allowing pedestrian circulation to continue unimpeded, and are used as a means for filtering vehicular circulation from pedestrians. Removable bollards are used where occasional vehicular access is required.
- If it is determined bollards are needed then the campus standard bollard by Reliance Foundry must be used. Fixed bollards are surface mounted and removable bollards have a receiver with a hinged lid. A second receiver should be installed nearby to hold the bollard when it is not in place to restrict traffic.
- Standard bollard by Reliance Foundry:
 - Bollard in steel, power coated black on main campus; Model R-7902; Optional powder coat color: anodized silver for Eagle Point Area and Discovery Park.
 - Flange mounting kit for fixed bollard; Model R-7900
 - Receiver with hinged lid and hardware, stainless steel; Model 7901
 See Appendix G, Figure 14 for installation information.
- The surrounding surfacing material should extend to the base of the bollard. No "new" or different surfacing material is used as a bollard base.

Bus Stop Shelters

- The University, in consultation the University Parking and Transportation Department, shall determine where to locate bus stop shelters when ridership volumes justify use and adequate space is available.
- The design of bus shelters shall be coordinated between UNT Facilities and University Parking and Transportation Department. It should be appropriately illuminated and adequately transparent to ensure user security and safety. Provide a suitable clear space around the shelter to allow for visual accessibility and maintenance and integrate related site furnishings, such as waste receptacles, lighting, newspaper machines, and landscaping features, into the space surrounding the shelter. It should have a fixed sitting surface inside.

Fences

- The use of metal fencing is generally discouraged and is used only where necessary. Brick walls are preferred, where practical.
- When metal fencing is required in visually prominent locations, it should be a decorative metal designed application generally following the standard design with a black finish as shown (See Appendix G, Figure 17). It is also

recognized that chain-link fencing may be the only economical alternative in areas away from public view. See Appendix G, Figure 17.

Newspaper Racks and Machines

- When newspaper racks and machines are needed, they should be accommodated within buildings, whenever possible. If it is not feasible to accommodate the racks inside of buildings, group them at entrances to major buildings or other high traffic areas where their location does not interfere with pedestrian movements. Groups of racks should be as inconspicuous as is possible, and should be enclosed on three sides by a screen wall which leaves only enough clearance as may be required for use and servicing.

Railings

- Railings should be brushed stainless steel or gloss black color powder coated/ baked enamel depending on architectural design of the building or context.
- Refer to Appendix G, Figure 33 for post mounting detail.
- All railings should be painted gloss black or silver. Decision on which to use will be determined on a case by case basis.
- To prevent skateboard use at railings or walls, use skateboard blocks or nobs at any places identified as potential opportunities for damage from skateboards.

Seating Walls

- The primary means for providing informal exterior seating is the use of seating walls. Seating walls can accommodate fluctuating volumes of users, require less maintenance and are visually less obtrusive than benches.
- Seating walls should be incorporated as part of all courtyard and outdoor space development where the potential desire for seating exists. They should be 16 to 18 inches high and 18 inches wide. They should be constructed of masonry and have generally level tops.
- To prevent skateboard use at low walls, use skateboard block or nobs at any places identified as potential opportunities for damage from skateboards.

2.13 Exterior Signage

For new buildings, the Designer is expected to make provision for a UNT standard building sign. See Appendix G, Figures 18 - 19.

Signs other than building signs are typically masonry backing with anodized raised letters, masonry raised or recessed letters. The Designer will discuss these signs with the Owner, if appropriate.

2.14 Site Utilities

Underground utilities and other structures shall be designed so that the installation will prevent or minimize damage to existing landscape plants and trees. Do not trench under the drip line of any campus tree, seek alternate design criteria. If a trench must occur, utilize boring or AIR SPADE technology as discussed in the Design Guidelines, Section 2.9, *Tree Protection*.

Installation of an irrigation system meter and tap generates a City of Denton connection fee that the Designer/Contractor is responsible for?

Water and Sanitary Sewer Service

- Water and sanitary sewer services to buildings on the campus are provided and maintained by UNT from the building to the meters, which are owned and maintained by the City of Denton. All water and sewer lines must be constructed in accordance with City of Denton Standards and Specifications.
- Denton water/sewer tap and impact fees for new connections to existing water or sewer mains will apply to all new University projects. However, the Designer must confirm this determination for each specific project. On projects where these fees do apply, the Designer shall make appropriate provision for these fees, which include the water/sewer service fees, tap/meter installation fees and all other applicable fees, in the project development budget, either by allowances in the construction contract or by reserving funds outside of the construction contracts which is the preferred method. Public sewer mains must be ductile iron. Any existing sewer mains that would fall within the footprint of a new building must be relocated outside the building footprint.

Meter, switch and transformer location

- Gas meters, electrical switches and transformer locations shall be thoroughly coordinated with site conditions including existing trees, sidewalks and other restrictions. Locate in an inconspicuous location to the extent possible, not under tree drip lines and provide fencing/screening as necessary to preserve campus aesthetics.

Fire Hydrants

- The Designer should coordinate the location of fire hydrants with the UNT Project Manager and the City of Denton.

2.15 Shielding of Equipment

Shield cooling towers, switches, transformers, etc. from view with architectural treatment compatible with adjacent structures. Acceptable solutions depending on the application include masonry walls (brick or architectural block) and Trex composite fencing.

2.16 Protection of Underground Tanks and Pipes

All underground piping must meet requirements for proper installation, leak detection, corrosion protection and spill/overflow prevention. Underground storage tanks are not permitted. Consider concrete vaults or above ground tanks with secondary containment.

2.17 Emergency Phones

Provide UNT standard emergency phones as needed. The Designer should coordinate the location of any new emergency phones required by the project with the Project Manager. See Appendix G, Figure 21-22 and website http://www.codeblue.com/Products/Brochure/CB_I-s.pdf for specifications. All emergency phones should be located on an ADA accessible route.

3.0 Building Envelope

3.1 Exterior Materials

The selection of the predominant exterior materials for new construction is extremely important in achieving the degree of contextual compatibility required among buildings on the campus.

Brick

- Brick is the predominant construction material on campus and is an appropriate exterior wall material because it is a low maintenance material. The university has a selection of standard brick selections including the "Hurley blend". Brick in unusual colors is not appropriate. Stone sills, copings and story-bands are typically used to articulate the mass of a brick envelope. (Refer to the UNT Master Plan)
- For structures removed from the heart of the main campus, the Designer may consider other exterior materials. However, there must be compelling reasons for using other materials and other means must be used to integrate the structures into the fabric of the campus.

Exterior Painting

Traditionally, the palette of color on the exteriors of buildings throughout the campus is derived from the use of "UNT Blend" brick and light-colored stone, stucco or trim. When selecting specific colors that will identify location of image, be mindful of guidelines referenced in Section B,1.14. All exterior color of buildings needs approval by the University.

Paint or factory finish exterior finishes, fixtures and containers (including lamp posts, bicycle racks, bollards, posts, barriers, drinking fountains, street signs, trash receptacles) must approved by UNT Project Manager. All exterior handrails, stair railings and any other exterior railings on campus should be gloss black or silver finish dependent on location and architectural context.

Exterior equipment, such as air conditioner compressors, mechanical equipment and the like, may be required by the University to be painted. UNT must approve all color selections.

Roofing

- UNT has a standard specification for roofs that should be incorporated into the construction documents. Generally the specification calls for a four-ply modified bitumen roofing system to include a base sheet, two intermediate fiberglass felt plies and a granular surfaced polymer reinforced modified bitumen cap sheet applied in moping of hot asphalt over rigid insulation boards. The insulation system should be a two-layered system over a steel deck, consisting of a base layer of rigid insulation board mechanically fastened to the deck in compliance with FM 1-90 wind uplift resistance, followed by a top layer of rigid insulation board set in a mopping of hot asphalt
- No flat roofs. Must have a minimum slope of one quarter (¼) inch per foot on new structures. Less than one quarter (1/4) inch per foot is acceptable on existing structures provided the roofing manufacturer offers a 15-year warranty (depending on roofing system chosen).Facilities Maintenance will make all final decisions in these instances.
- Standard 4-ply specification is to be used in new construction where LEED certification points are not relevant to the project.
- Building evaluation and consideration should be given to provide infrastructure for future solar panels.

From the pre-approved systems, the consultant will select roof systems which are suitable for the facility. To evaluate possible systems, the consultant will consider the following design parameters:

1. Life of the roof system. Preferred systems and associated useful lives include:

| | |
|------------------------|----------|
| Single Ply 60 mil | |
| Modified Bitumen (SBS) | 20 years |
| Composition shingles | 25 years |

- Metal
- Preformed architectural
- Structural standing seam
- Architectural – custom fab

2. If other systems, such as PVC, TPO, CSPE/Hypalon, mechanically-attached EPDM, APP type modified bitumen are, in the opinion of the consultant, the most appropriate system, it will be evaluated by the project team.
3. Initial (first) cost of the roof system and additional building costs required for recommended roof system.
4. Maintenance costs and requirements.
5. Energy costs associated with recommended roof system.
6. Building height/roof slope/wind resistance requirements.
7. Present and future use of building, including specific uses in the building that could affect the roof system.
8. Local environmental issues/contaminants and pollutants.
9. Life expectancy of building.
10. Structural properties of roof superstructure.
11. Type of roof deck.
12. Slope/drainage.
13. Vapor retarder requirements.
14. Roof traffic/access and penetrations.
15. Code/Insurance requirements and restrictions.
16. Aesthetics.
17. HVAC internal pressures.
18. Application issues, such as staging, access, building use and occupancy, etc.
19. New roofs shall have safety lines installed for future maintenance and repairs.
Safety lines shall be installed in cases where there is an upper "flat" roof that provides access to a sloped roof.

After establishing design parameters, Systems should be evaluated by the consultant based upon:

1. Minimum established UNT standards
2. A choice of roof systems with properties that, considering all factors, are best suited to the project
3. Requirements for a total system warrant

The consultant will follow these roofing guidelines when designing the roofing system:

1. Single-ply ballasted roofs and coal tar roofs will not be installed.
2. Light weight concrete will not be used as a means to create slope on new buildings. On re-roofs, it may be used to repair existing decks and create slope.
3. New buildings should have ¼" foot slope; this should be accomplished by sloping the structure.
4. If an existing roof has less than ¼" foot slope a serious evaluation will be done to determine if achieving ¼" foot is feasible.
5. Due to health hazards and indoor air quality issues, coal tar pitch shall not be used. The only exception is to patch an existing coal tar pitch roof, and then it may only be used during a night shift job.
6. Use crickets, saddles, and edge strips to direct water flow away from parapets and penetrations. Back slope is to be confirmed during detailing.
7. Overflows are required by code. Overflows shall not be piped into the primary roof drain system.
8. Provide roof walkways to and around rooftop equipment and other areas as directed by the owner.
9. At the design development phase, a review should be undertaken by the consultant to include vapor retarder requirements deck type, expansion joint locations and details, salvage ability of existing roof insulation, drainage, roof access, roof contaminants, fire rating, and wind uplift factors, and all other applicable parameters.
10. Existing roof decks will be checked by a registered structural engineer if roof loads are in question.
11. On re-roof projects, where a consultant is utilized, an evaluation will be done by the consultant and the owner. Core samples and other testing results will be recorded and evaluated.
12. Roof access will be evaluated, and roof access hatches, ladders and other components will be installed as required by the owner.
13. Avoid complex flashing details. Minimize use of pitch pans or sealant pockets. Maintain minimum 8" flashing height, 12" is preferred.
14. Minimize roof penetrations. If structural penetrations are unavoidable, use round or square structural steel shapes to facilitate flashing. Equipment supports for rooftop mounted equipment shall be a minimum 14" height. Use prefabricated equipment supports where possible. Equipment support frames or stands shall provide following working clearances:

| | |
|--------------------|----------------|
| Width of Equipment | Height of Legs |
| Up to 25" | 14" |

| | |
|----------|-----|
| 25-37" | 18" |
| 37-49" | 24" |
| 49-61" | 30" |
| Over 61" | 48" |

3.2 Glazing

Use double-glazed Low E insulated windows in conditioned spaces. The orientation and solar gain potential of windows is always an important consideration, however, the use of mirror glass is discouraged.

When possible, provide windows that can be washed on both sides from inside the building. When that is not possible, provide safety belt anchors placed on the outside of all windows. Provide guardrails on windows with sills less than two feet from the floor.

3.3 Doorways

Frameless glass doors are not permitted. Hollow metal doors with glass panels are preferred. Minimum door size 3'0" width, and 70" height.

3.4 Exterior Storefronts

Exterior storefronts to be glazed with insulated glass in 4 1/2" thick frames, and must conform to fire codes.

3.5 Roof Access

Provide safe and lockable roof access with UNT master core. Provide permanent ladder(s) to all roof levels. Permanently affixed ladders should be a minimum of 8" from wall. Roofs with numerous mechanical devices, such as exhaust fans on laboratory buildings, must have one stairwell or ships ladder extend to the roof.

3.6 Ledges and Bird Roosts

Designers should avoid designing ledges and openings on the exterior that could become bird roosts.

3.7 Knox Box

Use KnoxVault 4400 DUAL LOCK Model, recessed mount, color: black. Install 5' from walking surface to top of Knox box, and within 5' of the access point.

See [Appendix G, Figure 51](#).

4.0 Superstructure

4.1 Special Foundations

A geotechnical engineer shall provide a thorough subsurface exploration program for all new construction projects. The Designer shall determine the number, locations and depth of soil borings, or other similar tests required to establish a reasonable estimate of the elevation of bearing strata or depth of the foundation system. Based on the findings of the soil exploration program, and the recommendations of the geotechnical engineer, the Designer shall recommend a shallow foundation or one or more available types of deep foundation systems that are deemed feasible. The designer will also estimate the footing and tip elevations of pilings or bottoms of drilled shafts. The foundation system report shall include the geotechnical engineer's estimate of the properties of underlying rock, location and characteristics of ground water and subsurface conditions which may require increase the cost of the foundation.

5.0 Interior Layout and Construction

5.1 General

Entry/Lobby

- Provide an air lock or vestibule at each entrance to the building for energy conservation purposes and thermal comfort.
- Exterior double doors must have a lockable, removable mullion.
- Preferred entry floor mats and frames are recessed aluminum frame with carpet type insert.
- Carpet and backing insert will be Class 1 fire rating with a minimal pile weight of 32 ounces per square yard. Color will be from manufacturer's available standards. Coordinate with PM.
- Consideration will be given to carpet selection that meets LEED certification requirements.

Public Restrooms

- All restroom fixtures, dispensers, and accessories must be TAS/ADA compliant.
- Install with supply/exhaust air systems.
- Be mindful to break sight lines through doors and mirrors.
- Provide Saniflow dual flow plus M12a hand dryers with plumbed in drain line.
- Provide StepNpull (stepnpull.com) foot operated door openers on pull side of door.
- Provide a laminate or solid surface recessed book/backpack shelf in each restroom.

- Restroom partitions should be floor mounted, overhead braced and comprised of 3/4" solid phenolic or stainless steel.
- Ceramic Tile should be used on the floors and walls.
- Refer to Section B,0 for water heater and floor drain information.
- Toilet tissue and soap dispensers typically will be provided and installed by UNT.
- All restrooms should have a minimum of one floor drain.
- No paper towel dispensers or waste receptacles.

Individual Restroom

- Provide at least one individual user restroom per new building or full-building renovation.
- Individual restrooms shall provide lavatory, water closet and locking door with occupancy indicator.

Lactation Rooms

- Provide one lactation room per new non-residential building.
- Lactation rooms shall have power, data, baby changing station, soft seating for 1 person and locking door with occupancy indicator.

Break Rooms

- Flooring shall be hard surface (e.g., VCT, ceramic tile, sealed concrete). No carpet, unless approved by University.
- Provide taps with isolation valves from sink water supply for icemaker and coffee makers. Installation of these items will be outside of construction contract, unless otherwise specified by Owner.
- Add GFI outlets for coffee makers and microwaves on designated circuits.

Ceilings

- All ceiling tile and grid should be fire rated.
- No gypsum board ceiling unless prior written approval by owner.
- Ceiling should be a standard 2' X 4' lay-in in tile. Use Armstrong 1729 Fine Fissured, non-directional, humidity resistant *HumiGuard Plus* and *BioBlock* paint for mildew and mold resistance.
- Grid should be 15/16" Exposed Tee system.
- Provide sound attenuation at partitions and ceilings between major areas. A path for return air must be provided. Review criteria for acoustical separation with the PM.
- Suspended ceiling systems will be designed with a 2' x 4' grid pattern in most areas. Use of a 2' x 2' grid in public corridors, auditoriums, lecture halls, and other areas subject to frequent above ceiling access or upgraded appearance should be considered. Reveal edge tiles may be used in selected areas with approval of the PM.
- Concealed spine or tongue and groove ceiling systems will not be used.
- Drywall ceilings should be limited to consistently wet areas (such as cage and cart wash areas, kitchens, bio-safety Level 3 or larger facilities) and soffits in special public areas.
- Access must be maintained to the plenum space.

Ceiling Fans

- Ceiling fans are generally not permitted without University approval.

Wall Construction

- During installation of drywall, must stagger joints from one side to the other.
- The specifications for dry wall and metal studs is as follows: 3 1/2" studs on 16" centers, 16 gauge with 5/8" sheetrock. Screw spacing should be a minimum of 8" on joints, and 12" in the field.
- All metal store front frames are 4" wide.
- Metal door frames are for a 4 7/8" set up for 3 1/2" metal stud with 5/8" sheetrock on both sides. All door openings require wood reinforcement.
- All walls will be insulated with a minimum of R-13 rating or as specified by the Project Manager.

Building Plaque

- For new buildings, provide a cast bronze dedication plaque. The Designer shall provide an appropriate setting for installation of the memorial plaque. The University will furnish the exact wording and specifications for the plaque provided by the contractor.

Corridors

- Provide recesses in corridors for drinking fountains, telephones and paper recycling containers.
- Provide durable finish materials in recesses that will withstand repeated scrubbing.
- Provide corner guards at all outside corners in high-traffic areas.

Changes in Level

- Avoid split levels floors, depressions or elevated floor sections.

5.2 Space Organization

- In a typical multi floor academic building, the heaviest traffic, classrooms and open computer access labs, should go on the ground floor, while teaching labs would occupy intermediate floors, and Research labs or other light traffic spaces such as offices, etc. occupy the top floors
- Outside on grade access to large mechanical rooms is highly desirable

5.3 Office Standards

- Over the course of time, UNT has developed functional standards with regard to size of newly created offices in conjunction with our own experience and the recommendation of the Texas Higher Education Coordinating Board. Although we recognize that hard wall offices are preferred by most users, modular wall systems provide the benefit of future flexibility to accommodate growth and change*. Our recommendations for modular offices are indicated in the chart below.

| Personnel | Office Size Designation | Modular Office Systems | Hard wall Offices | Square Footage Range |
|------------------------------|-------------------------|------------------------|-------------------|----------------------|
| Admin/Clerical Staff | "A" | Yes* | No | 60-80 s.f. |
| TA/TF/RA/GA | "A" | Yes | No | 35-50 s.f. |
| Faculty/Staff | "B-1 & 2" | Yes* | Yes | 120-130 s.f. |
| Dept. Chair or Equivalent | "C-1" | Yes* | Yes | 140-150 s.f. |
| Associate Dean or Equivalent | "C-2" | No | Yes | 150-160 s.f. |
| Dean or Equivalent | "C-3" | Yes* | Yes | 170-180 s.f. |
| Vice President or Equivalent | "D" | No | Yes | 250-300 s.f. |

*Modular office systems are typically based on a 3' to 4' module. Work surfaces should not exceed 48" in length.

- See Appendix G, Figures 23-27 for typical office layout corresponding to each office size.
- See Appendix G, Figure 28 for various typical office storage cabinet layouts.
- Where hard wall offices are required, shelving may be either wall-hung system furniture or wooden shelving mounted on shelf standards. Refer to Appendix G, Figure 29 for wooden shelving detail.
- All offices should be provided with 3-4 duplex outlets and 1 voice/data outlet, or as required by code.
- Offices should be grouped together rather than dispersed in isolated groups

5.4 Classrooms

UNT Classroom Support Services (CSS) Group is responsible to design, install and maintain A/V equipment for General Use Classrooms. The Designer will be responsible for collaborating with CSS for all the necessary requirements, e.g., electrical, data, etc. Project Manager will provide the Designer with the latest CSS Classroom requirements and Audio/Visual Equipment design criteria as designated by CSS.

Classrooms other than General Use Classrooms should generally comply with the same standards. Classroom access at the rear is preferred.

UNT Center for Distributed learning (CDL) is responsible for providing design services to all classrooms or any other rooms equipped with Video Conferencing capabilities (see Appendix D). The Designer is responsible for coordinating all necessary electrical and data requirement with CDL.

Lighting Control

- Provide dual level inboard/outboard switching to control lighting in all areas or occupancy sensors as appropriate to the use of the space.
- For areas over 200 square feet, provide multiple switching to reduce the lighting. Use three-tube, two ballast T8 fluorescent fixtures.
- Classrooms, lecture halls and conference rooms will have one bulb in each fixture of the back row switched separately from the rest of the room to allow subdued lighting during media presentation. See Appendix G, Figure 31.
- Specific chalkboard lights will also be switched separately from the rest of the room. Other areas may be so equipped if feasible.
- Spaces used as classrooms part time or full time will need to meet the lighting requirements above.
- Any exceptions need to be approved by Facilities Project Management and CSS.

5.5 Custodial Closets

Provide one Basic Custodial Closet for every 6,000 square feet of useable building floor space (or portion thereof) with at least one custodial closet per floor. This space is for the exclusive use of housekeeping staff. Do not locate plumbing, mechanical, or electrical equipment in this room. Locate these rooms throughout the building to avoid moving equipment long distances. The following should also be provided:

- Custodial closets shall be a minimum of 90 square feet and shall be equipped with a 3'0" minimum door that opens out.
- Floor mounted porcelain service sink with hose bib, 3'0" x 3'0" with 4" to 8" sides.
- Reinforced Hot and Cold water faucets, 30" above the bottom of the service sink.
- Three or more wet mop hooks or clips arranged to permit dripping of wet mops into sink basin.
- Three or more dry mop and dust mop hooks or clips on wall opposite sink basin.
- A minimum of 2 GFI duplex electrical outlets located near the corridor door and 18" above the ground.
- A floor drain, with the entire floor sloped a minimum ¼" per foot, to the floor drain.
- Floors shall be sealed concrete.
- No other services shall be located in the custodial closet. No electrical panels, pipe chases, entrance doors adjoining rooms, telephone switchgear, elevator panels, water heaters, or similar equipment.
- Lighting shall be 30 foot candles, flush in ceiling.
- Provide positive ventilation, e.g. exhaust fan.
- Custodial closets shall be located on all floors throughout the building and always open to the main corridors. They should not be located in machine areas, restrooms, utility chases or utility corridors.
- Wall finish should be FRP, epoxy paint or other approved finish to 48" AFF and 24" past the floor sink.

5.6 Hazardous Materials Room

All buildings used for laboratory research shall have a room designated for use by the Risk Management Office for short-term storage of chemical and radioactive waste. Design the room in accordance with NFPA 30 for an inside flammable storage room to provide for spill containment, classified wiring, automatic sprinklers, fire-rated walls, exhaust ventilation, etc. The size of room is dependent on the size of the Research building and nature of anticipated research projects – a floor area of 70-100 square feet is typical. Whenever possible, locate the Hazardous Materials Room near or accessible to the loading dock.

5.7 Mail Service Facilities

Department office suites usually require a series of mailboxes located in the department suite. The Designer will determine exact requirements with Users.

5.8 Mechanical & Electrical Equipment Rooms

Size mechanical and electrical equipment rooms to accommodate the building's mechanical and electrical systems and allow maintenance personnel easy access. Locate transformers, boilers, pumps, tanks, heat exchangers and other large equipment to permit easy servicing, operation and removal. Provide adequate circulation areas around equipment, including valves and accessory piping. Mechanical rooms may be entered directly on grade from the outside or from public corridors. Steps leading to mechanical rooms are not permitted.

All mechanical and electrical equipment rooms will have sealed concrete floors.

In buildings with multiple Mechanical/Electrical Equipment rooms, room should be adjacent. This includes multiple story buildings.

Mechanical /Electrical room should be stacked in multi-level buildings, to reduce the length of piping/conductor runs.

5.9 Recycling Alcoves

Every building containing more than 10,000 square feet of useable floor space shall have a recycling alcove. This space is used exclusively for the storage of recycling equipment and material. Locate this area on the ground level, near the loading dock or service entrance. The minimum acceptable size of this area is 40 net square feet.

Architect shall design recessed areas within mail circulation paths that will also accommodate recycling containers wherever possible.

5.10 Telecommunications Standards

GENERAL

These standards apply to all telecommunications installations within the University of North Texas System. Separate standards are presently in place for the University of North Texas Health Science Center and UNT Health.

The Department of Information Resources has determined that most buildings at the University's fall into the category of special purpose buildings, resulting in a far lower density of workstations than the TIA/EIA 569-A standard assumes. Because of that, it is appropriate to base the allocation of space for communication room on the number of faceplates actually served and not on square footage. Limiting the number of faceplates served from an individual communication room will insure that an appropriate number of communication rooms are planned.

ITSS Telecommunications will bid out the Communications portion of the work separately from the General Contractor. This Voice and Data vendor will be responsible for all cabling, Fiber, J-hooks, Voice and Data jacks and Faceplates, WAP

installation, Patch Cords, Racks-Ladder Rack, Vertical/Horizontal Wire Managers, Patch Panels inside the Communications rooms. ITSS Telecomm will provide the Telephones and be responsible for cross connecting jumpers within each Communication room. The General Contractor is responsible for pathways, indoor-outdoor conduits, boxes, buildout of Communications rooms, electrical, A/C, plywood, lighting, pull strings, cores, cable trays if needed, TMGBB. ITSS Datacomm will provide switch gear for each Communications room, Wireless Access Points. UPS if not provided by General Contractor for the entire building. We would like for each building to have a main UPS that feeds all power within each Communications room. If not Feasible then ITSS Datacomm will provide UPS per each Communications room.

DESIGN REQUIREMENTS

The University will base its space allocation for communication rooms on the following matrix which allows for equipment space requirements to service an immediate need for a designated number of faceplates, growth of voice and data jacks, and some expansion of services:

| Maximum # of Cables Served | Minimum Communication Room Size |
|----------------------------|---------------------------------|
| 400 or MDF | 12' x 20' |
| 200 | 12' x 16' |
| 96 | 12' x 14' |
| HUB | 20' x 25' |

The above requirements are sized to provide significant growth capacity such as might occur during normal future expansion of the network. After initial installation, the number of faceplates serviced from a closet may increase. However, this increase will not be permitted beyond the capacity of equipment or racks which may be installed in a room according to the above guidelines. **The Main Distribution Frame (MDF) minimum room size is 12'x20'. The Intermediate Distribution Frame (IDF) minimum room size is 12'x14'.**

- A. Each floor should have its own telecommunications room, the communications rooms should be centered on a floor and be vertically stacked. In some cases, it may not be feasible or economically viable to have a telecommunications room on each floor. In such cases:
- B. A telecommunications room will only be permitted to service one floor above and one floor below its location, in addition to the floor on which it is located.
- C. The Communication room station cabling will not exceed 295 t. Therefore the Communication room placement is critical due to the 295Ft. cabling limit. This 295ft. limit is not determined by the hallways and the buildings layout, it will be determined by communications pathways and conduit routing. The communications room should be **centered**. If this is not possible, then an additional communication room will be needed. If additional communication rooms are needed, we require 3-4" conduits from the MDF communications room to each additional communication room. **These conduits will not go in the ground.** If all communications rooms are stacked then 3-4" sleeves with bushings are required.

The UNT Communication Department requires a floor plan of the building that only shows the communications symbols, the room numbers and the furniture layout. If the building has multiple floors we need floor plan for each floor. Each floor will be on one sheet.

UNT Communications will be responsible for cabling for Voice, Data, Wireless, TV, Security Cameras and any other devices that will be on UNT's communications network.

No other trade will use any communication room to place their equipment in or to use our communications room as a pass thru or chase for routing of any cable, water pipes, duct work or any other utility. This is in and above all new Comm rooms. Communications Rooms will not be used for storage rooms. If room is needed from another trade in any Communication room—the Communication rooms needs to be larger than our standard size and a cage can be installed to separate trade equipment. If this is needed, this needs to be coordinated thru ITSS.

A Cellular distributed Antenna system will be discussed for each new building.

Wireless Access Points will be designed by ITSS Datacomm, not by the General contractor or Data Consultant.

If Lease spaces or Temporary spaces are needed by UNT, UNT Law School and UNTD. Communications rooms will still be required to be a separate room. Each of these spaces will be designed separately by ITSS.

INSTALLATION REQUIREMENTS

In new construction, wiring upgrades or installations, the University will not permit the installation of cable that is not appropriately rated for use in space that is designed as a return air plenum.

After deactivation resulting from a regularly scheduled remodel or systems upgrade, the University will not permit non-rated cable to remain in any space designed as a return air plenum.

New Communications Rooms should have one quad with 120V 20 Amps and three NEMA L5-30 120V 30 Amps circuits to support UPS requirements all at floor level. These circuits will be installed at the bottom of the Teleco Racks. Telecom will place these on drawings after room has been allocated.

There will be standard 20-amp duplex receptacles at standard height at 6 foot intervals around the room. Electrical contractor will furnish a TMGB in the MDF and a TGB in each IDF. Each wall of the room will have ¾" fire retardant plywood installed. Each room will have a Chilled Water/CRAC air conditioner, separate from the rest of the building and that is not installed within the room. No duct work within the room only the supply vent and return vent on a wall. This is a dual unit so when the Chill water is shut off the CRAC unit will then kick on. Minimum size 43,000 BTU/HR—3.5 Tons. Each Communications room will have lighting per EIA/TIA standards. All Electrical Outlets in all Comm rooms and A/C Power are on Emergency Power or on Generator. A Floor Drain is required for any new constructed Comm room.

During life time of this new building or a renovation of existing buildings the A/C will be part of the buildings maintenance, ITSS is not responsible for replacement or repair of these A/C's in each communications room, the building maintenance fund will be responsible.

COMMUNICATION ROOMS, CABLE TRAY AND PATHWAYS

All cable tray pathways and communication rooms must be free and clear of all obstacles such as: sprinkler systems ducts, pipes and drains, electrical conduits, electric motors, a/c ductwork, ventilators, plumbing pipes, fluorescent lights. There will be 12 inches of clearance above, below, and to each side of the cable tray. The type of cable tray to be used is Cablofil. The cable tray will be installed to Cablofil's specifications. Any Communication room will not be next to, above or below an electrical room due to EMF interference. Communications room walls should be insulated well due to noise.

FURINTURE AND MODULAR FURNITURE

Any furniture cannot cover up a communication outlet. A whole cut into furniture, quarter mod furniture to be used or a back panel off modular furniture not installed. Communication outlets are usually installed @ 18" AFF. ITSS needs access to each Communications outlet. We do 911 mapping and update regularly.

COMMUNICATIONS OUTLETS

At wall outlets we require a 1" conduit installed from a deep four square box with a single gang plaster ring to above the drop ceiling with a bushing installed. If no drop ceiling is installed in a location then we need the conduit to be installed back to the cable tray.

If floor poke through's are installed, we require a 1" conduit from the poke through to the ceiling above a wall in the room where this Poke Thru is installed.

FUTURE NEEDS

In new construction of a building in each direction at several locations we require a 2" conduit installed and stubbed out underground @ 24" and capped off. The other end of this conduit will be installed in the ceiling of the hallway.

JURISDICTION

The University Architect will determine the applicability of the appropriate TIA/EIA standards for each individual project. The University Architect and the Director of Network and Communications Services will consult with regard to any recommended variations to the above. Any variation from these standards will require the approval of the University Architect.

BILL OF MATERIALS

CAT 6 Cabling Panduit PUP6004BU- NO ALTERNATES

Corning Fiber- NO ALTERNATES

| MATERIAL | PART NUMBER |
|---|-----------------|
| Chatsworth 12" Black Ladder Rack | 10250-712 |
| Chatsworth 19" Relay Rack | 55053-703 |
| Chatsworth Junction Splice 90 Kit(BLK) | 11302-701 |
| Chatsworth Rack To Runway Mounting Plate | 10595-712 |
| Corning 2U Rack Mount Fiber Cabinet | CCH-02U |
| Corning 12 Strand MM 50/12510GIG Armored Fiber | 012T88-33180-A3 |
| Corning MM Fiber Adapter Panel 6 Duplex LC | CCH-CP12-E4 |
| Corning MM LC Fiber Connectors | 95-050-99-X |
| Hilti 6' Hanger w/Yellow Shot | 299527 |
| Panduit 1.31" J-Hook | JP131W-L20 |
| Panduit 2 Module Surface Box | CBXJ2IW-A |
| Panduit 48-Port Mini-com Patch Panel | CPPL48WBLV |
| Panduit 4-Port Sloped Executive Faceplate | CFPSE4IW |
| Panduit 6" Vertical Manger | PRV6 |
| Panduit 6" Vertical Manger Door | PRD6 |
| Panduit Category 110 Rack Mount Panel | P110B1004R2Y |
| Panduit Category 110 Rack Mount Panel w/Jumper | P110B1005R4WJY |
| Panduit Category 5e 48-port Patch Panel | DP485E88TGY |
| Panduit Category 6 Mini-Com TX-6 Module (Green) | CJ688TGGR |
| Panduit Category 6 Mini-Com TX-6 Module (Red) | CJ688TGRD |
| Panduit Category 6 Mini-Com TX-6 Module (White) | CJ688TGIW |
| Panduit Category 6 Patch Cord (Green) 5ft | UTP28SP5GRY |
| Panduit Category 6 Patch Cord (Yellow) 5ft | UTP28SP5YLY |
| Panduit Category 6 Patch Cords (Green) 14ft | UTPSP14GRY |
| Panduit Category 6 Plenum Cable Blue | PUP6004BU |
| Panduit Category 6 TX-6 Module (Yellow) | CJ688TGYL |
| Panduit Front Only Horizontal Wire Manager | NCMHF2 |
| Panduit J-Hook 2" | JP2W-L20 |
| Panduit Voice Patch Cord (White) 7ft | UTP28SP7 |
| Superior Essex 50-Pair Category 3 Plenum Feeder | 10032112 |
| Corning I/O Armored 12 Strand Single Mode Fiber | 012E8P-31131-A3 |
| Corning ST Singlemode Adapter Panel | CCH-CP12-19T |
| Corning ST Singlemode Fiber Optic Connector | 95-200-52 |

CONTRACTOR QUALIFICATIONS

Voice and Data contractor will be Panduit Gold and Corning certified.

Dated: September 1, 2016

Communication Check List

| Item | Complete | Date | Comments |
|--|----------|------|----------|
| General Contractor | | | |
| Communication Room Buildout | | | |
| 4" Conduits to Duct Banks w/pl String | | | |
| 1" Conduits for Station Cabling | | | |
| Deep 4 Square Box w/Single Gang Plaster | | | |
| 1" Conduits for WAP's and Security | | | |
| 2" Conduits for Future | | | |
| 2" Conduits for Emergency Phone | | | |
| 1" Conduits to Elevator Equipment | | | |
| 1" Conduits to Main Fire Alarm Panel | | | |
| 2" Conduit to Roof from IT Room | | | |
| 1" Conduits to ENTECH or BLDG | | | |
| 1" Conduits to Lighting Control | | | |
| 1" Conduits to Key Box | | | |
| 2ea- NEMA L5-30P 120V 30 AMP Circuits | | | |
| 1ea- 20 AMP Quad | | | |
| Convenience 120 V Outlets | | | |
| Emergency Generator????? | | | |
| Fire Retardent Plywood 3/4" | | | |
| Floor Sealed | | | |
| Floor Drain | | | |
| TMGBB | | | |
| Lighting | | | |
| Fire Sprinkler Cage on Heads | | | |
| Riser conduits | | | |
| Sleeves | | | |
| Chill Water A/C w/DX Redunt Cooling | | | |
| A/C Tested | | | |
| Thermostat | | | |
| TEMP Door w/Lasp | | | |
| Finished Door | | | |
| Cable Tray | | | |
| Verizon, AT&T or SP | | | |
| Copper/Fiber Installed | | | |
| Copper/Fiber Active | | | |
| Infrastructure Contractor | | | |
| Fiber installed form Hub | | | |
| Fiber from Hub Tested | | | |
| J-Hooks Installed for Station Cabling | | | |
| Racks, Ladder Rack, Wire Managers in IT | | | |
| Station Cabling CAT 6/COAX Installed Ruff- | | | |
| Station Cabling CAT 6/COAX Trim-Out | | | |
| Station Cabling Tested and Labeled | | | |
| Patch Cords Installed at Station Ends | | | |
| Patch Cords in IT Room for Patching | | | |
| Inner Building Fiber Installed | | | |
| Inner Building Fiber Tested | | | |
| Inner Buiding Cooper Installed | | | |
| Inner Building Cooper Tested | | | |
| Grounding Racks | | | |
| Voice Feeder Installed | | | |
| Voice Feeder Tested | | | |
| UNT System | | | |
| UNT Core Installed on Finished Door | | | |
| Installed Switches | | | |

| | | | |
|--|--|--|--|
| WAP's Installed By Infrastructure Contractor | | | |
| Installed Patch Cords | | | |
| Patch Fiber at Hub and IT Rooms | | | |

5.11 Building Address

New building addresses for the Denton campus will be established by Denton County 911 and coordinated through the UNT Facilities Director of Facilities Planning, Design and Construction.

5.12 Room Numbering

Each interior space, including mechanical equipment rooms and custodial closets, is given a unique room number with the sequence of these numbers such that it shall aid a visitor's orientation within the building. This room numbering system is 100's for the first floor, 200's for the second floor, etc. Suites of rooms will all have the same number with a letter suffix, for example 206A to 206Z. UNT Facilities Director of Facilities Planning, Design & Construction will establish room numbers. The Designer is required to coordinate during the Design Development Phase prior to committing numbers to paper. Once the room numbering system is established during the Design Development Phase review, it may be modified thereafter. The room numbering system on the construction documents will match final room signage.

5.13 Temporary Egress

Provide a temporary means of egress when a building addition or renovation project involves temporarily eliminating or closing an existing required means of egress. Obtain prior agreement from UNT through the Project Manager before closing any existing means of egress.

5.14 Laboratory Buildings

All laboratories using hazardous materials must be designed in accordance with the applicable sections of one of the following standards:

- NFPA-45 "Standard on Fire Protection for Laboratories Using Chemicals"
- NFPA-56 "Standard for Laboratories in Health Related Institutions"

All laboratory buildings should have conveniently located flammable liquids storage rooms designed in accordance with NFPA-30. Provide laboratory units using flammable liquids or acids with an approved flammable liquids storage or acid cabinet, as required.

Provide laboratory buildings with conference rooms or break rooms on each floor for laboratory and housekeeping personnel to take coffee or lunch breaks.

5.15 Asbestos in Buildings

The University's Risk Management Office conducts surveys and maintains records describing the extent of asbestos materials in campus buildings. Project manager will perform sample testing on all renovation projects in order to address all materials containing asbestos. Proper removal is preferable. Project manager will obtain air monitoring quote and asbestos removal quote as indicated by sample testing, identify and obtain proper funding source, and schedule with abatement contractors, Risk Management, Facilities, and building personnel. **Address materials containing asbestos in all renovation projects.** It is the responsibility of the Designer to assess the existing conditions and to make recommendations to the Owner and the appropriate agencies having jurisdiction regarding corrective action.

Perform all demolition or renovation work which involves the removal or disturbance of asbestos containing fire proofing, sound proofing, mastics, masonry coatings, roofing materials, finish material, insulation or other material containing asbestos in strict accordance with Texas State Law regarding asbestos abatement. Asbestos removal and air monitoring contractors must be properly licensed and follow all reporting, removal, and containment procedures according to Texas State Law. Waste manifest will be sent to Risk Management for record keeping.

5.16 Interior Signage

The Designer is expected to comply with UNT Interior Signage standards (See Appendix F) while preparing the required signage drawings and specification. This work is to be considered as part of the Designer's basic scope of work unless stated otherwise in the Owner-Designer contract agreement. The signage package should include all materials, labor and installation of all components including graphics, bulletin boards and building directories. Signage submittal should include a schedule and floor plans for review by UNT.

5.17 Millwork

Cabinetry and Shelving

- A. Cabinets to be built out of cabinet grade plywood, preferably 7- ply veneer. Absolutely no particle board or fiber board.

- B. Note: If we are using a melamine interior of cabinet, it will be permissible to use particle board melamine.
- C. No interior shelving in cabinets to be longer than 32 inches without installing sufficient nosing to support shelf from sagging, or a center divider that will cut the shelf in half to prevent shelves from sagging in the middle.
- D. All face frames and styles to be made from hardwood, not plywood.
- E. Cabinet shelving can be either stationary or adjustable. KV #233 or peg adjustable shelving is sufficient.
- F. Concealed hinges recommended; however, other hinges are permissible, but must confirm with project manager and superintendent to specify quality and finish of all hardware. Prefer Blum concealed hinges, #B71T555 and 120 degree opening.

Wall Shelving

- A. All wall shelving to be box shelving unless otherwise specified.
- B. Shelf standards should be #KV 80 or #KV 187, and no further apart than 24 inches.
- C. All standards should be anchored to the studs, or use toggle bolts.

Countertops

- A. All countertops should have 4 inch backsplash unless otherwise noted by the Project manager.
- B. All countertops shall be sufficiently supported with angle braces, supports to the floor, cabinets, and no more than 36 inches apart. Solid surface countertops preferred.
- C. See project manager for colors and material selection.
- D. Note: Permissible to build countertops out of particle board and/or a good industrial fiber board. Most manufacturers only warranty the laminate product if it is laminated on particle board or a good industrial fiber board. Use recommended base for countertops as recommended by the laminate manufacturer.

6.0 Finishes & Equipment

6.1 Selection and Procurement

The UNT Project Manager will coordinate the review and approval of interior issues. The University requires a review period for all interior finish selections. Upon receipt of approvals or revisions, the Architect shall incorporate this information into the Construction Documents. As a general rule, custom designed colors and interior design finish materials are discouraged due to the difficulty in replacement during maintenance and repairs.

6.2 Floor Materials

When selecting or recommending any flooring materials, factors to consider are: safety, maintenance and future repairs or replacement. Painted or rough brick floors are not permitted.

- Vinyl Composition Tile
Use commercial grade with 'through pattern' vinyl chip construction, minimum 1/8" thickness.
- Sheet Vinyl Flooring
Use commercial grade, acid resistant with integral base sheet vinyl flooring.
- Ceramic Tile
Use ceramic tile on shower floors. Restroom floors shall be ceramic tile or terrazzo. No custom colored ceramic tile is permitted. All ceramic tile floors shall have a ceramic tile base with an acid resistant grout. The grout on the floor should be a medium range color. No white grout.
- Entry Mats
Entry mats shall be installed at all main building entrances. The preferred entry floor mats and frames are recessed aluminum frame with carpet type insert. Size and exact location of mats should be of sufficient size to handle foot traffic, but not exceed manufacturer's maximum size recommendation. Coordinate with UNT project manager.
- Carpet
All carpet is part of the construction contract and specified by the Designer. Consider only contract, commercial grade carpet. The University has standard carpet specifications and a list of the major manufacturers' carpet lines that meet the specifications. The Designer is not required to use the Owner's list of manufacturers; however, the carpet must meet the specifications and ADA requirements.

No solid color field carpet will be permitted. Selections shall be made from manufacturers' standard product line – no customs. The Designer is requested to minimize the number of carpet types and colors. Solution dyed/yarn dyed preferred – no piece dyed goods. Minimum 10-year wear warranty required.

Modular carpet is preferred. Broadloom may be used with prior approval.

Roll goods (broadloom) shall have a minimum of 18-20 tuff bind with branded yarn, nylon, and minimum 28 oz. per square yard. Cut pile broadloom carpet is not permitted. Installation shall be direct glue down. Modular carpet tile will have a minimum 20 oz. per square yard, same yarn specifications as twelve foot (12') goods. Direct glue carpet.

- Wall Base

Unless otherwise approved, wall base shall be rubber 4" high cove type base – no straight base. No pre-formed molded pieces. Light colors are not preferred.

6.3 Interior Wall Finishes

Wallcovering is permitted in showcase areas only with approval by UNT. All wood paneling and acoustical wallcovering shall be Class "A" fire rated for vertical surfaces. The flame spread ratings of walls and ceilings shall comply with NFPA 101 -Life Safety Code.

Do not use Wallcoverings in high traffic areas or locations where people may regularly come in contact with the surface (especially classrooms).

No interior brick or masonry walls where people may regularly come in contact with the surface.

Interior Paint Standards

- UNT maintains a current list of approved standard paint colors and finishes. Contact Project Manager for the applicable current list.
- When selecting specific colors that will identify location of image, be mindful of guidelines referenced in Section B, 1.14.
- Paint should be Sherwin Williams or an approved manufacturer of equal quality. When specifying interior paints, refer to the requirements below for the sheen (or equivalent):

Offices: "Harmony" eggshell

Trim: "ProClassic semigloss

Corridors and Classrooms: "Harmony" semigloss

6.4 Safety Color Coding

The University recognizes the following general safety color coding system for all items except pipe identification. (Colors are stated in terms of OSHA Safety Color Designations.)

| Type of Hazards | Color Identification |
|--|------------------------|
| Fire protection equipment, containers of flammable liquids, lights at barricade obstructions, and stop bars or switches on machinery | Safety Red |
| Caution/physical hazard | Safety Yellow |
| Caution/radiation hazard | Safety Yellow on Black |
| Dangerous parts of machinery | Safety Orange |
| Caution/equipment under repair | Safety Blue |
| Safety/first aid equipment | Safety Green |
| Traffic and housekeeping markings | Black and white |

6.5 Window Covering

Unless specified building requirements or design context differ, the University standard for windows exposed to direct sunlight is 3 inch vertical blinds. The Designer shall specify blinds. The general contractor shall purchase and install them as part of the general contract.

6.6 Elevators

New buildings should have a minimum of two passenger elevators, with one adequate to serve deliveries to the upper floors. Design all passenger elevators to meet the ADA and Texas Accessibility Code. Except in unusual situations, elevators are not designed for exclusive use as freight elevators. If the building size and nature is sufficient to justify a passenger elevator near the front of the building and a freight elevator at the service entrance to the building, the designer is encouraged to do so.

Design elevators and elevator machine room equipment to provide smooth and quiet operation. Isolate sounds and vibrations from the building structure.

Provided the elevator hoist ways and elevator machine rooms are not sprinkled, shunt-trip shut-off devices are neither required nor permitted.

Design elevators to return to the ground (exit) floor upon activation of fire alarms.

Provide an electrical receptacle in the corridor on each floor adjacent to the elevator landing for housekeeping purposes.

See Policy on Elevator Shunt-Trip Devices in Appendix G, Figure 30.

Installing vendor/contractor will be responsible for all maintenance and service during the warranty period. Response to non-emergency service calls will be within four hours of the call.

Response to emergency service calls will be within one-half hour of the call. Vendor will be financially responsible for these calls except those caused by power outages, acts of God, vandalism, and false reports.

All hydraulic elevators will be equipped with PVC containment piping encasing the cylinder ram and casing. Containment will be sealed at the bottom. Provide a means of testing the bottom seal and a means of evacuating any material that may enter the containment. Prevent any materials from entering the top of the containment.

Provide a sump hole and pump in ALL elevator pits. Provide an electrical GFCI outlet by the sump hole. Sump pumps shall be indirectly pumped to sanitary sewer through an oil separator. The Owner will make final determination based on ground water conditions. Size of control and pump system to be determined based on ground water conditions.

Hydraulic piping shall not be installed underground.

Elevator Pit Sub-drainage:

- All buildings: Install waterproofing on sides and bottom of elevator pits. Waterstop all concrete joints.
- Buildings without an under-slab drainage system regardless whether footing drains are used: Install a groundwater collection sump pit in room close to elevator pit and with the bottom of the sump pit at least 2 feet below the bottom of the elevator sump pit.
- Buildings with an under-slab drainage system: Install the Sub-drainage at an elevation below the elevator sump pit elevation.

6.7 Elevator Controller

In addition to normal elevator specifications, the following must be included:

The elevator power controller shall utilize a microprocessor based logic system and shall comply with ANSI/ASME 17.1 safety code for elevators. The system shall provide comprehensive means to access the computer memory for elevator diagnostic purposes without the need for any external devices, and shall have permanent indicators to indicate important elevator statuses as an integral part of the controller. All diagnostics shall be non-proprietary. Systems that require hook-up of external devices for trouble-shooting and adjusting are not acceptable.

6.8 Elevator Equipment Rooms

Provide convenient access to pits and equipment rooms. Do not use elevator equipment rooms for access to roof or other parts of the building. Access to elevator equipment rooms is not permitted through housekeeping or other such space. Each elevator pit shall have a work ladder and a light installed with the switch easily accessible from the door.

The elevator pit shall be acid etched and finished with one coat thinner 50/50 and then one un-thinned coat of gray porch and deck synthetic enamel.

Elevator equipment rooms shall have sufficient ventilation or cooling to limit the maximum temperature in the space to 90 degree F. If exterior supply air is provided, filter the intake. Ventilation fans should be sidewall mounted if possible. If necessary to install roof mounted fan, install a permanent ladder for access.

The elevator mechanical equipment room shall have fluorescent fixtures mounted above, in front of, and behind all control circuit panels. Provide adequate lighting for the hoist machine.

If elevator mechanical equipment room for a traction elevator is located on the bottom floor, provide fluorescent lighting at the top of the hoist way with a work platform, a light switch and adequate access.

Provide a safely accessible ladder and platform for any mechanical equipment room above roof level.

The penthouse, where necessary, shall have a minimum seven foot (7') ceiling and shall have sufficient ventilation or cooling to limit the maximum temperature in the space to 90 degree F. If exterior supply air is provided, filter the intake.

6.9 Door Hardware

All new buildings require an e-locking System. All hardware to be lockable from inside the room.

Door Closers

- All door closers will be supplied by L.C.N. only, and the two series to be used are the 4040 and 1461. The 4040 series is for hollow metal, solid wood doors, and exterior wide style storefront doors. The 1461 series is for interior storefront narrow style doors.
- Finish will match frame, unless otherwise specified.
- Installation will meet all factory specifications and provide positive latching of locking hardware and the smooth operation of the door.

Exit Devices

- All exit devices will be Von Duprin 99 or 33A depending on style of door.
- Trim style 996L storeroom function unless otherwise specified.
- Finish will be 26D, unless otherwise specified.

- Installation should meet factory specifications, using proper fastening devices, thru bolts and screws to install device. Shall be installed to provide positive latching and proper function of trim.

Cylindrical Locksets

- Best 9K3 heavy duty grade one, lever lockset.
- Function specified by Owner.
- Finish will be 26D, unless otherwise specified.
- Rose and handle will be 16D, unless otherwise specified.
- Installation should meet factory specification and provide positive latching and function of hardware.

Cores

- All cores shall be UNT restricted Best Preferred keyway to match University system, unless otherwise specified.
- Keying cores shall be performed by Stanley/Black and Decker – Best Access Systems. Distributor is Dallas Door and Supply Co.
- Seven (7) pin construction cores shall be provided during construction.
- Owner will install all permanent cores.
- Rose Style to be type D (3" convex-no ring), unless otherwise noted.
- Contractor should request keying instructions from UNT Access Control a minimum of eight (8) weeks in advance of installation to provide to factory to pin cores for UNT.
- Contracted jobs with less than 20 cores will be handled in-house by UNT Access Control. Contractor should order and deliver uncut keys and uncombined cores to UNT Access Control for orders of 20 or fewer cores (can be sent factory direct).

Card Swipe Lock Sets

- Any hardwired card access system at the Discovery Park must be connected to the DSX system.

Offline Electronic Locks

1. For stand-alone card access systems cylindrical, use CO-100-CY70-KP-SPA-626-BD for keypad only, or
2. CO-200-CY70-MSK-SPA-626-BD for card swipe lock.
3. For panic trim/exit devices use CO-100-993R-DP-SPA-626-BD for keypad only, or
4. CO-200-993R-MSK-SPA-626-BD for card swipe lock.

Online Electronic Locks

1. Use only Von Duprin exit hardware, 99 series or 33A series, no substitutions;
2. Von Duprin 914 power supply (4 amp) to power EL kits (1 per pair of EL kits), no substitutions;
3. Von Duprin EL kit, no substitutions;
4. Schlage MR20 card reader with keypad, no substitutions;
5. Schlage IONX8 input/output board, no substitutions;
6. Schlage RINX reader interface board, no substitutions;
7. Schlage reader controller board, no substitutions;
8. Schlage power supply 906-BB8 to power panels/controllers, no substitutions;
9. UNT prefers concealed Von Duprin EPT2 (electronic power transfer) over armored door loops whenever possible.
10. If a lever lock is necessary, use AD300-993R-MSK-SPA/ATH-626-643a-BD for hardwired or ADA400-993R-MSK-SPA/ATH-626/643a-BD. The CY70 can be substituted for the 993R if no exit device is used. No other substitutions;
11. A Schlage PIM485 (wireless hub) will need to accompany the AD400 wireless lock;
12. Schlage WRI (wireless reader interface) should be used on occasions when running wiring is not possible.

7.0 Furniture and Equipment

7.1 Furniture Selection and Procurement

UNT Facilities is responsible for the selection, specification and procurement of project furniture for all projects. Every effort is made to coordinate furniture issues with the Designer during all phases of the project, especially during the Design Development and Construction Document phases. The Designer shall provide final floor plans to the University for preparation of furniture layouts. See Appendix G, Figure 23-28 for typical furniture configurations.

7.2 Furniture Lighting

All furniture attached "Work Lights" shall have T5 or LED lamps.

7.3 Furniture Coordination

Prior to the completion of the Construction Documents, UNT Facilities will be given an opportunity to review and coordinate all furniture layouts with the building systems including thermostats, electrical outlets or junction boxes, lighting, telephone and data outlet locations.

7.4 Furniture Installation

Furniture installer is required to remove all furniture packaging materials after installation is complete.

7.5 Power Clusters at Private Offices

Power clusters at private offices shall be located within 36" of corner opposite door.

7.6 Modesty Panels on Modular Furniture

Where modular furniture "case goods" rest against hard walls, partial-height modesty panels must be specified for power and telecommunication access.

7.7 Fixed Equipment

Designer shall coordinate infrastructure, space and code requirements for any Owner provided fixed equipment (such as lab equipment, sterilizers, dishwashers, ice machines, etc.) that will require hard wiring or plumbing connections.

7.8 Moveable Equipment

All other moveable equipment, such as microwaves, refrigerators and centrifuges, are purchased and installed by the University.

8.0 Building Service Systems

8.1 General

Install all piping, conduits, etc. in the ground adjacent to buildings parallel to, or perpendicular to, the building construction. Independently support all equipment, conduits, piping, etc. from building construction.

8.1A Piping General

1. All piping systems will be labeled, color coded with the type of service per ASHRAE, (for refrigerant piping, indicate the type) and the direction of flow. Lettering will be placed at intervals of approximately 20' on straight runs of piping including risers and drops, adjacent to each valve and fitting, and at each side of penetrations of structure or enclosure. Lettering will be visible from the floor. For pipes 3/4" and smaller, permanent phenolic tags will be used
2. All valves will be tagged with a stamped brass or stainless steel tag describing type of service and area controlled by the valve. Provide valve list for all valves located in the mechanical rooms.
3. Provide shut-off valves at all pipe branches and where required to facilitate partial system isolation.
4. All equipment, fixtures, or other appliances attached to any piping system will have a shut off valve located at the connection to the piping system.
5. All valves will be located with sufficient room for maintenance or replacement.
6. Manual type air vents will be installed in water systems at high points in the system.
7. Mechanical joint piping systems (Victaulic, etc.) are acceptable.
8. Armaflex type insulation will not be used on dual temperature piping.
9. All underground piping will have a minimum earth cover of 36" to the top of the pipe.
10. All underground piping systems will have a #12 AWG copper wire attached to the pipe for a tracing wire. Wire will be labeled and terminated in an accessible location. No splices in wire allowed.
11. All insulated exterior, exposed piping will have an aluminum jacket installed to protect the insulation. Jacket will be weather-resistant, water-proof, smooth surfaced aluminum with a minimum thickness of 0.016".
12. All insulated interior piping, that is exposed in occupied areas, and is within 6' of the finished floor, will have a PVC jacket installed. This jacket will be color coded per ASHRAE.
13. All insulated interior piping that is exposed in mechanical rooms will have a color coded PVC jacket (per ASHRAE) installed.
14. All piping systems, unless specified below, will be tested at a minimum of one and one-half times the expected working pressure, or a minimum of 100 psig and a maximum of the design pressure of the pipe and fittings. Test all systems for a minimum of four hours. When test pressure exceeds 125psig, test pressure will not exceed a value which produces a hoop stress in the piping greater than 50% of the specified minimum yield strength of the pipe.
 - a. Natural gas: test at twice the working pressure or a minimum of three psig.
 - b. Sanitary sewer: test at 10' of head pressure for no less than four hours.
 - c. Sprinkler systems: tested at a minimum of 200 psig for no less than four hours.

8.1B Piping Penetrations

1. All penetrations of foundation walls will be leak proofed.
2. All penetrations, except steam tunnels, will be individual pipes or conduits. Groups of pipes or conduits in a common penetration will not be allowed.
3. Minimum thickness of steel pipe penetrating foundation walls will be equal to Schedule 40; PVC pipe to be equal to Schedule 80, and installed with a steel sleeve.
4. Recommended seal for wall penetrations is "Link-Seal" or approved equal.

8.2 Energy Conservation

Energy conservation is an essential factor in the design and development for all new construction and renovation projects. For all new construction and major renovation projects, an effort will be made to exceed ASHRAE/IES 90.1, latest edition, "Energy Code for Commercial and High Rise Residential Buildings" by 15% for the design and specification of materials and equipment.

Energy efficiency is a shared responsibility between all design professionals and should be an agenda item at all collaborative design meetings. The efficiency measures must take into consideration the entire life of the building. Ideas should not be limited to equipment efficiencies but can include building orientation, architectural layout, site planning, sequence of operations and building schedules. Life cycle cost analysis is recommended for major design or renovation projects.

In the design of HVAC and electrical systems, consider different building utilization during various seasons or times of the day – plan for conservation of energy during summer and winter vacations and for other periods of minimum occupancy. For example, Research laboratories and spaces for animals (and other spaces which might require operation 24 hours per day) should be served by systems separate from offices (which might operate only 10 hours a day) and classrooms (which might shut down during summer and vacation periods).

The HVAC Designer should consider waste heat recovery, the utilization of outside air for cooling and the use of enthalpy controllers whenever possible. The Designer should use the pulse width modulation (PWM) type of adjustable frequency fan drives for variable volume systems.

Design electrical lighting systems for maximum efficiency consistent with required minimum lighting levels. Use natural lighting to the maximum extent practical.

Use energy efficient motors for all motors 1 HP and above.

8.3 HVAC Systems

General

UNT will provide Air Balancing outside of general contract. UNT Air Balancing contractor must be provided with plans and specifications at plan review phases. Comments from Air Balancing contractor should be addressed in the same manner as owner's comments. See Section A, 5.3.

Design

A building air conditioning, heating and ventilation system should provide a safe and adequate environment suitable for the functional programs supported by the building as well as providing a comfortable environment for the occupants. Special purpose facilities will require special definition of appropriate interior design conditions.

Outside winter design temperature is 0° F. for 100% outside air units. Provide preheat coils for air handlers with entering air mixed temperature below 35° F. Locate preheat coils downstream of heat reclaim coils. Size preheat coils with the heat reclaim not operating.

Ventilation Considerations

Auditoriums and Lecture Halls: Design of air handling systems for auditoriums should consider use of CO2 monitors and occupancy monitors to control the amount of outside air required.

Re-circulation: The building air conditioning system may re-circulate air from the office, classrooms, and similar areas; however, there must be no reintroduction into the building supply system of air delivered to mechanical rooms, toilet rooms, laboratories, or other areas where supply air may become contaminated.

Make-up Air: Provide outdoor make-up air to all occupied spaces, including computer rooms according to ASHRAE Standard 62-1989R "Ventilation for Acceptable Indoor Air Quality".

Location of Air Intakes: The location of air intakes should be remote from sources of pollutants and the building air intake and exhaust outlets shall be remotely located from each other to prevent contamination. Take special care to ensure that exhausts from hoods, emergency generators etc. is not pulled into the building through make-up or fresh air intakes. Install hardware cloth on outside of louver to eliminate leaves, debris, etc. from lodging behind louvers, and painted the same color as the louvers.

100% Outside Air: Provisions should be made for use of 100% unconditioned outdoor air whenever ambient conditions satisfy design and humidity requirements.

Energy Management and Control System (EMCS)

A campus wide energy management and control system exists on the University campus for the monitoring and control of electrical, heating, ventilating and air conditioning (HVAC) systems. This Schneider Electric based control system serves the University utilities department and has control strategies built into it for electrical, hot and chilled water load shedding required to balance available supply with priority level demand. All new HVAC equipment located at the building level shall be connected to the University's Schneider Electric Energy Management and Control System (EMCS). In order to standardize this System, a guide has been created (see Appendix E). All VFD's shall have LON card installed on each drive.

System Design Requirements:

All terminal units shall be electronic direct digital control (DDC) by Schneider Electric (e.g. box damper controls, reheat coil valves and electronic room sensors).

All air handling units shall have electronic control devices (e.g. chilled water valves, hot water and steam valves, return air, outside air and relief/exhaust air dampers) and be controlled by DDC controllers wired back to a common terminal strip using sensors and wiring specified by UNT. Control Power and Lan wires are not to be used as tie wires to support adjoining equipment. Contact the project manager before removing any electronic thermostats or cutting or removing any control wiring. All un-used branch Pneumatic air lines will be removed back to the main line and capped. All reheat and preheat converters shall contain electronic control valves controlled by DDC controllers wired back to a common terminal strip using sensors and wiring specified by UNT.

Equipment Location and Access:

Outdoor Equipment Location: For ease of unit maintenance, mount condensers and allied equipment at ground level on concrete slabs appropriately screened with attractive fencing or plantings.

Roofs: (See Section B 8.12). Equipment mounted on rooftops should be located a minimum of 15' from the edge of the building. In rooftop locations where a minimum of 15' is not feasible, contractor shall install tie-off anchors or a safety rail system.

Mechanical Rooms: Mechanical equipment should be installed in mechanical rooms. Mechanical equipment should never be mounted above the ceiling or in similar locations where access is difficult. Mechanical rooms should be sized to provide adequate space for normal maintenance and change out of components, including pulling tubes for converters and hot water generators and coils in air handling units. Provide adequate means of access for replacement of the largest piece of equipment without removing walls. Include doors or panels for maintenance access to plumbing, heating and air conditioning components. Every mechanical room shall have sufficient T8 lighting and duplex convenience outlets to enable maintenance to plug in drop cord trouble lights, operate small tools, drills, etc. Do not obstruct lighting with ductwork and piping – include column and wall mounted lighting as necessary. The room shall be adequately ventilated by a fan and shall have a floor drain. Every mechanical room shall have a minimum of one (1) Domestic City Water (DCW) hose bib for cleaning coils and flooring.

Equipment Access: Access to major equipment and working platform surfaces for employees shall be convenient and safe. [Note: For large pieces of equipment an industrial stairway may be required in accordance with 29 CFR 1910.24(b).]

Terminal boxes shall be located so that space and access is provided for service and filter change. If fan powered VAV boxes are to be used in ceiling, they should be mounted above entrance doors and access panel at ceiling height.

Installation of fan coil units above ceilings is not preferred. Provide access for service of unit and filter change. If ceiling mounting is the only alternative, provide recess mounted units.

All concealed units with condensation pans should have secondary drain pan. Secondary drain pan piping should run to the available janitor sink, floor drain, or as directed by Facilities personnel. Secondary pan should extend past primary clean-outs. Secondary drain line should be un-insulated schedule 40 PVC above ceiling in finished space. Secondary drain should have enough slope to gravity flow and be properly supported. Place water sensor in secondary drain pan to shut A/C unit off in case secondary drain backs up. Water sensor to be tied to EMS.

Primary drain-pan line should have union at the p-trap for "clean out" accessibility.

All controls (relays, starters, etc.) will be mounted where they are accessible without having to use a ladder.

Condensing Units for Walk-in Boxes:

Water cooled condensers are required where cooling water is available. Air cooled condensers must be placed outside building.

Refrigerant:

In compliance with EPA requirements, it is unlawful to release Group I or Group II refrigerants containing CFC's (chlorofluorocarbons) and HCFC's (Hydro-chlorofluorocarbons) into the atmosphere.

Modify existing equipment to either contain or reclaim refrigerants or to replace very old and inefficient equipment. All new equipment must be compatible with more acceptable refrigerants, such as R-123, R-134a or R-410a.

8.4 Air Handling Systems

General requirements:

1. Variable Air Volume (VAV) systems are preferred. Fan Powered VAV shall not be used. Controls and re-heat piping must be accessible without insulation removal. Preferred VAV manufacturer is Titus, or approved equal.
2. Economizer cycles are preferred but should be evaluated on a cost/benefit basis. If an economizer cycle is used, a return air fan is required to prevent over pressurization of the conditioned space.
3. All systems using 100% outside air should be evaluated for use of heat recovery systems.
4. Pitot tube test port stations will be provided in all locations as required to determine fan system or zone air volumes.
5. Air handling units will consist of factory fabricated components.
6. A drawing will be mounted near the air handling unit showing as-built locations of all fire dampers, balancing dampers, VAV boxes, coils, and other equipment in the ductwork served by that unit. The drawing will be protected by glass or other suitable material.
7. Large systems are preferred over small multiple systems.
8. HVAC Pumps
 - All HVAC pumps shall be frame mounted mechanical seal.
 - All HVAC Pumps with VFD's shall have TB Woods Duraflex couplers or approved equal.
9. VFD's
 - ABB and Square D are acceptable manufacturers.

Air handling units

1. Air handling unit sections will be factory fabricated. Desired air handling unit features include:
 - a. Full-sized access sections between all coil and filter sections. Access sections will have an electric light;
 - b. Hinged access doors will be provided on all units to provide access to filters, coils, fans, dampers, etc. Door handles will be used on these doors. Bolted panels are not acceptable except on very small units.
 - c. Side loading or upstream loading filter banks.
 - d. Filter sections shall have access doors on both sides of AHU.
 - e. Direct drive fans – such as fan wall units – should be considered where feasible to reduce maintenance cost and eliminate a point of failure due to belt breakage.
2. Exterior units will be designed specifically for outdoor installation. All piping will be within the unit enclosure.
3. On new construction, and existing buildings where possible, locate all air handling units inside the building or in a penthouse. Rooftop and above ceiling locations are not preferred. VAV boxes should be located in corridors or other common areas whenever possible.
4. All units will provide thorough mixing of outside and return air. Designer will evaluate the need for engineered mixing boxes, blenders, or other methods to prevent stratification of the air.
5. Sufficient space will be maintained between heating and cooling coils so air stratification is eliminated.
6. Filters will comply with ASHRAE Systems and Equipment Handbook, Chapter 25, Table 2.

Supply & Return Fans

1. Fans will be selected to provide highest efficiency and lowest noise characteristics practical while meeting specific system requirements. Recommended level is 85db, five (5) feet from the unit.
2. Fan type and characteristics will be selected to assure stable non-pulsing performance in required operating ranges. Air foil fan wheels are preferred.
3. Variable speed drives will be considered for fans having 3 HP or larger motors.

Exhaust Fans

4. Fan motors up to 15 HP, fans with belt drives will be provided with adjustable pulley sheaves. Midpoint of adjustment will be at design condition.
5. Fans with motors larger than 15 HP, fixed non-adjustable drives in which motor pulleys of different diameter can be used, will be provided.
6. The motor selected will have adequate fan/impeller inertia capacity and torque capability to bring the fan to full operating speed in less than 20 seconds. Appropriate starting devices and overload relays to tolerate this time period will be selected.
7. Fans will comply with AMCA Standard 210 and ASHRAE Standard 51.

Coils

Coils will be certified by ARI STD. 410.

Filters

1. Filters will comply with ASHRAE.
2. Final filter efficiency is a minimum of 60% or per ASHRAE, whichever is more stringent.

Dampers

1. Outdoor air intake dampers will conform to AMCA Standard 500. The air leakage rating across the damper when closed will not exceed 6 cfm/sq.ft., at 4" water column static pressure differential.
2. Volume dampers will be opposed blade.
3. All balancing dampers will lock in position.
4. Position of all dampers will be marked on the shaft of the damper by use of a groove or saw kerf.

5. Fire dampers will be in accordance with NFPA 90A and with a UL approved fusible link.

Ductwork

1. All main and branch ductwork will be constructed of galvanized sheet metal per SMACNA. Construction will include the use of sealant.
2. Fabrication and installation of the turning vanes will conform to latest SMACNA Standards.
3. Maximum leakage for all duct systems is 3%. All ducts will be tested per SMACNA.
4. All branch duct takeoffs will use the 45 degree design and will have a balancing damper installed in each branch as close to the main duct as practical. No splitter dampers or air extractors will be used.
5. Only external insulation will be used.
6. Flexible ductwork will have a maximum length of 6' and will be properly supported.
Provide a typical support detail on the drawings. Flexible ductwork will only be used for connecting the branch duct to the diffuser. In no case will flexible ductwork be used upstream of VAV boxes.
7. Use of duct liner may be used for sound attenuation in return air systems within 10' of air handling unit. Use of fiberglass duct liner is prohibited; use of sound attenuator is preferred.
8. All open ducts shall be temporarily sealed during construction until final connections are made.
Construction filtration must be properly maintained throughout project.
9. Duct access panels and doors will be provided on the entering air side of all dampers and turning vanes. Panels and doors will be large enough to allow for maintenance of HVAC device. Size will be coordinated with UNT Facilities Maintenance.

Diffusers

1. Diffusers with integral dampers will not be used. Balance damper shall be located at all branch ducts for balancing purposes.
2. Perforated supply diffusers will not be used.
3. In a suspended ceiling installation, it is preferred diffusers use a 24" x 24" mounting plate. A small diffuser mounted in a large ceiling tile is not acceptable.
4. Diffusers for VAV systems will be specified with consideration given to air dumping at low velocities.

All turning vanes will be airfoil type.

Fume Hoods and Laboratory Systems

1. General requirements
 - a. All systems, whether new or replacement, should be designed using VAV (Variable Air Volume) hoods.
 - b. If the complete exhaust-supply system cannot be installed at time of fume hood installation, VAV controllers for the new equipment will be installed at a minimum. This may require a constant velocity type fume hood be installed. If so, select a fume hood that can be converted to a VAV type fume hood.
 - c. All fume hood systems will be designed according to ANSI Z9.5. Design face velocity will be 100 FPM at full sash. Use a proximity sensor to reduce face velocity to 70-80 FPM when no one is in the immediate vicinity of the front of the fume hood.
 - d. For all fume hood installations or alterations, the balance of make-up air to exhaust air for the affected zone or building will be evaluated. Fume hoods that will cause or aggravate an imbalance between the makeup air and exhaust air will not be installed unless the imbalance is corrected. The preliminary design for a project may proceed on the basis of existing drawings and/or balance data. The final design must be based on actual test data.
 - e. Supply air diffusers will not be located in front of a fume hood. Design per ASHRAE guidelines. (i) Fume hood shall be located out of traffic ways, preferably in corners with one foot from the perpendicular wall.
 - f. Fume hoods in laboratories are to remain in place. It is against UNT practice to move fume hoods from one location to another due to the unique HVAC requirement and equipment specific to a given location.
2. Exhaust System
 - a. All exhaust fans should be direct drive with motors isolated from the exhaust air stream.
 - b. Exhaust Systems will be designed in accordance with the latest edition of the Industrial Ventilation Manual by the American Conference of Government Industrial Hygienist.
 - c. Manifold central exhaust systems are preferred over individual exhaust systems where feasible.
 - d. Perchloric and radioactive systems will be completely separate from other exhaust systems.
3. Fume hoods
 - a. All fume hoods should be equipped with a face velocity monitor and markings on the front of the hood indicating maximum sash opening height and sash height for maximum air flow.
 - b. All fume hoods must be certified by Risk Management Services (RMS) prior to use.
 - c. All fume hoods should have half-sash locks with alarms. Alarms may have a user override but, if the override is used, will alarm again after four minutes.
 - d. All fume hoods will have flow indicators with low flow alarms.
 - e. Vertical sashes are preferred. The use of horizontal sashes is discouraged.

4. Ductwork

- a. All fume hood and laboratory exhaust system ductwork will be constructed with 304 stainless steel and will be of welded construction unless other materials are required by the uses of a particular system.
- b. Exhaust ductwork through occupied areas will be under negative pressure and exhaust fans will be located on the roof.
- c. All exhaust branch lines shall have blast gate type dampers at the connection to exhaust main duct to provide branch isolation while the main exhaust system is in operation.

5. Controls

- a. Control fume hood exhaust, room exhaust, and room supply airflows with a VAV scheme to maintain a constant fume hood face velocity of 100 FPM and to provide climate comfort control for the room occupants.
- b. Control equipment will be by Phoenix Controls. Phoenix Controls are UNT Denton Campus standard for lab exhaust controls. Airflow control devices will be pressure independent venturi type valves.
- c. Any control system used will have a response time of 1 second or less.
- d. Use sash position type of control design, not air pressure differential.

Animal Quarters

- Design parameters for animal quarters will include 100% outside air, 100% exhaust, heat recovery on exhaust air, and a 50% safety factor on total heat load.
- Verify required space temperatures with ultimate user of the space.
- Install hot water preheat coils with freeze proof protection (e.g. constant water flow in freezing temperatures).

8.5 Water Cooling Systems

The Designer must consider the following when designing the building hot/chilled water systems:

- The cooling coils and heat exchangers must be designed for variable flow, constant temperature differential.
- The building pumps must be selected for the building system head and flow requirements. Variable volume pump is required; Bell & Gossett pumps are the standard. Pumps larger than 7 ½ Hp will have mechanical split seals.
- The control valves and control systems on equipment served by the chilled water system must be capable of accurate low load control and close off across the building pump shutoff head. The shutoff head requirements can be lowered if a variable volume pump is used.
- Once through cooling of equipment is not allowed.

Interior Chilled Water Systems

1. Piping

- a. PVC will not be used for chilled water systems above ground.
- b. Welded steel systems will use black steel piping and fittings, ASTM A53, Schedule 40.

Minimum pipe size will be 3/4".

- c. Copper systems will use a minimum of Type L copper.
- d. Any threaded black steel pipe shall be schedule 80.
- e. Mechanical grooved piping systems are acceptable.
- f. Direct burial piping to be HDPE, not metal.

2. Valves

- a. Control valves, for pipe sizes smaller than 3" will be ball valves. For pipe sizes equal to or larger than 3", control valves will be butterfly valves. All control valves on chilled water systems shall be two-way.
- b. Isolation valves, for pipe sizes 2" and smaller, will be ball valves. For pipe sizes larger than 2", isolation valves will be butterfly valves.
- c. Balancing valves 2-1/2" and smaller will be plug valves. For pipe sizes larger than 2-1/2", butterfly valves will be used.
- d. Butterfly valves will be resilient seated with bronze or stainless steel discs and will be bubble-tight. All butterfly valves will be lug-type and gear operated.

3. Insulation

- a. All insulation will be fiberglass, flexible unicellular foam, or cellular glass.

Chilled Water Distribution Loop

- All systems will be two pipe systems.
- Material for chilled water loops will be HDPE piping (or approved equal) with appropriate fittings to make a ductile iron connection to the building pipe system.
- All fittings will be installed with UL listed and approved retainers.

- Isolation valves will be installed inside the building at each building service entrance. Isolation valves are also required at the branch connection to the main. The isolation valve will be a gate valve, installed with a valve box, located as close as practical to the main line.
- All loop systems will be provided with a means of air relief at all high points. The preferred method for air relief is a manually operated ball valve located underground in a meter box or similar enclosure.

Chillers

Preferred manufacturers are Carrier, Trane, and York (or equivalent approved by Facilities).

- Refrigerant types R123 or R134a, or approved equivalent.
- No free cooling package on chillers. Free cooling plate heat exchangers are allowed.
- Condenser and evaporator barrels to be equipped with marine heads at piped ends with hinged heads.
- LON compatible chiller control interface to Schneider Electric EMS system.
- Variable speed chillers are preferred.
- Chiller installation shall be designed to minimize noise and vibration.
- Chiller installation to allow for ease of maintenance to include tube brushing and oil changing.
- Refrigerant Monitor will be required. Model to be approved.
- Mechanical room ventilation shall be designed to meet the current ASHRAE code.

Cooling Towers

- UNT standard for cooling towers is an induced draft, counter flow, field erected cooling tower within a reinforced concrete structure and related accessories. Avoid placing cooling towers or condenser on the roof when possible. Preferred location is on the ground near the mechanical room. If the condenser pump is in the mechanical room, water must gravity flow from the cooling tower to it.
- If space is not available for a permanent structure, stainless steel cooling towers are acceptable, but may require screening or fencing. Construction should be stainless steel without galvanized or FRP components. *Evapco*, *BAC*, *Marley* are acceptable manufacturers.
- Cooling tower fan final drive shall be right-angle gear, or direct drive fan motor. Belt drive is not acceptable.
- Cooling tower shall be installed with maintenance access to basin, sprayheads and gear boxes.

Building Heating System

The heating system shall be stand-alone per building using hot water boilers.

- 1.5 million BTU and above shall be AERCO Benchmark boilers.
- Boilers shall be natural gas fired.
- Designer shall consider gas pressure on UNT campus. Pressures vary significantly across campus.
- LON compatible boiler control interface to Schneider Electric EMS system. Control system shall allow staging of boilers to meet heat load, and to operate with individual unit local control.
- Accessibility for routine maintenance.
- Boilers shall be installed on a minimum 4" housekeeping pad.
- Hot water supply and return isolation shall be butterfly valves.
- Each boiler shall be vented independently.
- Common heating water supply and return temp sensors are required and shall be connected to Schneider Electric EMS system.
- Mechanical room ventilation shall be designed to meet the current ASHRAE code.

8.6 Central Utility Distribution System

The UNT Central Utility Plant maintains and operates a [hot](#)/cold water distribution system serving part of the University campus.

| GPM | LENGTH (ft) | PIPE SIZE |
|-----------|-------------|-----------|
| 0-150 | 0-400 | 4" |
| 150-250 | 0-200 | 4" |
| | 200-1000 | 6" |
| 250-600 | 0-250 | 6" |
| | 250-1000 | 8" |
| 600-1000 | 0-400 | 8" |
| | 400-1000 | 10' |
| 1000-1500 | 0-500 | 10" |
| | 500-1000 | 12" |
| 1500-2000 | 0-800 | 12" |

| | | |
|-----------|----------|-----|
| | 800-1200 | 14" |
| 2000-4000 | 0-500 | 14" |
| | 500-1000 | 16" |

The designer shall consider the following items when preparing the bridge performance table:

- Average return temperature from all building loads at design conditions (Designer must calculate this value). This average return temperature will be the set point for TCVA. A return temperature of 59° F is preferred and 55° F is the minimum acceptable return temperature.
- Supply temp for all building loads at design conditions (Designer must calculate this value). The supply temperature must not be less than 40° F, with a maximum supply temp of 49 F. A separate interface must be provided if specific equipment needs a lower supply temperature.
- Total flow for all building loads at design conditions (designer must calculate this value).
- CHW flow in distribution system branch connections to building at design conditions (Designer must calculate this value).
- All new chilled water systems will be Primary/Secondary building pump systems with 2-way control valves. The secondary systems will have variable speed pumps and 2-way control valves.
- Condensing water systems will be equipped with automatically controlled water treatment and blowdown systems designed to control scale buildup, corrosion, and concentration of dissolved solids. Blowdown will be piped to Spirotherm (or approved equal) drain line.

8.7 Plumbing Systems

Any contractor performing plumbing work on UNT property will have a current State of Texas Plumbing License. The latest edition of the International Plumbing Code should be followed.

Piping General

- Use of mechanical joints for domestic water piping is preferred over soldered connections.
- Use of PEX is approved for domestic cold and hot water piping.

Access Panels

- Provide adequately sized access panels, 24"x 24" where possible-ensure alignment of access panel with valves/components- to pipe chases and valves above ceilings or otherwise concealed. Plaster or gypsum board ceilings under rooms which have reasonable possibilities of water in them, such as rest rooms with floor drains, will have access panels. Access panels should not require a special tool to unlock.
- Provide updated valve schedule with all renovation and new construction projects. Prominently identify fire protection valves at each valve location.
- Access shall be provided to manifolds with integral factory or field-installed valves.
- Access shall be provided to all full-open valves and shutoff valves.

Backflow Preventers

Protect fixture valve outlets with hose attachments, hose bibs, and lawn hydrants with an approved back-siphonage backflow preventer or vacuum breaker on the discharge side of the valve. Each building must have a reduced pressure zone device back flow preventer with a sediment strainer/trap on the water main. The design will be such that the debris can be flushed from the trap without interrupting water to the building.

1. Watts or Febco are preferred manufacturers. Wilkins is not an acceptable manufacturer..
2. All domestic water systems will have backflow prevention devices at the point of building entry. No metering devices, taps, or other fittings will be located upstream of the backflow preventer. However, if a common supply serves both the domestic water system and the fire protection system, it is preferred the two systems be split immediately upon entering the building. Install the backflow preventer for each system at this point. Where water is critical for research, animal care, etc. install (2) BFP's size at 60% to avoid water outages for testing.
3. All backflow preventers will be located and configured to allow ready accessibility for maintenance and testing. Need a minimum clearance of 24" of free area in front of backflow preventer for accessibility.
4. No backflow preventers will be located more than 4' above floor level.
5. Pit installations of backflow preventers will not be allowed.
6. Drainage from backflow preventers must be possible by gravity only, either to a floor drain or to surface of the ground.
7. Domestic water line insulation will be insulated with fiberglass insulation. Mechanical rooms with piping six feet and lower will have a protective jacket.

Isolation Valves and Unions

All main lines and all hot/cold water lines – especially those serving group toilet rooms – shall have shut off valves for isolation purposes and valves shall be accessible. Furnish accessible water supply ¼ turn isolation valves where each piece of equipment is connected. Install unions to facilitate removal of traps, valves, strainers, etc.

Domestic Hot Water

Domestic hot water heater should be electric. UNT uses small 1-10 gallon heaters at point of use (i.e., restrooms, break rooms, custodial closets). Circulating domestic hot water heaters are discouraged, but may be required in special areas such as science labs.

Use of instant water heaters is discouraged and must be approved by Facilities.

Domestic hot water should not exceed 110 degrees F (exceptions are kitchen or lab areas).

Floor Drains

Provide floor drains in all equipment rooms, custodial closets, rest rooms and locker rooms with floors sloped to drains.

Floor drains shall empty into the sanitary sewer. Infrequently used floor drains shall have traps resealed by trap primer or trap guard from clear water fixtures. Drains of exterior stairwells shall be a drain well with grate type cover.

Public restrooms with more than one station will have a floor drain located under a stall partition.

Horizontal Drains within Buildings

All horizontal drains shall be provided with cleanouts located not more than 100 feet apart.

Safety Showers & Eye Wash Stations

Provide emergency eye wash stations and/or safety showers where chemicals harmful to the body and eyes are handled and stored. Safety Showers and eye wash stations must be supplied with tepid water at no more than 30 psi. Provide an audible alarm when the safety shower is activated.

No floor drains allowed in safety showers.

Water Pressure

Designer to be aware that Denton water pressure is maintained at lower pressures (35 – 50 psi) than other cities in the Dallas/Ft. Worth metroplex and that a booster will be required on any multiple story building design.

Anticipated domestic water pressure on top floor of high rise buildings shall be stated. Provide pressure reducing valves in high pressure areas. Due to wide seasonal fluctuations in the City of Denton's water pressure and to allow the building main water tap to be downsized thus reducing tap fees, all of UNT's new construction is to have duplex house pumps, and, if required, a fire sprinkler pump. Pre-design water pressure readings should not be relied upon as the sole source of information regarding normal operating pressure. Do not connect cooling tower water supply to domestic water supply; should be connected to irrigation supply, or connected to its own meter.

Fixtures

Kohler, Crane, and American Standard are acceptable manufacturers for porcelain toilets, urinals and sink basins.

Campus standard is Sloan auto flush valves and auto sink valves. New toilets at 1.6 gallons per flush, and new urinals at .5 gallons per flush. All fixtures should be commercial grade, and white in color.

All fixture hardware (faucets, flush valves, etc.) will be chrome.

All faucets, urinal & water closet flush valves will be automatic, battery operation is preferred. Hands Free flush valves will have a manual override function. Sloan are acceptable manufacturers.

T&S or Chicago faucets are preferred.

T&S or Chicago shower valves are preferred, and must be anti-scald mixing valves.

Fixture Mounting

All wall mounted toilets and sinks will be mounted using chair carriers for extra stability, strength and security.

Distilled Water

T&S or Chicago faucets are preferred. Piping system should be all PVC or PurePipe. Mixing of the two piping types and systems is not recommended.

Water Coolers

All water coolers will be refrigerated type.

Halsey Taylor or approved equal are preferred.

Building Sewers

Building sewers shall be provided with cleanouts located not more than 100 feet apart, measured from the upstream entrance of the cleanout. For building sewers 6 inches and larger, manholes shall be provided and located not more than

200 feet from the junction of the building drain and building sewer, at each change in direction and at intervals of not more than 400 feet apart.

Changes of Direction

Cleanouts shall be installed at each change of direction greater than 45 degrees (0.79 rad) in the building sewer, building drain and horizontal waste or soil lines. Where more than one change of direction occurs in a run of piping, only one cleanout shall be required for each 40 feet of developed length of the drainage piping.

Base of Stack

A cleanout shall be provided at the base of each waste or soil stack.

Building Drain and Building Sewer Junction

There shall be a cleanout near the junction of the building drain and the building sewer. The cleanout shall be either inside or outside the building wall and shall be brought up to the finished ground level or basement floor level. An approved two-way cleanout is allowed to be used at this location to serve as a required cleanout for both the building drain and building sewer. The cleanout at the junction of the building drain and building sewer shall not be required if the cleanout on a 3-inch or larger diameter soil stack is located within a developed length of 10 feet of the building drain and building sewer connection.

Manholes

Manholes serving a building drain shall have secured gas-tight covers and shall be located not more than 200 feet from the junction of the building drain and building sewer, at each change in direction and at intervals of not more than 400 feet apart. Manholes and manhole covers shall be of an approved type.

8.8 Fire Suppression Systems

All buildings will have fire suppression systems per applicable codes: NFPA 13, NFPA 13D, NFPA 13R, NFPA 14, NFPA 20, NFPA 24.

Fire Sprinkler Systems

1. All new buildings will be designed with automatic fire sprinkler systems throughout the building.
Type of system to be determined per application.
2. Materials and equipment will be approved, listed, and labeled for fire sprinkler installation. Sprinkler systems will be designed in accordance with NFPA for the application intended.
3. Fire sprinkler systems will be installed per NFPA.
4. Sprinkler shop drawings will include hydraulic calculations.
5. All test valves will be located in mechanical rooms in central locations with easy access.
6. A pressure gauge will be installed on the main supply of each sprinkler system, upstream from the main test valve.
7. Drainage will be provided for all test locations that is sufficient to carry the full flow of water that can be expected during testing of the systems. This is particularly important at the location for testing the main drain of a system.
8. Fire fighters manifold connection will be sized according to requirements of the local fire district.
9. All sprinkler systems will have an addressable fire alarm panel installed to monitor all water flow alarms, supervisory alarms, and trouble signals of the system.
10. Where a sprinkler system is to be installed in a non-heated area, it is preferred a dry pipe system be installed rather than a chemical system.
11. All sprinkler systems will have a double check type backflow preventer installed at the point of building entry.
12. Locate backflow device inside the mechanical room rather than exterior pits.
13. Sprinkler systems with fire pumps will require a test loop and flow meter.
14. Hydrant flow testing will be required as part of sprinkler system design.

8.9 Power Distribution

Campus Primary Electric Distribution System

The electrical distribution system serving the campus is operated and maintained by the University. The main campus is served from two substations with two feeds each, forming a loop around campus. Eagle Point campus has one substation and one feed from DME and does not have a loop. Discovery Park campus has one substation and two feeds and a loop in inside the main building. Power is purchased from the City of Denton at the substations. The primary voltage of the campus electric distribution system is

13,200 / 7,620 volts. It is installed primarily in an underground conduit and manhole system.

All new facilities, facility additions and facility modifications requiring new or modified primary electric system service should be served via the underground duct bank and manhole system. All electric facilities associated with the project, such as duct banks, manholes, cable, transformers and associated materials, are included in the project scope.

The electrical designer shall obtain from the University the point of service to the project. Provided the contractor taps into the University's distribution system, the cost of electricity for construction and bringing the building on-line shall be borne by the University. The capacity of the transformer and service conductors from the transformer should provide for the full-connected load plus 25% additional load capacity for future growth.

The design of the electric system for the project should begin at the service delivery point designated by Electric Distribution. The preferred cable size for transformer primary connections is No. 2 copper 15 kV medium voltage cable (EPR insulated). All system connections, medium voltage cable terminations and the medium voltage transformer connections shall be made part of the project by the contractor.

Distribution System

- UNT to provide Duct Bank Detail
- Duct Bank shall not run under permanent fixtures and shall be capped with 2 inches of concrete. The concrete cap shall be dyed red.
- All duct banks will have a minimum of 36" of earth cover.
- Duct will be type DB Schedule 40 or 80 PVC. In runs over 100', designer will evaluate the need for galvanized rigid steel elbows to prevent damage during cable installation. All such elbows shall be large diameter turns.
- All ducts will be installed in such a manner to prevent accumulation of water.
- Upon completion of duct installation and prior to pulling any cable in duct, a mandrel ½" smaller than the nominal size of duct will be pulled through the duct.
- All unused duct will have a nylon or polypropylene pull string installed for future use. The pull string will be Greenlee or equal with a minimum of 240 lbs. tensile strength, and will be rot and mildew resistant. Wire will not be used.

Duct bank penetrations of foundation wall will comply with the following:

1. The conduit will make individual penetrations of the foundation wall.
2. The conduit will penetrate the foundation wall in the following manner:
 - a. For new construction, the foundation wall will have a steel sleeve installed that is 2" larger in diameter than the conduit to be installed. For existing construction, the hole will be core drilled. In multiple duct situations, sufficient space will remain between the penetrations to maintain the structural integrity of the foundation wall.
 - b. A rubber seal, equal to Link-Seal, will be installed in the space between the conduit and the sleeve or drilled hole, near the interior surface of the foundation wall. The same space will have waterproofing installed on the exterior side of the rubber seal.

Direct Burial Systems

Direct burial systems are not allowed.

Medium Voltage (601 volts - 69,000 volts)

General

- Splices shall not be used unless approved by owner.
- Feeder conductors should have adequate length to allow for future re-work.
- Arc flash protection is required on all medium voltage cables exposed in manholes or trenches in substations. Arc proofing will be accomplished through the application of tape and binding.
- Arc proofing tape will be Irvington #7700 as manufactured by Minnesota Mining & Manufacturing Co., or approved equal, applied in a half lap spiral wind with a tape width suitable for the conductor size as recommended by the manufacturer.
- The arc proofing tape will be firmly held in place by a reverse spiral wound fiberglass tape equivalent to Scotch Brand #27.

Cable Testing

Medium voltage cable shall be tested before energizing. Use the *2009 ANSI/NETA Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems* (ANSI/NETA ATS-2009).

The testing procedures are given in Section 7 of ANSI/NETA ATS 2009.

For the Dielectric withstand test, the preferred method is very low frequency (VLF) dielectric withstand voltage. Do not use direct current (DC) dielectric withstand voltage greater than 20,000 volts for previously energized cable. Also, limit the time of application of this voltage.

All testing will be witnessed by the Owner's representative.

Equipment

Medium Voltage Switches

- Medium voltage switches shall be mounted on pre-cast pads; thickness to be determined by engineer.
- All pad-mounted switchgear installation shall be properly compacted during installation, and top of pad shall be 8" above final grade.
- All pad-mounted switchgear shall be surrounded by stabilized, crushed, or decomposed granite, 3 ft. on sides where switch handles are located, and 10 ft. on sides with doors.

Switch gear

- All pad-mounted switch gear will be type PME or Vista, as manufactured by S&C.
- All pad-mounted switch gear installation shall be properly compacted during installation, and top of pad shall be 8" above final grade.
- 10 ft. clear space must be maintained in front of all doors, and 3 ft. clear space in front of switch handle compartments.
- All switch gear and switch gear components must be rated for 25 KA (symm) available fault current and be tested to 25 KA (symm) by an independent testing agency.
- Pad-mounted or outdoor enclosure mounted switches will have hinged doors suitable for padlocking. Air switches will have the option of key interlocks as required for operating protection.
- Cable terminations will be for a dead front device. PME fuse holders and fuses will be designed for visual inspection and maintenance accessibility. Switches will be suitable for 600 and 200 ampere feed. Configuration generally will be two loop switches and with one or two fused taps as indicated. Fuse holders will be suitable for a wide range of fuses including current limiting. Vista overcurrent protection shall be programmable from a laptop computer.
- Due to high fault currents on the medium voltage system, each switch application will require a study of the available fault current at the given location.

Fault indicators

- The electrical system will be equipped with fault indicators so visual inspection can be made to quickly determine what portions of the system had a fault current flowing through them when the system was opened by a circuit breaker or other type of fault current clearing device.
- The cable fault indicator will show a "fault" indication on all units up through the last indicator just ahead of the fault point on the cable.
- Fault indicators will be the automatic reset type designed for single phase application.

Execution

- All cable installations where the calculated pulling tension exceeds 67% of the manufacturer's recommended maximum tension will be installed using tension measuring equipment. The Owner's representative must be present to observe these installations. These cable runs will be clearly marked on the plans.
- All cable pulled through wet or damp conduit will be sealed on the end to prevent any moisture from entering the insulation.

Transformers [SEE Specification in Appendix I](#)

The KVA size of the pad mount transformer(s) on any project should be based on the diversified KVA demand expected on the transformer(s). Over sizing greater than 25% of transformers is discouraged. Metering should be mounted on a frame installed next to the transformer (preferred) or on the outside of the transformer secondary compartment. Secondary voltages from pad-mount transformers are 208/120 volts Grounded Y and 480/277 volts Grounded Y. High-leg transformers shall not be permitted.

Primary transformers are three phase, radial feed, dead-front pad mount design. Locate pad-mounted transformers at an acceptable site outside the building, at a sufficient distance from any building opening (door, window or loading dock). Do not locate transformers within or on buildings or within closed spaces. Transformers must be accessible to maintenance personnel and truck-mounted cranes. Maintain at least 10 feet clear distance in front of the transformer for access to the primary and secondary compartments. The 10 foot distance is necessary for hot-stick operation of the terminations and cables. Keep the areas above, around and behind of the transformer free of any obstacles that may interfere with transformer removal or installation.

All transformers are to be of a "less flammable" design using FR3 insulating fluid.

Use significant care to ensure that the transformer pads are adequate for the transformers placed on them. Typical difficulties include: a) inadequate openings for the primary and secondary conduits; b) inadequate primary and secondary compartment sizes (width, depth, height); c) improper location of primary or secondary conduits (conduits do not fit the available openings in the transformers). Seal window of pad to prevent insect and animal intrusion.

All transformer installation shall be properly compacted during installation, and top of pad shall be 8" above final grade. All transformers shall be surrounded by stabilized, crushed, or decomposed granite, 3 ft. clear around oil cooling fins, and 10 ft. in front of doors.

All transformer installations shall comply with the latest edition of the National Electrical Code, Article 450.

Transformers, dry or oil-filled, shall be manufactured by Cooper, Square D, or General Electric.

Basic transformer installation:

- Pad-mounted, outdoor transformers with dead-front load break type elbows. Transformer protection will be "bayonet" or current limiting fuses as indicated by fault current. Radial units will be used. Transformers will have taps.
- Pad mounted outdoor fused air type 600 or 200 ampere switches will feed each radial transformer. The switches will be of the type which allow for loop feed.
- 10 ft. clear space must be maintained in front of all doors.
- Transformers and switches will be separate units. All equipment for new or replacement installations will be rated for 15kv operation.
- All primary cable will be copper with cross-linked ethylene propylene rubber insulation rated 133% and Okonite Okoguard.
- All primary cable should have adequate length to allow for future re-work.
- Fusing of transformers will coordinate with the owner's first upstream device. In all transformer installations, especially a retrofit or replacement installation, the secondary system fault current will be analyzed.
- Metering shall mount on or close to the secondary compartment. The primary meter function is to measure power use and demand. Potential transformers (PT) are for measurement of a secondary voltage. Current transformers (CT) are for measurement of secondary current. PTs and CTs should mount inside the transformer secondary compartment.
- Ratios for the potential transformers will be determined by the consultant.

SECONDARY CIRCUITS

General Requirements

- Conductors shall be copper, no aluminum, and have adequate length to allow for future re-work.
 1. Color code secondary service, feeder, and branch circuit conductors with factory applied color as follows:
 - a. 208/120 Volts Black A, Red B, Blue C, White is Neutral, Green is Ground
 - b. 480/277 Volts Brown A, Orange B, Yellow C, White Neutral, Gray/Green Ground

Service Entrance

- At the points where conduit penetrates concrete that is in contact with soil, that conduit will be Schedule 80 PVC conduit bedded in sand.

Switchgear and Panelboards

- Building main switchgear shall be UL 1558 class.
- Internal busses shall be tin-plated copper.
- Panelboards shall have separate buss connections for neutral and ground. These busses shall be tin-plated copper.
- Acceptable manufacturers for all switchgear, panelboards, and circuit breakers are Square D and General Electric.

Feeders

- All conductors shall be copper.
- All feeders will have a separate copper grounding conductor installed. In no case will the conduit or raceway be used as the grounding conductor.
- All conduit sizes and conductor numbers and sizes will be shown on the drawings.

- All panel-boards will have separate grounding and neutral busses. All grounding and neutral wiring will be terminated on the proper buss.
- No snap-in breakers will be allowed. Bolt-in type breakers will be used. Square D and GE are acceptable manufacturers.

Branch Circuits

- All conductor shall be stranded copper.
- All wiring systems will be installed using conduit. Flexible wiring systems can be used to as a means of connection, not to exceed 6 feet in length.
- A separate grounding conductor will be installed. Use of the conduit or raceway is not an acceptable grounding method.
- All general purpose power circuits will be a minimum of 20 amps.
- No piggyback breakers will be allowed.
- General purpose power circuits in office areas will not have shared neutrals.
- Conduit will be supported from the building structure. Attachment to other pipes, conduits, ductwork, etc. will not be allowed.
- Non-metallic conduit or boxes will not be used except in wet locations. In cases where it is used, conduit 2" and smaller will be a minimum of Schedule 80.
- Conductors carrying more than 150v to ground will not be installed in conduits with conductors carrying less than 150v to ground.

Conduit

- All conduit installations shall meet current NEC code.
- Schedule 80 PVC conduit will be utilized anywhere conduit emerges from concrete or where conduit may receive physical abuse.
- EMT should not be used outdoors, in wet locations, in floor crawl spaces, or below 5' AFF without prior approval.
- For Branch Circuits,
 - The minimum conduit size will be ¾"
 - All conduit connectors shall be steel compression type
 - No horizontal conduit run allowed inside walls
- All conduits shall be installed parallel and perpendicular to the building.
- For Feeders, conduit is to be sized at least one size above the NEC requirement of wire being installed or anticipated to be installed, with minimum size to be 1".
- PVC conduit will be used for underground electric circuits less than 600 volts that are:
 1. Under paved areas and areas scheduled to be paved.
 2. Next to permanent buildings, under formal planting beds and in extremely high traffic areas that would be difficult to excavate due to regular heavy use.
 3. PVC conduit will be Schedule 40 minimum weight and to be designed for electric application with all connections solvent welded.
 4. All metallic fittings will be compression type and shall be water tight.

Devices & Motors

Devices

- All receptacles and switches will have a minimum rating of 20 amps and will be commercial grade.
- Preferred color for receptacles and switches is ivory. Receptacles which comply with ASHRAE 90.1 (2010) shall be green. Other colors may be used to match existing devices or for special uses.
- In areas requiring to have ground fault interrupting capability, it is preferred GFI receptacles be used rather than GFI breakers.
- Designer will evaluate the need for steel, nylon or other special types of covers, depending on the usage of the area.
- The preferred mounting heights, above finished floor, are 48" for switches, and 18" for receptacles.

Misc. Electrical Requirement

New Construction Work Areas

A new interior construction work area would be a space where either all new ground up interior construction was taking place, or a full demolition of an existing interior space is being accomplished...essentially with all new interior walls. Where this type of work is occurring, the use of EMT conduit, MC Cable are understood to be as follows:

1. EMT conduit would be utilized for all connections to any electrical panel, along with all horizontal above ceiling (or possibly below floor) runs out to the various electrical device locations. All drops to devices (receptacles, switches, J-boxes, etc.) within new wall locations would be accomplished with EMT conduit run vertically only (no horizontal conduit runs within any new wall locations).

2. The understood minimum EMT conduit size for the above noted item 1 is $\frac{3}{4}$ "C. The final EMT conduit size (and associated branch circuit conductor sizing requirements) would be based on NEC requirements (other than the noted $\frac{3}{4}$ "C minimum size requirement) depending on the actual branch circuit loading.
3. MC cable would not be utilized for any branch circuit requirements related to any device locations within any new wall locations...all branch circuits for these new wall mounted device locations in new walls would only be in EMT conduit as indicated in items 1 and 2 above.

Renovation Work Areas

A renovation interior work area would be a space where existing walls are remaining, but new devices (receptacles, switches, J-boxes, etc.) are being installed within the existing walls. Where this type of work is occurring, the use of EMT conduit, MC Cable, and flexible metal conduit are understood to be as follows:

1. EMT conduit would be utilized for all connections to any electrical panel, along with all horizontal above ceiling (or possibly below floor) runs out to the various electrical device locations. The drops to devices (receptacles, switches, J-boxes, etc.) within existing wall locations would be accomplished with either MC Cable, or flexible metal conduit run vertically only (no horizontal runs within any wall locations).
2. The understood minimum flexible metal conduit size for the above noted item 1 is $\frac{3}{4}$ "C. The final MC cable or flexible metal conduit size (and associated branch circuit conductor sizing requirements) would be based on NEC requirements (other than the noted $\frac{3}{4}$ "C minimum flexible metal conduit size requirement) depending on the actual branch circuit loading.

Lighting Fixture Locations (both New Construction and Renovation Work Areas)

Recessed Lighting Fixture Locations

1. EMT conduit would be utilized for all connections to any electrical panel, along with all horizontal above ceiling (or possibly below floor) runs out to the various area lighting fixture locations. The understood minimum EMT conduit size for this lighting branch circuit application out to a given area from an electrical panel is $\frac{3}{4}$ "C. The final EMT conduit size (and associated branch circuit conductor sizing requirements) would be based on NEC requirements (other than the noted $\frac{3}{4}$ "C minimum size requirement) depending on the actual branch circuit loading.
2. For new construction work areas utilize EMT conduit ($\frac{3}{4}$ "C minimum) for the vertical raceway requirements related to light fixture switch locations; for renovation work areas utilize flexible metal conduit ($\frac{3}{4}$ "C minimum) for the vertical raceway requirements related to light fixture switch locations.
3. For the lighting branch circuit connections at the individual recessed lighting fixture locations (branch circuit concealed above gyp, lay-in, etc. ceilings)...MC Cable could be utilized to accommodate the branch circuit connections between the recessed lighting fixtures in a given area.
4. The understood minimum MC Cable size for connections between recessed lighting fixtures in a given lighting control area would be $\frac{3}{8}$ "C. The final MC cable size (and associated branch circuit conductor sizing requirements) would be based on NEC requirements (other than the noted $\frac{3}{8}$ "C minimum MC Cable size requirement) depending on the actual branch circuit loading.

Surface or Exposed to Structure Lighting Fixture Locations

1. EMT conduit would be utilized for all connections to any electrical panel, along with all horizontal runs out to the various area lighting fixture locations. The understood minimum EMT conduit size for this lighting branch circuit application out to a given area from an electrical panel is $\frac{3}{4}$ "C.
2. For new construction work areas utilize EMT conduit ($\frac{3}{4}$ "C minimum) for the vertical raceway requirements related to light fixture switch locations; for renovation work areas utilize flexible metal conduit ($\frac{3}{4}$ "C minimum) for the vertical raceway requirements related to light fixture switch locations.
3. For the lighting branch circuit connections at the individual surface or exposed to structure lighting fixture locations...EMT conduit would be utilized to a point within 6' of any lighting fixture location. MC Cable could be utilized to accommodate the final 6' branch circuit connections between the surfaces or exposed to structure lighting fixtures in a given area.
4. The understood minimum desired EMT size for connections between the surface or exposed lighting fixtures in a given lighting control area would be $\frac{3}{8}$ ". The final EMT conduit, MC cable, size (and associated branch circuit conductor sizing requirements) would be based on NEC requirements (other than the noted $\frac{3}{4}$ "C minimum EMT or flexible metal conduit size requirement) depending on the actual branch circuit loading.

Busways

The University discourages the use of busways in electrical system design from a maintenance standpoint. The use of busway on the line (service) side of the service disconnect is prohibited. Aluminum busway is prohibited.

Computer Room Power

Electrical service for areas used for computers or microprocessors should have:

- Dedicated circuits for computer use only.
- Isolated ground receptacle and wiring to be used in conjunction with dedicated circuits.

- Line isolation and filter transformer provided for small main frame computers.
- For large main frame or real time computers, an uninterruptable power supply should provide the power to critical components even if emergency power is available.

Electrical Outlet Strips at Laboratories
Use only Wiremold G4000 series.

Wireless Atomic Clock
Use Primex as the manufacturer for all wireless atomic clocks.

Emergency Generators
Wherever possible, locate emergency generators in weather-protected space contiguous with the building which the generator serves. Duct generator exhaust to discharge remote from any air intake for the building. Emergency generators can be either diesel or natural gas. Natural gas generators will have a gas supply metered separately from the building gas supply. Facilities must approve any generator selection.

Receptacles
For use with housekeeping floor maintenance equipment, provide a 20 amp, 120 volt electrical receptacle every 30 feet in corridors, on each stairway landing and close to each exterior door. To the maximum extent possible, circuit these receptacles so that more than one piece of high amperage floor maintenance equipment may be operated simultaneously in each corridor.

Electrical Boxes
When installing electric outlet boxes in walls and studs, use a box mounting bracket per Appendix G, Figure 32, or approved equal, to prevent box from floating in wall.

Electrical Breaker Panel and Circuit Identification

- In existing building, remodel project design engineer shall continue electrical panel names/number sequences based on existing building panel designations.
- All panel schedules shall have typewritten updates at the end of any remodel project, or when future circuits are added to panels. Handwritten panel schedules are not acceptable. Panel schedules shall reflect as-built drawings and electronic copy provided to the owner.
- All 480/277/208 volt circuits shall be identified at each junction box it passes through on the inside of junction box cover.
- All 120 volt outlet covers shall be labeled with the panel and circuit breaker number it is fed from.
- All outlets served by a generator shall be clearly identified with a red outlet or red cover (nylon acceptable).
- All panels and outlets on an emergency generator will have a prefix "E", and those on a standby generator will have a prefix "S" on designations.
- Switch plates, blank and outlet covers in mechanical rooms, kitchens, restrooms, high traffic hallways, and common areas shall be stainless steel. Heavy duty nylon or unbreakable covers are acceptable in other applications. Plastic is unacceptable.

8.10 Interior Lighting

Use Satco Flat Panel LED fixture, or equivalent.

Because of their poor efficacy and lamp life, use incandescent lighting only where other more efficient sources are unsuitable – prior written approval by owner will be required. In these cases, use improved efficacy sources. Avoid the use of chandeliers. Lighting should not exceed an average of 1.5 watts per gross square foot.

Lighting color should be 4100K or 5000K.

Lighting controls shall be Lutron that work with Graphic Eye Controls.

Use one voltage exclusively throughout a building. Where 480/277V is available use 277 volts for lighting.

Lighting Fixture Types

- All fluorescent fixtures should have T8 electronic ballasts. Ballast configuration should allow for dual level switching, with the exception of fixtures with only 2 bulbs.
- For general offices and classrooms where dimming is not required, and all other indoor building applications not mentioned in this section, use "general use" lay-in LED fixtures.
- Use dimmable LEDs in dimming applications.
- Remodel and expansion project: match light fixtures found in adjacent areas to the project.

- Emergency Egress lighting fixtures and Exit signs at Discovery Park and other buildings powered by an emergency generator will not need batteries.
- Exit signage shall use LED technology.
- Lighting fixtures shall not share ballasts.
- Canned lighting fixtures installed in hard ceilings shall have accessible remote ballasts.
- All recessed can lights shall be dimmable LED.

Lighting Level Guidelines

Unless safety and security requirements dictate greater illumination or specific visual tasks require either more or less illumination, lighting designs shall conform to the following guidelines:

| Interior Space Type | Lighting Level |
|---|--|
| Open offices, general use | 50 foot-candles |
| Individual offices | 60 foot-candles (maximum) with controls to produce a range of lesser illuminations. |
| Laboratories, drafting rooms, libraries, and similar close-task areas | 75 to 100 foot-candles. |
| Classrooms | 50 foot-candles. |
| Corridors and stairs | 10 foot-candles. |
| Shop areas | 30 foot-candles, with task lighting as required |
| Lobbies and lounges | 20 to 30 foot-candles |
| Emergency lighting | 2 foot-candles |
| Specialized areas | In accordance with recommendations of the Illuminating Engineering Society Lighting Handbook |
| Conference tables | 30 foot-candles with background lighting 12 foot-candles |

Lighting of Large Interior and High-Bay Areas

Type of lighting will be reviewed and approved by Facilities per application.

Design for illumination levels as follows:

| Interior SpaceType | Lighting Level |
|---------------------------|------------------|
| Warehouse | 30 foot candles |
| General recreation. | 50 foot candles |
| Competition areas. | 75 foot candles |
| Televised athletic events | 100 foot candles |

For multiple usage facilities, provide 3 stage switching.

Lighting of Mechanical Equipment Rooms

Light mechanical equipment rooms with either T8 fluorescent or Himax T8L- 6, 8, or 10 lamp 32-watt T8 High-Bay & Low-bay pendant mount or similar fixture lamps at 30 foot-candles. Electrical and control panels shall have task lighting designed at 50 foot-candles. Lighting in mechanical spaces will not be controlled by occupancy sensors or timers.

Locate switches for mechanical room lighting fixtures inside the room and beside the door – large mechanical rooms with more than one door shall have 3-way switches to provide control at each entrance. Place mechanical room lights on emergency circuits from the emergency generator.

Lighting Control

Provide dual level inboard/outboard switching to control lighting in all areas or occupancy sensors as appropriate to the use of the space.

Sensor Switch brand is currently installed and in use on campus, specific models are:

| | |
|------------------------|---|
| Wall Switch Series | WSD, WSD-SA, WSD-PDT, WSD-PDT-SA, WSD-2P (2 pole) |
| Corner Wall Series | WV-16 and WV-BR (bracket) |
| Fixture Mounted Series | CMRB-9 |
| Power Packs | MP-20 and MSP-20 |

For areas over 200 square feet, provide multiple switching to reduce the lighting. Use three tube, two ballast T8 fluorescent fixtures. Classrooms, lecture halls and conference rooms will have one bulb in each fixture of the back row switched separately from the rest of the room to allow subdued lighting during media presentation. See Appendix G, Figure 31. Specific chalkboard lights will also be switched separately from the rest of the room. Other areas may be so equipped if feasible.

Provide wall-mounted toggle switches for all lighting except exit and night lights. Use dual switching for classrooms, large offices, auditoriums, library stacks and other suitable areas.

Dimmer switching is not preferred.

Specify programmable control of all building lighting tied in with the campus computer control and monitoring system (CMS) unless shown to be economically undesirable. A manual override shall be provided in the main mechanical room. Provide control capable of remotely reducing lighting levels by 1/2 to 2/3 in all building areas.

Maintenance Considerations

The lighting design must address accessibility for re-lamping, cleaning and other maintenance procedures. The following guidelines are provided:

- Do not locate fixtures directly over hazardous chemicals, mechanical equipment and laboratory benches. Install fixtures on the perimeter of such equipment and properly directed.
- The Designer should make special provisions for solving the maintenance problem associated with lamps located in high ceiling areas.
- Mount stairwell fixtures so that maintenance personnel can reach them safely from an 8' or shorter ladder.
- Consider the use of maintenance accessible indirect lighting or LED in stairwells that meets current fire and life safety codes.

8.11 Fire Alarm & Detection Systems

For Fire Alarm Specifications, refer to Appendix C.

The University of North Texas Fire Systems Supervisor must approve the design of all Fire Protection Systems.

The University has a Central Alarm Receiving System (CARS) located in the UNT Police Dispatch Office, which is capable of supervising fire, burglary, or other trouble signals from any campus location. All fire alarms should have the provision to transmit an alarm signal, supervisory signal, and trouble signal to this location.

Equip each fire panel with a network card and software to interface with Onyxworks network.

Equip each building with an annunciator panel, per specifications, that will indicate the occurrence and location of any abnormal condition. Such a condition, when occurring, is indicated in the panel by a flashing light identifying the abnormal condition. The annunciator shall identify the following: fire alarms, supervisory alarms, and trouble signals.

Unless existing conditions require it, no conduits to fire alarms should be surface mounted. If existing conditions require surface mounting, consideration should be given to wire mold or raceways.

Fire Alarm Systems

1. Acceptable manufacturers for fire alarms systems are Notifier, or approved equal.
 - a. Must be compatible with Onyxworks.
2. Vendor for fire alarms systems must show the ability to respond to requests for service within 24 hours and the ability to supply replacement parts for the system within 48 hours.
3. All fire alarm panels will be equipped with a "walk test" feature. This allows each activating device to be tested without the need to reset the panel after each device is activated.
4. Power expander units external to the FACP are prohibited unless approved by the fire systems manager.
5. If door hold-opens are used, they will be wall-mounted, magnetic type with proper mounting blocking in the wall. Combination door closer/hold-opens will not be used.
6. All pull stations will be key-operated, keyed the same as the building fire alarm panel.
7. Ionization type smoke detectors will not be allowed unless directed by the fire systems manager.
8. All detectors or other activating devices will be installed in locations that are readily accessible for maintenance. Any initiating device installed above a suspended ceiling (i.e. duct smoke detectors) shall have an indicator showing below the ceiling the location of the device, and remote test switch readily accessible for testing and maintenance. Beam detectors will be used in atriums or other high ceiling areas.
9. When fire alarm systems are installed in buildings with elevators, provisions will be included for main or alternate floor recall. Connection between the fire alarm system and the elevator shall be as directed by the fire systems manager.
10. Wiring shall be U.L. listed as fire alarm protection signaling circuit cable per NEC. Wire for digital loops will be a minimum of #18 AWG, twisted pair, shielded type FPL, FPLP, FPLR. Wire for notification circuits will be a minimum

- #14 AWG, type KF-2 or KFF-2. Alarm speaker wire will be a minimum #14 AWG, shielded type CM. Cable type may vary if recommended by the system manufacturer for compatibility with system warranty or design.
11. All fire alarm system wiring will be concealed in a dedicated raceway, conduit or approved plenum rated wire in J hooks.
12. Ground fire alarm equipment, conductors, and cable shields per NFPA code and manufacturer.
13. Fire alarm audible shall be 10 decibels above ambient noise level. Audio/Visuals will be Wheelock series or approved equal.
14. Fire alarm strobe flash rate to be one flash per second with zero inrush current. Strobes will be Wheelock RSS series or approved equal.
15. Synchronized strobes are required where more than one strobe is visible from any location, including corridors. Where synchronized strobes are used, use appropriate control module based on manufacturer's recommendations, such as Wheelock or approved equal.
16. Alarm speakers will be Wheelock series ET or approved equal.
17. Before partial occupancy, on all fire alarm installations or modification, vendor shall perform all testing with the Fire Systems supervisor. The vendor will provide a copy of the inspections and test forms at the completion of required tests outlined in NFPA.

8.12 Rooftop Equipment

The University requires that Designers minimize the visual impact of any items located on roofs. The University prefers not to have equipment placed on the roof. However, where rooftop equipment must be used, the design shall minimize penetrations of the roofing system. Provide maintenance access walkways to all rooftop equipment. Equipment mounted on rooftops should be located a minimum of 15' from the edge of the building. In rooftop locations where a minimum of 15' is not feasible, contractor shall install tie-off anchors or a safety rail system.

8.13 Lightning Protection

All buildings over 75 feet in height shall have a lightning protection system. For all buildings less than 75 feet in height, the Designer shall provide a recommendation regarding the inclusion of a lightning protection system for consideration.

8.14 New Natural Gas Service to Buildings

Every building or set of buildings which must be connected to Atmos natural gas infrastructure will be supplied using either commercial service, or transport service as determined by the total annual load. The minimum load to qualify for a transport service is 20,000 CCF per year. If any building or set of buildings has an expected load over 20,000 CCF per year, the project will employ Atmos Energy to extend the gas line from the main and install a transport meter. If any building or set of buildings has an expected natural gas load lower than 20,000 CCF per year, Atmos energy will install a commercial connection and account.

END OF DESIGN GUIDELINES

C. THE CONSTRUCTION CONTRACT

1.0 General

All construction contracts for UNT will follow the UNT System Uniform General Conditions for Construction and Design Contracts. [https://facilities.unt.edu/sites/default/files/UNT_SYSTEM - UNIFORM GENERAL CONDITIONS - 2016.pdf](https://facilities.unt.edu/sites/default/files/UNT_SYSTEM_-_UNIFORM_GENERAL_CONDITIONS_-_2016.pdf)

2.0 Shop Drawings, Submittals, Samples, Data (Add to GC, Article 5)

2.1 Selection of Brick or Cast Panel for Exterior Walls (If Applicable)

The manufacturers shall present samples to the Designer for his selection from which sample patterns are to be erected or shown on the job site. Coordinate with the Construction Manager as to the location of these panels. UNT will notify the Designer of the final selection. In the case of cast stone panels, small samples may be submitted for selection purposes. See Section A, 7.3.

Completed panels must cure for at least three weeks before they are reviewed by the Owner. In addition, three weeks are required to schedule this review. Therefore, the panels must be completed by the Contractor a minimum of six weeks before the brick selection is needed.

3.0 Materials, Equipment, Employees

3.1 Specification of Competitive Materials

Products are generally specified by ASTM or other reference standard, and/or by manufacturer's name and model number or trade name. When specified only by reference standard, the Contractor may select any product meeting this standard, by any manufacturer. When several products or manufacturers are specified as equally acceptable, the Contractor has the option of using any product and manufacturer combination listed. However, the Contractor shall be aware that the cited examples are used only to denote the quality standard of product desired and that they do not restrict Bidders to a specific brand, make, manufacturer or specific name – that they are used only to set forth and convey to Bidders the general style, type, character and quality of product desired and that equivalent products will be acceptable. Substitution of materials, items or equipment of equal or equivalent design is submitted to the Architect or Engineer in accordance with the Specification for approval or disapproval (see Section A, 7.3); such approval or disapproval is made by the Architect or Engineer prior to the opening of bids.

3.2 Condition of Contiguous Work

If any part of the Contractor's work is dependent for its proper execution, or for its subsequent efficiency or appearance, on the character or condition of contiguous work not executed by him or her, the Contractor shall examine and measure such contiguous work and report to the Designer in writing any imperfection therein, or any condition which renders it unsuitable for the reception of his or her work. In case the Contractor proceeds without making such written report, he or she is held to have accepted such work and the existing conditions, and the Contractor is responsible for any defects in his or her work consequent thereon. The Contractor is not relieved of the obligation of any guarantee because of any such imperfection or condition.

4.0 Permits, Inspections, Fees, Regulations

4.1 Permits and Fees

The Contractor is responsible for obtaining all permits required for the installation of his or her work. The Contractor is responsible for fees as outlined in the Specification. The Contractor shall determine the amounts prior to bidding and shall include this (these) amount(s) in the bid. Building permits and inspections by the City of Denton are not applicable within UNT's jurisdiction except within City of Denton right of way or easement (such as roadways and utilities).

5.0 Protection of Work, Property and the Public

5.1 Protection of Underground Utilities Lines

Each contractor or subcontractor who performs excavation work must:

1. Provide the UNT Construction Project Manager with need to dig notice 73 hours in advance of work being performed.
2. Mark route of trench or location of dig with white spray paint or white flags.

UNT Construction Project Manager or UNT Construction Project Superintendent is responsible for sending e-mail dig information to the UNT Facilities Compliance Coordinator Mike R Reynolds Cc: Facilities Engineer Steve Mathis, and verifying that contractor or subcontractor who is doing excavation work has properly marked location.

The Contractor is responsible for the consequences of any utility interruption caused by his or her excavation, and is responsible for the cost of repairing any damage done to the utilities themselves.

5.2 Protection of Storm Drainage System

The contractor must obtain appropriate storm water permits and provide appropriate measures, such as block, gravel filters or silt fences, during construction as required to protect catch basins, storm drains and streams from the entry of all silt and construction debris.

Contain the residue from the cleaning of ready-mix trucks, wheelbarrows, concrete buddies, etc. and remove from the campus with other refuse.

No dumping of debris into drains or catch basins is permitted. Contractor is responsible for cleaning or replacing drain lines if a violation occurs.

The Designer's Erosion and Sediment Control Plan for the project should clearly state which measures are temporary and which measures are permanent. The Contractor is required to remove all temporary erosion control measures including silt fencing, inlet protection measures and sediment traps after the site is stabilized and prior to final inspection.

5.3 Protection of Existing Landscaping

Give special attention to any trees, shrubs or lawn remaining inside the construction area. To protect such materials, install a landscape protection fence prior to the initial stage of grading, excavation or tree removal. This fence or barricade must be a minimum of 3 feet high and is required to remain in place for as long as is practical. The landscape protection area shall extend to at least the drip line of any trees or shrubs that are to remain.

No storage, access or activity of any kind is permitted in the landscape protection areas. This specifically includes the felling of trees into the landscape protection areas. No limbs, tops, stumps, fill, material storage or equipment is permitted in the landscape protection areas at any time.

Take care to protect trees and shrubs from damage by cranes, falling objects, etc. The Contractor shall not move or prune trees and shrubs. When pruning or moving is necessary, notify the Designer and the Owner shall in turn perform the work at no cost to the Contractor.

Protect plants and trees outside the construction limits from (see also Section B, 2.9):

1. Compaction of root areas by equipment, materials, or fill dirt.
2. Trunk damage by moving equipment, material storage, mauling or bolting.
3. Poisoning by pouring solvents, gas, paint, etc. on or around roots.
4. Damage of branches by improper equipment activity.
5. Cutting of roots within the drip line of the tree.

It is specifically prohibited to fell or bulldoze trees into a wooded area that is adjacent to the site being cleared for construction. Site clearing should be done so as to prevent damage to wooded areas adjacent to the project.

Do not use trees as props or anchors for materials, guy wires, cables or utility wires.

A tree surgeon or nurseryman shall repair or replace damaged trees, shrubs or lawns in a manner acceptable to the University with the cost of the repairs or replacements paid by the Contractor.

Maintain landscape with proper fertilization and irrigation during construction.

Contractor will provide a specific "chemical or caustic" material mixing/staging area. This area is to be self-contained and will not allow spread to any soil.

5.4 Protection of Campus Buildings, Streets and Sidewalks

The Contractor is responsible for protection of existing buildings, roofs, trees, shrubbery, and lawn areas from damage by vehicles, equipment, overhead cranes, falling objects, etc.

The Contractor is responsible for protecting the campus streets and walks connecting to the project from deposits of mud, sand, stone, litter or debris in any form. Clean off all mud collected on vehicle wheels before leaving the construction area. Should any mud or debris collect on the streets from the construction project, remove immediately.

Where equipment must cross walks, lawns and other transitional areas used by pedestrian and vehicular traffic, the Contractor shall provide minimum 3/4" thick plywood protective sheets for equipment to roll over.

5.5 Shutdown of Existing Fire Protection Systems

The shutdown of existing fire protection systems for renovations shall be kept to a minimum. The Contractor shall review with UNT Fire Systems any scheduled shutdown of fire protection systems. UNT Fire Systems must have at least 24-hour advance notice.

5.6 Generating Smoke, Heat, or Dust

When conducting smoke, heat or dust generating tasks, the contractor or subcontractor performing the work must take steps to create or build barriers to prevent smoke, heat, or dust from getting into adjacent occupied offices, labs, classrooms and

hallways, as well as taking care to not set off smoke detectors installed in buildings. Contractor shall review with UNT Fire Systems any protection of smoke detectors planned during construction and to review any required scheduled shut downs of smoke detector equipment by Facilities. Indoor Air Quality (IAQ) Notices must be posted prior to work being performed.

5.7 Safety Measures

Take appropriate steps at each construction site to protect the general public from hazards created by demolition and construction operations.

All projects shall comply in full with NFPA 241 Standard for Safe-guarding Building Construction and Demolition Operations, NC-OSHA Regulations.

Separate the demolition or construction site from public access by fences, barricades or other appropriate security measures. Accident prevention signs and markers shall comply with OSHA regulations to warn of dangers (e.g., overhead electrical wires) and restrictions (e.g., restricted access areas, hard hat areas). Where necessary, provide protected detour routes for vehicles or pedestrian traffic.

Barricades and signs must meet OSHA, DOT, and University approval, and be substantial enough to deter bypassing, vandalizing or theft. In addition to meeting all applicable codes and regulations, keep signs neat and legible at all times. Hand-made signs are not acceptable.

All barricades, temporary walkways and protection of work and materials shall accommodate access, provide adequate warning and protection to all segments of the University population, including wheelchair users and those using walking aids and the hearing and visually impaired.

5.8 Security Measures

The University will provide only those security measures which are deemed prudent for its own operations. The Contractor shall provide the necessary security means to protect his or her work, materials, tools, and construction equipment from vandalism, theft and fire. The Contractor shall supply watchmen services as he or she deems necessary. Contractor shall review with UNT the security measures for the construction site and submit the name of outside security contractor for approval by the Owner. The Contractor is responsible for replacement of his or her materials, machinery, equipment, tools and supplies which are the subject of theft or mysterious disappearance. Clearly mark all tools and equipment with the Contractor's identification. The Contractor shall clearly mark all tool boxes.

The Contractors shall provide the Owner with a list of day and night phone numbers to use in case of emergencies during the course of the project.

5.9 Hazard Communication Standards

All Contractors shall comply with the OSHA Hazard Communication Standard. The written Hazard Communications Program and Material Safety Data Sheets for each hazardous chemical shall be readily available and centrally located on site.

5.10 Asbestos containing materials

Under no circumstances shall the Architect specify, or shall the Contractor permit, the installation of asbestos containing materials as defined by any authority having jurisdiction.

6.0 Inspections and Testing

The Contractors shall give reasonable notice of construction activities requiring testing and inspection to allow scheduling through the UNT Construction Project Manager.

The University will also arrange for independent testing agencies to perform special testing and inspections of work in progress. Again, the Contractors shall give reasonable notice of such construction activities requiring special testing and inspection to allow scheduling with the testing agency.

In addition to the special inspections, the Construction Manager will schedule all other testing and inspections as per the contract, including but not limited to above ceiling inspections, pre-final inspections, fire detection and alarm system testing. Do not cover any items without the approval of the Construction Manager, i.e., underground, formwork, walls, ceiling, etc. Any of these inspections which are not completed satisfactorily are repeated at no cost to the owner and without time extension. All inspections and testing for the fire protection systems and life safety are performed by UNT Fire Systems staff and the fire protection contractor.

7.0 Use of Premises

7.1 Use of Owner's Drinking and Toilet Facilities

On major capital projects, the Contractor's personnel are not allowed to use the Owner's toilet and drinking water facilities. The General Contractor shall provide temporary toilet facilities for all construction personnel. Each individual Contractor will provide drinking water facilities for their personnel.

7.2 Contractor's Working Hours

The Contractor may establish a work schedule of his or her own choosing, but the Contractor shall submit his or her regular daily work schedule to the Construction Manager and to the Designer, and shall notify the Construction Manager in advance of any deviations from this schedule. The University reserves the right to limit the Contractor's activities when they conflict with University operations.

Work is normally permitted on the days of sporting events and concerts, but traffic is extremely heavy on those days. Contractors may experience delays getting to and from the job site.

Work is normally permitted on student move-in/move-out days, but traffic is heavier than normal, parking is restricted and some campus roads are temporarily closed or designated one-way.

7.3 Noise-Making Activities

In most cases, the University will require the Contractor to comply with the City of Denton Noise Ordinance; however, there are other situations where stricter noise control is required. If the project involves work in or near a building in which an examination is being conducted, the Contractor is required to restrict operations which are disturbing to students during the hours of the exam(s).

7.4 Temporary Interruptions of Utilities and Traffic Movement

Procedures for making temporary disruptions to existing utilities, roads or pedestrian walks shall be planned well in advance of the work, and the work shall be executed in a manner to provide reasonably continuous service throughout the construction period. Connections to existing utilities are made only at times approved by the University. The University typically schedules interruption of services at times other than the Contractor's normal working hours. Only designated University personnel are authorized to interrupt services. Frequently, outages are scheduled to reduce disruption of classes and special events.

For interruption of service in major utility systems, the Contractor must submit to the Construction Manager a step-by-step sequence of operations planned to accomplish the work. This outline must show tentative dates and times of day for shut-off and restoration of services. Upon approval of the planned operations, the Construction Manager shall make arrangements with appropriate University personnel for interruption of services.

Road and sidewalk cuts shall be scheduled in advance, and made only after they have been approved by the University and the City of Denton in the case of city streets. Contractors shall plan and coordinate their work to minimize the duration of such disruptions. Appropriate detours shall be planned, subject to the approval of the University, giving consideration to the handicapped. The Contractor shall install warning barricades and signs as well as informational signs indicating detours. No service disruptions or excavations are permitted until barricades and signs are in place to protect the public. If the nature of the site does not allow placement of barricades prior to the excavations, the barricade materials must be physically present on site before excavation begins, in order that they may be erected as soon as possible.

7.5 Site Limits

Enclose the construction area with a six foot (6') high (minimum) chain link type fence with top rail. At the completion of the project the Contractor shall remove the construction fence completely including below ground level. Fence posts shall not be sawed off flush with the soil line.

7.6 Contractor Parking and Storage

Parking is extremely limited at the University of North Texas. Parking lots and the streets in the immediate vicinity of the University are permit only parking. The Contractor may park work vehicles (having equipment attached to the vehicle) within the site, as space permits, as well as a reasonable number of logo bearing supervisor vehicles. The Construction Manager, with the University Police, will provide at no cost a reasonable number of parking permits for the Contractor to distribute to workers for their personal vehicles, which will be specific for certain lots or areas. If these areas are not adjacent to the site, workers are invited to ride one of the free shuttle busses to the site. The contractor is expected to regain the permits and redistribute them to new subcontractors as the project progresses. Vehicles parked in other than the designated areas within the University controlled area may receive tickets. Tickets will not be excused. Vehicles receiving tickets which are not paid may be impounded. If the project is not in the inner campus area, the contractor may allow his employees to park inside the fence, as space permits.

All contractors are responsible for informing their employees that they cannot park at any locations on the campus other than the allocated spaces. All existing University parking regulations are enforced.

Parking for large storage trailers is limited to within the construction site. If additional trailer parking is required, the Construction Manager and the University Police will work with the contractor for a solution.

8.0 Utilities, Structures, Signs

8.1 Utilities

The University's Facilities Maintenance Department operates the fire protection systems, electrical, heating water and chilled water cooling distribution systems serving the main Denton Campus, Discovery Park, and the Athletics Campus. Contractors will not shut down or restore any of the above mentioned Utility. All changes in University Utilities will be coordinated through the UNT Construct Project Manager. 24 hour prior notice is required.

Telephone service is provided by GTE Southwest, Inc. to a central point on campus, and owns the lines to the Main Distribution Room (MDR) in each building. The Contractor installs as part of the general construction, and the University then owns the twisted pair wiring to each outlet. GTE will run wires to the jumper boards in the MDR, the Contractor runs the wires from the jumper boards to the outlet and the University's Telecommunication office makes the jumper board cross connects. The Contractor should contact GTE directly for Contractor's telephone service during construction.

Water and sewer service is provided by the City of Denton. The Contractor should contact the City of Denton to establish water and sewer services.

8.2 Signs at Construction Sites

Identification of a construction project and those principal parties participating in the project is provided by the Contractor. Only one identification sign is permitted per project. No additional signs identifying participants is allowed.

The design of the project identification sign must be approved by UNT. The sign shall give the name of the University, the title of the project and, in smaller lettering, the names of the Designer and Contractor(s).

Provide warning and safety signs as required. Keep all other informational signage to a minimum.

All signs shall be kept clean and free of graffiti and maintained by the Contractor.

8.3 Identification by Room Number

During construction, once the interior layout is partitioned off into rooms, all rooms shall be identified on the site with a room number that corresponds with the room number on the design drawings.

9.0 Cleaning Up

Keep the construction site, and adjacent campus areas, free of trash, litter or debris at all times. Empty trash cans/dumpsters and remove the contents from campus before they overflow. The Contractor shall remove litter, rubbish and debris on a daily basis. Use of University trash receptacles for such debris is not allowed. The outdoor burning of trash debris on campus is not allowed.

The Contractor is fully responsible for the containment of mud and debris on the site as well as removal of these items from roads and walkways.

The Contractor shall trim/mow grass, irrigate grass and other vegetation on the construction site as often as required to maintain a neat appearance.

Do not allow debris to accumulate in corridors or stairways. As construction is completed, protect the work to prevent soiling or spotting, particularly with regard to flooring systems. The carpet shall be cleaned and kept free of spots or traffic patterns. Resilient floors shall be cleaned, sealed and properly finished to provide a uniform appearance without streaks or smears.

10.0 HUB Subcontracting Plan (HSP)

In accordance with Texas Government Code (TGC) §2161.252 and Texas Administrative Code (TAC) Title 1, Part 5, Chapter 111, Subchapter B, Rule §111.14, each state agency (including institutions of higher education) as defined by TGC §2151.002 that considers entering into a contract with an expected value of \$100,000 or more shall, before the agency solicits bids, proposals, offers or other applicable expressions of interest, determine whether subcontracting opportunities are probable under the contract.

If subcontracting opportunities are probable, each state agency's invitation for bids or other purchase solicitation documents for construction, professional services, other services and commodities with an expected value of \$100,000 or more shall state that probability and require a HUB Subcontracting Plan (HSP).

In accordance with Texas Government Code §2161.181 and §2161.182, each state agency shall make a good faith effort to increase the contract awards for the purchase of goods or services to HUBs based on rules adopted by the Commission to implement the disparity study described by TGC §2161.002(c).

The purpose of the HUB Program is to promote equal business opportunities for economically disadvantaged persons (as defined by TGC §2161) to contract with the State of Texas in accordance with the goals specified in the State of Texas Disparity Study. The HUB goals per TAC §111.13 are: 11.9% for heavy construction other than building contracts; 26.1% for all building construction, including general contractors and operative builders contracts; 57.2% for all special trade construction contracts; 20% for professional services contracts; 33% for all other services contracts; and 12.6% for commodities contracts.

The contracting agency does not endorse any company or individual identified on any listings/directories included or referenced herein. A complete list of all State of Texas certified HUBs may be accessed via the Internet at <http://www.tbpc.state.tx.us/cmbl/cmblhub.html> or <http://www.tbpc.state.tx.us/cmbl/hubonly.html>

The contracting agency will determine if the value of subcontracts to HUBs meet or exceed the HUB subcontracting provisions specified in the prime contractor's HSP. If the contracting agency determines that the prime contractor's subcontracting activity does not demonstrate a good faith effort, the prime contractor may be subjected to provisions in the Vendor Performance and Debarment Program (1 TAC, Part 5, Chapter 113, Subchapter F).

End of the Construction Contract

D. SELECTION AND EVALUATION POLICY

1.0 Architect Selection Process

- 1.1 General
UNT follows all State requirements for procurement of professional services.

Smaller projects may be handled using the Indefinite Quantity Indefinite Delivery (IDIQ) system.

For all capital projects a procedure for the selection of design firms has been implemented at UNT. It is a two-part process that targets the qualifications and experience of prospective firms with regard to the particular needs of the project for which they wish to be considered.

1.2 Evaluation

In Phase I, a Request for Qualifications is advertised in the Electronic State Business Daily. All applicant firms are then evaluated and scored by the Evaluation Committee based upon the qualifications of the respective firm. A short list of firms is selected for further consideration.

In Phase II, the individual team members are evaluated. The office of each firm is visited by the Evaluation Committee. At this time, specific design team members are introduced, design philosophy and individual achievements are discussed and clarifications, if any, are exchanged. Following the meeting, a formal Proposal documenting each of the above elements is submitted and evaluated by our committee.

The team that demonstrates the highest level of qualifications is recommended to the Board of Regents for award of the design contract.

2.0 Contractor Selection Process

2.1 General

UNT follows all State requirements for procurement of construction services. Smaller projects may be handled using Job Order Contracts.

For large scale projects a procedure for the selection of Contractor and Construction Manager firms has been implemented at UNT. It is a two part process that targets the qualifications and experience of prospective firms with regard to the particular needs of the project for which they wish to be considered. The State approved Construction Delivery Techniques are as follows:

- Competitive Bid
- Competitive Sealed Proposal
- Construction Manager at Risk
- Construction Manager / Agent
- Design Build
- Job Order Contract

2.2 Evaluation

In Phase I, a Request for Qualifications is advertised in the Electronic State Business Daily. All applicant firms are then evaluated by the Evaluation Committee based upon the qualifications of the respective firm. A short list of firms is selected for further consideration.

In Phase II, the individual team members are evaluated. Each firm is interviewed by the Evaluation Committee, at which time specific team members are introduced; and individual experience and achievements are discussed and clarifications, if any, are exchanged. Following the meeting, a formal Proposal documenting each of the above elements, along with their response to a series of pertinent questions, is submitted and scored by our committee.

The team that produces the highest level of qualifications is recommended to the Board of Regents for award of the contract.

END of SELECTION and EVALUATION POLICY

Appendix A: Peripheral Campus Standards

A. UNT Discovery Park Supplemental Design Standards

Revised 6/11/07

(Note: This list is not comprehensive but covers most of the common issues at the Discovery Park. Refer to the Design and Construction Guidelines for all other requirements).

1. Any project that adds or removes walls in an existing Office or Lab affect utilities. (Electrical, Air Conditioning, Plumbing & Exhaust systems.) In order to prevent future Utility & Maintenance issues the Facility Management & Construction (FPD&C) assigned Project Coordinator must involve Senior Facilities Maintenance personnel as assigned by Facilities Maintenance Management (FMM) from design through project completion.
2. Once design is complete, project drawings shall be issued by FPD&C for review.
3. **Roles and Responsibilities of assigned Facilities Personnel**
 - a. **FPD&C Project Coordinator**
 - i. To request the assignment of Senior Facilities Maintenance Personnel to a project.
 - ii. Solicit design input from Senior Facilities Maintenance Personnel assigned to project
 - iii. Solicit approval input for submittals from Senior Facilities Maintenance Personnel assigned to project
 - iv. Perform the oversight and coordination of all assigned project work.
 - v. Conduct Pre-construction Meeting
 - vi. Single point of contact between FPD&C Client, UNT Facilities and General Contractor
 - vii. Coordinate any MEP shutdowns with Facilities Maintenance Personnel, and any department affected by shutdown
 - viii. Maintain paper trail of any and all project documents, change orders, request for information (RFI), request for pricing (RFP) etc.
 - b. **Senior Facilities Maintenance personnel as assigned to a project**
 - i. Provide support for FPD&C Project Coordinator.
 - ii. Give input on design issues and submittals.
 - iii. Perform the actual shutdown of any MEP system affected
 - iv. Observe progress of assigned project,
 1. As construction issues arise, communicate issues to FPD&C Project Coordinator
 2. Answer question for and ask questions of GC & SC on construction issues, but do not give direction to GC or SC.
 3. Report any safety issues to FPD&C Project Coordinator, & Facilities Safety Manager.
4. A pre-construction meeting is required prior to the beginning of any construction project. Attendees will be the FPD&C assigned Project Coordinator, General Contractor (GC) representative, Sub-contractor (SC) representatives, and Senior Facilities Maintenance personnel as assigned. The Facilities Construction office will perform the oversight and coordination of the work.
5. GC is responsible to provide submittals for approval on any Mechanical, Electrical, and Plumbing (MEP) equipment needed for project to the Project Coordinator.
 - a. Project Coordinator is responsible to solicit input from Senior Facilities Maintenance personnel as assigned, before approving submittals.
 - b. MEP SC must have approved submittals before ordering any MEP equipment.
6. Any direction that results in a "Change in Scope", Change Order, or increase in price will come from the FPD&C Project Coordinator to the GC only. Conversations between Senior Facilities Maintenance personnel as assigned and GC or SC are never to be considered "directing of a contractor"
7. Both floors of Wing E and Wing F will have a perimeter 8' to 10' wide corridor running along the exterior walls on the west, south and east sides. This is how the building is designed to allow for direct travel to fire exits, access to mechanical rooms, and to allow natural light into the interior space. The main "trunk" ducts also run down this hallway.
8. No rooms on exterior walls in Wing E, F and B.
9. Whenever possible, transportation/delivery vehicles (such as golf carts and fork lifts) will use the tunnel system to move from one part of the building to another. The first and second floor concourse will be reserved for pedestrians only, as much as possible.
10. It would be a violation of fire code to allow storage in the tunnel system. The tunnels will remain clear as vehicular access to freight elevators and also access to elevator machine rooms.
11. Use university standard "Best" door hardware throughout.
12. Color and finish selections should either match existing or follow the new standard finishes "pallet" developed for the Discovery Park.

MEP General

13. All new conduit, ducts, pipes, etc. installed in the open ceiling cavity to be painted to match existing.
14. Manufacturer for equipment such as circuit panels, switchboards, and variable frequency drives should be Square-D.
15. Piping Color Codes:

| | |
|--------------------|------------------------|
| Darkest Green | Domestic "City" Water |
| Next Lighter Green | Condenser Water Supply |
| Next Lighter Green | Process Chilled Water |

| | |
|----------------------------|--|
| Next Lighter Green | Condenser Water Return |
| Lightest Green | Make Up Water Supply |
| Dark Turquoise | RO Water Supply |
| Turquoise | Compressed Air |
| Yellow | RO Water Return |
| Off White | Vacuum |
| Dark Red | Domestic Hot Water |
| Red | Heating Water Supply |
| Pink | Heating Water Return |
| Dark Blue | Chilled Water Supply |
| Light Blue | Chilled Water Return OR Fire Sprinkler |
| Unpainted Stainless Tubing | Nitrogen |

Mechanical

16. The building has a process-cooling loop that will be maintained at 69 degrees F for lab cooling water requirements. Existing HVAC chilled water lines are reserved for HVAC use only.
17. The building has a central compressed air system for building wide use. Pneumatic air connections shall have building standard taps (check valves, valves & filters).
18. Existing HVAC & Lighting Control System is T.A.C. T.A.C. will provide controls for any mechanical remodeling.
19. Existing VAV boxes in an area that is to be remodeled should be replaced as part of the project.
20. All new VAV boxes must have 277 or 480 VAC electric reheat, and TAC controls. Preferred Manufacture will be Trane, Price is acceptable substitute based on price and availability.
21. Installation of MEP equipment such as VAV boxes and ductwork may require full or partial shutdown of building systems. Prior to the beginning of the work the shutdown must be fully coordinated through the Facilities Construction office.
22. All new Air Handler Units (AHUs), Makeup Air Handlers (MAH), Fan Coil Units (FCUs), and Exhaust Fans (EFs) shall be direct drive. All new AHU's shall be manufactured by Trane unless the unit is a specialty unit that is not available through this manufacturer. Exhaust Fans shall be manufactured by Strobic.

Electrical

23. All building original light fixtures need to be replaced with single voltage / 277vac electronic ballast fluorescent fixtures with T-8 lamps. If a decision is made to upgrade any original lighting fixtures, ballast must be replaced with single voltage ballasts only. No dual voltage ballasts. No 8" fixtures will be retrofitted to T-8, All 8" fixtures must be replaced. T-12 lamps must be properly disposed of in accordance with EPA guidelines 40 CFR.
24. All building columns are also electrical power chases. The design should take this into consideration so that power is supplied from these columns wherever possible and the use of "power-poles" is kept to a minimum.
25. All electrical receptacle and voice/data cover plates shall be smooth nylon, color: ivory.
26. All lighting in Areas A, B, D, E, F, G and M are on our Energy Management System (EMS), each area is divided into lighting zones. All remodel projects must take this into consideration and maintain the lighting zone. Or alter the existing lighting zones as appropriate to meet the needs of the end user and Facilities.
27. All electrical wiring should be run in high voltage tray in flexible conduit only. Conduit should be tied at intervals per N.E.C. No EMT, IMC, or rigid conduit will be run or laid in cable trays.
28. All hallway electrical receptacles circuits must be on separate electrical circuits from offices.
29. Rooms or Labs that house EMI Sensitive Equipment must be isolated from any electrical power or lighting circuits including circuit neutral conductors that do not direct feed power necessary for the operation of the room or Lab. This would necessitate the removal of all lighting circuits, their neutral conductor, and grounding conductors from the existing lighting grid as they pass through said rooms or Labs, and rerouting them around rooms or Labs as necessary to retain our lighting control zones. Also all traveler conductors necessary for 3 way lighting control switches must be installed in separate conduit and routed outside said rooms or Labs. 3 way switching should be eliminated from Rooms or Labs that house EMI Sensitive Equipment whenever possible

Data & Communications

30. Any existing abandoned datacom cable in existing datacom cable trays will need to be removed prior to the installation of new datacom wiring as part of the remodeling project.
31. Datacom work that will be included as part of each remodel project at the Discovery Park will include: cable from the MDF to the IDF for that area, the equipment in the IDF for the area, and the drops to each service point as well as the HVAC and power in the IDF.
32. Each IDF room must be cooled 24/7, therefore a separate air handler unit needs to be provided for each room. The AHU should be connected into the existing chilled water loop system. The capacity of this unit will be 1.5 tons (600 CFM). The bottom of the unit should be mounted at 8'-0" AFF with a supply duct connecting to a supply register at 18" AFF. Also provide a thermostat to the unit in the room and a secondary galvanized steel emergency condensate drain pan. The drain line should be piped to discharge at a location where no equipment will get wet and where any discharge will be quickly detected. Each of the two (2) drain lines should be piped to separate drains.
33. All datacom wiring will be by owner. Contractor will provide conduit and j-boxes at each outlet location.
34. Power for all MDF and IDF rooms including power for lighting must be on a separate independent circuit from other building power functions.

Cable Trays

35. Cable tray usage: Fire alarm & energy management shall use the north and west sides of the cable tray. Telecom shall use the south and east side. Each trade must keep to their respective side and all cable shall be neatly tied at all times.
36. Where cable leaves the cable tray, it will immediately enter into EMT conduit.
37. Use only MC type cable in non-control electrical cable trays.
38. Cable trays should not be used to support anything. If an exception is necessary it must first be approved by UNT, then it should be kept to a minimum.
39. When attaching to a cable tray use beam clamps bolted to the outside lower flange of the cable tray. Then attach the object you wish to support to the beam clamp with all thread and the appropriate hanger.
40. When transitioning from MC cable to conduit, attach a 4x4 electrical box to the outside of cable tray. This can be done by drilling the appropriate sized hole through the side of the tray and using a close nipple, lock nuts, nylon bushing on the box side, and a ridged conduit coupling on the inside of the tray to connect the MC connector to. This not only secures the box to the tray, it also creates a path for the wiring. If needed, a bolt on beam clamp only should provide additional support for the 4x4 box. At no time should anything be attached to a cable tray with a screw.
41. If it becomes necessary to seal a cable tray where it penetrates a wall, the plug must be made of a material that can be removed intact and replaced easily to allow for the addition or removal of cable in the future.

Plumbing

42. All plumbing waste and vent pipes are to be cast iron.
43. Trenching of the slab for waste lines is to be kept at a minimum.
44. All water supply lines to be copper.
45. Limit the number of roof penetrations for plumbing vent pipes. Where possible vent pipes should penetrate roof/ceiling at the mechanical rooms, however keep in mind that the max. Horizontal travel distance allowed for vent pipes is 20'.
46. No wax seals at wall mounted toilets and urinals.
47. The standard for water heaters is to use instant heat type under-sink water heaters. No water heaters installed above ceiling or in remote locations.

1.0 INSPECTIONS and TESTING

The contractor shall give reasonable notice of construction

1.1 WORK INCLUDED

This section specifies the design, furnishing, installation, and testing of a complete analog, electrically supervised, addressable fire alarm system as specified herein. The system shall include, but not limited to, all control equipment, power supplies, signal initiating devices, audible and visual alarm devices, conduit, wire, fittings, and all other accessories required to provide a complete operable fire alarm system. The system shall operate as a non-coded, continuous sounding system, which shall have addressable devices on signaling line circuits as specified herein.

1.2 REFERENCED STANDARDS

- A. A NFPA 70 - National Electric Code (2017)
- B. NFPA 72 – National Fire Alarm Signaling Code (2013)
- C. NFPA 101 – Life Safety Code (2012)
- D. Article 601B, Vernon's Texas Civil Statutes.
- E. Article 5.43-2, Texas Insurance Code.
- F. ADA – Americans with Disabilities Act.
- G. UL 38 – Manually Activated Signaling Boxes.
- H. UL 268 – Smoke Detectors for Fire Protective Signaling Systems.
- I. UL 268A – Smoke Detectors for Duct Applications.
- J. UL 464 – Audible Signaling Appliances.
- K. UL 521 – Heat Detectors for Fire Protective Signaling Systems.
- L. UL864 – Control Units for Fire Protective Signaling Systems.
- M. UL 1481 – Power Supplies for Fire Protective Signaling Systems.
- N. UL 1638 – Visual Signaling Appliances.
- O. UL-1711 – Amplifiers for Fire Protective Signaling Systems.

1.3 CONTRACTOR QUALIFICATIONS

- A. Installer Qualifications. An experienced installer who is an authorized representative of the Fire Alarm Control Panel manufacturer for both installation and maintenance of units required in this project. Installing company must have factory-trained technicians. A minimum of one licensed technician shall be on each installation site.
- B. Manufactures Qualifications. A firm experienced in manufacturing systems similar to those indicated for this project and with a record of successful in-service performance.
- C. Source Limitations. Obtain fire alarm system components through one source from a single manufacturer.
- D. State Fire Marshal's Licensing. The Contractor shall be licensed by the State Fire Marshal to install fire alarm systems. The Contractor's installation superintendent shall be licensed by the State Fire Marshal to supervise the installation of the fire alarm system.
- E. Compliance with Local Requirements: Comply with applicable building code, local ordinances and regulations, requirements of Authorities Having Jurisdiction and any specific building "DO's and DON'T's" list.

1.4 REGULATORY REQUIREMENTS

- A. Conform to requirements of NFPA 70, Article 601B, Article 5.43-2, ADA, and State/Local ordinances.
- B. Meet the requirements of design, fabrication, installation and testing established by NFPA 72.
- C. Furnish products listed and classified by Underwriter's Laboratory, Inc. as suitable for purpose as specified herein.

1.5 DESIGN REQUIREMENTS

- A. Provide complete fire alarm system design as outlined in this specification.
- B. Provide three (3) sets of plans to the University of North Texas Fire Marshal for approval.

- C. Locate fire alarm control panel in a surface mounted enclosure as shown on the drawings.
- D. Provide minimum zoning as specified.
- E. Provide manual pull station adjacent to fire alarm control panel
- F. Provide no smoke sensing detectors unless specified otherwise or required by code.
- G. Provide duct-type smoke sensing detectors for HVAC equipment in accordance with NFPA 90A.
- H. Use ionization type smoke sensing detectors for areas susceptible to flaming fires. Use photoelectric type smoke sensing detectors for areas susceptible to smoldering fires and in HVAC ductwork and equipment.
- I. Provide audible and visual notification in accordance with NFPA 72 and ADA.
- J. Provide elevator lobby, elevator hoist way and machine room detectors and connect to the elevator controls in accordance with NFPA 72.
- K. Provide one PRN-5 printer or equivalent.

1.6 EXTRA MATERIALS

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

- A. Strobe Units: Quantity equal to 10 per cent of amount installed, but not less than one unit.
- B. Smoke Detectors, Fire Detectors, and Flame Detectors: Quantity equal to 10 per cent of each type installed, but not less than one unit of each type installed.
- C. Detector Bases: Quantity equal to 2 percent of amount of each type installed, but not less than one unit of each type.
- D. Printer Ribbons: Six spares
- E. Keys and Tools: Two extra sets for access to locked and tamperproof components.

PRODUCTS

2.1 SYSTEM OPERATION

- A. Device Actuation. The actuation of any manual or automatic alarm-initiating device shall indicate, at the main alarm panel, the device from which the alarm was initiated and sound all trouble devices and cause the system to operate as specified herein.
- B. Devis Silencing. All audible signaling appliances shall continue to sound and all visual signaling appliances shall flash until the alarm condition has been silenced, at which time the audible signaling appliances shall stop and all visual signaling appliances shall remain flashing until the system has been cleared and reset. Silencing of any system signal shall not interfere with subsequent alarms for other zones.
- C. Air Handler Deactivation. The activation of any automatic smoke detector shall automatically deactivate its respective air handler. Duct smoke detectors shall transmit a supervisory signal only to the fire alarm control panel.
- D. Wiring Classification. The signaling line circuits shall be Class B, Style 4, 2-wire, and the alarm signaling circuits shall be Class B, 2-wire supervised circuits.
- E. Alarm Signals. The audio-visual alarms shall be activated on the floor level in which the alarm occurred as well as on the adjacent floors above and below the alarm floor level.
- F. Alarm Operations. The actuation of any manual or automatic alarm-initiating device shall immediately sound the evacuation tone as described in 1.7 H.
- G. Control Operation. The alarm signals shall deactivate HVAC systems, close smoke dampers, and initiate elevator recall. Controls shall automatically operate in the fail-safe mode upon loss of power.
- H. Evacuation Tone. When an alarm condition occurs, an evacuation tone shall be transmitted. This tone shall be the ANSI S3.41 – American National Standard Audible Emergency Evacuation Signal. The evacuation tone shall be followed by an approved digital recorded voice announcement on voice evacuation systems.

- I. Elevator Controls. Elevator lobbies shall be provided with smoke sensing detectors at every elevator lobby. The activation of an elevator lobby smoke detector shall automatically lock out the elevator doors for its respective floor and return elevators to the primary designated level. In the event of a fire on the primary designated level, elevator cars shall return to the floor immediately to the secondary designated level. Verify designated levels with the Authority Having Jurisdiction.
- J. Notification. If an alarm or trouble condition exists, the system shall transmit a digital signal through telephone communications to an approved alarm monitoring company and by a Uninet 2000 Onyx Network System connected to the UNT Ethernet backbone as designated by the Owner.

2.2 ZONING

- A. General. All initiating devices shall be of the addressable analog type or connected to the signal circuits via addressable module. Although each individual device point number and message shall be displayed on the Master Controller's LCD, the initiating devices shall be zoned to provide the appropriate indication on the remote annunciator panel.
- B. Minimum Zoning. Minimum zoning shall be as follows:
 - 1. Each floor shall constitute a separate initiating zone.
 - 2. The main mechanical and electrical equipment rooms shall constitute separate initiating zones.
 - 3. Penthouses shall constitute separate initiating zones.
 - 4. Manual pull stations and automatic detectors shall be on respective floor zones and shall initiate an alarm signal as specified herein.

2.3 MASTER FIRE ALARM PANEL

- A. Construction. Provide a control panel constructed of heavy gauge steel in compliance with UL864, UL 1481 and UL 1711. The cabinet shall be suitable for surface mounting. The control panel shall be of a dead-front construction and modular in design.
- B. Control Module. The control module shall operate without error for dates in the year 2000 and beyond. Provide a control module that uses state-of-the-art electronics and liquid crystal display (LCD). The unit shall contain a real time clock, tactile feel keypad (16 keys), (2) buttons for scrolling data on the LCD, (4) front panel switches for Reset, Alarm and Trouble Silence, and Drill / All Call and (5) LED's for Normal, Alarm, Supervisory, Trouble, and Test/Program. The common control module shall provide power and the main core functions for monitoring, interpreting and automatically controlling the fire alarm system. The control module shall support and control additional true network slave control modules, audio control modules, serial annunciators and switches over RS 485, RS 232, Fiber Optics or 20 MA loop as required. The control module shall contain RS 232 printer / programming port for programming locally via an IBM PCC or down loading through modems from a remote PC. When operational each controller shall support a printer through the RS 232 port and be capable of message routing. The control module shall support addressable loop cards. Each sensor shall respond to a panel poll for information with an analog representation of measured fire related phenomena (smoke density, particles of combustion, temperature). Such response proves end-to-end sensor response including the operation of the sensor electronics. Systems, which only monitor the presence of a conventional detector in an addressable base, shall not be acceptable. The control module shall have the following additional features without any changes in hardware or firmware:
 - 1. Logic Statement.
 - 2. Time Controls.
 - 3. Sequences.
 - 4. Actions.
 - 5. Weekday / Holiday Schedules.
 - 6. Guard Patrols
 - 7. Analog Value Reporting of all analog sensors and traditional zones.
 - 8. Maintenance Reporting by Intelligent Sensor.
 - 9. Sensitivity Setting by Sensor (Within UL Limits)
 - 10. Sensitivity Setting Changed by Time (Day / Night Mode).
 - 11. Alarm Verification by Point or Zone.
 - 12. Print a History of Sensors Activating the Verification Cycle.
 - 13. On Demand System Condition Printouts (Status).
 - 14. Up to 99 Priorities for any Event Driven Relay / Output.
 - 15. Enabling and Disabling of any System Device or Function.
 - 16. Ground Fault Detection on all System Devices and Inputs.
 - 17. Three Types of One-Man Walk Tests.
 - 18. Normal and Silent Walk Tests.
 - 19. Field Programmable Walk Tests.
- C. Auxiliary Relays. An adequate quantity of zoned auxiliary relay contacts shall be provided for proper interface with the HVAC, elevator and door controls as required per the drawings and specifications.

- D. Supervision. Each alarm initiating circuit, speaker, alarm signal circuit and fire department interfacing circuit shall be supervised. Any loss of power, open or ground in the circuit shall initiate the audiovisual trouble indicator. The trouble lamp illumination shall be non-canceling except by an actual clearing of the trouble condition. The audible trouble signal may be silenced by use of a trouble silence switch, which incorporates the ring-back feature, or by use of a self-restoring trouble silence switch.
- E. Operating Power. Power for the operating D-C alarm initiating devices and audio-visual alarm devices shall be obtained from a supervised power supply within the main fire alarm control panel.
- F. Primary Power Supply. The control panel shall receive its primary operating power from a dedicated 120 volt A-C, single phase, 60-hertz supply.
- G. Auxiliary Power Supply. The auxiliary power supplies shall provide operating and supervisory power for 24 hours. Provide low maintenance gel cell type batteries to meet the above requirement and to operate all alarm signals for a minimum duration of 5 minutes.
- H. Battery Charger. Provide battery chargers that are self-adjusting for high, medium, or low charge rates. The battery charger shall be capable of charging gel cells, wet cells or Nicad batteries. The battery charger shall have a low battery LED indicator, and a charger trouble LED indicator. Should the charge voltage become too high, the charger shall automatically shut down until reset to prevent damage to batteries. The common trouble indicators will be activated and the separate over-voltage LED will be activated. Switches shall be provided for lamp test and charger reset.
- I. Remote Transmission. Provide transfer of alarm to an approved central station monitoring company. This shall be by a DACT (Digital Alarm Communicator/Transmitter) and by a Uninet 2000 Onyx Network System connected to the UNT Ethernet backbone. A switch shall be provided to prevent an alarm from being transmitted during a fire drill. Activation of this switch will cause the system trouble LED and audible device to be activated.

2.4 MANUAL FIRE ALARM STATION

- A. Manual fire alarm station shall conform to UL 38, be non-coded, non-break-glass type with a key operated test-reset lock so that they may be tested, and so designed that after actual emergency operation, they cannot be restored to normal except by use of a key. An operated station shall automatically condition itself so as to be visually detected at a minimum distance of 100 feet, front or side. The word FIRE shall appear on each side of the stations in depressed letters, ½ inch in size or larger. Stations shall be suitable for surface mounting on matching back box or semi-flush mounting on a standard single gang box and shall be installed 48 inches above finished floor. The manual fire alarm station shall be used with a remote monitor module for point addressability.

2.5 AUTOMATIC FIRE DETECTOTORS

- A. General. Automatic fire detectors shall conform to UL 268 for smoke sensing detectors, UL 268A for duct-type smoke sensing detectors and UL 521 for heat sensing detectors. Automatic fire detectors shall operate in accordance with NFPA 72. Automatic fire detectors shall be specifically listed for the application and with the control panel. In dormitories, the smoke detectors in the sleeping rooms shall be connected into the fire alarm panel.
- B. Ionization-type Smoke Sensing Detectors. The detector shall incorporate a built in type identification so the system can identify the type of detector. The detector shall be continually monitored to measure any change in their sensitivity because of the environment (dirt, smoke, temperature, humidity, etc.). The detector shall use the ionization principle to measure products of combustion. The detector shall provide advanced indication of the analog value of the products of combustion to the control panel that maintenance is required thus reducing the maintenance required to inspect routinely all sensors, in order to insure normal operation. The sensor sensitivity shall be adjustable per device (within UL limits). The detector shall operate on signaling line circuit with the wiring monitored for trouble conditions resulting from a loss of power to the detectors. A lamp on the unit shall be continuously lit when the detector is in an alarm condition. Ceiling mounted detectors shall be semi-flush mounted with a hard-wire base and removable detector head. A trouble signal shall be lit at the control panel if the detector head is removed. Provide relay base with SPDT auxiliary alarm contacts for additional switching capabilities, where needed.
- C. Photoelectric-type Smoke Sensing Detectors. The detector shall incorporate a built in type identification so the system can identify the type of detector. The detector shall be continually monitored to measure any change in their sensitivity because of the environment (dirt, smoke, temperature, humidity, etc.). The detector shall use the photoelectric principle to measure smoke density and shall on command from the control panel send data to the panel representing the analog value of the smoke density. The detector shall provide advanced indication of the analog value of the level of smoke density to the panel that maintenance is required, reducing the maintenance required to inspect routinely all detectors in order to insure normal operation. The detector sensitivity shall be adjustable by device. The detector shall operate on signaling line circuit with the wiring monitored for trouble conditions resulting from a loss of power to the detectors. A lamp on the unit shall be continuously lit when the detector is in an alarm condition. Ceiling-mounted detectors shall be semi-flush mounted with a hard-wired base and a removable detector head. A trouble signal shall be lit at the control panel if the detector head is removed. Provide relay base with SPDT auxiliary alarm contacts for additional switching capabilities, where needed.

- D. Duct-type Smoke Sensing Detectors. The detector shall incorporate a built in type identification so the system can identify the type of detector. The detector shall be continually monitored to measure any change in their sensitivity because of the environment (dirt, smoke, temperature, humidity, etc.). The detector shall use the photoelectric principle to measure smoke density and shall on command from the control panel send data to the panel representing the analog value of the smoke density. The detector shall provide advanced indication of the analog value of the level of smoke density to the panel that maintenance is required, reducing the maintenance required to inspect routinely all detectors in order to insure normal operation. The detector sensitivity shall be adjustable by device. The detector shall operate on signaling line circuit with the wiring monitored for trouble resulting from a loss of power to the detectors. A lamp on the unit shall be continuously lit when the detector is in an alarm condition. A trouble signal shall be lit at the control panel if the detector head is removed. Provide Remote Test Switch for any duct detector installed above eight foot in height. Provide relay base with SPDT auxiliary alarm contacts for additional switching capability. A sampling tube shall extend into the duct (7/8-duct width minimum) allowing a sample of air through the detector and back into the duct via the return air tube.
- E. Heat Sensing Detectors. The detector shall incorporate a built in type identification so the system can identify the type of detector. The detector shall be continually monitored to measure any change in their sensitivity because of environment (dirt, temperature, humidity, etc.). The detector shall use dual solid-state thermistors and shall monitor the ambient temperature from -10 degrees C, to +60 degrees C and provide a fast response to rapid increase in temperature. The detector on command from the control panel shall send data to the panel representing the analog value of the ambient temperature.

2.6 REMOTE MONITOR MODULE

- A. The remote monitor module shall be used to connect supervised conventional initiating devices such as water-flow switches and tamper switches to the signaling line circuits and shall mount in a 4 square, 2 1/8 inch deep electrical box. The remote monitor module shall provide address-setting means using rotary decimal switches and also store an internal identifying code, which the control panel shall use to identify the type of device. The remote monitor module shall contain an integral LED that flashes each time the monitored is polled.

2.7 REMOTE CONTROL MODULE

- A. The remote control module shall be used to connect and supervise conventional indicating device or zone of indicating devices that require an external power supply, such as horns, strobes, bells, speakers or telephones to the signaling line circuit. The remote control module shall be capable of operating as a relay (dry contact form C), to control door holders, HVAC equipment, and elevator equipment. The remote control module shall mount in a 4 square, 2 1/8-inch deep electrical box. The remote control module shall contain an integral LED that shall flash each time the module is polled. The remote control module shall provide address-setting means using rotary decimal switches and also store an internal identifying code, which the control panel shall use to identify the type of device.

2.8 NOTIFICATION APPLIANCES

- A. General. Audible signaling appliances shall conform to UL 464. Visual signaling appliances shall conform to UL 1638. Provide combination audible and visual-signaling appliances manufactured as a single unit with the capability for terminating separate audible and visual circuits. The unit shall be surfaced mounted on a special surface back box or flush mounted on a special flush back box.
- B. Audible Signaling Appliances. Horns shall be designed for 24 volts d-c operation. The horn circuit shall be supervised.
- C. Visual Signaling Appliances. Visual alarms shall be of the strobe type designed for operation on 24 volts d-c. The lamp circuit shall be supervised and the lamp shall remain on after the audible device has been silenced. Provide strobe intensity as indicated on the drawings.

2.9 REMOTE ANNUNCIATOR

- A. Provide a remote annunciator panel, which shall include audible and visual indication of alarm and supervisory zones, and audible and visual indication of system trouble.

2.10 WIRE

- A. Conductors shall be of the type, size and quantity as recommended by the manufacturer of the equipment to be installed. All wiring shall be installed in conduit; however, at the Owner's option and with approval from the UNT Fire Marshal, wire that is UL classified for use in air plenums may be used without conduit, but must be in J hooks.
- B. Conductors shall be concealed in conduit or wire mold in finished areas and equipment rooms. Conductor wire that is UL classified for use in air plenums may be used without conduit and may be exposed in air plenums.

2.11 ACCEPTABLE MANUFACTURERS

- A. The complete and operable addressable fire alarm and communication system shall be manufactured by Notifier.
- B. Must be compatible with Onyxworks.
- C. Where possible, install FACP in mechanical/electrical space with annunciator at main building entrance.

EXECUTION

3.0 INSTALLATION

- A. Work. The work shall be accomplished by personnel experienced in the installation of the specific type of system. The services of a qualified technician shall be provided to supervise the installation, testing and adjustment.
- B. Color Coding. Appropriate color-coding shall be provided for the conductors of the system.
- C. Final Connections. Final connections of the system equipment shall be under the supervision of the manufacturer's representative.
- D. Audible Levels. The manufacturer's technical representatives shall supervise the final balancing of the audible levels controlled by the fire alarm system.
- E. Interconnections. Provide intercommunications to other systems and devices.
- F. Labels. Label wiring at terminations, pull, junction and outlet boxes.
- G. Zones. Zone system in accordance with the Contract Documents. Provide grounding.
- H. Terminations. Fire alarm conductor terminations in control panel and annunciator panels to be made on terminal strips with separate point for each conductor. All such strips to be number identified as shown in wiring diagram attached to inside door of control panel. Connect wiring neatly to terminal strips. Connect clip with nylon cable straps or lace with jute cord. Set up termination of cabling so that sections of the system may be isolated or shorted out for servicing.
- I. Elevator Controllers. Provide signal connection to each elevator controller.
- J. Identification. Identify primary power disconnecting means in red marking as "Fire Alarm Control Circuit". Identify location of the primary power disconnecting means at the fire alarm control panel.
- K. Detector Installation. Install automatic fire detectors only after final clean up has been completed. Replace detectors installed prior to final clean up with new detectors.
- L. Fire Alarm Panels: Not to be installed in Communications Rooms. Only telecommunications and datacom equipment are permitted in Communication Rooms.
- M. Walls and Ceilings. Fire Alarm contractor responsible for patching and repairing walls or ceilings where exiting devices are not replaced. All ceiling tiles are to be in place at the conclusion of the contract.

3.1 INSPECTION AND TESTING

- A. Testing Equipment. The Contractor shall furnish all instruments, labor, and materials required for the tests and a qualified technician to conduct the tests.
- B. System Testing. Upon completion of the installation, the system shall be subjected to operational tests. Any deficiencies found shall be corrected by the Contractor and the system shall be re-tested as necessary, prior to final acceptance. Testing shall be in accordance with NFPA 72, Chapter 7.
- C. Documentation. On completion of the system testing, submit completed NFPA 72, Figure 7-5.1 Inspection and Testing form and NFPA 72, Figure 1-7.2.1 Certificate of Completion form to the owner.

3.2 QUALIFICATIONS

- A. Personnel Qualification. The Contractor shall submit two copies of a statement showing the experience of the installing personnel. Installation personnel must have a minimum of 3 years of experience in installing systems of this magnitude.
- B. Service. The equipment supplier must maintain a 24-hour service department with a guarantee of service within 8 hours of being called any time 7 days a week. The service department shall have service technicians, factory trained in the care and maintenance and troubleshooting of the equipment supplied.

3.3 CERTIFICATION

- A. Upon completion of system testing, submit completed NFPA 72, Figure 1-7.2.1 Certificate of Completion form to the Owner along with a letter of certification attesting to the fact that he has tested and adjusted the system, that all components are properly installed and free of defects, and that the system is in compliance with this specification.

3.4 OPERATING AND MAINTENANCE MANUALS

- A. Submit operating and maintenance manuals in accordance with NFPA 72.
- B. Provide "As Built" set of plans (one full size and one half size) in accordance with NFPA 72.

3.5 GUARANTEE

- A. The system shall be guaranteed to be free from all defects of materials and workmanship for a period of 1 year effective upon date of acceptance. Equipment or components showing inherent defects of a mechanical or electrical nature shall be replaced promptly at no expense to the Owner.

3.6 INSTRUCTIONS - TRAINING

- A. The equipment manufacturer shall make available the services of a qualified manufacturer's trained representative to instruct the Owner's operating personnel as to the operation and maintenance of the entire system for a period of eight (8) hours.

3.7 INSPECTIONS

- A. Two periodic inspections, at no expense to the Owner, shall be made within the first year's guarantee period to ensure satisfactory operation of the system.

Appendix D: Distributed Learning Videoconference Room Design Consideration

Center for Distributed Learning (CDL) provides room based videoconferencing design services to all UNT organizations in two functional areas - facilities and systems.

Facilities Design

CDL will work with the project architect to specify the layout and design of a physical space to be used with conferencing equipment. CDL will also evaluate an existing space which is being considered for use as a conferencing room. Our evaluation of an existing space will result in either a qualification of the room as "functional", with a list of necessary modifications, or we will eliminate the room as a viable candidate for a system.

Systems Design

CDL will specify components which will work in a qualified room and will also specify in the design any desired peripheral equipment. CDL will also oversee installation and maintain the physical system equipment.

Maintenance

CDL offers maintenance for room-based videoconferencing systems that have been designed by CDL. Annual warranty contracts are also available from the manufacturer and cover the cost of replacement parts and software upgrades. The cost of warranty service is typically provided by the department whose inventory the equipment is on.

Requirements for Videoconferencing Rooms

The following should provide assistance with the identification of potential videoconference rooms by providing physical specifications in several key areas:

Seminar Style Videoconference Room

A facility used to accommodate meetings between geographically dispersed locations. It is meant to emulate the traditional conference room model where all individuals sit around a common table and have equal access and view to all participants. The format of the meeting is based on a discussion paradigm, not a formal instructor/student model for ongoing classes, and includes no more than 20 people at each site

Traditional Classroom Style Videoconference Facility

Similar to the seminar style of videoconference room, except that the instructor faces both local and remote students at the same time. The instructor is allowed slightly greater access to expressive movement. Formats of these meetings are based on a formal instructor/student model and include no more than 50 students at each site.

Lighting

The best lighting for videoconferencing is diffuse fluorescent. It is important to minimize shadows and to create an evenly lit environment. A diffuser with a parabolic egg crate screen containing 4-inch square openings is recommended for attachment to the fluorescent fixtures. To maximize the appearance of skin tones and to minimize shadows, lights with between 500 and 700 lux (vertical) are recommended. Additionally, the use of low energy fluorescent lights that operate between 30 and 50 kHz is discouraged. These lights can interfere with the proper functioning of wireless computer system operations. Ideally, the room should not have any exterior windows. If it does, they need to be covered with room darkening drapery/blinds.

Decor

The best decor is plain and simple. Keep the area within the camera's view uncluttered. Extraneous objects such as mirrors, artwork, plants, and fans cause the video compression algorithms to expend large amounts of processing resulting reduced video quality. The best wall color is a neutral non-white color, such as medium gray. Avoid wall treatments with patterns. These also can cause undue strain on the video compression system.

Acoustics

Audio quality is one of the most important contributing factors to a favorable videoconference experience, therefore good acoustics are important. Of particular concern is reverberation - the effect of sound reflecting off of hard surfaces. One of the best ways to minimize the harmful effects of reverberation is to coat floors, ceilings, and walls with sound absorbing materials. In addition to minimizing reverberation it is also important to isolate the room from external noise sources such as fans and duct work from heating and cooling systems, water pipes, office machines, telephones, and street noise.

Room Type/Furniture Layout (Seminar Style)

The conference table should be "U" or "V" shaped to ensure equal access to the camera for each participant. The table cannot be wider than 12 feet or longer than 24 feet in order to accommodate the requirements of the microphones. There should not be more than 25 feet from the lens of the camera to the farthest participant to ensure visibility and correct functioning auto focus. The rear wall of the room cannot be more than 40 feet from the lens of the camera. The seating must be laid out so that all participants can be seen in the camera's room view.

Room System Overview and Accessory Hardware

UNT's videoconferencing room systems are generally built around a common set of equipment that meet our minimum technical requirements. These standards were designed for a range of applications, levels of service and quality dependent upon their purpose. CDL has set the minimum acceptable technical level for equipment University rooms and requires this equipment, e.g. computers, codecs, mics, cameras, to be downward compatible for connection to systems outside of UNT which meet industry standards, but may be of less quality, sophistication, or complexity.

Cost Variable Accessories

Rooms are designed around technical requirements, and most cost variations are due to accessories and room renovations. The accessories include:

- Number of cameras
- Number of video display units
- Size of display equipment
- Quality of audio speakers
- Number of microphones
- Document camera
- Computer
- VCR/DVD (video recorder/player)
- Auxiliary video and audio sources
- 30 frames per second (fps) hardware

Videoconference System Hardware Cost *Estimates*

Small Room System

Participants: 1-10
Cost range: \$15,000 - \$25,000

Typical Equipment:

- CODEC
- Network
- Two 35-inch monitors or one projector
- One camera
- Single microphone
- Accessories

Medium – Large Room System

Participants: 15-50
Cost range: \$35,000 - \$70,000

Typical Equipment:

- CODEC
- Network
- Three 35-inch monitors or three projectors/screens
- One-Two cameras
- Two-Five microphones
- Document camera
- Computer
- VCR
- DVD Player

Physical Room Characteristics & Other Considerations

It is always easiest to start with new constructions which will afford the greatest degree of flexibility in creating an ideal videoconference room. There are a number of unique considerations to keep in mind when considering a room for a videoconference installation.

Sight Lines – The goal is to provide the best view of the display units to all videoconference participants. The widest viewing angle for any participant should be 45 degrees off center of the display units. No columns or other physical obstructions should be located between the participants and the display units.

Location of Data/Telecommunication Jacks & Electricity – The videoconference equipment is typically housed in an instructor podium which must be connected to the data network, the phone network and electricity. These jacks should be located adjacent to the instructor podium to minimize cabling lengths and ensure safety.

Location of Doors – The orientation of equipment in the room is such that the instructor station is placed in one corner and a fixed projection screen is placed in the opposite corner. The front wall adjacent to the instructor has two large projections screens attached. The location of the doors should accommodate the placement of this equipment and ensure that participants entering the room do not interfere with videoconferences which may be in progress.

Carpeting – As mentioned in the sections regarding Acoustics, covering the floor with carpeting helps to decrease ambient sound in the room and eliminate such distractions as chairs being moved across the floor. In modern room design, mats are placed under the carpet that are used to locate the instructor and move the camera automatically. It is ideal to place the mats and wiring on the bare floor prior to carpeting as this eliminates the need to remove and replace carpeting associated with installation.

Security – Many components of a videoconference installation are portable and have consumer appeal for non-videoconference applications. To ensure reliability of the system, it is necessary to secure the components by using some proprietary fasteners, locking

mounts and other security techniques. However, a monitored alarm system with unique codes for all users is also highly recommended to prevent theft.

Size:

- Ideal dimensions are 1.25:1 (depth:width); maximum dimensions are 1.5:1 (depth:width).
- Minimum ceiling height is dictated by screen height (see also "Screen" below).

Seating:

- ADA-compliant aisle widths.
- Tables and chairs are preferred.
- All seats within 90 degrees of screen center (no more than 45 degrees to right or left).
- Front row of seats should be no closer than 1.5 X screen width.

Screen:

- Screen dimensions must accommodate format as wide as 4:3 (width:height).
- Screen height = range of 1/5 to 1/7 distance from screen to last seat.
- Screen bottom = 4' above floor.
- Offset as needed.

Data projector installation:

- Clear path from projector mount point to both sides of screen (no protruding sprinkler heads, exit signs, air ducts, lights).
- No lights shining right in front of projector, directly at projector, or immediately behind projector.
- One 110-volt electrical circuit with four outlets installed above ceiling tiles for projectors and camera. Projector mount point varies by projector model.
- No air ducts, conduits or lights at or above projector mount points.
- No air blowing onto projection screens.

Teaching area:

- One 110-volt electrical circuit within 3' of instructor podium.
- Instructor podium containing videoconference codec and AV equipment is to be located next to sidewall near front and outside of front screen viewing angle with minimum 3' egress on 3 sides. Clear path for wiring from podium to jacks/outlets.

Lighting/Electrical:

- All electrical circuits need to be dedicated and on the same isolated ground.
- Lighting near the screens should have separate on-off switch. No light should fall directly on the projections screens. Instructor area should be well-lit with sources in front of and overhead. Low-voltage fluorescent light fixtures should be avoided because of potential for interference with wireless devices.
- Three data network jacks and two phone network jacks with 3' of instructor podium. One 110-volt electrical outlet within 3' of instructor podium. One 110-volt electrical outlet within 3' of mid-point between front projectors.

Doors:

- Solid door - NO window portal.
- Signage.
- Device on door (e.g. kickstand) to facilitate propping open (rather than using a trashcan or chair), EXCEPT in fire-rated walls where not permitted.

Writing surfaces:

- Document Camera is used in lieu of marker boards

Sound:

- Speakers, microphone and sound system are integrated with videoconference system.
- Quiet-closing doors.
- Quiet air-handlers.
- Room insulated from outside and building/mechanical noise.
- Acoustic wall and floor treatments as required to minimize sound reflection.

Miscellaneous:

- No windows.
- Trash cans.
- Chair rails.

Appendix E Guide for the Standardization of the Campus Automation System

The University of North Texas Denton Campus Facilities utilizes the Schneider Electric building automation control and monitoring system StruxureWare, Vista™ 5 and I/NET Seven with the associated interface hardware. Schneider Electric StruxureWare is a software suite of building management tools that control and monitor our building systems. It is based on open systems technology based on the LONWORKS® technology and NL220 protocol. New installations and construction shall be specified with Schneider Electric StruxureWare. The legacy building management systems are Vista™ 5 and I/Net Seven and are present in a number of existing buildings.

1. All end devices must be compatible with the Schneider Electric StruxureWare software front end and subsequent releases. All UNT programming or adjustments of any end device after installation shall be done through the Schneider Electric Struxureware program and not require a secondary program.
2. Existing buildings operating with Schneider Electric Vista™ 5 or I/NET Seven software and hardware will be upgraded, where possible, with newer controllers that will interface more fully with Schneider Electric StruxureWare.
3. The programmable network devices, control panels, controllers will be provided and specified by Schneider Electric building controls.
4. Full functionality and seamless interface to the controlled equipment through Schneider Electric StruxureWare is expected especially fume and laboratory hood controls & valves, chillers, boilers, fans, VFDs, AHUs, VAVs, lighting, metering, etc.
5. Each VAV air- handling unit will have a Dedicated Control Unit as per current UNT Spec. Only points associated with that unit will be terminated in the DCU plus IO unless for lighting, exhaust, or other not associated with another unit.
6. Each VAV air handling unit will have 1 or more DCU controllers which will perform the data management functions for the VAV for a specific unit that the terminal units are associated to. **If an air handler serves more than one floor, it will have a DCU on each floor with only that floors VAV terminals connected to it.** Max of 10 terminal units per 401:B. **Each VAV terminal will have a supply air sensor if the terminal unit has any heating stages.**
7. Each single zone, double duct, and most multi zone air-handling unit will have their own controller but some of the multi zone air-handling unit may require multiple controllers. No more than 1 unit will be terminated to a base controller.
8. Each single zone CAV, VAV or face and bypass unit will have a supply air sensor.
9. Each air-handling unit will have a return air if the ductwork is continuous from the space back to the unit. Multi-zone units will have cold deck and hot deck sensors installed in associated decks. Return Air Temperature Sensors will be installed as a standard. Mixed air temperature sensors will not be used as a standard, unless the unit is being served by another unit (an example of this would be a dedicated outside air unit [1] serving another unit [2] – then the mixed air of 2 is really the supply air of 1).
10. If safety device feedback is standard, the different devices (i.e.: smoke detector, freeze stat, high pressure cutout, etc.) will be a common safety circuit input to the controller. When a safety goes into alarm, **only** that safety's feedback will be in alarm in the controller (safeties will be wired in series to pull in a relay for status to the controller). Each AHU control panel will have a service input switch to reset any safeties and allow local personnel to disable the control of the unit. Hardwire safeties will go to the motor controller and maintenance feedback from safeties to DCU. This switch must have a label indicating that this switch is only a means of EMS shut-down/reset, not intended as a service disconnect.
 - a. Every VFD will have a LON interface and alarm in the DCU, or the following hardwired points as a minimum:
 1. VFD Run Indication
 2. VFD Speed Feedback
 3. VFD Speed Control
 4. VFD Start/Stop
 - b. Standard VFD manufacturers acceptable for UNT are ABB and Square D. Exceptions have to be approved.
11. Each chiller, boiler plant, heating system and condenser water system will have its own dedicated DCU plus I/O controller. The Chiller and heating system controller will have a cooling or heating required LED and a plant reset pushbutton mounted on the cabinet door.
12. Each secondary pumping system will have its own dedicated controller.
13. A Zone Override pushbutton station will be provided at the direction of UNT, the purpose of this station will be to enable the local operator to override the scheduling of each unit or grouped zone in a building from 1 location through software. The override duration will be a timed for a default set at 2 hours.
14. An override momentary pushbutton will be installed on the front of the panel for each major zone. See #10 for details.

15. UNT will provide IP addresses.
16. The university standard sequence of operations will be followed and provided by UNT.
17. The university standard wiring termination will be followed. – Done per application.
18. Point names in the software will include the equipment name. This must be coordinated with UNT Facilities and generally is limited to 12 characters.
19. Each controller will be labeled (controller name and equipment name) on the front of the panel door.
20. Each controller will have a graphic printout showing wire termination by point name and wire number. The power source location will also be shown on the drawing (panel and breaker number and IP addresses). The drawing will be mounted inside the panel door in a clear plastic sleeve. There will be a separate Electronic Format file of drawings and bound reference copy.
21. All relays, transducers and other controls which are separated from the controlled device will be mounted in a control cabinet or electrical trough that is accessible without a ladder. This does not include sensors or transmitters which must be installed in a pipe.
22. Each controller panel will have a light switch/110v outlet combination installed. The switch will power down all the transformers in the panel. The 110v outlet will remain powered up with the switch off.
23. The following wire types will be used for the shown functions:

| <u>Cable Function</u> | <u>CSI Part #</u> | <u>Jacket Color</u> | <u>Description</u> |
|-----------------------|-------------------|---------------------|--------------------|
|-----------------------|-------------------|---------------------|--------------------|

24. All wiring in control panels will be installed in open slot wiring duct with snap on covers (Panduit or equal). The panels will be large enough to accommodate all of the hardware without over-crowding.
25. Each controller will have separate controller power and output power transformers.
26. A copy of the controls as-built (record) will be furnished in Visio format on CD or DVD.
27. Two hard copies of the controls as-built (record) will also be furnished.
28. Space temperature sensor shall be determined and approved by UNT for color and type- Submit samples. Non-Occupant Controlled and No Display
29. Graphic pages to follow Vista/NSP standards version 5.x or higher.
30. Wireless networks shall not be used. All networks shall be hardwired and a static IP address will be required by UNT.
31. Five year plan and system design required for approval.
32. Programming logic to be approved by UNT personnel. Generally, logic will be designed with as few calculations as necessary to accomplish tasks. Prefer use of modules over calculations.
33. Equipment network gateway to be fully functional. Contractor will be responsible for this complete functionality.
34. Hand held device set up will be standardized with Graphics compatible and resolution for devices such as laptops, net books, smart phones, etc.
35. A standard controller cabinet, mounting, color, labeling, lighting and location design and instructions will be provided by UNT or designated representative.

Appendix F: Interior Signage Standards

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Interior Signage Standards

References

National Fire Protection Association
 Building Code
 American National Standards Institute (ANSI)
 American Society of Mechanical Engineers (ASME)
 Uniform Federal Access Standards (UFAS)
 Americans with Disabilities Act of 1990
 Texas Accessibility Standards

These standards shall be used as a reference and adhered to when designing, ordering, and installing permanent interior signs in University buildings.

1.0 General

1.1 Application of Sign Standards

The standards included in this document are guidelines to facilitate a clearer and effective means of understanding and using the campus at The University of North Texas. The campus has many diverse needs and circumstances and an absolute set of standards is impractical in application. These standards represent a means of addressing the most prevalent conditions, which will be encountered on campus both in retrofitting existing buildings and in new construction. The primary needs of information, direction and identification are described and recommendations are made as to the application of these standards. Realizing that many conditions will occur that do not neatly fit into the applications described herein, these standards represent an approach, which can be extended to the many exceptions, which are inevitable in an organization as diverse and complex as UNT. Custom signage costs more to install. Past experience has shown, modifications or additional custom signs, if available, are expensive.

An overriding general recommendation is to limit signs to the essential types, which are identified in this manual. Fewer, more consistent signs will deliver more effective communication to the users.

The interior sign system shall be designed to comply with all applicable local, state and federal codes and regulations including the Texas Accessibility Standards (TAS). It shall be the primary objective of the interior sign system to provide people with the necessary information to assist them to find their way to the destinations along their chosen routes through buildings. The information provided may be verbal (typographic) or non-verbal (pictographic). The interior sign system shall be designed with a way-finding approach and it shall be congruent with the following building characteristics: layout, spatial content, form, organization and circulation. The interior sign system shall provide for uniformity throughout all building on campus. All signage required by should be included in the proposed sign system and all signage shall meet TAS technical requirements.

Interior warning or hazard signs such as radiation, electrical hazard, microwave, poisonous gases, compressed gases, exit signs, etc. are specifically excluded from provisions of this standard and shall be provided for and maintained under terms of applicable code, regulation, ordinance, or other governing authority.

1.2 System Components

The system shall include the following three components:

- **Way-finding Signs**
Way-finding signs provide people with and overview of the shape of the building and the organization of rooms. They guide people along their chosen routes to their destination.
- **Identification Signs**
Identification signs identify destinations and provide the user with information about the destination.
- **Regulatory Signs**
Regulatory signs inform people of both prohibitions and obligations about a destination or a space. Where applicable, these signs serve as a warning to the user of both eminent and potential hazards in the space.

1.3 System Design Criteria

The system should provide uniformity throughout all buildings in campus. The sign types are modular to provide consistency and to aid in the recognition of sign information. The sign types indicated in this document describe the modules and information included on each sign module.

Message design, nomenclature and application shall be standardized per the sign type e in this document. Message legibility should be considered from the perspective for variety of users: visitors, university community, vendors and service people, vision and mobility impaired people, and other users. Room numbering sign system shall comply with university room numbering system. The university will assign room numbers.

1.4 System Manufacture, Installation and Maintenance Criteria

Mounting hardware for multiple line Door Signs (Refer to Sign Type 2, Appendix G, Figure 37-39) will be Euro Sign System Model 218D11/21 square with two inches header and ¾ inch by 8 inches slots or equivalent.

1.5 Submittals

The contractor/installer will prepare and submit to the Owner one sample of each type of sign to be made in the contract for approval. Only after receiving written notice of Owner approval will the contractor/installer prepare and install the signs.

The contractor/installer will submit a schedule to the Owner of all text to be engraved on signs and get Owner's written approval prior to making and installing the signs.

2.0 System Components

2.1 Way-finding Signs

The purpose of way-finding signs is to provide orientations and general information about the building setting and to guide people along a route to destinations. Way-finding signs constitute the foundation of the interior sign system. Way-finding signs shall be uniform throughout buildings in campus. Each building must be carefully evaluated to determine specific way-finding elements appropriate for the building setting. Way finding signs may include:

- **Campus Orientation Maps**
Map showing building as related to a campus map and other buildings in college or department
- **Building Orientation Maps**
Maps and building floor plans showing location of college and department destinations, handicapped accessible building elements, and restrooms
- **Building Directory**
Directory of room numbers, room occupants and room functions within buildings used by college or department.
- **Directional Information**
Signs indicating direction to follow to a particular destination, e.g. departmental office, elevator location, and reception/information areas. This type of sign includes overhead signs.

2.2 Identification Signs

The purpose of this type of sign is to identify destinations and to provide information about destinations. Identification signs shall be uniform throughout buildings on campus. Each building must be carefully evaluated to determine specific identification sign elements appropriate for the building setting. Identification signs include the following type of signs:

- **Permanent Room Identification**
This may include: Building room numbers, restrooms, exits, stairs, mechanical, electrical, and custodial rooms.
- **Room Function Identification**
This may include: Departmental offices, conference rooms, information center, vending areas, lounge, and other building functions.
- **Room Occupant Identification**
This may include: Faculty and staff names and student associations
- **Informational**
This may include: Office hours, handicapped accessible workspace, telephone device for the deaf directional signage, and assistive listening systems in assembly areas

2.3 Regulatory Signs

The purpose of this type of sign is to inform the user of both prohibitions and obligations about activities in a destination or space. Regulatory signs shall be uniform throughout buildings in campus. Each building must be carefully evaluated to determine specific regulatory signs elements appropriate for the building setting. Regulatory signs may be related to eating, smoking, environmental health, and areas of rescue assistance, handicapped accessible exits directional signs, National Electrical Code, National Fire Protection Association, or emergency procedures.

3.0 Graphic Signs

Signs shall comply with section 703 of the 2004 Revised ADA-ABA Accessibilities Guidelines.

3.1 Character Font

The type font shall be Sans Serif. Raised lettering for the visually impaired shall be upper case. Where raised lettering is not required, messages should be displayed using upper and lower case letters. The typeface for interior signs systems shall be Sans Serif.

3.2 Character Height

The minimum height is measured using an upper case X.

Lettering for signage suspended or projected overhead should be three inches minimum cap-height. The intended viewing distance for this character height is over 150 feet (i.e., stadium, conference enter, or arena).

Other lettering should be sized according to the viewing distance from which they are to read. The guideline of one-inch cap height for 50 feet viewing distance is recommended.

If possible, lettering for maps should have a minimum height of 0.625 inches.

3.3 Character Proportion

Letters and numbers on visual signs shall have a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10 using upper case "X" for measurement. Condensed, expanded, extra bold or expanded typefaces are not acceptable. Different fabrication techniques may require adjusting the weight of the characters to compensate for errors incurred in fabrication. The final sign characters must comply with the above stated proportions and should match the "normal" San Serif typeface.

The size of characters should be tested based upon the intended viewing distance.

3.4 Raised and Braille Characters

Raised lettering and numerals shall be raised 1/32 inch, upper case, Sans Serif and shall be accompanied with Grade 2 Braille. Raised characters shall be at least 5/8 inches height, but no higher than two inches.

Additionally, stroke thickness will be based upon the upper case; letter "I" and shall be 15 percent maximum of the height of the character. Character spacing shall be measured between the two closest points of adjacent raised characters, excluding word spaces. Spacing between individual raised characters shall be 1/8-inch minimum and 4 times the stroke width maximum.

Braille dots shall have a domed or rounded shape. The indication of an uppercase letter or letters shall only be used before the first word of a sentence, proper nouns and names, individual letters of the alphabet, initials, and acronyms. The standard dimensions for literary Braille are as follows:

| Measurement Range | Minimum | Maximum |
|-------------------------------------|-----------|-----------|
| Dot Diameter | 0.059 in. | 0.063 in. |
| Inter-dot spacing | 0.090 in | 0.100 in. |
| Horizontal separation between cells | 0.241 in | 0.300 in. |
| Dot Height | 0.025 in. | 0.037 in. |
| Vertical separation between cells | 0.395 in | 0.400 in. |

Braille shall be positioned below the corresponding text. If text is multi-lined, Braille shall be placed below the entire text. Braille shall be separated 3/8-inch minimum from any other tactile characters and 3/8-inch minimum from raised borders and decorative elements.

3.5 Finish

The characters and background of signs shall be eggshell, matte, or other non-glare finish.

3.6 Color and Contrast

Characters and symbols are to be a light color shown against a dark background. The New Hermes colors #200 White and #277 Slate comply with the established minimum contrast of 70 percent (ADA requirement).

3.7 Nomenclature

Sign messages should be proposed by the designer and approved by Owner prior to fabrication and installation. Message units should use plain and consistent language to describe locations and routes. The information hierarchy is established by the sign types for identification and regulatory signs. With the exception of directories and specified regulatory information, messages on individual signs should not exceed three lines of text with appropriate line spacing for optimum legibility. Sign messages should be flush left, ragged right aligned. The designer is responsible for specifying line breaks to fabricators on all signs.

3.8 Word Spacing

Space between words will be based on the width of a lower case "r".

Computer Science

3.9 Line Spacing

Spacing between baselines of separate lines of raised characters within a message shall be 135 percent minimum and 170 percent maximum of the raised character height.

3.10 Pictorial Symbol Signs (Pictograms) and directional Arrows

Pictograms are to be raised 1/32" above surrounding surfaces. Where required, pictograms will be placed within an area 6" in height in which no other information will be displayed. Pictograms shall be accompanied by the equivalent verbal description placed directly below the pictogram. When pictograms are used to identify permanent rooms, like restrooms, verbal descriptions must be raised letters and in Braille. All symbols and pictograms shown in drawings are for reference only and shall be reproduced from AIGA/DOT Symbols Signs book or electronic file published by AIGA [1059 Third Avenue; New York NY 10021; 1-(800)-548-1634] or SEG D [401 F Street, Suite 333; Washington DC 20001; 1-(202)-638-5555]. All directional arrows should be on the left on directional signage and text should be flush left. Where several messages are involved, it is recommended to dedicate a complete blade of a sign to the directional function, arrow or plain language description. For more information refer to figure 34 & 35 in Appendix G.

Facilities and elements required to be identified as accessible by ADA, Title III Accessibility Guidelines, section 4.1, shall use the international symbol of accessibility. Pictograms required for Volume Control Telephones, Text Telephones, and Assistive Listening Systems shall comply with the section.

3.11 Message Breaks

Messages are to be laid out on the sign panels so the words break onto the next line of type in a way that communicates most easily.

An example of an inappropriate message break, which can miscommunicate, is as follows:

Department of Pest
Control

3.12 Mounting location and Hierarchy

A clear informational hierarchy shall be followed for identification and regulatory signs. The hierarchy is as follows:

Room Numbers
Department Name
Room Function
Room Information (i.e., office hours)
Room Occupant
Room Regulation

Permanent room identification will occur at every room. An individual's name will occur at main building directories and may be added to the door sign to their office (refer to Sign Type 2, Appendix G, Figure 37-39). Where several rooms are accessed off of a common room, there should be a sign at the door or entrance to the shared space indicating room numbers within the common space. Note the individuals within the common space are not indicated.

In general, private staff offices will include the permanent room number, the department and the occupant's name per Sign Type 3 in Appendix G, Figure 40-42. The College in which the department resides is not to be indicated except at the administrative office for the College.

Departmental names are to be included where more than one department resides within a building or where departmental identification will aid clarity.

Movable office partitions will identify the occupant per Sign Type. An insert panel will be produced to fit into a hanging plastic fixture, which mounts to the top of the panel. The mounting fixture may be purchased through the panel manufacturer. The dimensions and profiles will vary with different manufacturers. Desk signs will be per Sign Type 8 in Appendix G, Figure 46. When provided by the University, however individuals may use personal sign for desk signs.

Permanent identification signs shall be installed on the wall adjacent to the latch side of the door. Where there is no wall space to the latch side of the door, including at double leaf doors, signs shall be placed on the nearest adjacent wall. Signs containing tactile

characters shall be located so that a clear floor space of 18 inches minimum by 18 inches minimum, centered on the tactile characters, is provided beyond the arc of any door swing between the closed position and 45 degree open position. Mounting height shall be 60 inches from the finished floor measured to the baseline of the highest tactile character. When there are multiple lines of tactile characters the baseline of the lowest line shall be minimum of 48 inches from the finished floor.

3.13 Mounting location of door signs

Mounting location for such signs shall be such that a person may approach within three inches of the sign without encountering protruding objects or standing within the swing of a door. These signs are considered the most important element of the sign system hierarchy.

3.14 Mounting locations for tack boards

Tack boards, where required or requested, are to be mounted directly under room signage aligned flush with the side adjacent to the door. Also see section 5.0 for tack board product information.

3.15 Methods of attachment of Interior signs

The primary means of attaching interior signs will be double stick back tape as supplied by New Hermes. The tape will form a complete perimeter band on the back of each sign. Signs that are placed on glass will have a blank sign of the same size placed on the backside of the glass to hide the adhesive. This adhesive is appropriate attachment for substrates as follows:

Painted gypsum board
 Painted concrete masonry units
 Concrete masonry units
 Brick, painted and unpainted
 Wood
 Glass

4.0 Interior Sign Types

The following Sign Types (which can be found in Appendix G - figure 36 to 46) are representative examples of some of the most commonly encountered conditions on the University campus. They provide explicit guidance for the many unique conditions, which will be encountered in designing signs for university facilities:

| | |
|--------------|---|
| Sign Type 1 | Door sign with permanent room identification |
| Sign Type 2 | Door sign with permanent room identification and secondary information including: room occupant |
| Sign Type 2A | Door sign with permanent room identification and secondary information including: room function |
| Sign Type 2B | Door sign with permanent room identification and secondary information including: direction information |
| Sign Type 3 | Door sign with permanent room identification, university department and room occupant or other additional information |
| Sign Type 3A | Door sign with permanent room identification, university department with seal and room occupant |
| Sign Type 3B | Sign with university department and additional information |
| Sign Type 4 | Regulatory sign. No Smoking |
| Sign Type 6 | Accessible restroom door sign |
| Sign Type 6A | Non-accessible restroom door sign |
| Sign Type 8 | Partition sign or desk sign with occupant name |

When the above signs are used on a particular project they should be detailed and referenced in the appropriate architectural drawing and specification section. Also, their type, location, and wording should be shown on signage schedule, which can be either inserted in the specification or shown on the sign drawing (refer to Appendix G, Figure 47)

5.0 Visual Display Boards

This section includes the specifications for Natural cork tack boards.

5.1 Submittals

Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.

Include manufacturer's data substantiating the tack board material comply with requirement indicated.

Provide shop drawings for each type tack board required. Include sections of typical trim members and dimensioned elevations. Show anchors, grounds, reinforcements, accessories, layout, and installation details.

5.2 Products

5.2.1 Manufacturers

Subject to approval by UNT.

5.2.2 Materials

Provide single layer, ¼" thick, seamless, compressed fine grain bulletin board quality natural cork sheets, face sanded for natural finish, complying with MS MIL-C-155116, Type II.

Make backing panels rigid by factory laminating cork face sheet under pressure to ¼" thick hardboard backing.

5.2.3 Accessories

Fabricate frames and trim of not less than 0.062-inch thick aluminum alloy, size and shape as indicated, to suit type of installation. Provide straight, single-length units wherever possible; keep joints to a minimum. Miter corners to a neat hairline closure.

5.2.4 Finishes

Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.

Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.

Class II Anodized Bronze Finish shall be non-specular, chemical finish; etched, medium matte; Anodic Coating shall have a film thicker than 0.4 mil.

5.3 Execution

5.3.1 Installation

Deliver factory-built tack board units completely assembled in one piece without joints, wherever possible.

Install units in locations and at mounting heights indicated and in accordance with the manufacturer's instructions. Keep perimeter lines straight, plumb, and level. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for a complete installation.

Coordinate job-site assembled units with grounds, trim, and accessories, Join parts with a neat, precision fit.

5.3.2 Adjust and Clean

Verify that accessories required for each unit have been properly installed and that operating units function properly.

Clean units in accordance with the manufacturer's instructions. Break in chalkboards only as recommended by manufacturer.

6.0 Directories

This section includes the specification for non-illuminated directories

6.1 Submittals

Submit the following in accordance with Conditions of the Contract and Division 1 Specifications Sections

Include manufacturer's construction details relative to materials, dimensions of individual components, profiles, and finishes.

Provide dimensioned elevations for each type of directory required. Include large-scale sections of typical members and other components. Show anchors, grounds, reinforcements and layout, and indicate finishes. Include setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed.

Provide the following samples of each exposed material including message strips, letters, and other graphics, for confirmation of colors, patterns, and textures, as required, and for verification of compliance with requirements indicated.

Aluminum Trim and Accessories: Samples of each finish type and color, on 6 inch long sections of extrusions and not less and 4 inch squares of sheet of plate, showing the full range of colors available.

6.2 Products

6.2.1 Manufacturers

Subject to approval by UNT.

6.2.2 Materials

Provide manufacturer's standard extruded aluminum sections with not less than the strength and durability properties specified in ASTM B 221 for 6063-T5 alloys.

Provide clear float glass, thickness as indicated, complying with the requirements of ASTM C 1036, Type I, Quality q3.

6.2.3 Non illuminated Directories

Provide standard recessed non illuminated directory. Directories sizes may vary and it should be coordinated with UNT Project Manager. The assembly shall consist of perimeter frame and back, a header panel, a letterboard or removable message strips in a retainer, and an operable cover or covers. Provide graphic for message strips, header panels, and other designs in the letter style, size, spacing, and arrangement indicated.

Provide individual modular units containing three columns of message strips with a separate header panel as indicated.

- Modular Frame and Color Design: Provide two-ply, two-color, laminated acrylic sheet engraving strips of size indicated.

6.2.4 Accessories

- Fasteners: Provide screws, bolts, and other exposed fastening devices of the same material as the items being fastened. Fasteners for applications on the exteriors and exposed to the weather may be hot-dip galvanized, stainless steel, or aluminum. Provide types, gages, and lengths to suit installation conditions. Use theft-proof fasteners where exposed top view.
- Hardware: Provide with the following hardware:
 - Hinges to be continuous-type piano hinges
 - Furnish each cover with the manufacturer's standard lock; key all locks alike. Furnish 2 keys per lock.

6.2.5 Fabrication

Fabricate directories and bulletin boards to requirements indicated including dimensions, design, and thickness and finish of materials. Use metals and shapes of thickness, with reinforcing, if needed, to produce flatness, free of "oil canning," and to impart strength for size, design, and application indicated.

Fabricate perimeter and cover frames with reinforced corners, mitered to a hairline fit, with no exposed fasteners.

Equip covers with the manufacturer's standard hardware of the type indicated.

6.2.6 Finishes

- Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations.
- Finish designations prefixed by "AA" conform to system established by the Aluminum Association for designating aluminum finishes.
- Class II Anodized Bronze Finish shall be nonspecular, chemical finish; etched, medium matte; Anodic Coating shall have a film thicker than 0.4 mil.

6.3 Execution

6.3.1 Installation:

Install units plumb and level, in locations and with mountings shown. Securely attach to the supporting structure with concealed fasteners, in accordance with the manufacturer's installation instructions.

6.3.2 Cleaning

At completion of the installation, clean surfaces in accordance with the manufacturer's instructions

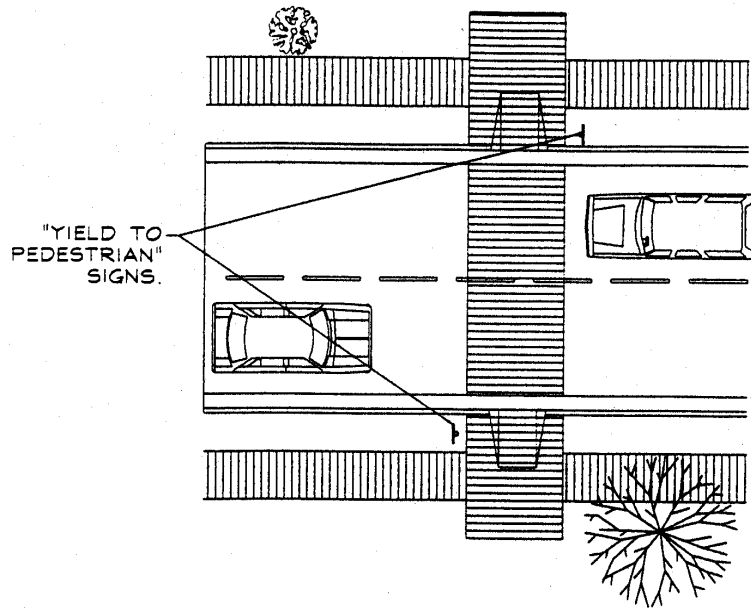
6.3.3 Protection

Protect installed directories and bulletin boards from damage until acceptance by Owner.

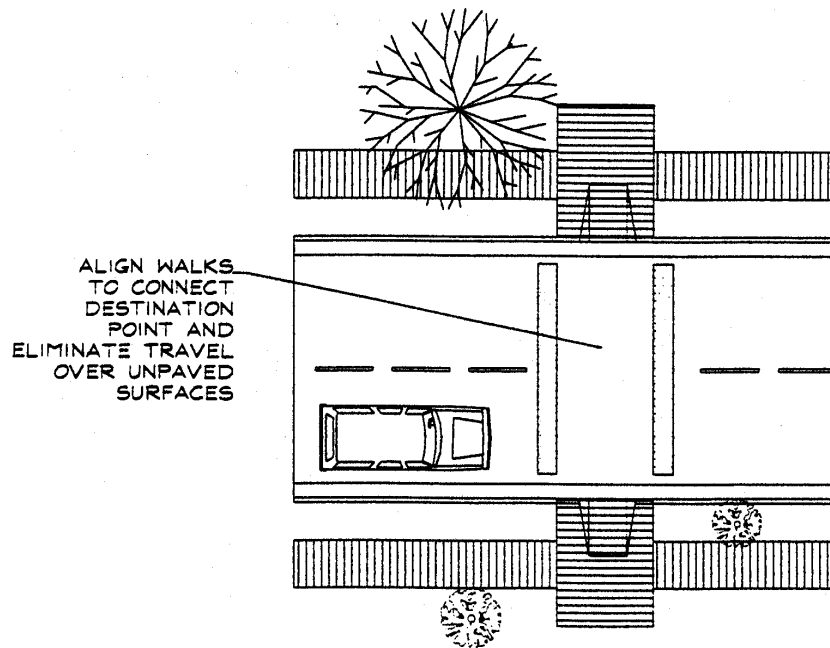
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WHERE PEDESTRIAN TRAFFIC DOMINATES



WHERE VEHICULAR TRAFFIC DOMINATES

CROSSWALKS
STANDARD DETAILS

Figure 1

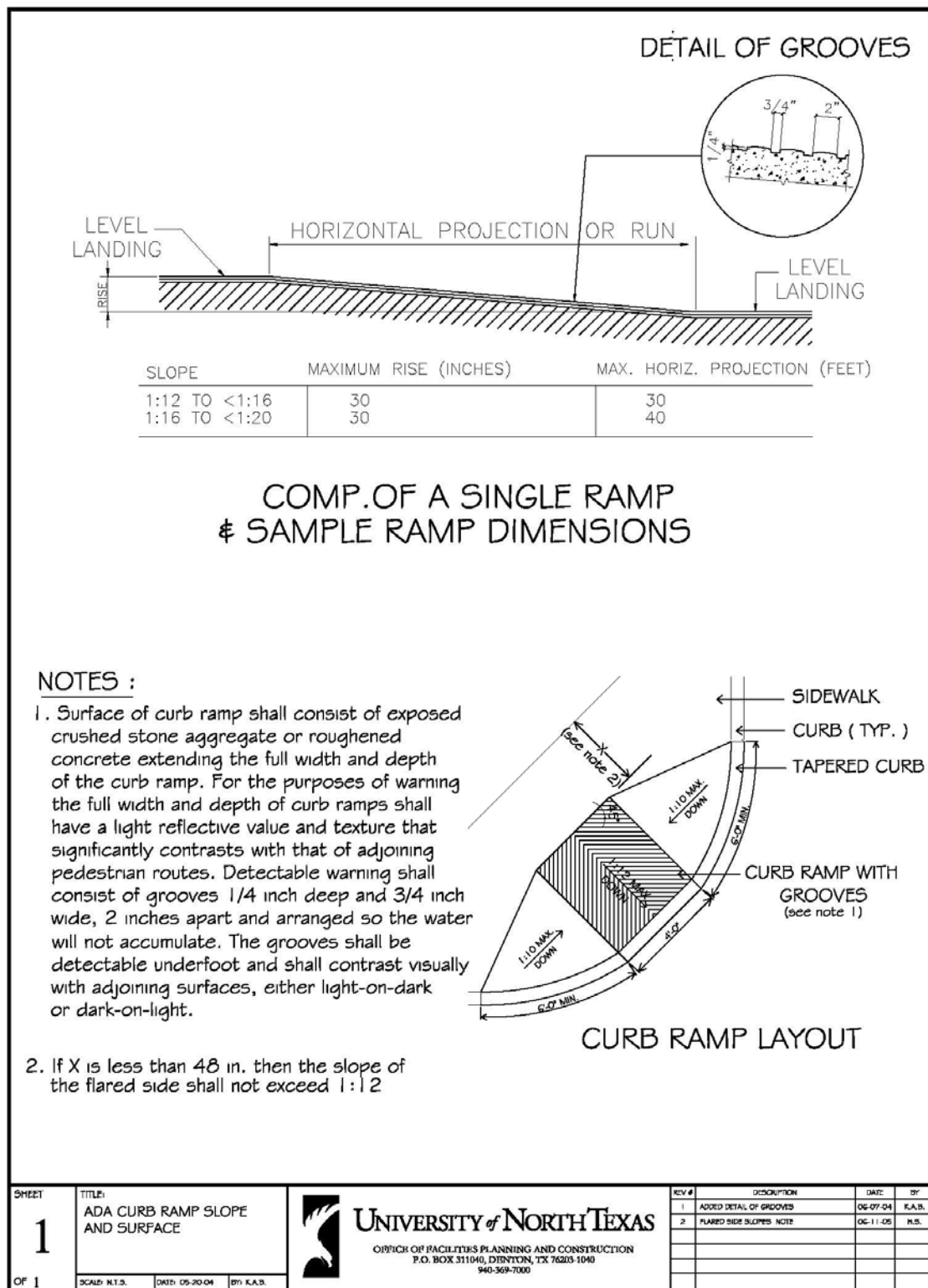


Figure 2

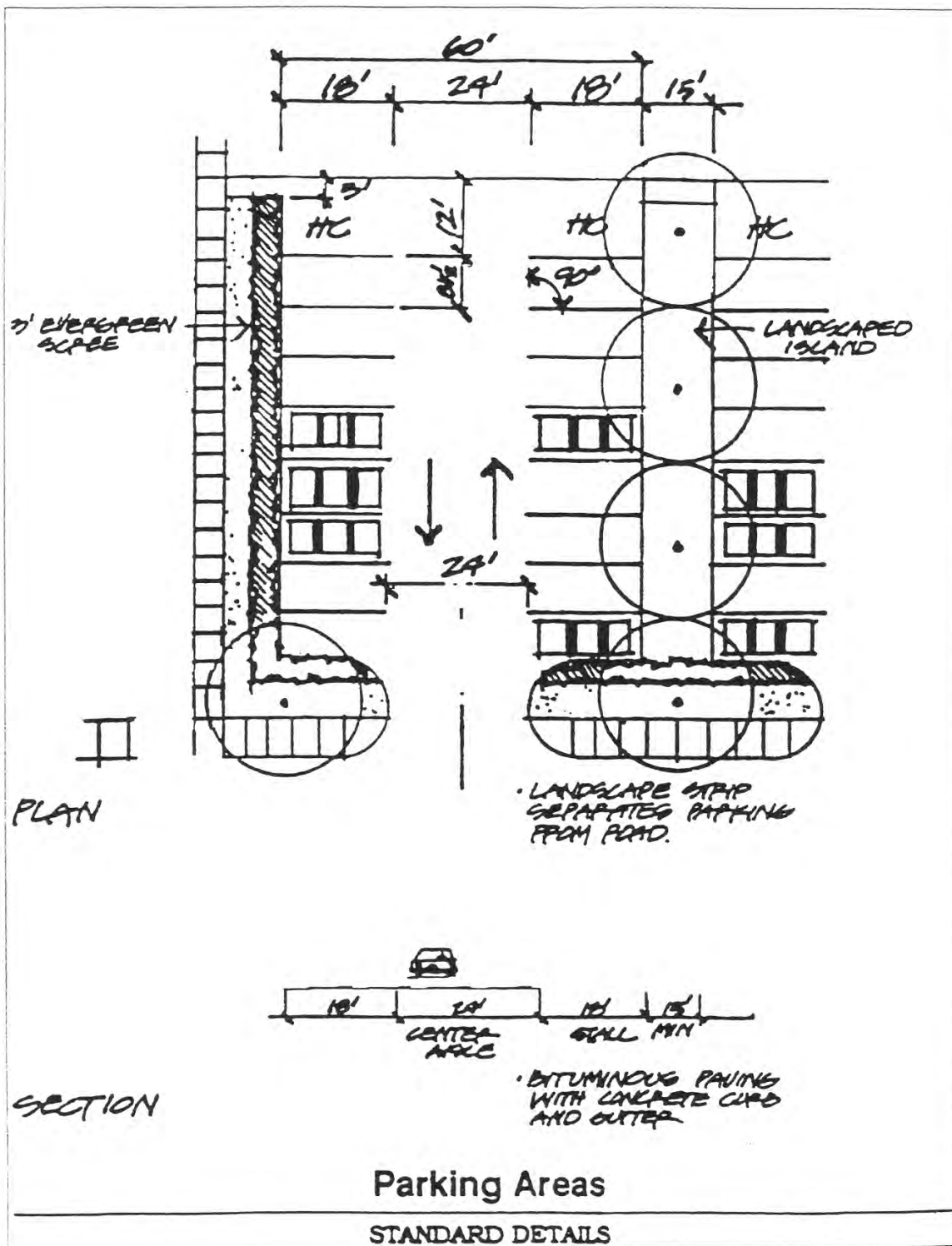


Figure 3

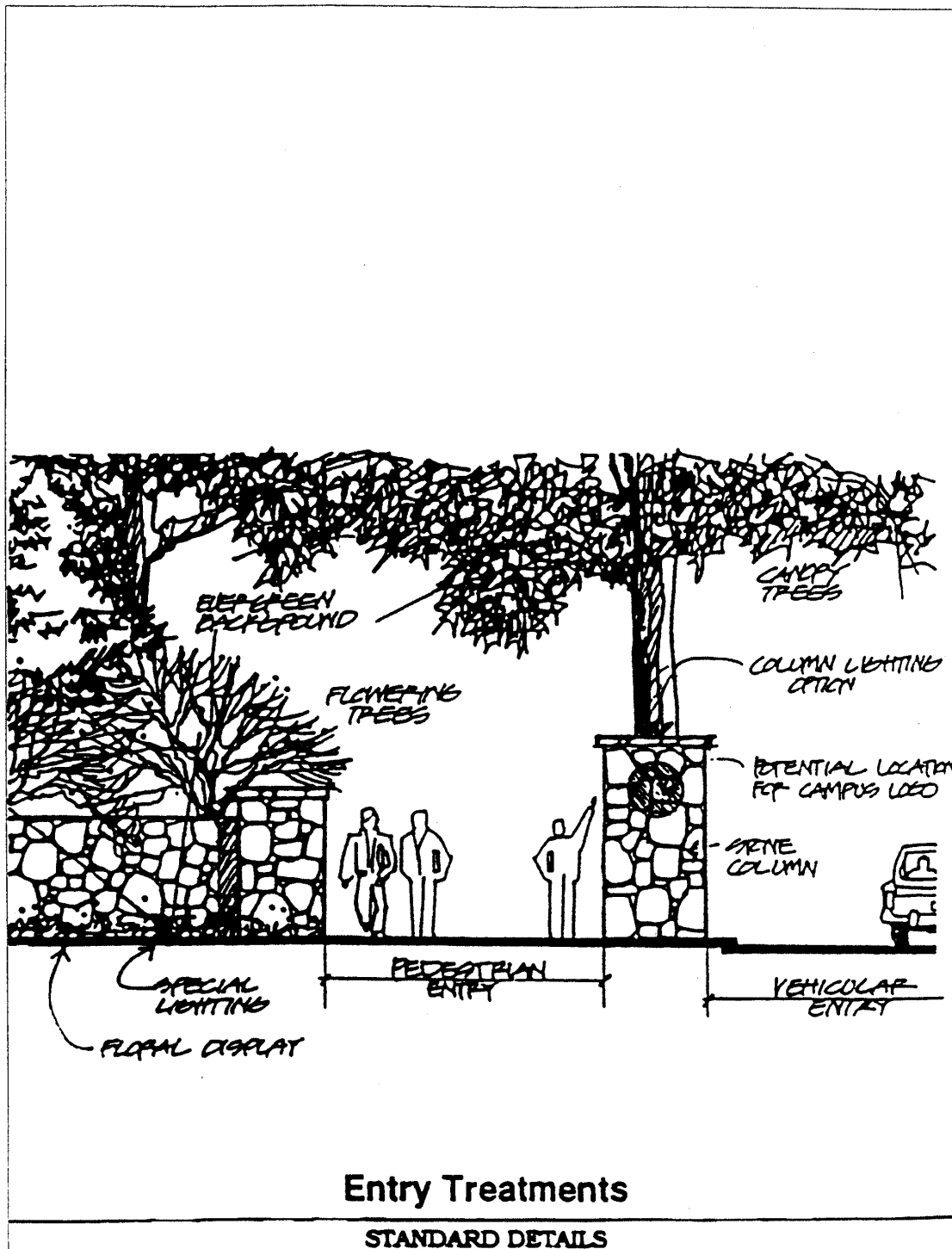


Figure 4

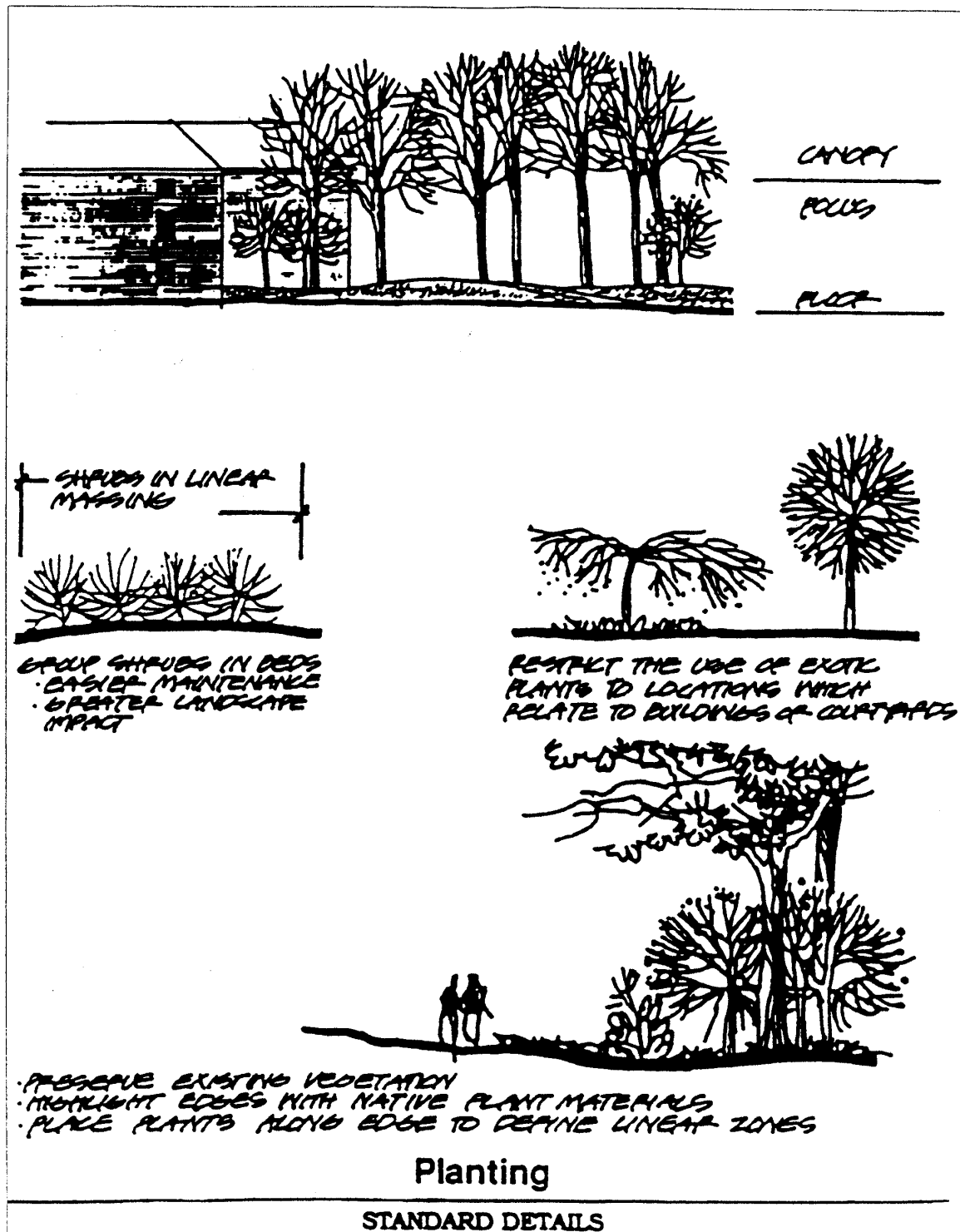
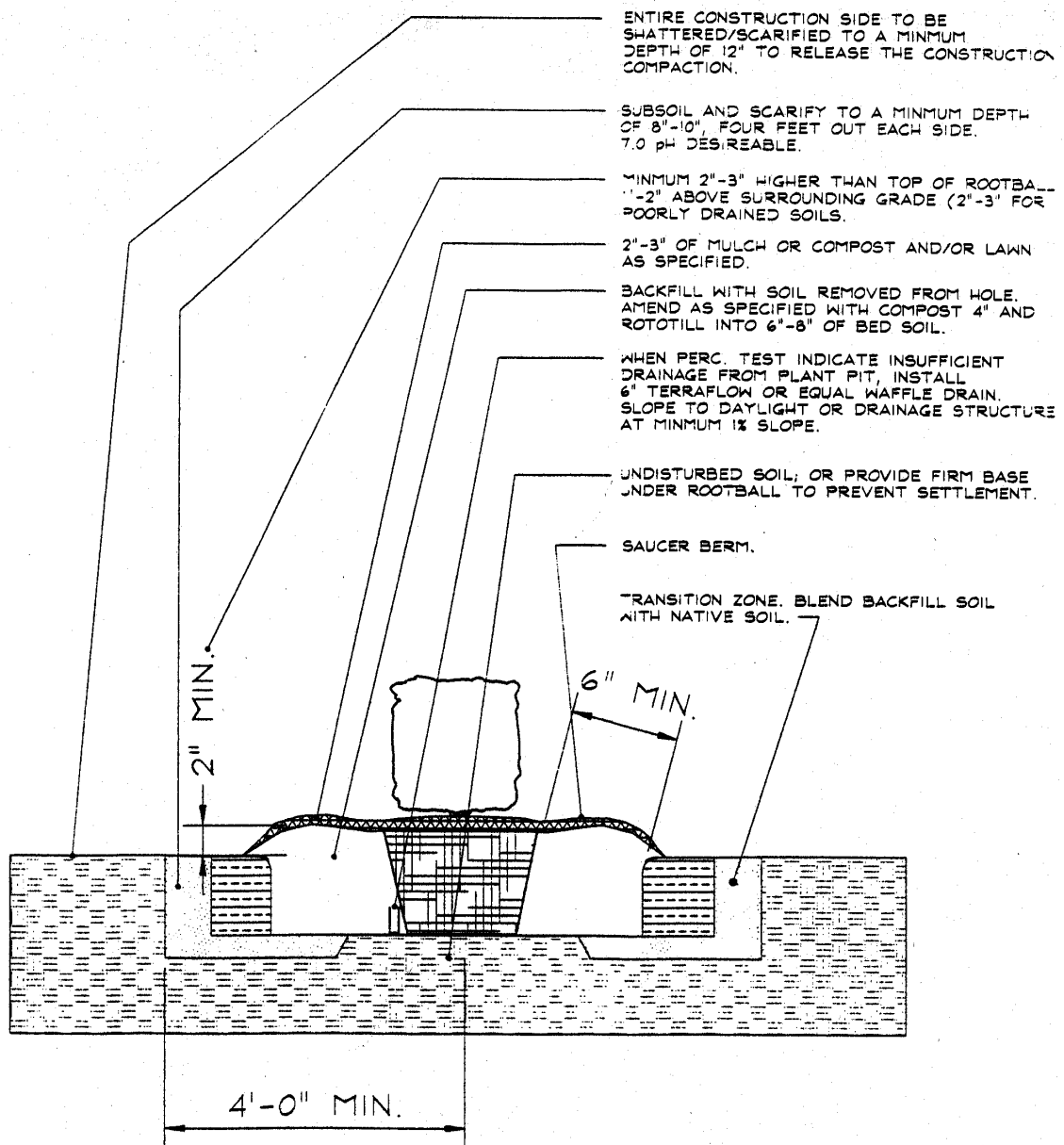


Figure 5



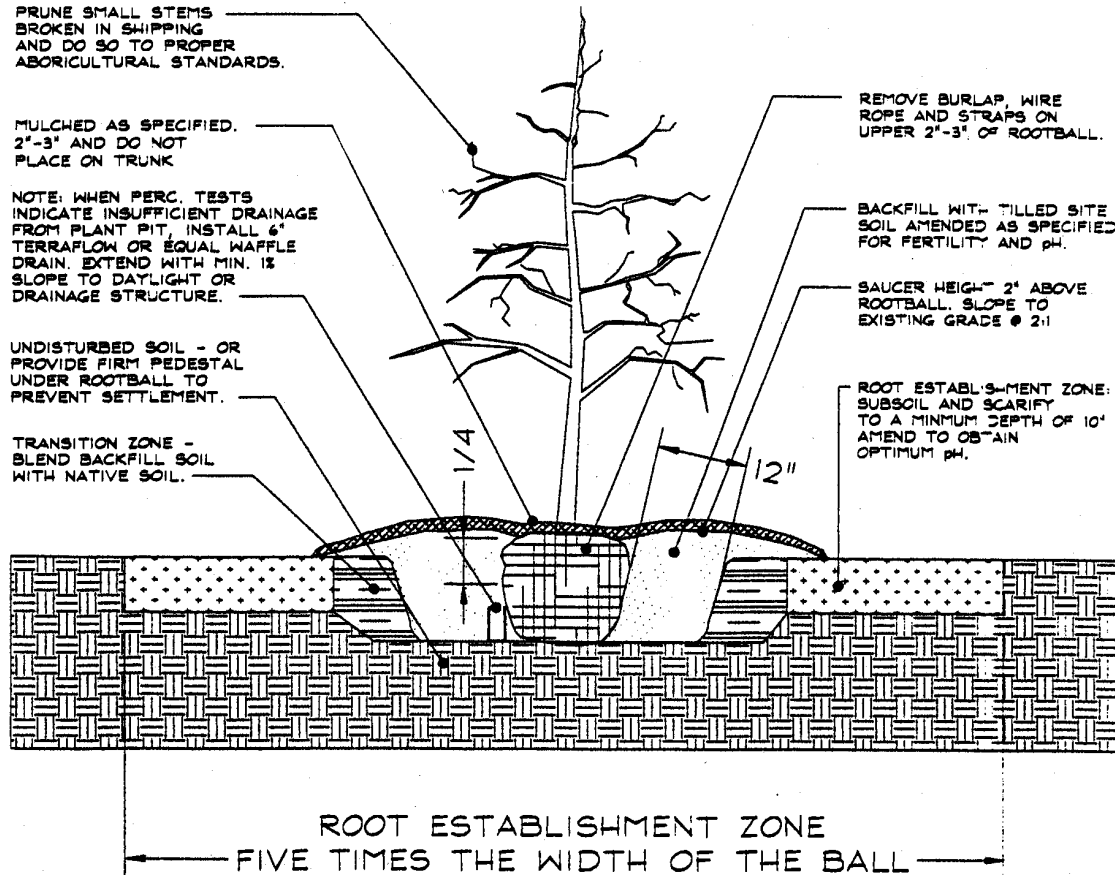
PLANTING DETAIL FOR HEDGES

STANDARD DETAILS

Figure 6

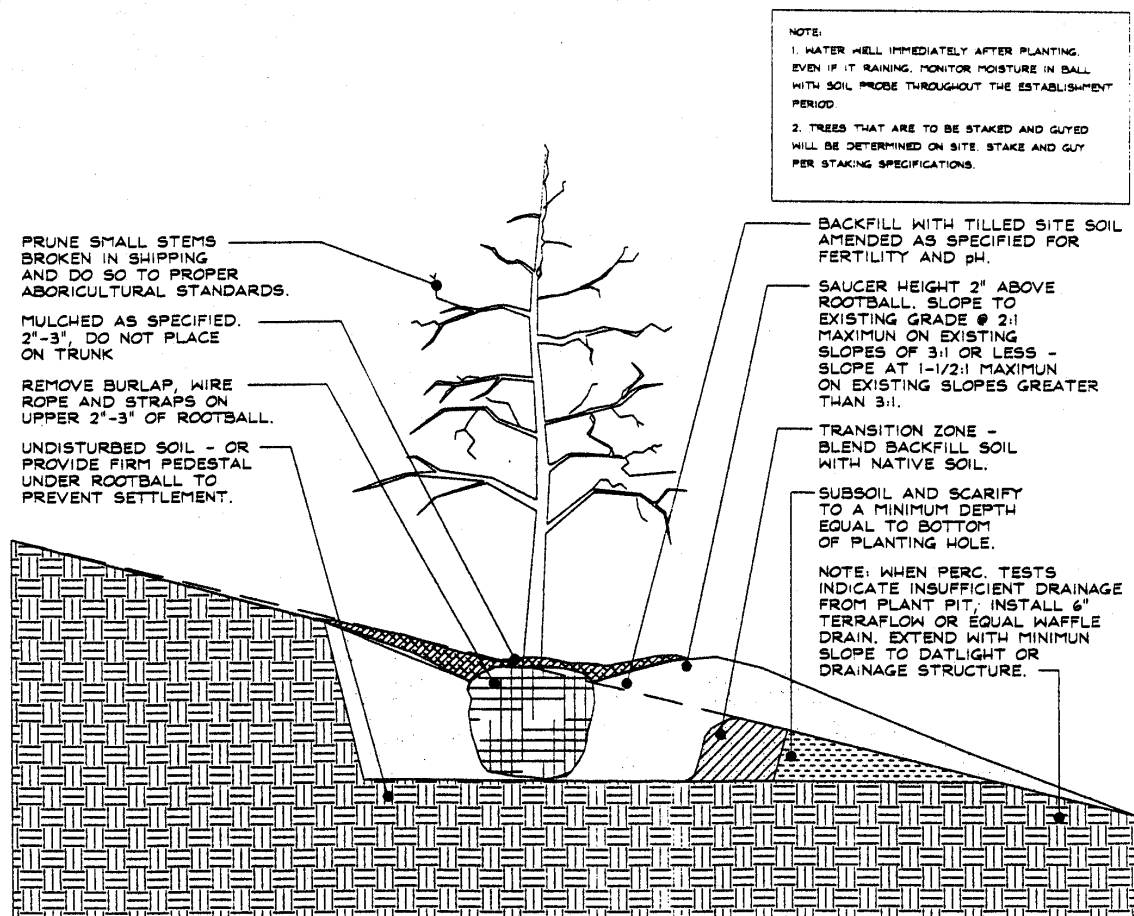
NOTE:

1. WATER WELL IMMEDIATELY AFTER PLANTING. EVEN IF IT RAINING. MONITOR MOISTURE IN BALL WITH SOIL PROBE THROUGHOUT THE ESTABLISHMENT PERIOD.
2. TREES THAT ARE TO BE STAKED AND GUYED WILL BE DETERMINED ON SITE. STAKE AND GUY PER STAKING SPECIFICATIONS.



PLANTING DETAIL FOR TREES
STANDARD DETAILS
[930902_1]

Figure 7



PLANTING DETAIL FOR TREES ON SLOPE
STANDARD DETAILS
 [930903_1]

Figure 8

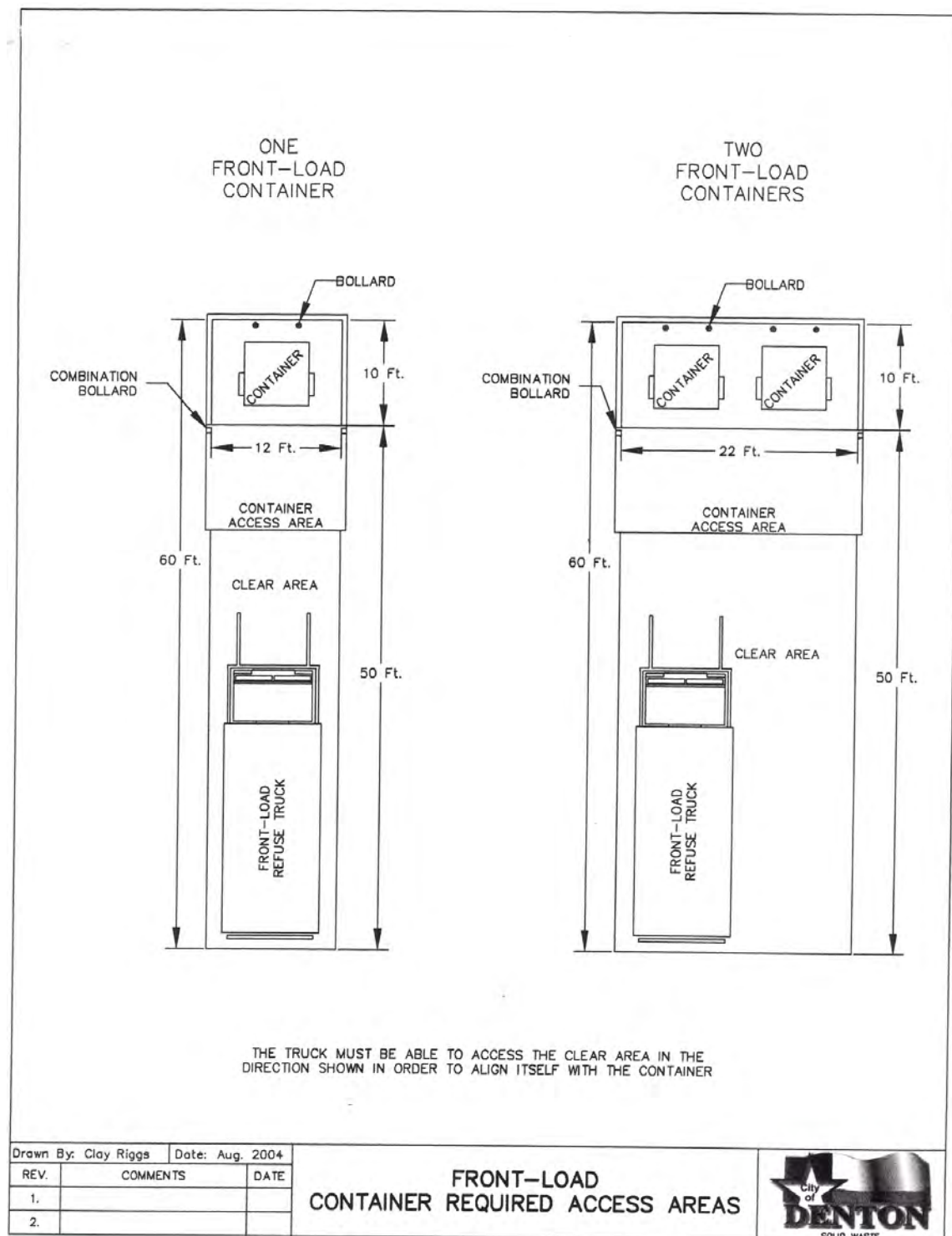


Figure 9

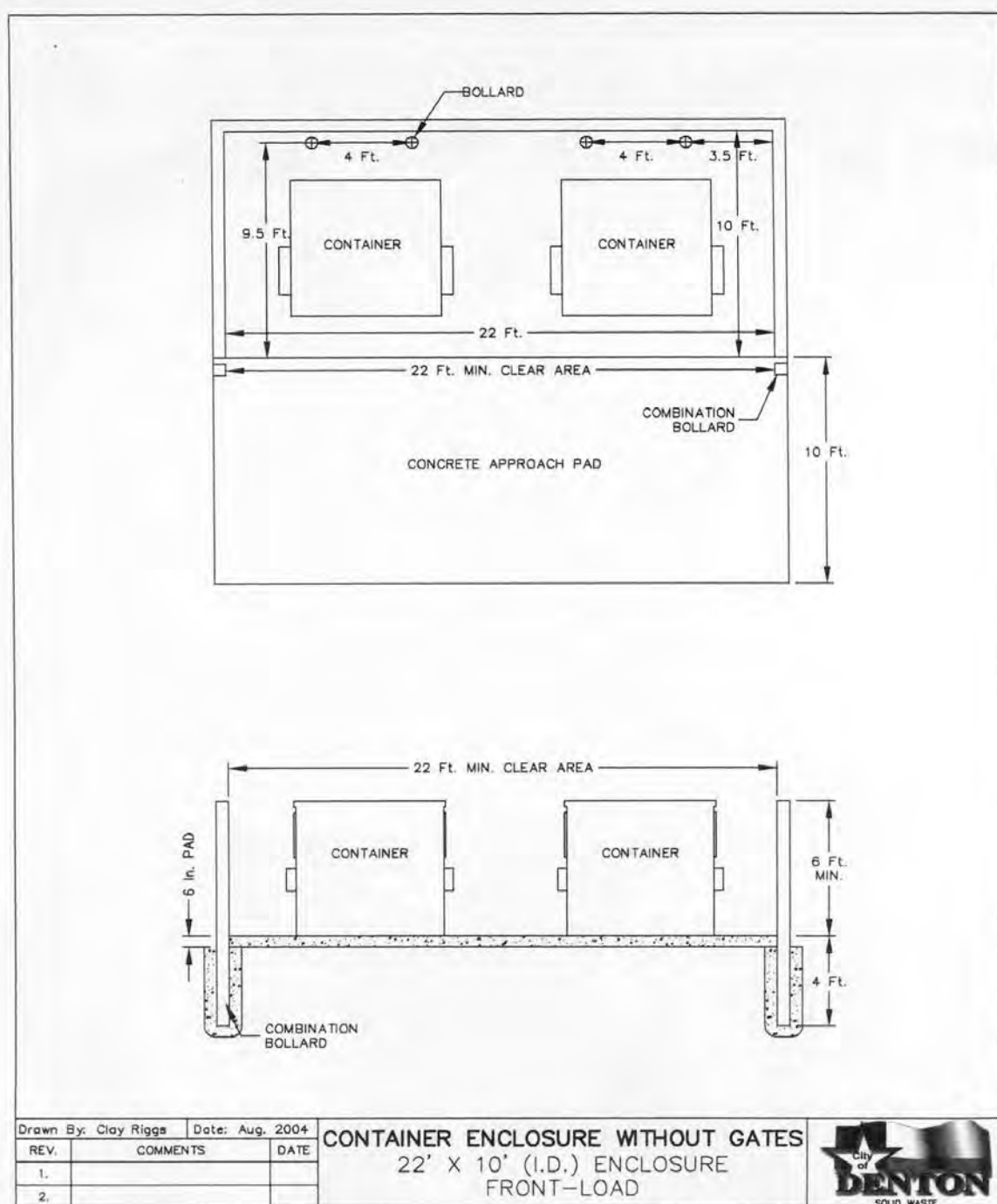


Figure 10

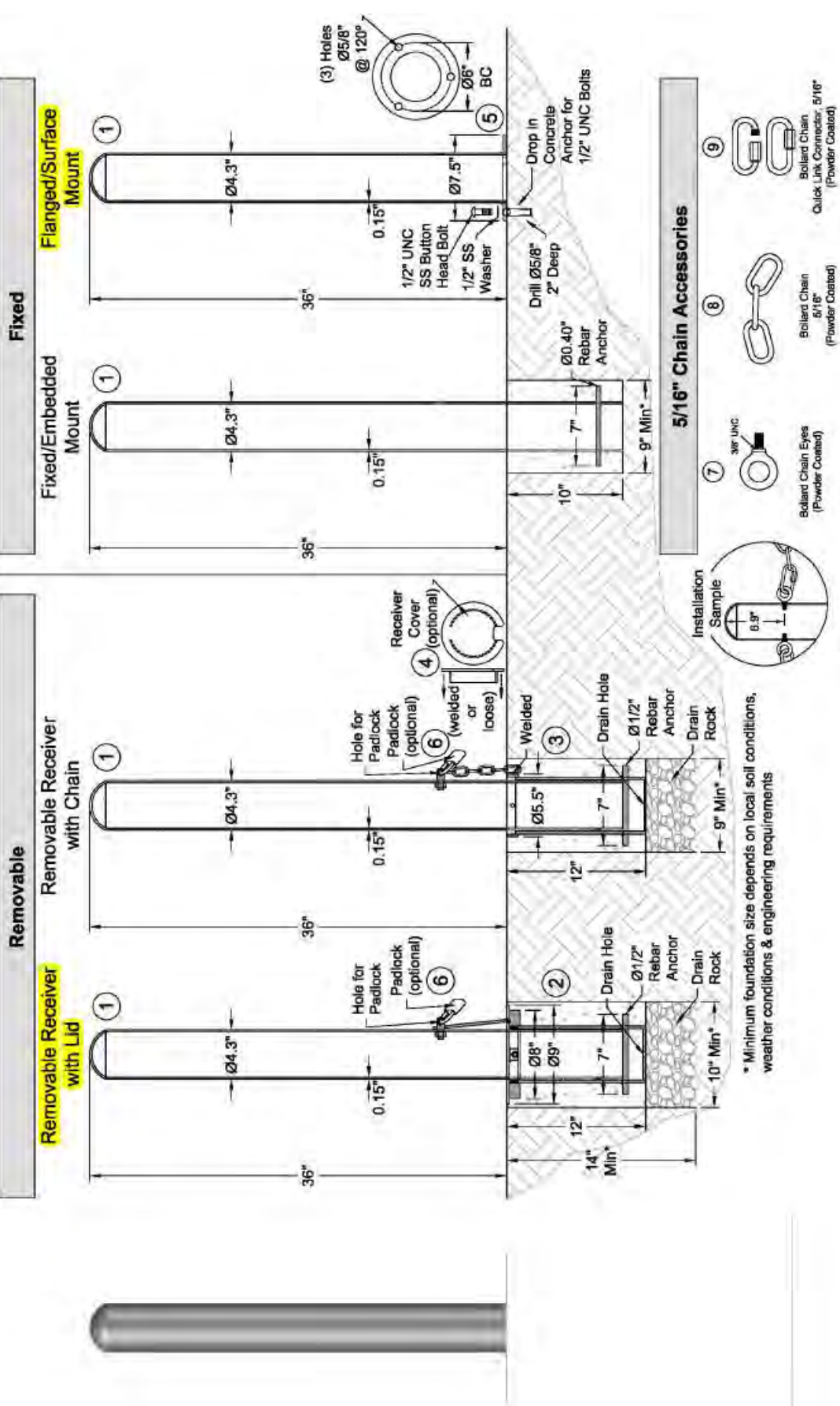


Figure 14

| Mount Options & Accessories | | | Material |
|-----------------------------|-------------|--|---|
| Item | Part Number | Description | Material |
| 2 | R-7901-R | Removable Receiver with lid | Galvanized steel, c/w SAE 304 Stainless steel cover |
| 2 | R-8901-R | Removable Receiver with lid | Stainless Steel (SAE 316) |
| 3 | R-7900-R | Removable Receiver with chain | Galvanized steel, c/w SAE 304 stainless steel chain |
| 3 | R-8900-R | Removable Receiver with chain | Stainless Steel (SAE 316) |
| 4 | R-7900-C | Cover for removable receiver with chain (OPTIONAL) | Stainless Steel (SAE 316) |
| 5 | R-7900-F | Flanged/surface mount | Steel (ASTM A36) |
| 5 | R-8900-F | Flanged/surface mount | Stainless Steel (SAE 304) |
| 6 | Padlock 936 | Padlock, marine grade (OPTIONAL) | Brass; chrome plated with stainless steel shackle |
| 6 | Padlock 835 | Padlock (OPTIONAL) | Brass |
| 7 | R-7500-E | Chain Eye Loop | Steel – Forged |
| 8 | R-7500-CH | Chain, 5/16" (measure in feet) | Steel – Plated |
| 9 | R-7500-Q | Chain Quick Link, 5/16" | Steel – Plated |

| Bollard | | | |
|---------|-------------|--------------|---------|
| Item | Part Number | Description | Weight |
| 1 | R-7902 | Bollard Post | 29 lbs. |
| 1 | R-8902 | Bollard Post | 34 lbs. |

| REV | DATE | DESCRIPTION |
|-----|------|-------------|
| | | |
| | | |

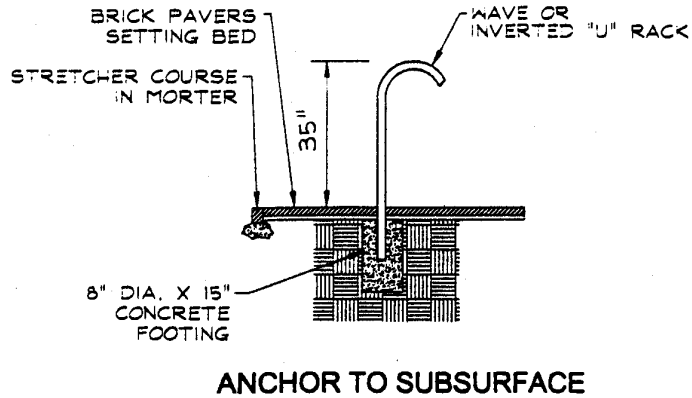
RELIANCE FOUNDRY

Unit 207, 6459 - 148 Street, Surrey, BC, Canada V3S-707
1-888-735-5661 • info@reliance-foundry.com
www.reliance-foundry.com | www.bollards.ca | www.bolt-parking.com

Removable Bollard, Model R-7902 and R-8902

SCALE: NTS
DESIGN: LC
DATE: 12/19/2011

R-7902 / R-8902



SPECIFICATIONS:

WAVE-SHAPED RACKS

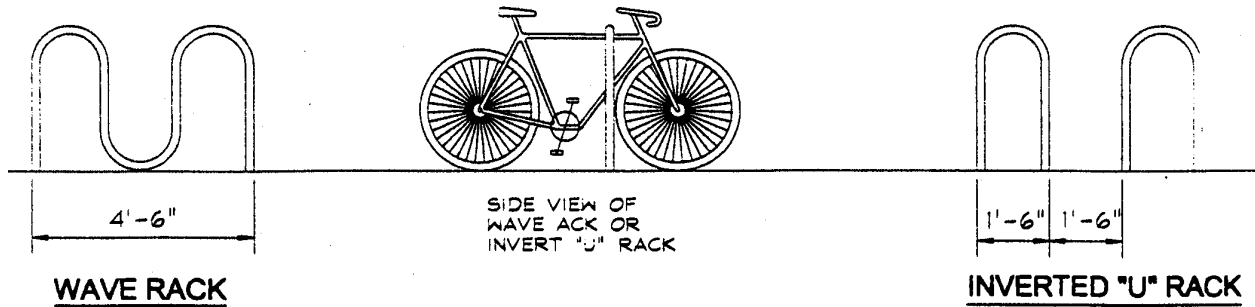
RACKS SHALL BE EQUAL OR SUPERIOR TO "WAVE
LOK" AS MANUFACTURED BY SUNSHINE-U-LOK
CORP. 31316 VIA COLINAS, SUITE 102,
WESTLAKE VILLAGE, CA. 91362 (818) 707-0110

2" DIAMETER, MIN. SCHEDULE 10, 16 GAUGE
STEEL PIPE WITH DIPPED AND BAKED BLACK
POLYVINYL FINISH. 180 DEGREE BENDS IN A WAVE
PATTERN TO PROVIDE FOUR VERTICLE POSTS A
WIDTH OF 18" APART FROM CENTER TO CENTER.
INSTALLED HEIGHT OF 35". ANCHOR TO SUBSURFACE.

INVERTED "U" SHAPED RACKS:

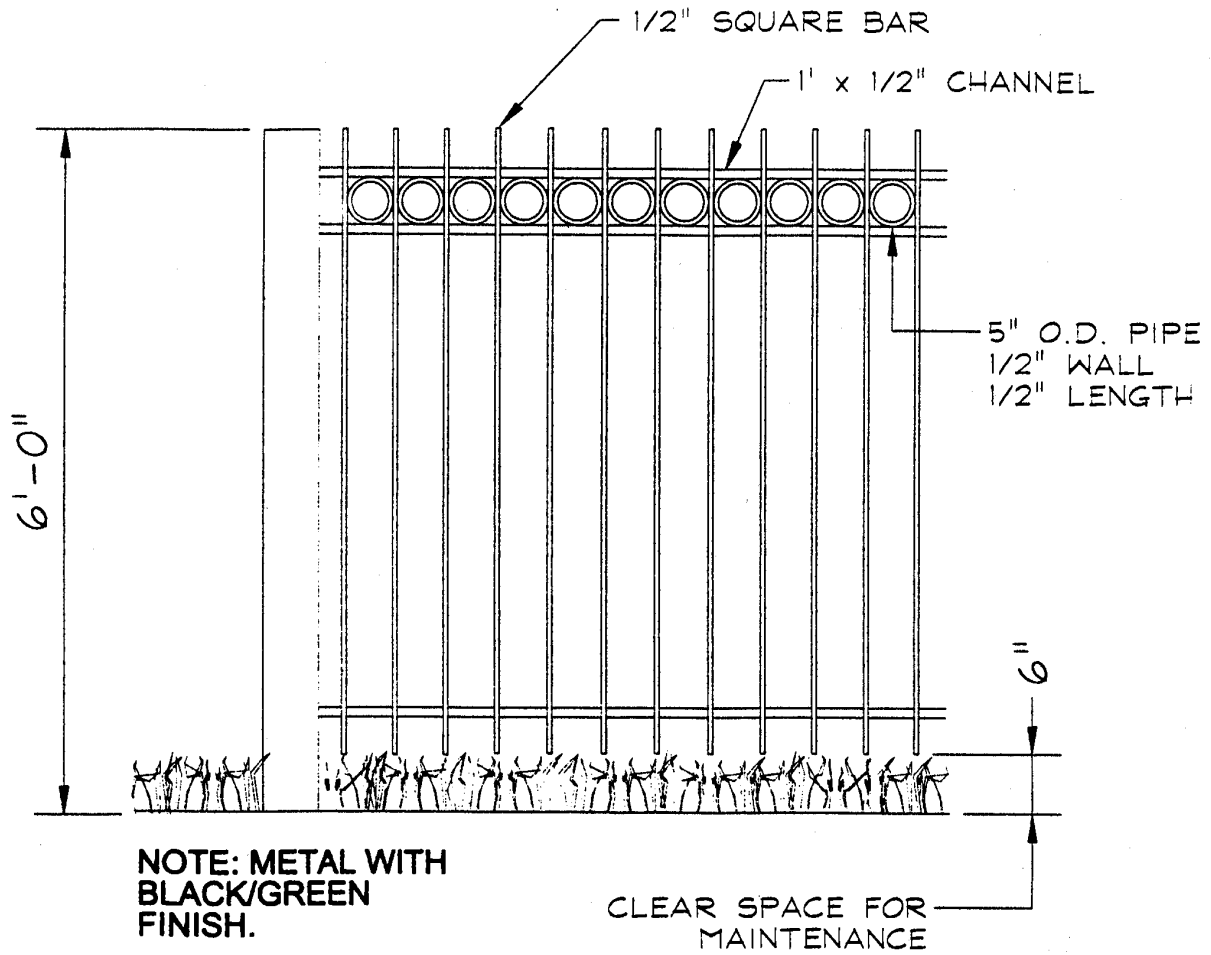
RACKS SHALL BE EQUAL OR SUPERIOR TO "WAVE-
LOK" AS MANUFACTURED BY SUNSHINE-U-LOK CORP.

2" DIAMETER, MINIMUM SCHEDULE 10, 16 GAUGE
STEEL PIPE WITH DIPPED AND BAKED BLACK
POLYVINYL FINISH. 180 DEGREE BENDS IN A WAVE
PATTERN TO PROVIDE TWO VERTICLE POST A
WIDTH OF 18" APART. INSTALLED HEIGHT OF 35".
ANCHOR TO SUBSURFACE.



BICYCLE RACKS
STANDARD DETAILS

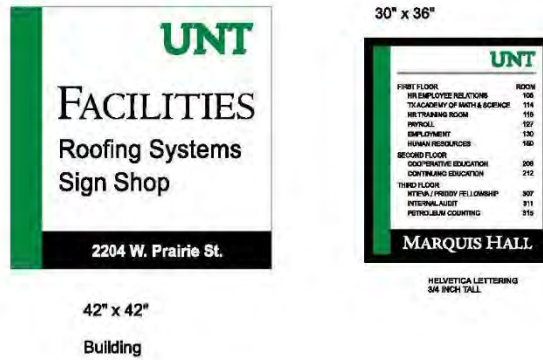
Figure 15



FENCES

STANDARD DETAILS

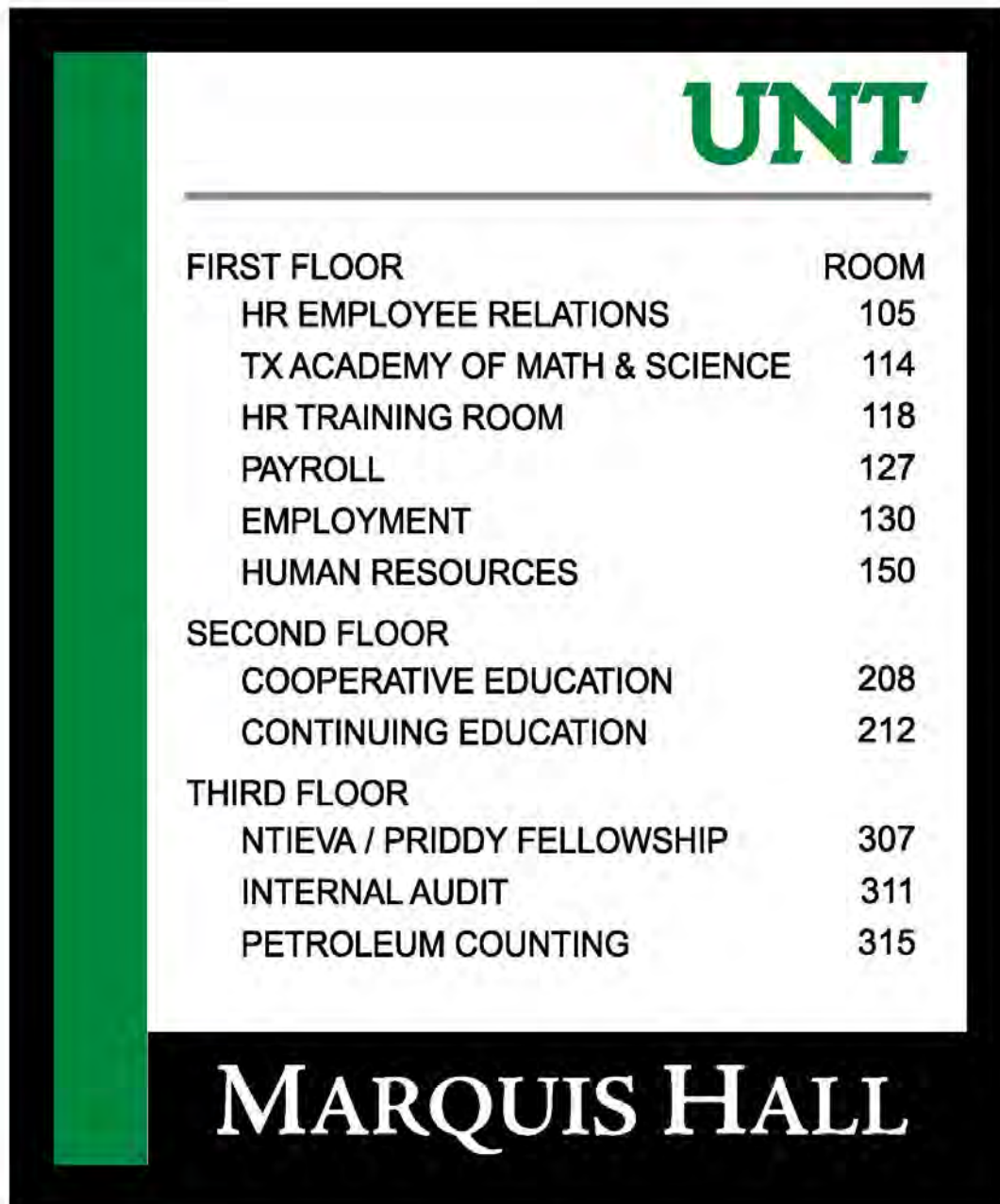
Figure 17



SIGNAGE STANDARDS – ALL INCLUSIVE

Figure 18

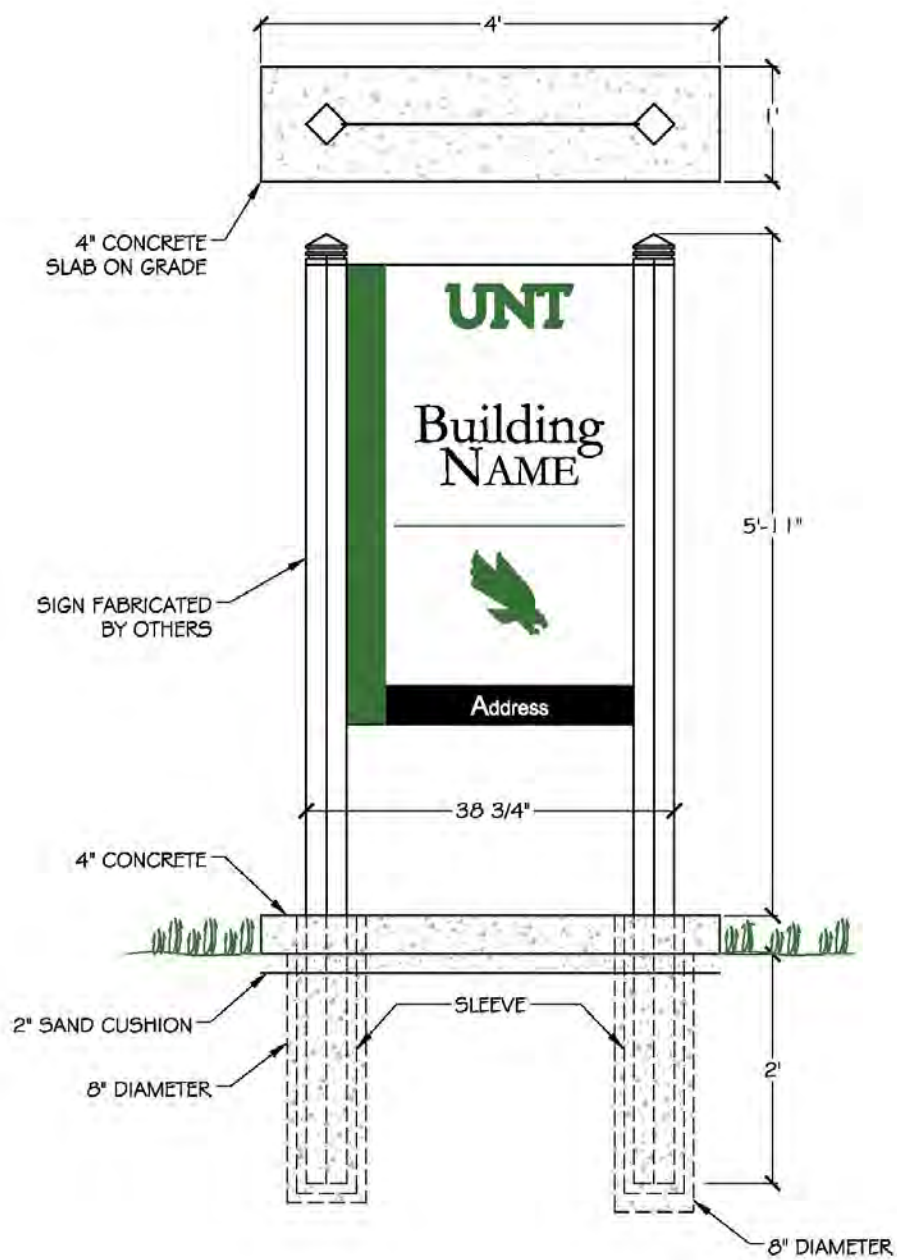
30" x 36"



HELVETICA LETTERING
3/4 INCH TALL

SIGNAGE STANDARD FOR INTERIOR CHANGEABLE TYPE DIRECTORY

Figure 19



SIGNAGE STANDARD FOR EXTERIOR BUILDING SIGN

Figure 20

PEDESTAL - INTERACTIVE VOICE COMMUNICATION UNIT

The **CB I-s** is the original Code Blue Pedestal unit and sets the industry standard for rugged construction, full feature availability and high visibility. The **CB I-s** is easily recognized throughout a full 360-degree area. The user friendly lighted faceplate and the integral area light ensures rapid location in an open environment. The high powered strobe is easily identifiable by security when activated. The exclusive CB 3100 speakerphone is designed for maximum reliability and leads the market in system programming flexibility. The **CB I-s** is an excellent choice for walkways, parks, college and commercial campus areas, open landscape areas and anywhere a freestanding pedestal unit is required.

STANDARD FEATURES:

- ☒ CB 3100 Speakerphone
- ☒ 3 auxiliary inputs
- ☒ 2 auxiliary outputs
- ☒ Phone line surge suppressor
- ☒ Analog telephone connection
- ☒ 70w HPS area light with Code Blue Beacon
- ☒ High power strobe
- ☒ Lighted stainless steel faceplate
- ☒ 120v AC power
- ☒ Ultra weather resistant finish
- ☒ Vandal resistant hardware
- ☒ UV resistant lenses
- ☒ 12.75" diameter/ 9'1 1/2" height
- ☒ 1/4" thick steel construction
- ☒ Overhead Camera Mount
- ☒ Internal foundation anchor kit
- ☒ Passive vent
- ☒ ADA compliant

OPTIONAL FEATURES:

- | | |
|--|--|
| <input type="checkbox"/> Two button speakerphone | <input type="checkbox"/> Photocell for area light |
| <input type="checkbox"/> Two button speakerphone with keypad | <input type="checkbox"/> Powered vent |
| <input type="checkbox"/> 2.4 Ghz RF communication | <input type="checkbox"/> Step-down power transformer |
| <input type="checkbox"/> Cellular communication | <input type="checkbox"/> Custom colors |
| <input type="checkbox"/> Night Charge™ | <input type="checkbox"/> Custom graphics |
| <input type="checkbox"/> 70 watt metal halide area light | |

Figure 21



CB I-s

STANDARD FINISH COLORS

| | |
|---------------|----------------------|
| Safety Blue | Gloss Black |
| Safety Red | Medium Bronze |
| Safety Yellow | Dark Bronze |
| Midnight Blue | Cardinal Red |
| Gloss White | British Racing Green |

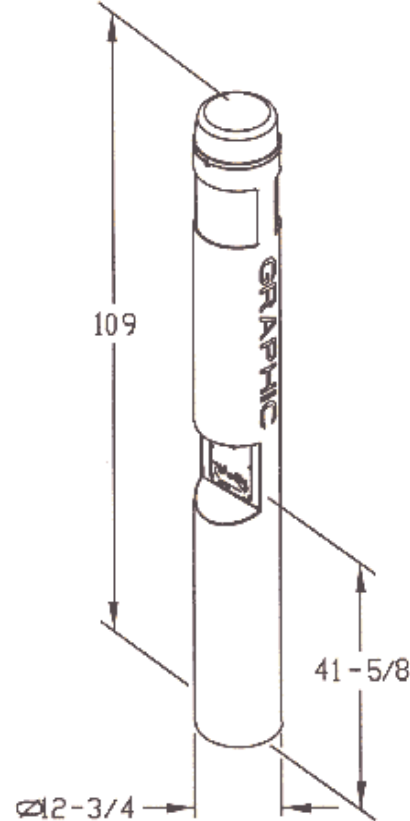
GRAPHICS TEXT (WORDING)

| | |
|------------|----------|
| Emergency | Courtesy |
| Assistance | Security |

GRAPHICS COLOR

| | |
|------------------|------------------|
| Reflective White | Reflective Black |
| Reflective Blue | Reflective Red |

Custom colors and graphics from RAL number or sample are available as a special order.



FACEPLATE OPTIONS

| FP 1 | FP 2 | FP 2-K |
|---|--|---|
| | | |
| Standard Faceplate Assembly with Single red <i>Push For Help</i> button | Optional Faceplate Assembly with additional black <i>Info</i> button | Optional Faceplate Assembly with additional <i>Call</i> button and keypad |

CELLULAR OPTION

Provides wireless communications to eliminate trenching for phone lines. System requires a reliable AMPS cellular service to be provided by customer.

NIGHT CHARGE™ OPTION

Provides continuous power to the Code Blue unit from a non-continuous power source. Typically used with an outdoor lighting network when power is only on during a portion of the day or night.

CODE BLUE UNIT SPECIFICATIONS

| | |
|-----------------------------|----------------|
| Overall Height | 9' 1" |
| Outside Diameter | 12 3/4" |
| Housing Material | 1/4 inch steel |
| Overall Weight | 375 pounds |
| Access Opening | 8 1/2" x 12" |
| Standard Power Requirements | 120v AC |

Mounting hardware and template for each CB I-s is shipped in advance of unit for foundation work.

Code Blue Corp. - 92 East 64th Street - Holland, MI 49423 - 800-205-7186 - Fax 616-392-8391 - www.codeblue.com

Figure 22

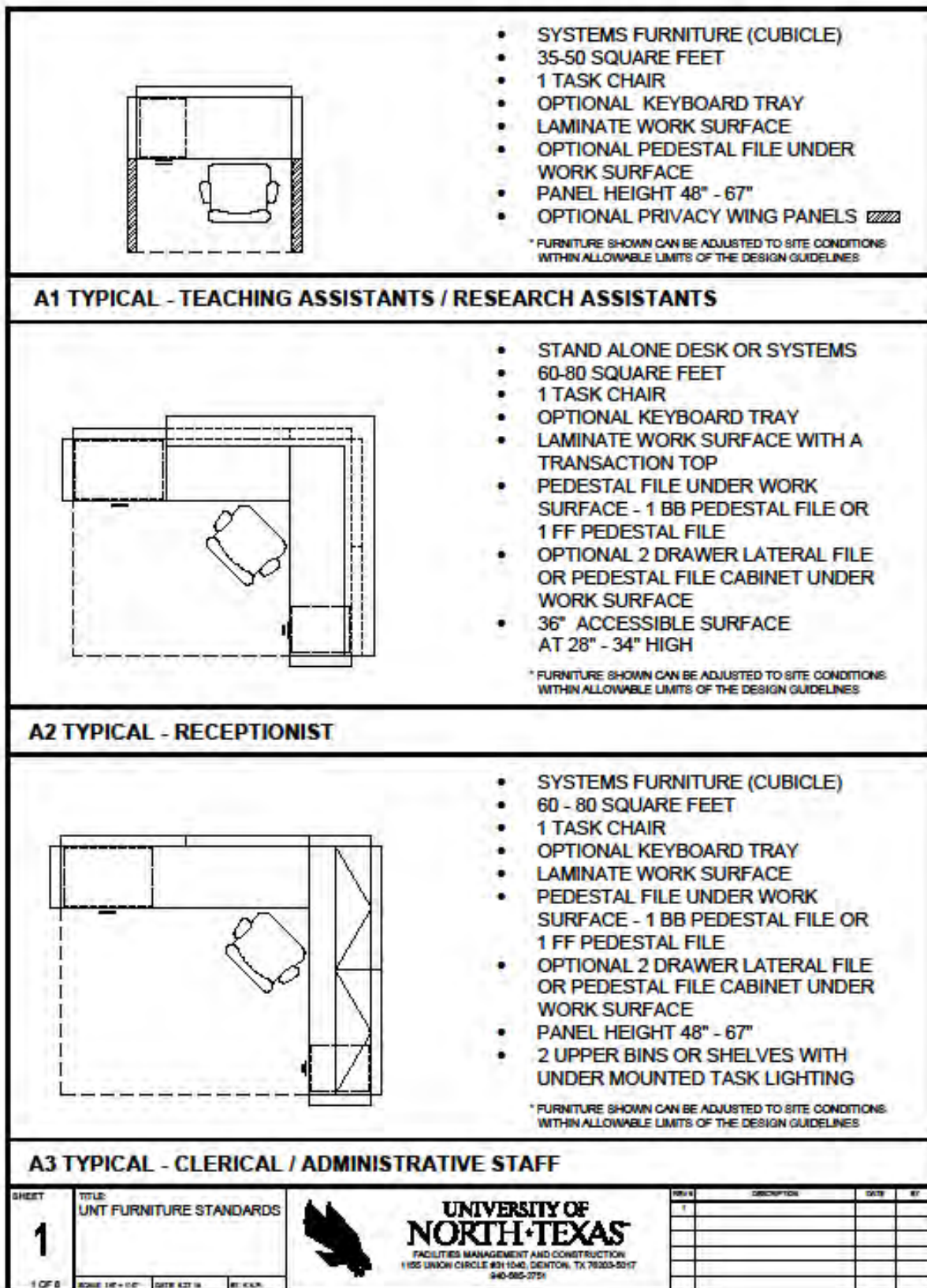


Figure 23

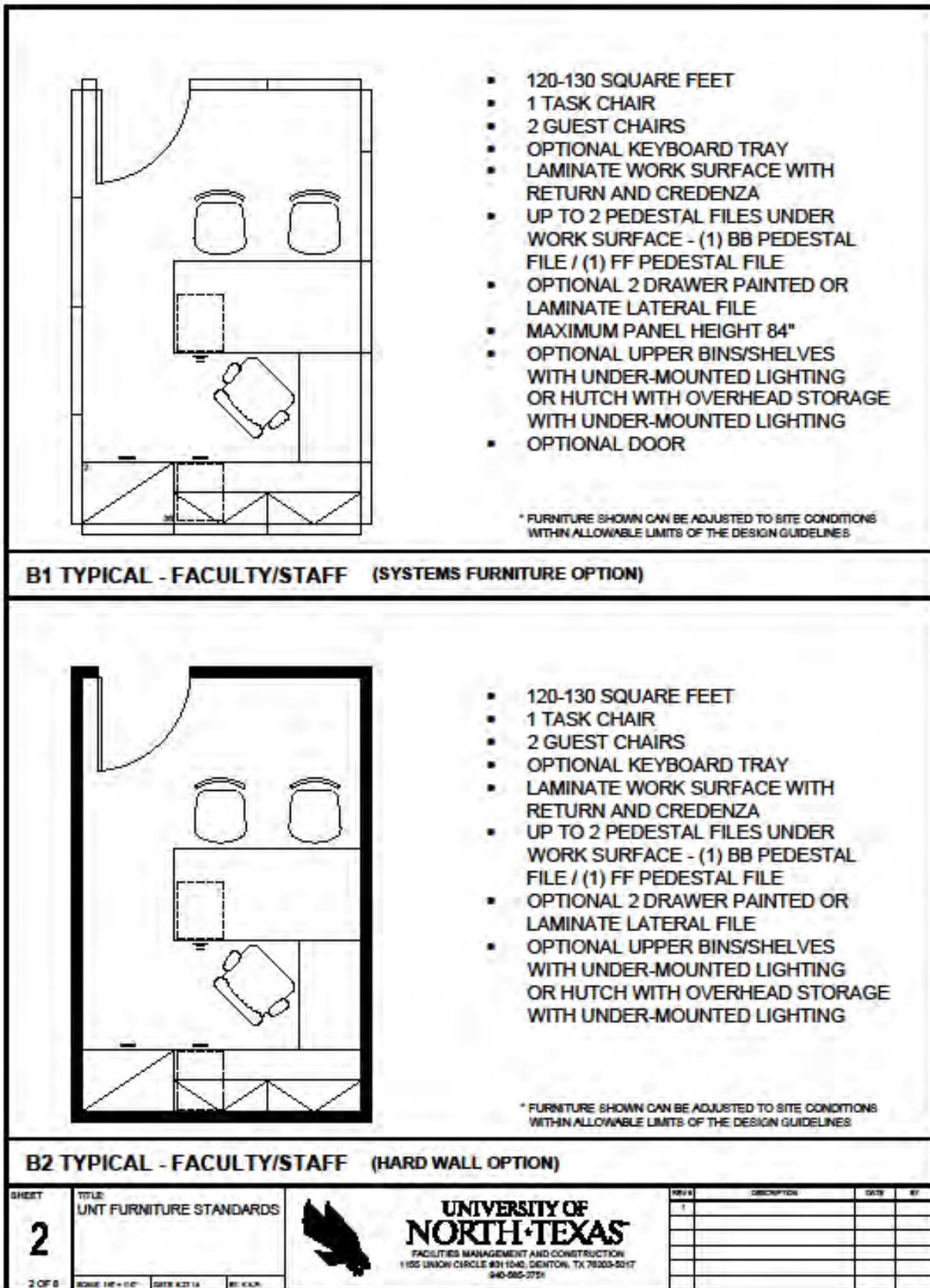
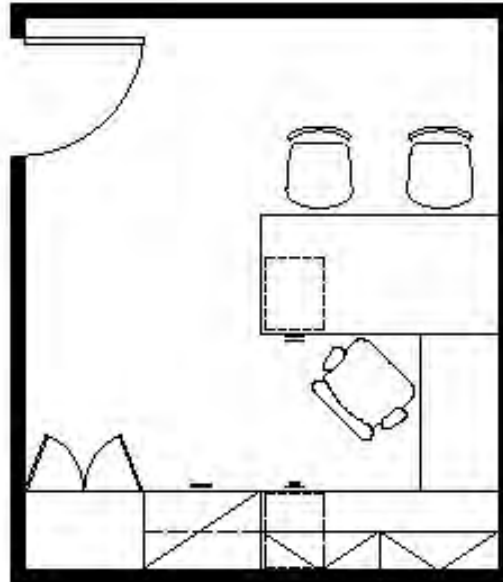


Figure 24



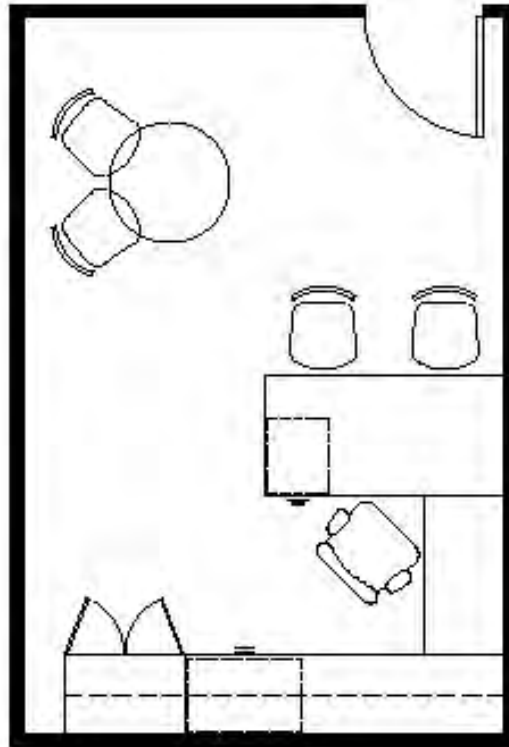
C1 TYPICAL - DEPARTMENT CHAIR, DIRECTOR OR EQUIVALENT

- HARDWALL OFFICE
- 140 - 150 SQUARE FEET
- 1 TASK CHAIR
- 2 GUEST CHAIRS
- OPTIONAL KEYBOARD TRAY
- LAMINATE OR VENEER DESK WITH RETURN AND CREDENZA
- 1 BB PEDESTAL FILE AND 1 FF PEDESTAL FILE UNDER WORK SURFACE
- 2 DRAWER LAMINATE OR VENEER LATERAL FILE CABINET
- UPPER BINS OR SHELVES WITH UNDER-MOUNTED LIGHTING OR OPTIONAL HUTCH WITH OVERHEAD STORAGE AND UNDER-MOUNTED LIGHTING
- OPTIONAL STORAGE PIECE IN LAMINATE OR VENEER - SEE PAGE 6 FOR STORAGE COMPONENTS

* FURNITURE SHOWN CAN BE ADJUSTED TO SITE CONDITIONS WITHIN ALLOWABLE LIMITS OF THE DESIGN GUIDELINES

| SHEET | TITLE | UNIVERSITY OF NORTH TEXAS | REVISION | DESCRIPTION | DATE | BY |
|--------|-------------------------|--|----------|-------------|------|----|
| 3 | UNT FURNITURE STANDARDS | FACILITIES MANAGEMENT AND CONSTRUCTION 1105 UNION CIRCLE #011040, DENTON, TX 76203-5017 (840-585-2751) | 1 | | | |
| 3 OF 8 | SCALE: 1/8" = 1'-0" | DATE: 6/27/14 | BY: KJN | | | |

Figure 25



C2 TYPICAL - ASSOCIATE DEAN OR EQUIVALENT

- HARDWALL OFFICE
- 150 - 160 SQUARE FEET
- 1 TASK CHAIR
- 2 GUEST CHAIRS
- 2 CONFERENCE CHAIRS
- OPTIONAL KEYBOARD TRAY
- LAMINATE OR VENEER DESK WITH RETURN AND CREDENZA
- 1 BB PEDESTAL FILE UNDER WORK SURFACE
- 2 DRAWER LAMINATE OR VENEER LATERAL FILE CABINET UNDER WORK SURFACE
- HUTCH WITH STORAGE AND UNDER-MOUNTED LIGHTING
- OPTIONAL STORAGE PIECE IN LAMINATE OR VENEER - SEE PAGE 6 FOR STORAGE COMPONENTS
- 36" - 48" SMALL CONFERENCE TABLE

* FURNITURE SHOWN CAN BE ADJUSTED TO SITE CONDITIONS WITHIN ALLOWABLE LIMITS OF THE DESIGN GUIDELINES

| SHEET | TITLE | UNIVERSITY OF NORTH TEXAS | REVISION | DESCRIPTION | DATE | BY |
|--------|-------------------------|---|----------|-------------|------|----|
| 4 | UNT FURNITURE STANDARDS |  | 1 | | | |
| 4 OF 8 | SCALE: 1/8" = 1'-0" | FACILITIES MANAGEMENT AND CONSTRUCTION 1100 UNION CIRCLE 951 1040, DENTON, TX 76203-5017 (817) 259-2751 | | | | |

Figure 26

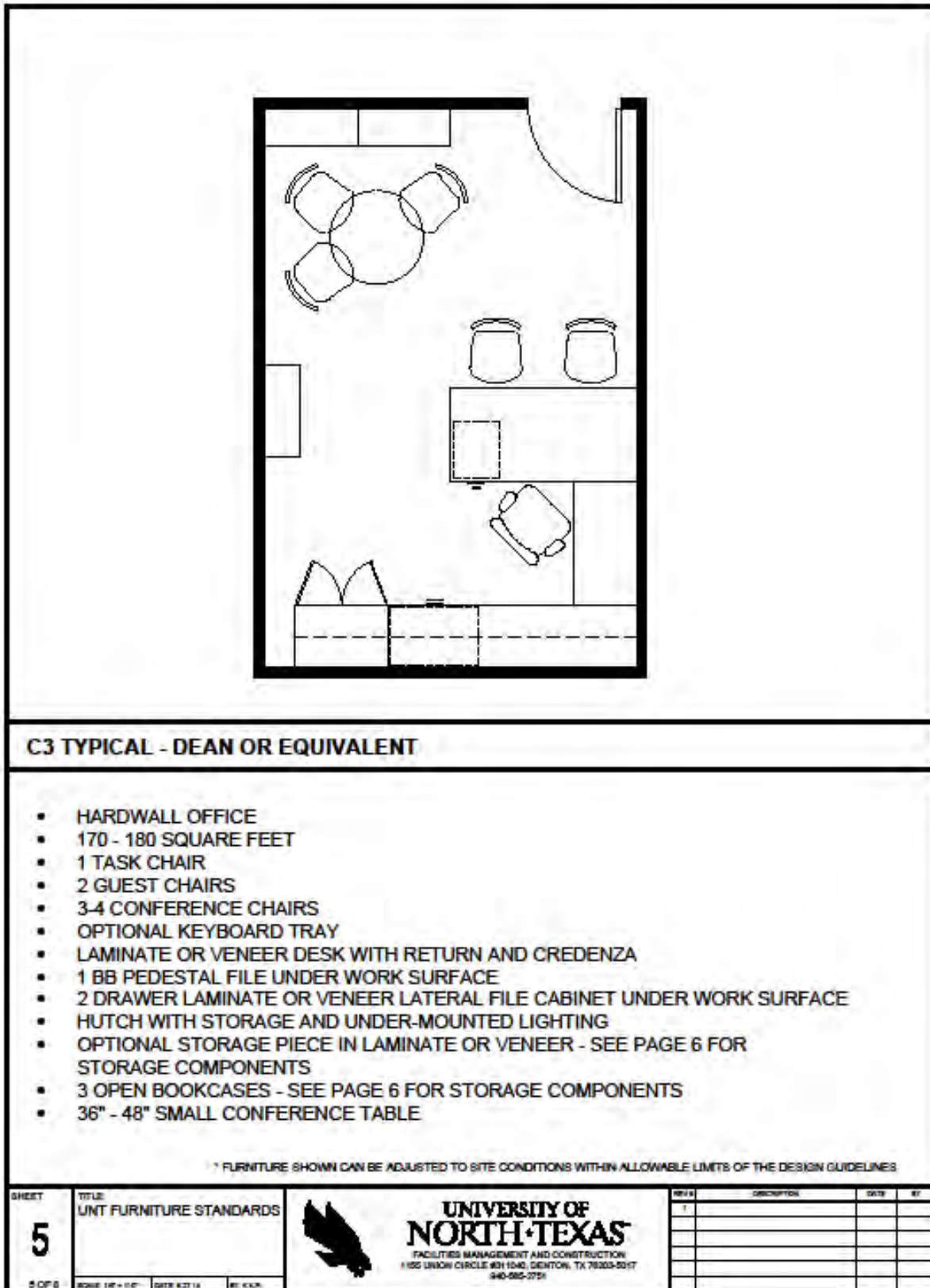


Figure 27

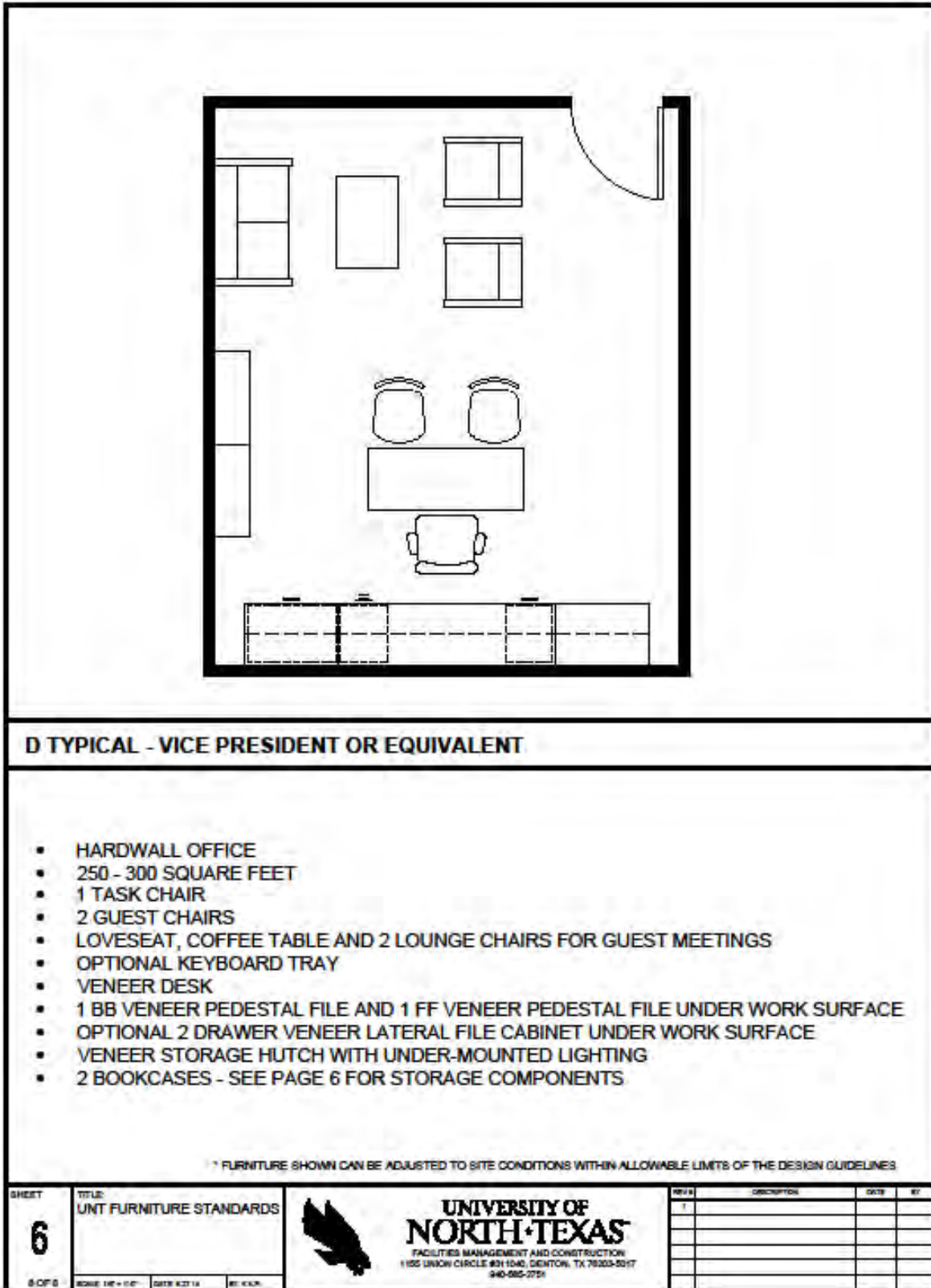


Figure 28

UNIVERSITY of NORTH TEXAS

POLICY STATEMENT ELEVATOR SHUNT-TRIP DEVICES

Current State Elevator Laws require a shunt-trip shut-off device to kill power to elevators when water flow is detected in the fire sprinklers located in the elevator machine room or top of shaft. This loss of power greatly increases the risk that citizens and firefighters may become trapped in such elevators. The Fire Department uses elevators during fire situations for rescue, evacuation, and to transport fire fighting equipment and personnel to staging floor areas.

The Board of Regents for the University of North Texas System, has appointed the University System Architect as the Building Official, and Authority Having Jurisdiction for the University System as defined by all applicable codes.

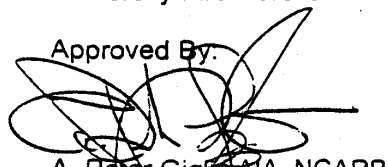
Upon the recommendation of the UNT Fire Marshal, the University System Architect has ruled that such shunt-trip devices are not permitted in University of North Texas facilities. In the past, the Uniform Fire Code has allowed fire sprinkler heads to be omitted from the elevator machine rooms and top of the elevator shafts, with the concurrence of the Fire Chief, or other authority having jurisdiction. This eliminates the need or requirement for a shunt-trip device by the state elevator inspectors. Please note that supervised smoke detectors tied to the building fire alarm system are required in these areas. If you have any questions, please contact the Fire Marshal at 940-565-2109 or the University System Architect at 940-369-7000.

Recommended By:


Wendell McCloud
University Fire Marshal

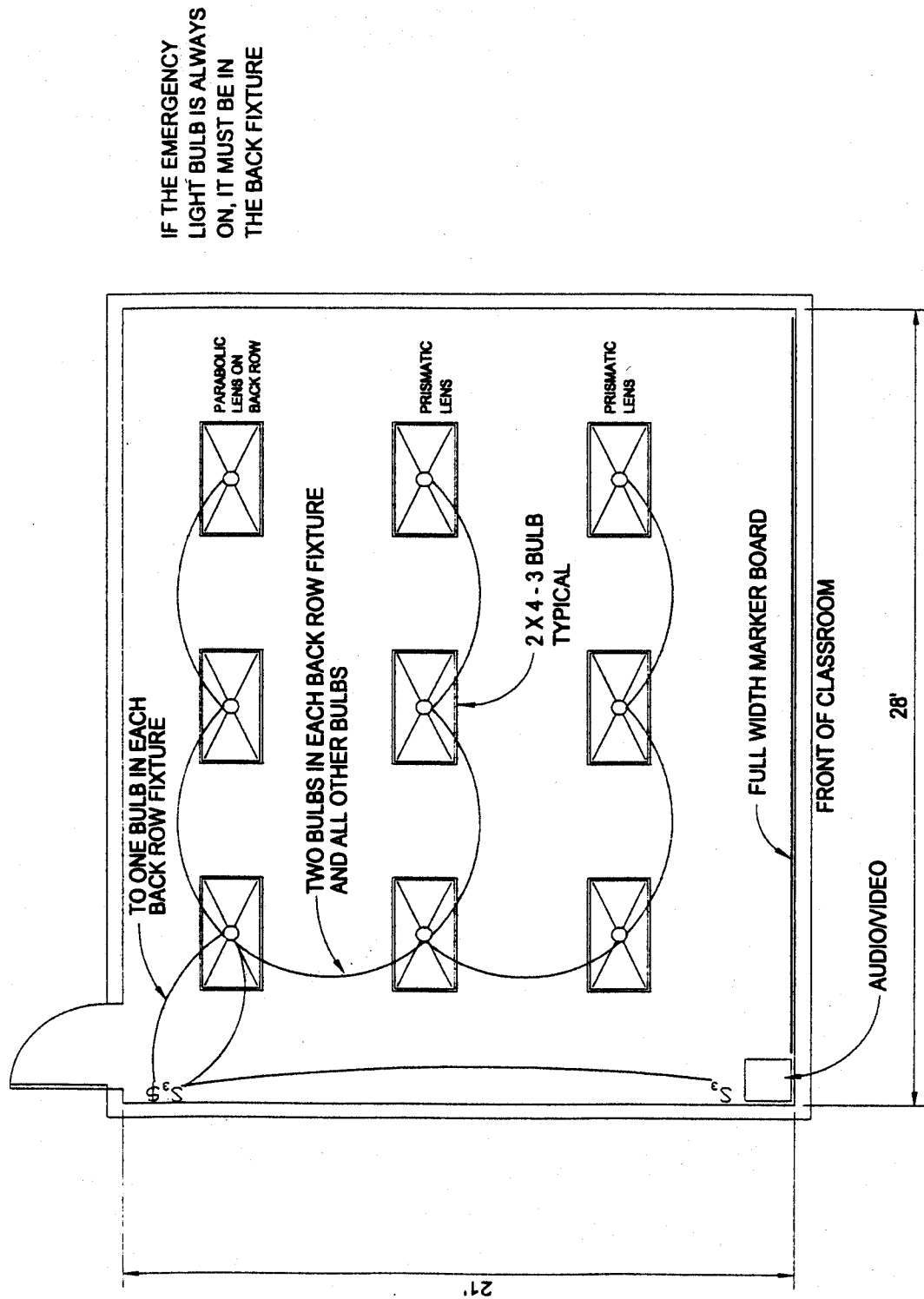
7/15/02
Date

Approved By:


A. Peter Giglio, AIA, NCARB
University System Architect

7.16.02
Date

Figure 30



IF THE EMERGENCY
LIGHT BULB IS ALWAYS
ON, IT MUST BE IN
THE BACK FIXTURE

Figure 31

TYPICAL CLASSROOM LIGHTING - CAPACITY 36

Stud Wall

Box Mounting Bracket For Electric Box

Features

- Easily attaches 4" and 4 1/16" outlet boxes to metal stud (HS3 switch boxes).
- Support leg eliminates movement of box in wall.
- Can be attached to metal or wood stud.
- Offset to eliminate dry wall bulges.
- Delivers compliance with:
NEC Article 300-4(d) when used for 4" and 4 1/16" outlet boxes to metal or wood studs.
CEC Rule 12-3012 for 4" and 4 1/16" outlet boxes to metal or wood studs.

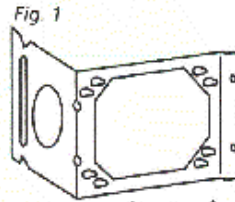
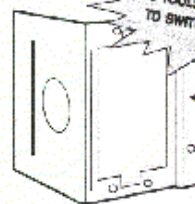


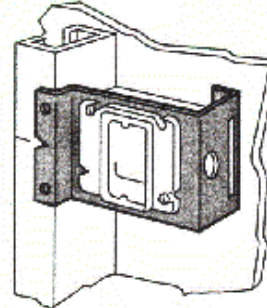
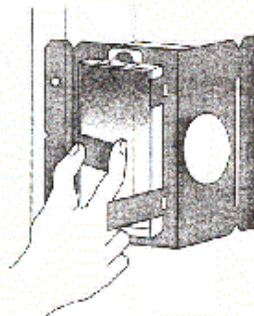
Fig. 2



IMPROVED!
NO TOOLS TO ATTACH
TO SWITCH BOXES



Applications



Sizing Chart

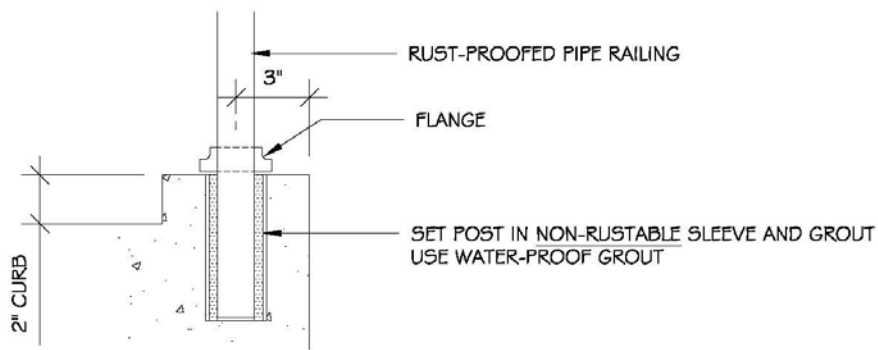
UL & cUL Listed
Positioning Only

| CATALOG NUMBER | FIG. NO. | APPLICATION | BOX SIZE(S) | STUD DEPTH | QTY. PER BOX |
|----------------|----------|---------------|------------------|-----------------|--------------|
| H23 | 1 | U.S. | 4" sq. & 4 1/16" | 2 1/2" & 3 1/2" | 100 |
| H23TC | 1 | Canada | 4" sq. & 4 1/16" | 2 1/2" & 3 1/2" | 100 |
| H4 | 1 | U.S. | 4" sq. & 4 1/16" | 4" | 50 |
| H6 | 1 | U.S. | 4" sq. & 4 1/16" | 6" | 50 |
| H46TC | 1 | Canada | 4" sq. & 4 1/16" | 4" & 6" | 100 |
| HS3 | 2 | U.S. & Canada | Switch | 2 1/2" & 3 1/2" | 100 |



Read safety instructions and instruction sheets contained in packages before using or applying fastener.

Figure 32



Typ. Detail @ Post
 Scale: 2" = 1'-0"

Figure 33

SYMBOLS:



Symbol of Accessibility



Telephone



Drinking Fountain



Text Telephone



Information



Volume Control Telephone



Fire Extinguisher



Men's Toilet



No Smoking



Women's Toilet



Stairs



No Food or Drink

Figure 34

DIRECTIONAL ARROWS:



Assistive Listening Device



Directional Arrows



Figure 35

SIGN TYPE 1:

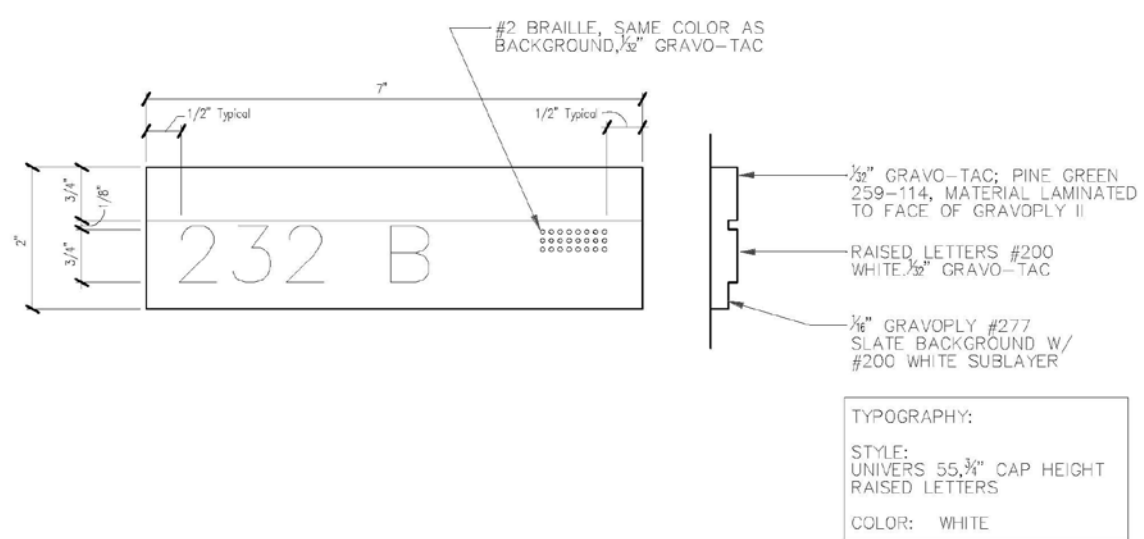


Figure 36

SIGN TYPE 2:

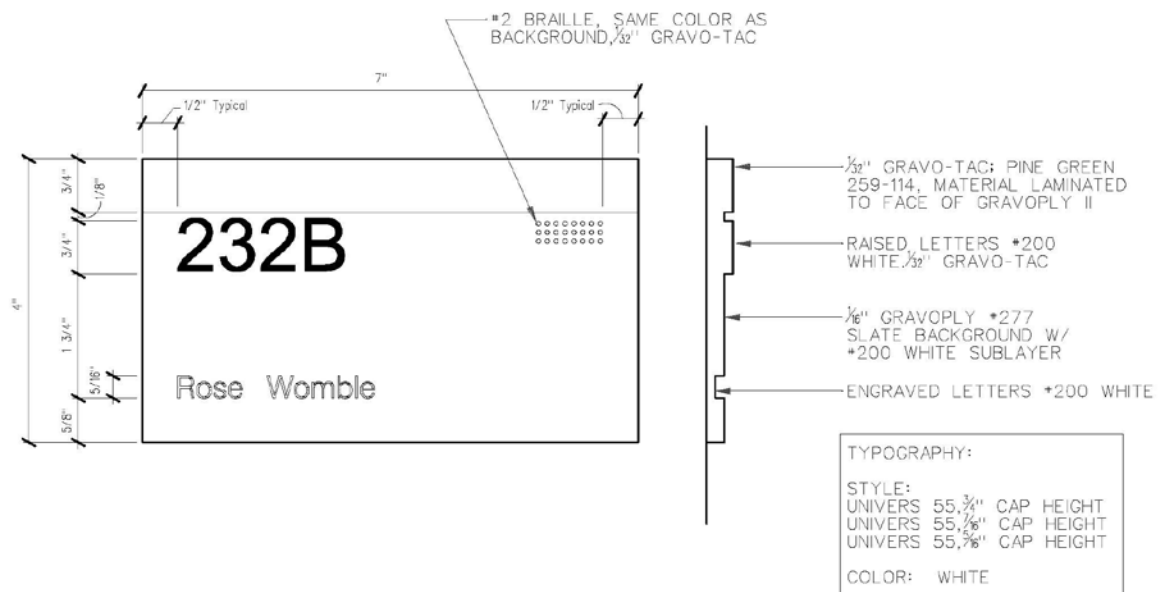


Figure 37

SIGN TYPE 2A:

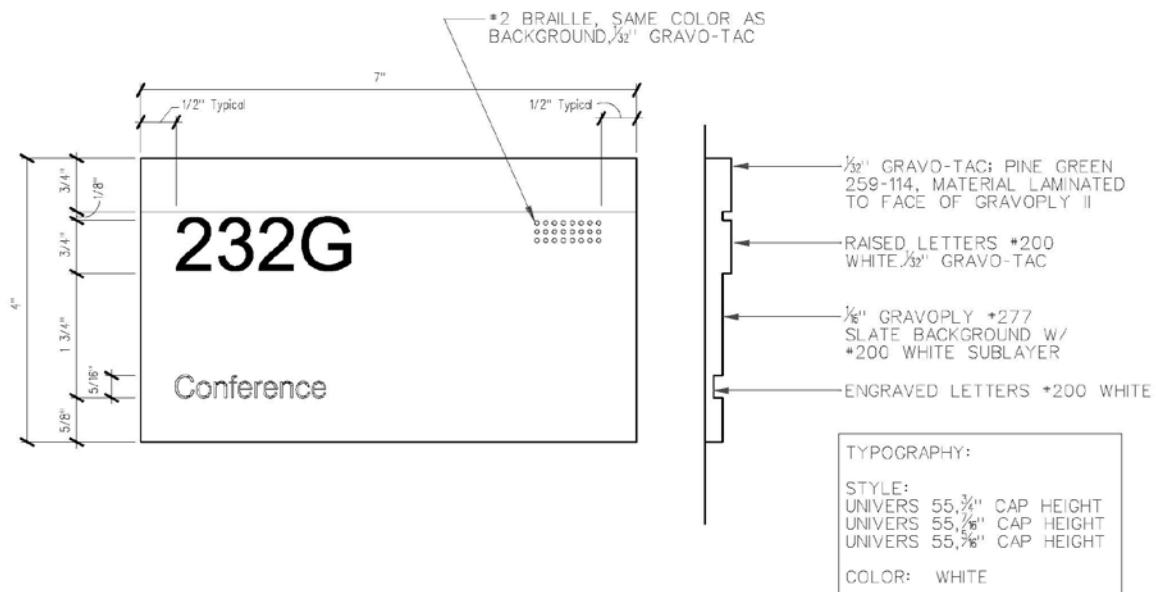


Figure 38

SIGN TYPE 2B:

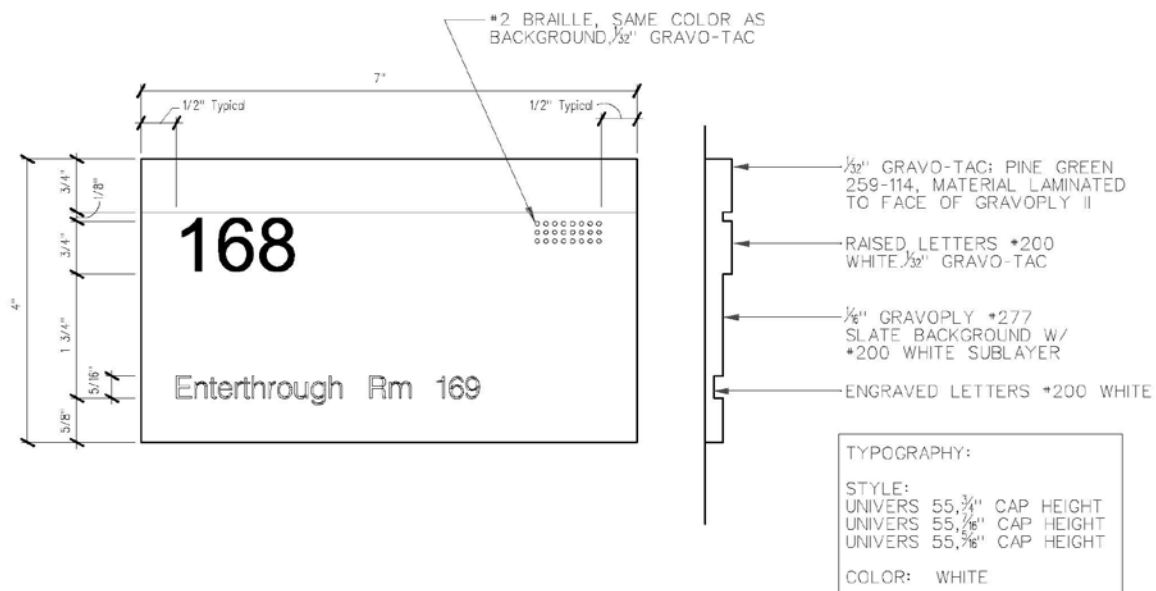


Figure 39

SIGN TYPE 3:

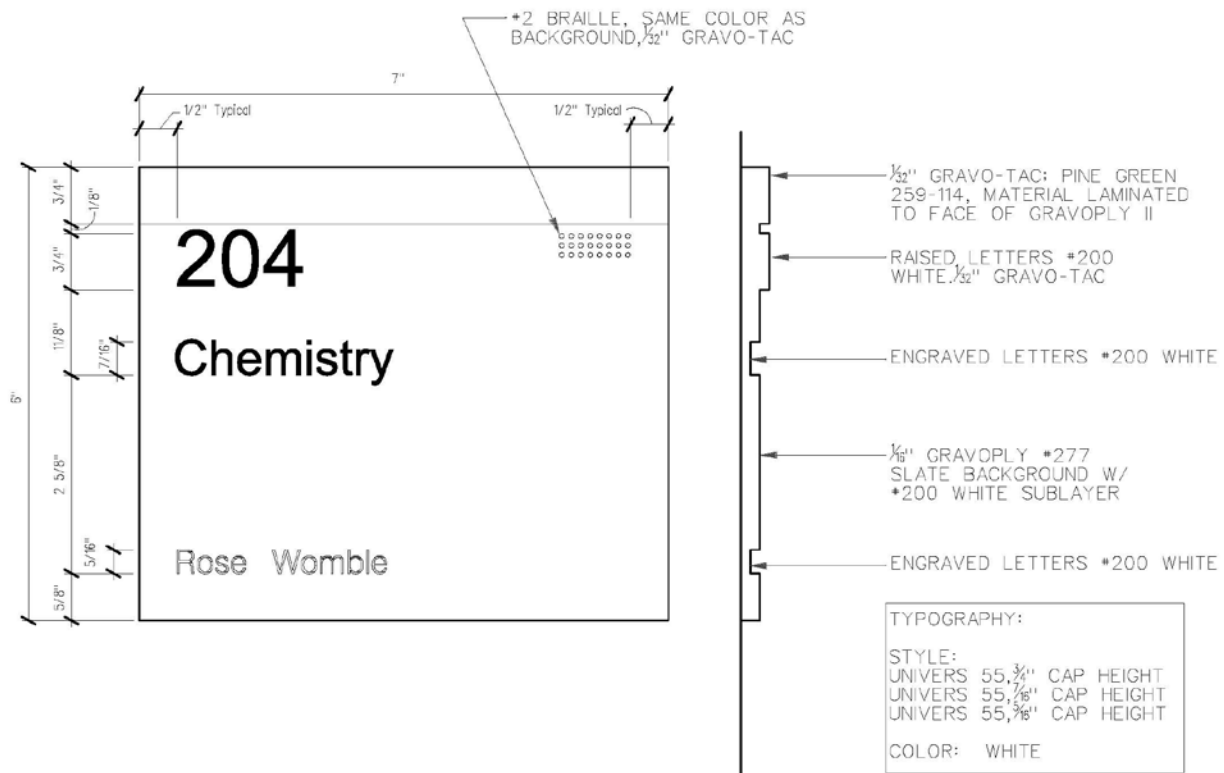


Figure 40

SIGN TYPE 3A:

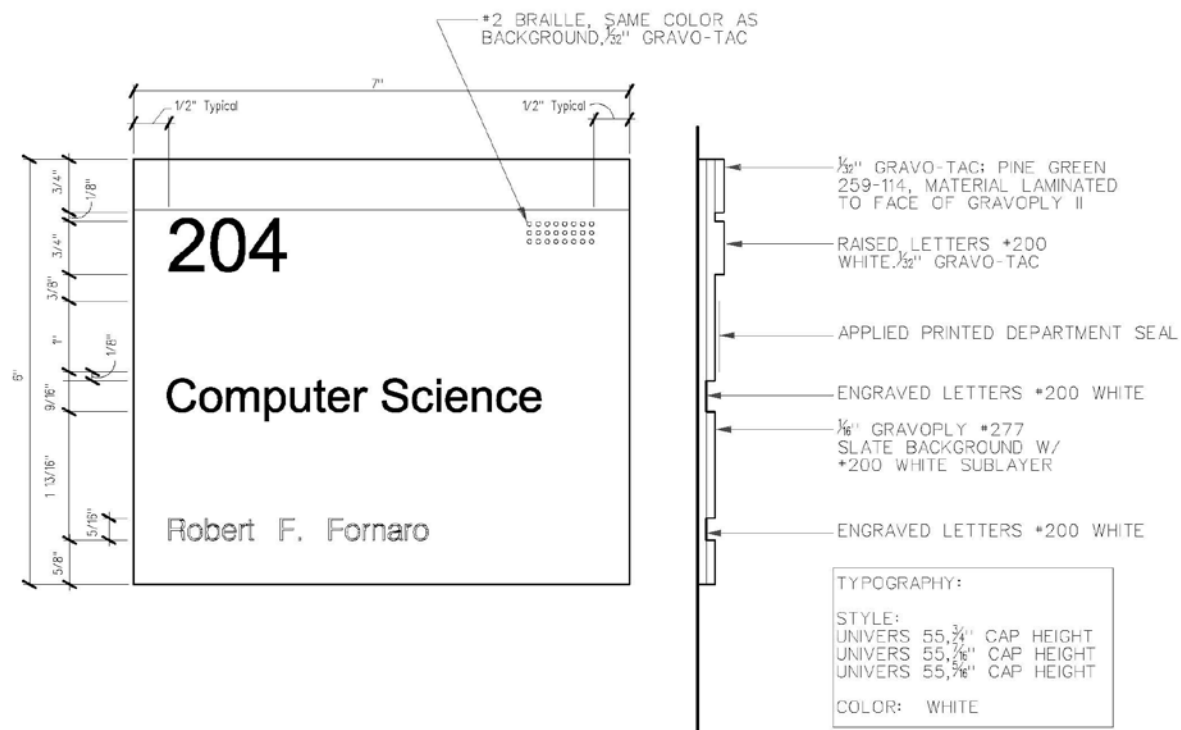


Figure 41

SIGN TYPE 3B:

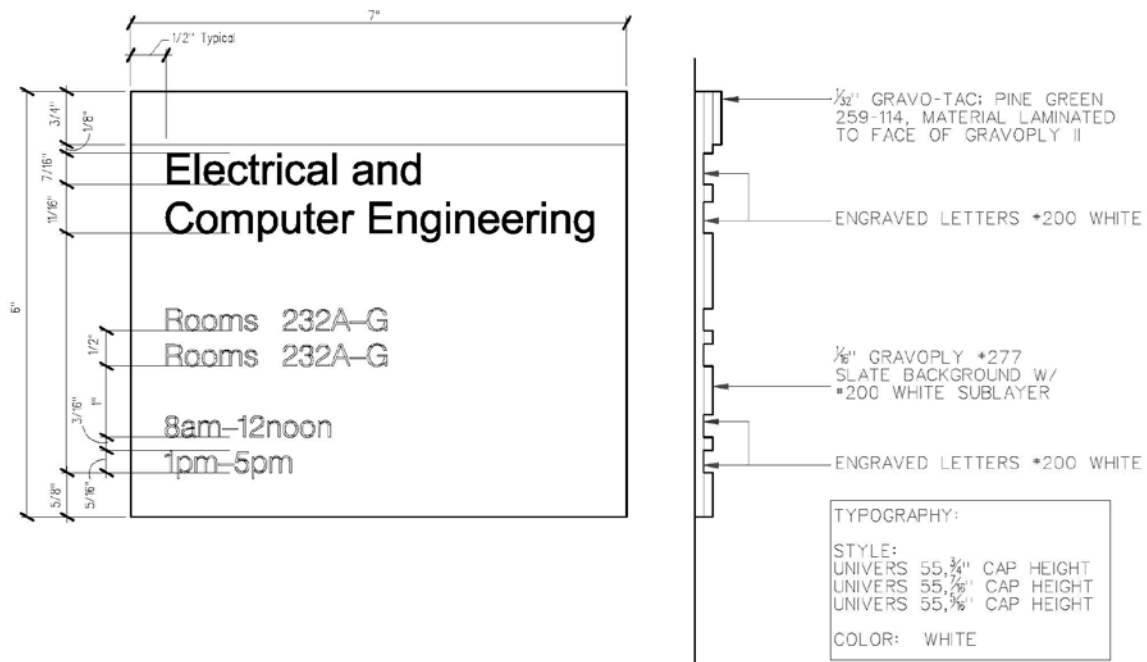


Figure 42

SIGN TYPE 4:

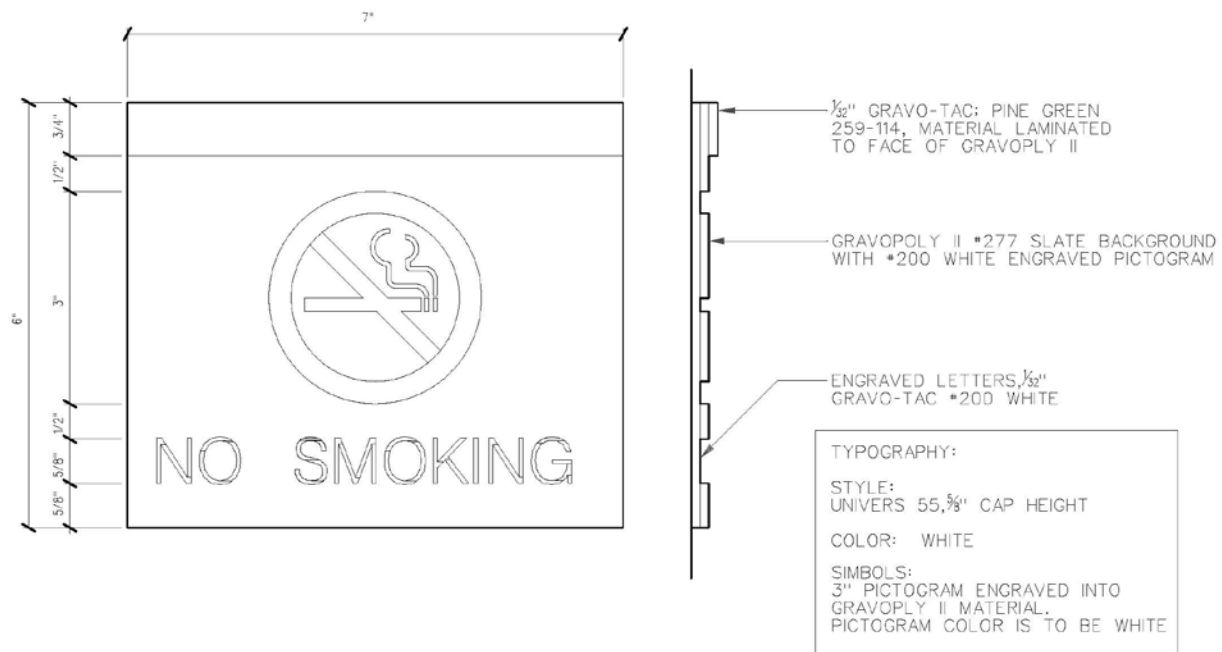


Figure 43

SIGN TYPE 6:

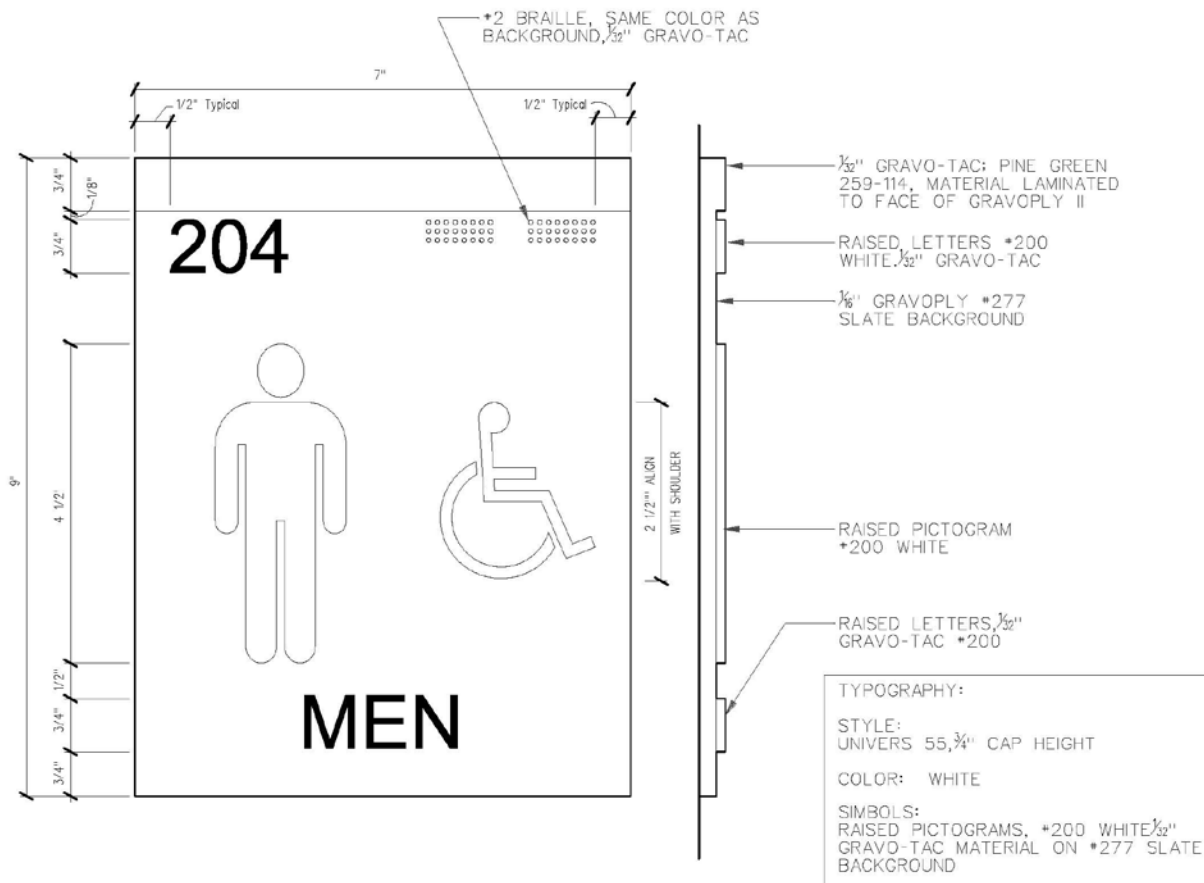


Figure 44

SIGN TYPE 6A

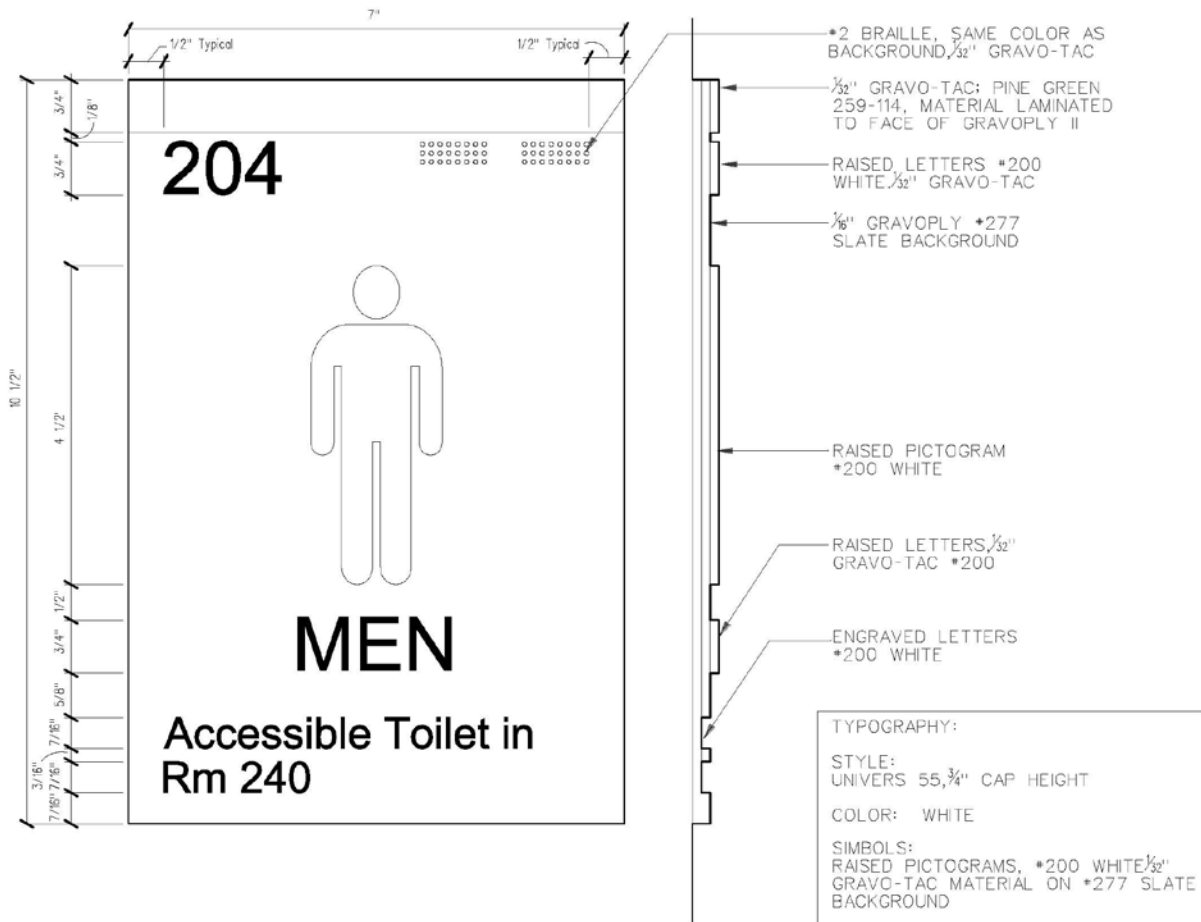


Figure 45

SIGN TYPE 8:

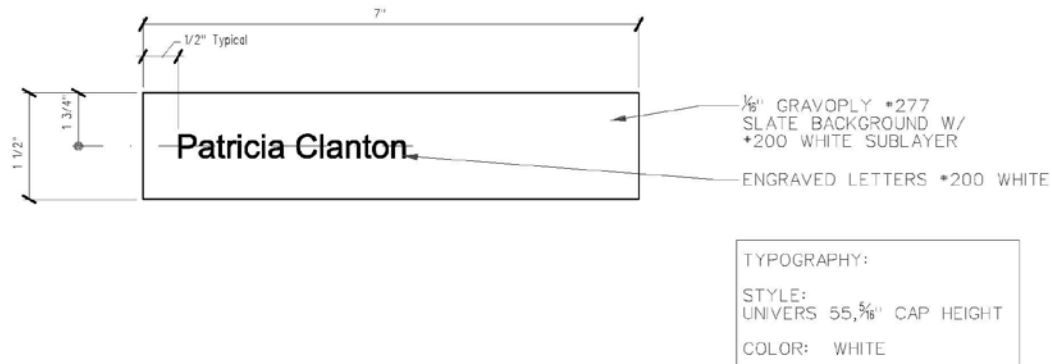
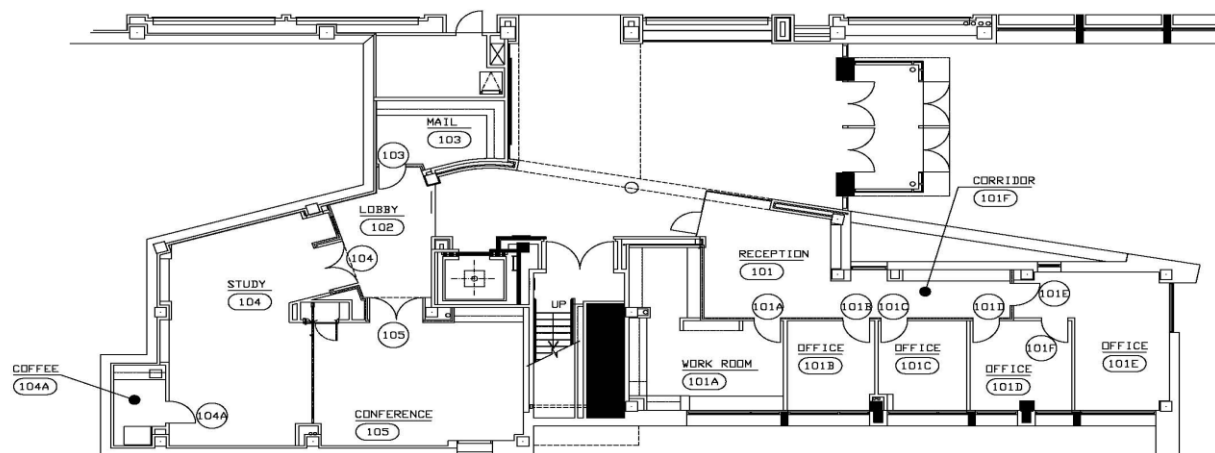


Figure 46

Sample Signage Schedule:

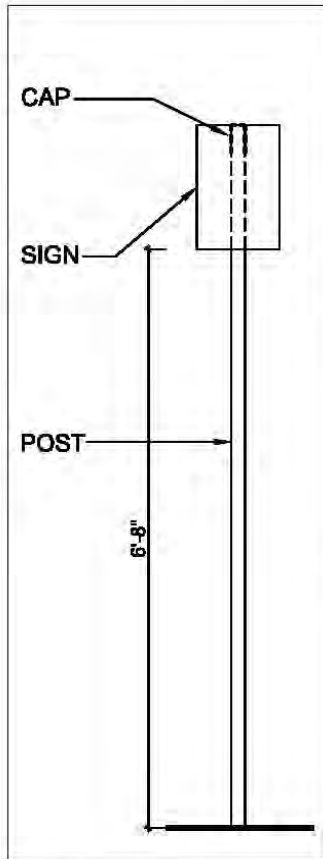
| Signage Schedule UNT Chemistry Building | | | | | | Refer sheet 5.10 for sign types and locations. All signs to be mounted on corridor side unless otherwise noted. | | |
|--|----------|------------|-----------|---------------|--------|---|-----------|--|
| Rm. No. | Door No. | Name | Sign Type | Sign Location | Number | Wording 1 | Wording 2 | Remarks |
| 101 | N/A | RECEPTION | 2 | A | 101 | Student Service | - | SIGN ON EXISTING STOREFRONT BY EXISTING DOOR |
| 101A | 101A | WORK ROOM | 1 | A | 101A | - | - | |
| 101B | 101B | OFFICE | 1 | A | 101B | - | - | |
| | | | 8 | A | - | OCCUPANT NAME | - | |
| 101C | 101C | OFFICE | 1 | A | 101B | - | - | |
| | | | 8 | A | - | OCCUPANT NAME | - | |
| 101D | 101D | OFFICE | 1 | A | 101B | - | - | |
| | | | 8 | A | - | OCCUPANT NAME | - | |
| 101E | 101E | OFFICE | 2 | A | 101E | Ruthanne Thomas | - | |
| 101D | 101F | OFFICE | - | - | - | - | - | |
| 103 | 103 | MAIL ROOM | 1 | A | 103 | - | - | |
| 104 | 104 | STUDY | 2 | D | 104 | Lounge | | |
| 104A | 104A | COFFEE | 1 | A | 104A | - | - | |
| 105 | 105 | CONFERENCE | 2 | D | 105 | Conference | | |



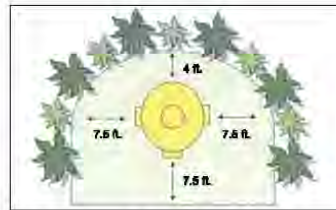
UNT Chemistry Building - Level 1 Partial Floor Plan

Figure 47

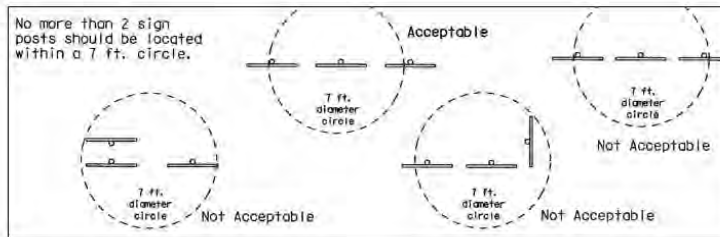
PARKING LOT SIGN PLACEMENT & STANDARDS



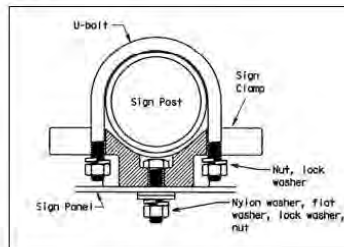
1 ELEVATION



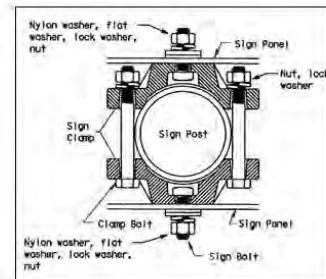
5 HYDRANT CLEARANCE



4 SCHEMATICS



2 DETAIL FOR SINGLE SIGN



3 DETAIL FOR BACK-TO-BACK SIGN

GENERAL NOTES:

- 1 NO MORE THAN (2) SIGN POSTS SHOULD BE LOCATED WITHIN A 7 FT. CIRCLE (REF.: # 4).
- 2 IF SIGNS ARE REQUIRED ON BOTH SIDES OF POST THEY SHALL BE MOUNTED BACK-TO-BACK (REF.: # 3).
- 3 IF SIGNS ARE PLACED UNDER THE TREES THAN TREES SHALL BE TRIMMED SO THEY NOT OBSTRUCT THE VIEW OF SIGN.
- 4 SIGNS LOCATION SHALL FOLLOW HYDRANT CLEARANCE REQUIREMENTS (REF.: # 5).

| | |
|----------|--|
| SHEET | TITLE: |
| A | A - PARKING LOT SIGNS PLACEMENT & STANDARDS |
| 1 OF 2 | SCALE: N.T.S. DATE: 02-03-2012 BY: K.A.B. |

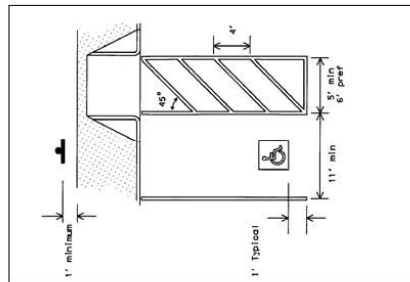


**UNIVERSITY OF
NORTH TEXAS**
FACILITIES MANAGEMENT AND CONSTRUCTION
1100 UNION CIRCLE, #311040, DENTON, TX 76203-6017
840-585-2751

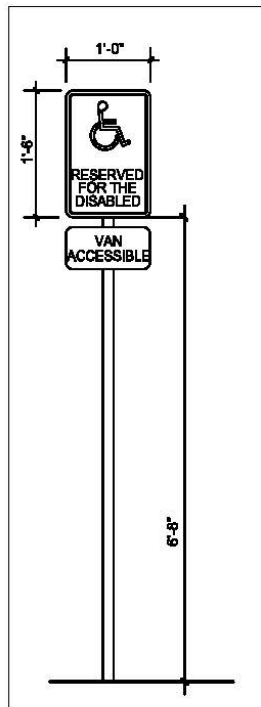
| REV# | DESCRIPTION | DATE | BY |
|------|-------------|------|----|
| 1 | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Figure 48

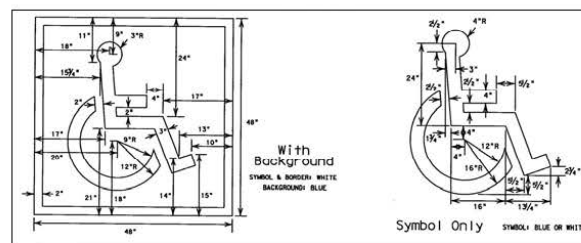
ACCESSIBLE SIGN PLACEMENT & STANDARDS



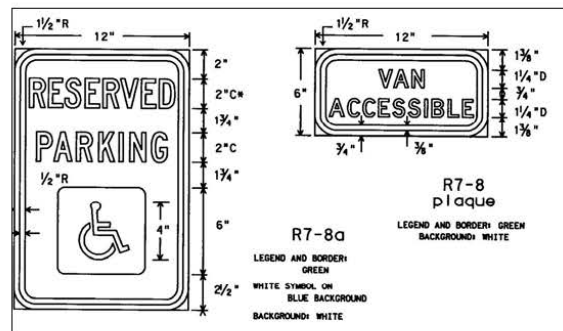
4 ACCESSIBLE PARKING SPACE DIMENSIONS



① ELEVATION



3 ACCESSIBLE PAVEMENT MARKINGS



2 ACCESSIBLE PARKING SIGN

GENERAL NOTES:

- 1 ACCESSIBLE PARKING SIGN SHALL BE REQUIRED FOR EACH ACCESSIBLE PARKING SPACE.
- 2 ACCESSIBLE PARKING SIGN SHALL BE NOT PLACED BETWEEN TWO ACCESSIBLE PARKING SPACES.
- 3 ACCESSIBLE PARKING SIGN SHALL HAVE A MIN. MOUNTING HEIGHT OF 7 FT.(REF.: # 1)
- 4 POST MOUNTED SIGNS SHOULD BE PLACED APPROX. 1 FOOT OR GREATER BEHIND THE CURB TO PREVENT DAMAGE FROM VEHICLE OVERHANG (REF.: # 5).

| | | | | | | | | |
|-------------------------------|--|------------------|---|--|------------|-------------|------|----|
| SHEET AA 2 OF 2 | TITLE: A A- ACCESSIBLE PARKING PLACEMENT & STANDARDS | |  | UNIVERSITY OF NORTH * TEXAS™ FACILITIES MANAGEMENT AND CONSTRUCTION 1155 UNION CIRCLE #31-1040, DENTON, TX 76203-5017 840-565-2761 | REV# | DESCRIPTION | DATE | BY |
| | SCALE: N.T.S. | DATE: 02-05-2012 | | | BY: K.A.B. | 1 | | |

Figure 49

Campus Standard Pole Specification

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|----------------|---|--------------------------------|------|------------|------|--------------------|-----------|-----------------------------|--|---------|--|-----------|-----------|---------|----|---------|-----------|--------------|--|-----|---|------|-----------------|-------------|-------------------|------------|-----|---|--|---|--|--|--|--|--|---|--|
| <p>19.5"</p> <p>10.4375"</p> <p>TENON (SPECIAL)</p> <p>20" (REF.)</p> <p>168" (SPECIAL)</p> <p>4.5" DIAMETER X 0.125" STEEL TUBING</p> <p>149.8" (REF.)</p> <p>36"</p> <p>18"</p> <p>BOTTOM OF POLE MTG. PLATE</p> <p>Ø 9" B.C.</p> <p>90°</p> <p>45°</p> <p>HANDHOLE ORIENTATION</p> <p>FIXTURE ORIENTATION</p> <p>GFI-ORIENTATION</p> <p>BOTTOM VIEW</p> <p>(INDICATES POLE IS LAYING DOWN WITH INSPECTION HANDHOLE FACING UP)</p> <p>RECEPTACLE- DUPLEX GFCI (SPECIAL) LOCATED 90° RIGHT FROM HANDHOLE 120 VOLT, 20 AMP, 3-WIRE GROUNDED, WITH WEATHERPROOF COVER. INSTALLED BY OTHERS</p> <p>2-PC BASE COVER</p> <p>14 1/16"</p> <p>5"</p> | <table border="1"> <tr> <td>TYPE</td> <td>INPUT: ETO <input checked="" type="checkbox"/> STD <input type="checkbox"/></td> </tr> <tr> <td>CATALOG NUMBER</td> <td>GL-STL-UNT-CAMSTD-PULSE-CUS14-47LED-5K-BL</td> </tr> <tr> <td>FINISH: POLYESTER POWDER COAT.</td> <td></td> </tr> <tr> <td>AAL COLOR:</td> <td>BL</td> </tr> <tr> <td>TO MATCH: RAL-9005</td> <td></td> </tr> <tr> <td>PROVIDE A SAMPLE COLOR CHIP</td> <td></td> </tr> <tr> <td>LAMPING</td> <td></td> </tr> <tr> <td>LAMP TYPE</td> <td>LED-5000K</td> </tr> <tr> <td>WATTAGE</td> <td>48</td> </tr> <tr> <td>VOLTAGE</td> <td>120 - 277</td> </tr> <tr> <td>ANCHOR BOLTS</td> <td></td> </tr> <tr> <td>QTY</td> <td>4</td> </tr> <tr> <td>SIZE</td> <td>3/4" X 30" X 3"</td> </tr> <tr> <td>BOLT CIRCLE</td> <td>9" (7.5" - 10")</td> </tr> <tr> <td>PROJECTION</td> <td>3.5</td> </tr> <tr> <td>LEVELING NUTS AND WASHERS MUST BE INSTALLED UNDER ALL BASES</td> <td></td> </tr> <tr> <td>ONE APPROVED DRAWING MUST BE RETURNED TO A.A.L. BEFORE THIS PRODUCT CAN BE FABRICATED</td> <td></td> </tr> <tr> <td>Note: For locations near saltwater, clear anodize coating is the suggested application. This configuration will need to be requested during order entry.</td> <td></td> </tr> <tr> <td>WARNING: THIS FIXTURE MUST BE GROUNDED IN ACCORDANCE WITH LOCAL CODES OR THE NATIONAL ELECTRICAL CODE. FAILURE TO DO SO MAY RESULT IN SERIOUS PERSONAL INJURY.</td> <td></td> </tr> <tr> <td>*ARCHITECTURAL AREA LIGHTING ASSUMES NO RESPONSIBILITY OF HARM CAUSED BY FAILURES DUE TO IMPROPER SITE ANALYSIS OR USAGE OF PRODUCTS OTHER THAN THEIR INTENDED PURPOSE AS SHOWN IN THIS DOCUMENT.</td> <td></td> </tr> </table> | TYPE | INPUT: ETO <input checked="" type="checkbox"/> STD <input type="checkbox"/> | CATALOG NUMBER | GL-STL-UNT-CAMSTD-PULSE-CUS14-47LED-5K-BL | FINISH: POLYESTER POWDER COAT. | | AAL COLOR: | BL | TO MATCH: RAL-9005 | | PROVIDE A SAMPLE COLOR CHIP | | LAMPING | | LAMP TYPE | LED-5000K | WATTAGE | 48 | VOLTAGE | 120 - 277 | ANCHOR BOLTS | | QTY | 4 | SIZE | 3/4" X 30" X 3" | BOLT CIRCLE | 9" (7.5" - 10") | PROJECTION | 3.5 | LEVELING NUTS AND WASHERS MUST BE INSTALLED UNDER ALL BASES | | ONE APPROVED DRAWING MUST BE RETURNED TO A.A.L. BEFORE THIS PRODUCT CAN BE FABRICATED | | Note: For locations near saltwater, clear anodize coating is the suggested application. This configuration will need to be requested during order entry. | | WARNING: THIS FIXTURE MUST BE GROUNDED IN ACCORDANCE WITH LOCAL CODES OR THE NATIONAL ELECTRICAL CODE. FAILURE TO DO SO MAY RESULT IN SERIOUS PERSONAL INJURY. | | *ARCHITECTURAL AREA LIGHTING ASSUMES NO RESPONSIBILITY OF HARM CAUSED BY FAILURES DUE TO IMPROPER SITE ANALYSIS OR USAGE OF PRODUCTS OTHER THAN THEIR INTENDED PURPOSE AS SHOWN IN THIS DOCUMENT. | |
| TYPE | INPUT: ETO <input checked="" type="checkbox"/> STD <input type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CATALOG NUMBER | GL-STL-UNT-CAMSTD-PULSE-CUS14-47LED-5K-BL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FINISH: POLYESTER POWDER COAT. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AAL COLOR: | BL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TO MATCH: RAL-9005 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROVIDE A SAMPLE COLOR CHIP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAMPING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAMP TYPE | LED-5000K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WATTAGE | 48 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VOLTAGE | 120 - 277 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANCHOR BOLTS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| QTY | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SIZE | 3/4" X 30" X 3" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| BOLT CIRCLE | 9" (7.5" - 10") | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECTION | 3.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LEVELING NUTS AND WASHERS MUST BE INSTALLED UNDER ALL BASES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ONE APPROVED DRAWING MUST BE RETURNED TO A.A.L. BEFORE THIS PRODUCT CAN BE FABRICATED | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Note: For locations near saltwater, clear anodize coating is the suggested application. This configuration will need to be requested during order entry. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WARNING: THIS FIXTURE MUST BE GROUNDED IN ACCORDANCE WITH LOCAL CODES OR THE NATIONAL ELECTRICAL CODE. FAILURE TO DO SO MAY RESULT IN SERIOUS PERSONAL INJURY. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| *ARCHITECTURAL AREA LIGHTING ASSUMES NO RESPONSIBILITY OF HARM CAUSED BY FAILURES DUE TO IMPROPER SITE ANALYSIS OR USAGE OF PRODUCTS OTHER THAN THEIR INTENDED PURPOSE AS SHOWN IN THIS DOCUMENT. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>SIGNED APPROVAL NEEDED PRIOR TO RELEASE OF ORDER.</p> <p>X _____</p> | <p>PO# _____</p> <p>JOB NAME: UNIVERSITY OF NORTH TEXAS</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>PRICING & CONTACT INFO:</p> <p>Jeff Kramer jkramer@greenlampsusa.com c. 214-632-3475 o. 903-361-6310 GREENLAMPS USA 2407 Texoma Dr Denison, TX 75020</p> | <p>architectural arealighting</p> <p>Dan Rodriguez drodriguez@hubbell.com c. 562-964-5995</p> <p>Hubbell Lighting, Inc.</p> <p>Architectural Area Lighting Reserves The Right To Change Manufacturing Processes Without Notice.</p> | <table border="1"> <tr> <td>DATE</td> <td>DRWN</td> </tr> <tr> <td>5/8/2017</td> <td>DRS</td> </tr> <tr> <td>DATE</td> <td>APPRVD</td> </tr> <tr> <td>DATE</td> <td>REV.</td> </tr> <tr> <td>1/24/2018</td> <td>A</td> </tr> </table> | DATE | DRWN | 5/8/2017 | DRS | DATE | APPRVD | DATE | REV. | 1/24/2018 | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DATE | DRWN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5/8/2017 | DRS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DATE | APPRVD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DATE | REV. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1/24/2018 | A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Figure 50

Knox Box Specification



KnoxVault™ 4400 DUAL LOCK MODEL

High Security Industrial/Government Key Vault



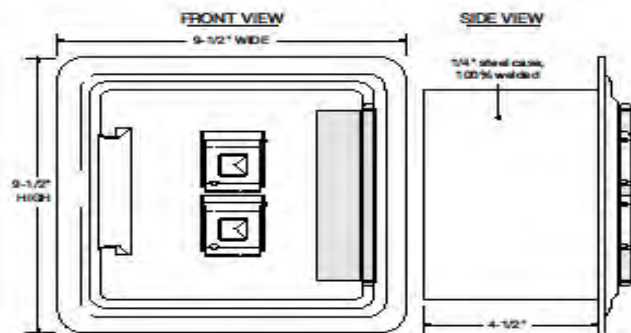
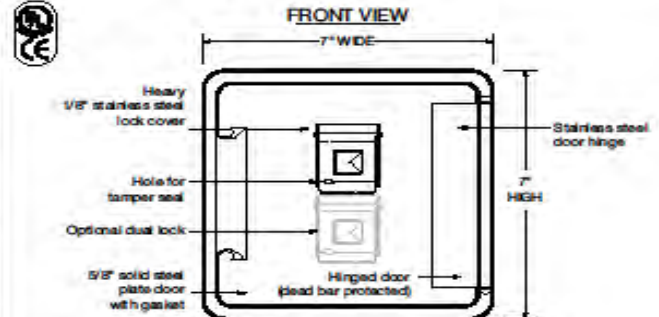
KnoxVault 4400 key boxes are used in larger businesses, industrial properties, public buildings and universities. The heavy-duty, high security KnoxVault 4400 protects and stores building keys, access cards and floor plans for emergency entry. The vault also provides secure storage for other internal and external applications.

Features and Benefits

- Holds up to 50 keys in the large interior compartment
- Ensures high security with UL® Listed Medeco lock(s)
- Includes Knox-Coat® that is four times better than standard powder coat
- Resists moist conditions with a weather resistant door gasket
- Colors: Black, Dark Bronze or Aluminum
- Weight: Surface mount - 28 lbs.
Recessed mount - 29 lbs.

Options

- Tamper Alert (UL Listed)
- Recess Mounting Kit (RMK) for recessed models only
- Custom vault depth available
- Inside switch for use on electrical doors, gates and other electrical equipment



Ordering Specifications

To insure procurement and delivery of the KnoxVault 4400, it is suggested that the following specification paragraph be used:
KnoxVault surface/recessed mount, with/without UL Listed tamper switches. 1/4\" steel case, 100% welded. Vault and lock UL Listed. Lock has 1/8\" dust cover with tamper seal mounting capability. Vault has anti-theft re-locking mechanism with drill resistant hard-plate lock protector.

Exterior Dimensions:

| | |
|------------------------|--|
| Surface mount: | 7\"H x 7\"W x 5\"D |
| Recessed mount flange: | 9 1/2\"H x 9 1/2\"W |
| Lock: | UL Listed. Double-action rotating tumblers and hardened steel pins accessed by a biased cut key. |
| Finish: | Knox-Coat® proprietary finishing process Finish Color - Black, Dark Bronze or Aluminum |
| P/N: | 4400 Series KnoxVault (mfr's cat. ID) |
| Mfr's Name: | KNOX COMPANY |

KNOX COMPANY • 1601 W. Deer Valley Road, Phoenix, AZ 85027 • (800) 552-5669 • (623) 687-2300 • Fax (623) 687-2290 • www.knoxbox.com • info@knoxbox.com

Figure 51

Appendix H: Facilities Planning, Design and Construction CAD Standards (Updated Oct 2012)



UNIVERSITY OF NORTH TEXAS

OFFICE OF FACILITIES PLANNING, DESIGN AND
CONSTRUCTION

SECTION F.2.0 - CAD STANDARDS MANUAL

TABLE OF CONTENTS

- 2.1 Layers List
- 2.2 Tool Palettes
- 2.3 Project Drawing File
- 2.4 Importing FM&C Interiors Titleblock Templates
- 2.5 Drawing Standards
- 2.6 AutoCAD Command Aliases

2.1 Layers List

Use the following list of approved layers. DO NOT CREATE NEW LAYERS. All layers (Ao-A6) correspond to individual drawing sheets. Ex: Everything in your drawing that is being demolished should be on Ao layer and turned on in your viewport in

paperspace. All layers A1-A6 should be turned off. As long as you are diligent with layer management from the onset, this will make for simple page setup. If you have questions about what belongs on which layers, consult a Project Manager for assistance.

| Status | Name | O.. | Fre... | L... | Color | Linetype | Linewe... | Plot Style | P... | N.. | Description |
|--------|------------------|-----|--------|------|---------|------------|-----------|------------|------|-----|--|
| | 0 | | | | white | Continu... | Defa... | Color_7 | | | Default AutoCAD Layer (Standard) |
| | A-Anno-Keyn | | | | white | Continu... | Defa... | Color_7 | | | Annotation Key Note |
| | A-Anno-Nplt | | | | red | Continu... | Defa... | Color_1 | | | Annotation NoPlot |
| | A-Anno-Stamp | | | | red | Continu... | Defa... | Color_1 | | | Annotation Stamp - Not For Construction |
| | A-Anno-Text | | | | white | Continu... | Defa... | Color_7 | | | Annotation Text |
| | A-Anno-Ttlb | | | | white | Continu... | Defa... | Color_7 | | | Annotation Title Block |
| | A-Area | | | | cyan | Continu... | Defa... | Color_4 | | | Annotation Scope of Work for Project |
| | A-AREA-IDEN | | | | white | Continu... | Defa... | Color_7 | | | FIMS-ROOM TAG INFORMATION |
| | A-AREA-PATT | | | | white | Continu... | Defa... | Color_7 | | | FIMS-DEPARTMENTAL OCCUPANCY |
| | A-AREA-TYPE | | | | white | Continu... | Defa... | Color_7 | | | FIMS-ROOM TYPE |
| | A-Door-Exst | | | | white | Continu... | 0.13 ... | Color_7 | | | Existing doors to remain |
| | A-Eqpm | | | | red | Continu... | 0.13 ... | Color_1 | | | Existing Equipment to Remain |
| | A-Fire-Exst | | | | red | Continu... | Defa... | Color_1 | | | Existing Fire System to Remain |
| | A-Glaz-Exst | | | | 177 | Continu... | Defa... | Color_177 | | | Existing Glass or Glazing to Remain |
| | A-Mlwk-Exst | | | | 37 | Continu... | 0.13 ... | Color_37 | | | Existing Millwork to Remain |
| | A-Rmno-Iden-Exst | | | | white | Continu... | Defa... | Color_7 | | | Tags for Existing Rooms |
| | A-Rmno-Iden-New | | | | white | Continu... | Defa... | Color_7 | | | Tags for New Rooms Added |
| | A-Wall-Exst | | | | green | Continu... | 0.05 ... | Color_3 | | | Existing Partitions to Remain |
| | A0-Demo-Door | | | | 8 | DASHED | Defa... | Color_8 | | | Existing Doors to be Demolished |
| | A0-Demo-Fire | | | | 8 | DASHED | Defa... | Color_8 | | | Existing Fire System _Alarms to be Demolished |
| | A0-Demo-Glaz | | | | 8 | DASHED | Defa... | Color_8 | | | Existing Glass or Glazing to be Demolished |
| | A0-Demo-Grid | | | | 8 | DASHED | Defa... | Color_8 | | | Existing Ceiling Grid to be Demolished |
| | A0-Demo-Hvac | | | | 8 | DASHED | Defa... | Color_8 | | | Existing Mechanical _HVAC to be Demolished |
| | A0-Demo-Lite | | | | 8 | DASHED | Defa... | Color_8 | | | Existing Light Fixture to be Demolished |
| | A0-Demo-Mlwk | | | | 8 | DASHED | Defa... | Color_8 | | | Existing Millwork to be Demolished |
| | A0-Demo-Pfix | | | | 8 | DASHED | 0.09 ... | Color_8 | | | Existing Building Plumbing Fixtures to be Demolished |
| | A0-Demo-Powr | | | | 8 | DASHED | Defa... | Color_8 | | | Existing Power _Data to be Demolished |
| | A0-Demo-Tptn | | | | 177 | Continu... | Defa... | Color_177 | | | Demo Toilet Partition, Grab Bar |
| | A0-Demo-Wall | | | | 8 | DASHED | Defa... | Color_8 | | | Existing Walls to be Demolished |
| | A0-Dims | | | | 8 | Continu... | Defa... | Color_8 | | | Dimensions for Areas to be Demolished |
| | A1-Dims | | | | 8 | Continu... | Defa... | Color_8 | | | Dimensions for New Partitions and Openings |
| | A1-Door-Neww | | | | red | Continu... | 0.20 ... | Color_1 | | | New Doors |
| | A1-Door-Relo | | | | magenta | DASHED2 | 0.09 ... | Color_6 | | | Existing Doors to be Relocated |
| | A1-Fire-Neww | | | | red | Continu... | 0.09 ... | Color_1 | | | New Rated Fire Partitions |
| | A1-Glaz-Neww | | | | 177 | Continu... | Defa... | Color_177 | | | New Glass or Glazing |
| | A1-Mlwk-Neww | | | | 30 | Continu... | Defa... | Color_30 | | | New Millwork |
| | A1-Mlwk-Relo | | | | magenta | DASHED2 | Defa... | Color_6 | | | Existing Millwork to be Relocated |
| | A1-Pfix | | | | 177 | Continu... | 0.15 ... | Color_177 | | | New Building Plumbing Fixtures |
| | A1-Pfix-Relo | | | | magenta | DASHED2 | 0.09 ... | Color_6 | | | Existing Building Plumbing Fixtures to be Relocated |
| | A1-Tptn-Neww | | | | 177 | Continu... | Defa... | Color_177 | | | New Toilet Partition/ Grab Bar |
| | A1-Wall-Neww | | | | blue | Continu... | 0.25 ... | Color_5 | | | New Partitions to be Constructed |
| | A1-Wall-Patt | | | | yellow | Continu... | 0.00 ... | Color_2 | | | Poche for New Partitions |
| | A2-Dims | | | | 8 | Continu... | Defa... | Color_8 | | | Dimensions for Power _Data |
| | A2-Powr-Exst | | | | 8 | Continu... | 0.00 ... | Color_8 | | | Existing Power _Data to Remain |
| | A2-Powr-Neww | | | | red | Continu... | 0.20 ... | Color_1 | | | New Power _Data |
| | A2-Powr-Relo | | | | magenta | DASHED2 | 0.09 ... | Color_6 | | | Existing Power _Data to be Relocated |
| | A2-Powr-Neww | | | | red | Continu... | 0.20 ... | Color_1 | | | New Power _Data |
| | A2-Powr-Relo | | | | magenta | DASHED2 | 0.09 ... | Color_6 | | | Existing Power _Data to be Relocated |
| | A3-CIng-Head | | | | 8 | Continu... | Defa... | Color_8 | | | Existing Sprinkler Heads to Remain |

| | | | | | | | | | | | |
|--|----------------|--|--|--|---------|------------|----------|-----------|--|--|---|
| | A3- Dims | | | | 8 | Continu... | Defa... | Color_8 | | | Dimensions for Reflected Ceiling Plan |
| | A3-Fire-Exst | | | | 8 | Continu... | 0.05 ... | Color_8 | | | Existing Fire Alarms to Remain |
| | A3-Fire-Neww | | | | red | Continu... | 0.09 ... | Color_1 | | | New Fire Alarms |
| | A3-Fire-Relo | | | | magenta | DASHED2 | Defa... | Color_6 | | | Existing Fire Alarms to be Relocated |
| | A3-Grid-Exst | | | | 8 | Continu... | 0.05 ... | Color_8 | | | Existing Ceiling Grid to Remain |
| | A3-Grid-Neww | | | | white | Continu... | 0.09 ... | Color_7 | | | New Ceiling Grid |
| | A3-Hvac-Exst | | | | 8 | Continu... | 0.05 ... | Color_8 | | | Existing Mechanical_HVAC to Remain |
| | A3-Hvac-Neww | | | | red | Continu... | 0.09 ... | Color_1 | | | New Mechanical_HVAC System |
| | A3-Hvac-Relo | | | | magenta | DASHED2 | Defa... | Color_6 | | | Existing Mechanical_HVAC to be Relocated |
| | A3-Lite-Exst | | | | 8 | Continu... | 0.05 ... | Color_8 | | | Existing Light Fixtures to Remain |
| | A3-Lite-Neww | | | | red | Continu... | 0.20 ... | Color_1 | | | New Light Fixtures |
| | A3-Lite-Relo | | | | magenta | DASHED2 | 0.09 ... | Color_6 | | | Existing Light Fixtures to be Relocated |
| | A4- Dims | | | | 8 | Continu... | Defa... | Color_8 | | | Finish Dimensions |
| | A4-Patt | | | | white | Continu... | Defa... | Color_7 | | | Finish Patterns |
| | A5-Dims | | | | 8 | Continu... | Defa... | Color_8 | | | Dimensions for Furniture Plan |
| | A5-Furn-Exst | | | | 8 | Continu... | 0.05 ... | Color_8 | | | Existing Furniture to Remain |
| | A5-Furn-Prop | | | | magenta | Continu... | 0.09 ... | Color_6 | | | Proposed or New Furniture |
| | A6-Detail | | | | white | Continu... | Defa... | Color_7 | | | Plan Details |
| | A6-Elev | | | | white | Continu... | Defa... | Color_7 | | | Plan Elevations |
| | B-Base | | | | blue | Continu... | 0.25 ... | Color_5 | | | Existing Building Base |
| | B-Belo | | | | 40 | Continu... | 0.13 ... | Color_40 | | | Existing Building Below |
| | B-Cols | | | | blue | Continu... | 0.25 ... | Color_5 | | | Existing Building Columns |
| | B-Glaz | | | | blue | Continu... | 0.15 ... | Color_5 | | | Existing Building Glass or Glazing |
| | B-Hatch | | | | 252 | Continu... | Defa... | Color_252 | | | Existing Building Hatch for Walls |
| | B-Pfix | | | | 177 | Continu... | 0.15 ... | Color_177 | | | Existing Building Plumbing Fixtures |
| | B-Roof | | | | 252 | Continu... | Defa... | Color_252 | | | Existing Building Roof |
| | B-Tptn | | | | 177 | Continu... | Defa... | Color_177 | | | Toilet Partitions/ Grab Bars |
| | C-Dock | | | | white | Continu... | Defa... | Color_7 | | | Loading docks |
| | C-Pkng | | | | 252 | Continu... | Defa... | Color_252 | | | Area designated for Vehicle Parking |
| | C-Pkng-Isld | | | | 253 | Continu... | Defa... | Color_253 | | | Parking Island_Wheel Stops |
| | C-Pkng-Strp | | | | 254 | Continu... | Defa... | Color_254 | | | Parking Stripes |
| | C-Rail | | | | white | TRACKS | Defa... | Color_7 | | | Railway_Train Tracks |
| | C-Road | | | | white | Continu... | Defa... | Color_7 | | | Roadways and Drives |
| | C-Road-Curb | | | | 253 | Continu... | Defa... | Color_253 | | | Back of Curbs for Roadways |
| | Defpoints | | | | white | Continu... | Defa... | Color_7 | | | AutoCAD defpoints layer (standard) |
| | E-Elev-Dark | | | | white | Continu... | 0.30 ... | Color_7 | | | Elevations-Outlines, Notes |
| | E-Elev-Heavy | | | | blue | Continu... | 0.50 ... | Color_5 | | | Elevations-Floor Line, Ceiling Line, Cut Marks, Wall Line |
| | E-Elev-Light | | | | cyan | Continu... | 0.15 ... | Color_4 | | | Elevations-Hatches, Small Details |
| | E-Elev-Medium | | | | red | Continu... | 0.20 ... | Color_1 | | | Elevations-Detail Lines |
| | L-Bike | | | | white | Continu... | Defa... | Color_7 | | | Bike Racks |
| | L-Fence | | | | 252 | FENCELL... | Defa... | Color_252 | | | Fence or Barriers |
| | L-Irrg | | | | 134 | DASHED | Defa... | Color_134 | | | Landscape Irrigation |
| | L-Plnt | | | | 65 | Continu... | Defa... | Color_65 | | | Landscape, Plants, or Trees |
| | L-Pond | | | | 161 | Continu... | Defa... | Color_161 | | | Ponds, Lakes, or Waterways |
| | L-Sprt | | | | 37 | Continu... | Defa... | Color_37 | | | Sport or Athletic Fields |
| | L-Walk | | | | 54 | Continu... | Defa... | Color_54 | | | Sidewalks |
| | L-Wall | | | | 8 | Continu... | Defa... | Color_8 | | | Retaining Walls |
| | NICN | | | | 30 | Continu... | Defa... | Color_30 | | | Not In Contract Layer |
| | NOPLLOT | | | | red | Continu... | Defa... | Color_1 | | | No Plot Layer |
| | RM-Aed | | | | red | Continu... | Defa... | Color_1 | | | Risk Management- AED |
| | RM-Lnd | | | | white | Continu... | Defa... | Color_7 | | | Legend |
| | RM-Refg | | | | red | Continu... | Defa... | Color_1 | | | Area of Refuge |
| | RM-Route | | | | red | Continu... | Defa... | Color_1 | | | Risk Management- Exit Route |
| | RM-Torn | | | | 30 | Continu... | Defa... | Color_30 | | | Tornado Shelter Area |
| | Symbol Library | | | | white | Continu... | Defa... | Color_7 | | | |

A- Annotations and Existing

Ao- Demo

A1- Construction

A2- Power & Data

A3- RCP

A4- Finishes

A5- Furniture

A6/ E- Elevations & Details

B- (Base) drawing/ Existing

C- (Civil) Parking & Road

L- (Landscape) Plants, Fencing, Irrigation

RM- (Risk Management)

Symbols Library- All annotation symbols from palette

NOPLLOT- will not print

NICN- not in contract negations

2.2 Tool Palettes

FPD&C has created a custom tool palette for our department use. This palette will ease and expedite the drawing process when used correctly. The contents of this palette shall be used to maintain our CAD standards and it is mandatory that they are used.

1. To find this palette click *View*
 - a. *Tool Palettes*
2. If the tool palette does not include tabs/ blocks other than the program default, you will need to adjust the settings by following these steps:
 - a. Type *OP*
 - b. In the *Files* tab, click the plus sign box next to *Tool Palettes File Location*
 - c. Select file path link and click *Browse*
 - d. Browse to [P:\Fac\FPD&C\CAD STDS\ToolPalette](#)
 - e. Click *Apply* and *OK*
3. You may need to close and restart the AutoCAD program if additional tool palettes are not visible after loading.

Below is a list of all of the tabs that should be in your tool palette when loaded correctly. DO NOT CREATE YOUR OWN SYMBOLS; use those provided within the palette. If a symbol does not exist for a specific circumstance within a project drawing that you are working on, please notify a Project Manager for assistance. Most blocks contain attributes that can be modified simply by double clicking on the symbol once drug into your workspace. Simply double click the block and a dialogue box will appear where you can make the correction. Some blocks contain invisible attributes that cannot be seen on the drawing. The invisible attributes can be extracted into a spread sheet for tracking.

Tool Palette Tabs:

Annotation: AutoCad default

Architectural: AutoCad default

Hatches and Fills: AutoCad default

Tables: AutoCad default

ADA Exterior: exterior ramps

****Symbols:** annotation symbols such as key note bubbles; room number tag; elevation symbol; North arrow; finish block; detail symbol; wall and window type symbol, etc.

ADA Restroom: typicals with required clearances; plumbing fixtures; millwork details

ADA Interior: ADA symbol; cane, crutch, walker, wheelchair figures; grab bars and handrails

Lights: exterior light elevations; detail of light pole base; bike rack

Exterior: AutoCad default

****Furniture:** typical desk configurations; lab, task, tablet arm chairs; file cabinets; equipment- sink; copier

Misc: AutoCad default

Layers: UNT logo; approved layers; stamps

Millwork: shelf section; base and upper cabinet; reception counter; adjustable shelving

Dims, Text: AutoCad default

****Power Legend:** all power symbols; fire alarm symbols; light switches

****RCP Legend:** Light fixtures; emergency lights; security; HVAC

Typical Office: layouts

Macros: AutoCad default

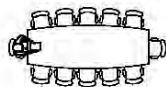
**** Most commonly used, see below**

SYMBOLS LEGEND

POWER AND DATA LEGEND

DDP LEGEND

FURNITURE & EQUIPMENT LEGEND



10'_CONF_TABLE



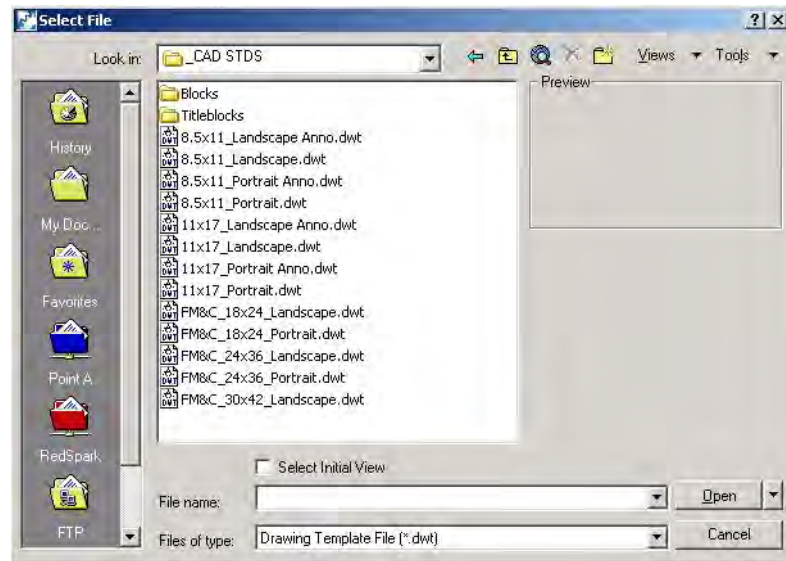
COOKTOP

2.3 Project Drawing File

[P:\Fac\FPD&C\Cadd\RECORD FILES](#) and open the record drawing for the building/ floor where your new project is located. Using *Save As*, save a copy of the record drawing into the project folder from which you will be actively working. File shall be named according to the file name conventions for active CAD file.

2.4 Importing FM&C Interiors Titleblock Templates

STEP ONE: Position your cursor over one of the tabs at the bottom of the screen – doesn't matter which one, although there should only be two (Model and Layout1). Right click and select "From Template" from the menu. Navigate to P:\Fac\FPD&C\CAD STDS\titleblocks and after determining the appropriate size/layout for your project, first import the template file ending with "...ANNO.dwt". This is your annotation, or title, page for your drawing set.



Once you have imported the annotation template, repeat the steps to import the corresponding template size for the remainder of the drawing set. When you select the template size a dialogue box will appear *Insert Layouts*, that has A0, A1, ADA1-3, and Door & Wall. Select all of these layouts and *OK*. These are layouts that you may not need but are very helpful to bring into your drawing just in case. Whatever you don't use, you can delete when cleaning up the drawing toward the end of the project.

STEP TWO: Rename your tabs accordingly (AN, A0, A1, A2, A3, A4, A5, A6, etc.) and then update all titleblock text to include specific project details. Edit all text *FIRST* on the AN, A0, A1 tab, and *THEN* create the appropriate number of copies of the A1 so that all you have to modify on subsequent sheets is the sheet title and sheet number.

To create a copy, right click above the tab you want to make a copy of, and select *Move or Copy* from the menu. Then highlight (*move to end*) and check the box next to *Create a Copy* at the bottom of the dialog box. Click *OK*. Repeat as many times as necessary to complete your set.

NOTE: **1/8" scale is the preferred scale for most drawings, but 1/4" or 1/2" can be used if necessary (for elevations, details, or projects with a smaller area of scope). At the beginning of the project, decide which scale is most appropriate for the size of the project ("size" you will be plotting), then dimension using the correlating dimscales. FM&C18 = 1/8", FM&C14 = 1/4", and FM&C12 = 1/2".**

2.5 Drawing Standards

Following is a list of standards that need to be followed when preparing a set of construction documents. It is imperative for the sake of efficiency that all drawings be created and maintained in a consistent manner.

P-LINES: When drawing single entities such as doors or pieces of furniture, these should be drawn using the rectangle command or using p-lines. This eliminates random lines floating about in model space and makes it easier and faster to select those entities quickly.

| | |
|---|--|
| EXPLODE: | Do not use the explode tool... EVER! Most blocks can be modified by right-clicking and selecting <i>Edit Block in Place</i> |
| LAYER MANAGEMENT: | Use only the layers listed in your layer manager. If you are unsure of what layer a CAD entity should be placed on, check with one of the Project Managers. If a new layer needs to be assigned, it will be assigned by a PM. Do not change the layer color, line weight, or line type unless specifically asked to do so by a Project Manager. The only times this should occur is in the case of lower/upper millwork cabinetry, elevations/details, or various other rare situations. If unsure of how to proceed with differentiating between items on the same layer, check with a Project Manager for clarification/guidance. |
| SPACE PLANNING & CONSTRUCTION DRAWINGS: | All Record Drawings have floor plates set at coordinates 0,0. During design development, space plans should be drawn within the active CAD file by copying the area of project scope above or out to the sides of the floor plate. Space planning should always be done using the correct layer standards. Upon receiving signature of approval on a space plan, the approved plan should be moved back into correct position within the floor plate. |
| DRAWING CLEANUP: | In the process of preparing construction documents, it is the responsibility of each individual who is working on that file to not only work cleanly, but also to clean up the existing drawing as you go. Make sure you delete all un-used layouts and space planning options that are not used in the construction documents. |

Items that you should be aware of include:

- Corners whose lines don't meet up/touch
- Copying notes without using Ortho to ensure that they align
- When drawing squares, rectangles, or other shapes, use P-LINES or the correlating shape command instead of a series of individual lines
- Drawing or leaving what should be one continuous line as several individual line segments
- Use the Solid command to poche walls (instead of Hatch)
- Use MText instead of Dtext
- Trim overlapping lines
- Trim lines at intersecting walls
- Use a common pick point when copying the same entity multiple times (i.e. when copying the "E" label that denotes existing entities, use a common pick point so that the label is inserted at the same location at every occurrence)
- Check all text for grammatical and spelling errors
- Delete duplicate entities, such as several lines laying on top of one another, in order to maintain the integrity of the linetype when plotting

ALWAYS DOUBLE-CHECK YOUR OWN WORK!!!

2.6 AutoCAD Command Aliases

| <u>Keyboard Alias</u> | <u>AutoCAD Command</u> |
|-----------------------|------------------------|
| A | Arc |
| AA | Area/ Perimeter |
| BR | Break |

BPOLY
C
CH
CO
D
DC
DAL
DDEdit
DDPTYPE
DI
DIV
DO
DT
E
EX
F
+ F
H
HE
I
L
Lead
LTS
M
MI
ML
MT
O
Oops
OS
P
Painter
PEdit
PL

Keyboard Alias

Boundary
Circle
Change
Copy
Dim Style Manager
Design Center
Dimension Align
Edit text, including dimension text
Point style dialog box
Distance
Divide
Donut
DText
Erase
Extend
Fillet
When trimming or extending, type in F to trim/extend with a fence
Hatch
Hatch Edit
Insert
Line
Leader
LTScale
Move
Mirror
Multiline
MText
Offset
If something was erased accidentally
OSnap
Pan
Match Properties
Edit properties of p-lines and/or changes line to p-line
Poly Line

AutoCAD Command

PO
POL
PR
PU
REGEN
RO
S
SC
SP
SPL
ST
TR
TR+Enter+Enter
TR+Enter+Enter+Shift
TP
UN
X
XC
XL
XR
Z

Point
Polygon
Properties
Purge
Regenerate
Rotate
Stretch
Scale
Spell Check
Spline
Text Style
Trim
All entities become cutting edges
Toggles between trim and extend
Tool Palette
Drawing Units
Explode
XClip
XLine (Construction Line)
XReference
Zoom

F1- HELP
F2- COMMAND TEXT WINDOW
F3- OSNAP ON/OFF

F7- GRID ON/OFF
F8- ORTHO ON/OFF
F9- SNAP ON/OFF

F10- POLAR TRACKING ON/OFF

Appendix I: TRANSFORMER SPECIFICATION

(Rev. 06/24/14)

LIQUID FILLED PAD MOUNTED TRANSFORMERS

Three phase, pad mounted, liquid-filled, distribution type transformer. Standard sizes range from 75 – 5,000 KVA with primary rating from 2,400 to 46,000 V.

1.0 REFERENCES

- A. ANSI/IEEE C37.47 - Specifications for Distribution Fuse Disconnection Switches, Fuse Supports, and Current-Limiting Fuses
- B. ANSI/IEEE C57.12.00 - General Requirements for Distribution and Power Transformers
- C. ANSI/IEEE C57.12.26 – Requirements for Distribution Transformers for use with Separable Insulated High-Voltage Connectors
- D. ANSI/IEEE C57.12.28 – Switchgear and Transformers, Pad-Mounted Equipment – Enclosure Integrity
- E. ANSI/IEEE C57.12.34 – Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers, 2,500 KVA and Smaller: High Voltage, 34,500 GrdY/19,920 Volts and Below; Low Voltage, 480 Volts and Below
- F. ANSI/IEEE C57.12.70 - Terminal Markings and Connections for Distribution and Power Transformers
- G. ANSI/IEEE C57.12.90 – Standard Test Code for Liquid-Immersed Distribution Power, and Regulating Transformers and Guide for Short-Circuit Testing of Distribution and Power Transformers
- H. ANSI/IEEE C57.12.91- Terminology for Power and Distribution Transformers
- I. ANSI/IEEE 386 – Separable Insulated Connector Systems for Power Distribution Systems above 600 V
- J. ASTM D877 – Test Method for Dielectric Breakdown Voltage of Insulating Liquids Using Disk Electrodes
- K. NEC 450-23, Less Flammable Insulating Oil
- L. NEMA TR-1 – Maximum Sound Levels
- M. DOE: 10 CFR Part 431 - Energy Conservation Program for Commercial Equipment: Distribution Transformers Energy Conservation Standards; Final Rule; October 12, 2007
- N. Factory Mutual Research Corporation – Approval Standard Class 3990

2.0 PRODUCT

2.1 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Cooper Power Systems
 - 2. General Electric Company
 - 3. Square D Company
- B. Quality Control
 - 1. Company specializing in distribution transformers with five years documented experience. When requested, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.

2.2 PAD MOUNTED DISTRIBUTION TYPE TRANSFORMERS (PRIMARY 13.2 kV)

- A. Transformers shall be factory-assembled, three phase, delta-wye configuration, pad mounted, compartmental type, dead front, air-cooled (KNAN) distribution type transformers; ratings as below. All transformers shall be new.
- B. Transformers shall be Factory Mutual Approved Code Listed and Labeled by Factory Mutual Research Corporation as meeting the requirements of FMRC Approval Standard Class 3990. Transformers shall be designed and manufactured in accordance with current standards of ANSI and NEMA.
- C. Ratings:

- 1. _____ KVA

2. _____Phase
3. Frequency 60 Hz
4. Primary Voltage 13,200 V Delta, 95 KV BIL; KV Class 15 KV
5. Secondary Voltage _____ Wye, 30 KV BIL; KV Class 1.2 KV
6. Taps: Full capacity, two 2½% above normal and two 2½% below normal taps.

D. Coil and Core

1. Transformer shall have copper windings.
2. Isolate core and coil from enclosure using vibration-absorbing mounts.
3. The transformer shall carry its continuous rating with an average winding or temperature rise by resistance that shall not exceed 65 degrees C. rise, based on an average ambient temperature of 30 degrees C. over 24 hours, with a maximum of 40 degrees C. The insulation system shall allow an additional 12 % kVA output at 65 degree C. average winding temperature rise by resistance, on a continuous basis, without any decrease in normal transformer life.
4. Insulation fluid shall be FR3 less flammable insulation fluid per NEC 450-23.
5. Provide a 5 position tap changer operator, located in one of the compartments, for de-energized tap-changing operation with pad lockable handle.
6. Transformers shall conform to 2010 standard efficiency levels for liquid immersed distribution transformers, as specified in Table I.1 of the Department of Energy ruling, 10 CFR Part 431.
7. Sound Levels: Guaranteed sound levels shall not exceed NEMA TR-1. Maximum sound levels.

E. Terminations and Fusing

1. The terminations and equipment shall be arranged for radial feed.
2. The high voltage terminations and equipment shall be dead front and conform to ANSI C57.12.26 requirements. Provide universal type bushing wells for use with elbow terminators and parking stands for mounting accessory equipment. Bushing wells shall be externally clamped. Inserts (feed-thru type) and load break elbows shall be included.
3. Provide a two position, oil-immersed, gang operated, rotary, loadbreak switch with internal fuse link. The switch mechanism shall be spring loaded and the operation shall be independent of operator speed. The switch shall have the following ratings: 200 amps continuous current. Momentary current 15,000 amps symmetrical (10 cycles), 25,000 amps asymmetrical (first peak). Load interrupting 200 amps at 70% power factor.
4. Provide Bay-O-Net type oil immersed fuses in series with oil immersed current limiting fuses to conform to the requirements of Factory Mutual. Provide three (3) spare Bay-O-Net fuses with the transformer.
5. Provide three (3) - 10 kV M.O.V.E deadfront metal oxide varistor elbow arresters for placement in the high voltage compartment connected to the feed-thru inserts.
6. Provide bushing wells, 15 KV, 95 KV BIL feed through inserts (3), lightning arrestors, 15 KV, 95 KV BIL load break inserts, and load breaker elbows.
7. The low voltage bushings shall be molded epoxy and provided with blade type spade terminals with NEMA standard hole spacing arranged for vertical take-off. The low voltage neutral shall be an insulated bushing grounded to the transformer tank by a removable grounding strap. Wye-wye connected transformers shall have the high and low voltage neutrals internally tied with a removable link for testing.

F. Enclosure

1. The transformer(s) shall be compartmental type, self-cooled, tamper resistant and weather protected for mounting on a pad. There shall be no exposed screws, bolts or other fastening devices that are externally removable.
2. The transformer shall be of the sealed tank construction of sufficient strength to withstand a pressure of 7 psi without permanent distortion. The cover shall be welded, and the fastenings tamper resistant. The transformer will remain effectively sealed for a top oil temperature range of -5° C. to 106° C. When required, corrugate cooling panels or radiators will be provided on the back and sides of the tanks. Construction shall consist of carbon steel plate reinforced with external side-wall braces. All seams and joints shall be continuously welded.
3. Lifting eyes and jacking pads will be provided.
4. The high and low voltage compartments shall be located side-by-side separated by a steel barrier. When

facing the transformer, the low voltage compartment shall be on the right. Terminal compartments shall be full height, air filled with individual doors. The high voltage door fastenings shall not be accessible until the low voltage door has been opened. The low voltage door shall have a 3-point latching mechanism with a cabinet handle having provisions for a single padlock. Penta-head cabinet door bolts shall be furnished for the low voltage door. The doors shall be equipped with lift-off type stainless steel hinges and door stops to hold the doors open when working in the compartments. The front sill of the compartment shall be removable to allow the transformer to be rolled or skidded into position over conduit stubs. ANSI tank grounding provisions shall be furnished in each compartment.

5. The enclosure shall have suitable outdoor paint finish. Topcoat shall be Bell Green (Munsell 7GY 3.29/1.5). Paint shall meet factory standard ANSI C57.12.28 for outdoor service and shall be applied in accordance with the manufacturers written instructions. Provide written certification by a registered professional Engineer that the paint and application comply with the ANSI Standard Specified.
6. Each radiator assembly shall be individually welded and receive a quality control pressurized check for leaks. The entire tank assembly shall receive a similar leak test before tanking. A final six-hour leak test shall be performed after the transformer is tanked, welded and completed to ensure that there are not leaks before shipment. Include the test results in the certified test report.

G. Accessories

1. Liquid level gauge,
2. Dial type thermometer
3. Pressure vacuum gauge
4. Drain/sampling and filter valve,
5. Ground connectors
6. Schrader type, upper fill valve.
7. Pressure relief valve.
8. Provisions for lifting and provisions for jacking.
9. Base designed for skidding or rolling in two directions.
10. Manufacturer's standard, automatic, pressure relief device, that automatically reseals after operation.
11. Instruction nameplate.
12. Welded-on main tank cover and bolted handhole in cover or bolted cover.
13. Non-corroding metal identification name plate with black lettering. Information to be provided during shop drawing review.
14. Insulated caps and insulated parking bushings for each bushing well.
15. Cabinet accessories pocket on compartment door for spare fuses.

H. Labels

1. Notifications: Danger: High Voltage decal
2. Notifications: DOE Efficiency Compliant decal
3. Notifications: Non-PCB decal
4. Certification: Factory Mutual (FM) approved, outdoor installation

I. Testing

The following factory tests shall be made on each transformer. Tests shall be in accordance with the latest revision of ANSI Test Code C57.12.90 and/or NEMA TR1:

1. Resistance measurements of all windings on the rated voltage connection and at the tap extremes of each unit.
2. Ratio tests on the rated voltage connection and on all tap connections.
3. Polarity and phase-rotation tests on the rated voltage connections.
4. No-load loss at rated voltage on the rated voltage connection.
5. Exciting current and rated voltage on the rated voltage connection.
6. Percent Impedance, core loss, winding loss, excitation current, at rated current on the rated voltage connection and on the tap extremes of each unit.
7. Temperature Test or tests shall be made on each unit. Tests shall not be required when there is available a record of a temperature test on an essentially duplicate unit.
8. Applied potential test.
9. Induced potential tests.

10. Leak test to check for leaks at welds and bushings.
11. Results of the above tests shall be submitted in the form of certified test report for each transformer sealed by a registered professional engineer attesting that the tests were personally witnessed.
12. Furnish a certified copy of the transformer loss test report sealed by a registered professional Electrical Engineer. The report shall certify the efficiency of each transformer measured in accordance with ANSI Standard C57.12.90-1973.

APPENDIX J: UNT Facilities Attic Stock Procedures (rev.03/29/11)

For new buildings it is required that a secured storage area within the building be identified as part of the building program. A full complement of attic stock materials should be provided by the contractor at close-out.

For building renovations, due to a lack of available storage, attic stock items are to be identified early on in the design phase to determine critical needs. Generally these will be items to support equipment rooms and will not include architectural materials unless specialty non- university standard finishes are specified. The attached check list should be filled out by Facilities identifying these items.

In no case will remnant construction materials (such as small pieces or opened packages) be retained as attic stock.

Contractor shall provide UNT Facilities with a written list including amounts as part of the close-out document package.

All attic stock items should be clearly labeled with the date, construction project and stock information.

Sample attic stock check list:

- Architectural materials (new buildings or specialty areas only)
 - Extra ceiling materials
 - Extra cans of paint
 - Sealants
 - Masonry materials
 - Flooring
 - Wall covering
 - Paint
- Fire Protection
 - Sprinkler heads
- HVAC
 - Spare filters
 - Spare drive belts & motors
 - Fusible links
- Electrical
 - Wiring devices
 - Fixture lenses & bulb covers
 - lamps
- Plumbing
 - Filters
 - Trim

| "X" indicates to be included in contract | Specification Section | Material | Provided Attic Stock |
|---|----------------------------------|--|--|
| | 087100 | Door Hardware | Special Tools Maintenance Tools |
| | 093000 | Tiling | Tile and Trim Units - 3% of installed Grout - 3% of installed |
| | 095113 | Acoustical Panel Ceilings | Ceiling Tile, Grid, and Clips: 2% of installed |
| | 095133 | Acoustical Metal Pan Ceilings | Ceiling Tile, Grid, and Clips: 2% of installed |
| | 096513 | Resilient Base and Accessories | Wall Base: 10 ft. for every 500 ft. of Each Type, Color, Pattern and Size Used |
| | 096519 | Resilient Tile Flooring | Floor Tile: 1 box for every 50 boxes of Each Type, Color, and Pattern Used |
| | 096813 | Tile Carpeting | Carpet Tile: 5% of Each Type Used, Not Less Than 10 sq. yd. |
| | 096816 | Sheet Carpeting | Carpet Rolls: 5% of installed |
| | 097713 | Panel Fabric Wall and Ceiling Systems | 5% of Gross Wall and Ceiling Area of Each Color Pattern and Type Used |
| | 099113 | Exterior Painting | Paint: 5% of Applied, Not Less than (1) Gallon |
| | 099123 | Interior Painting | Paint: 5% of Applied, Not Less than (1) Gallon |
| | 099646 | Intumescent Painting | Paint: 5% of Applied, Not Less than (1) Gallon |
| | 102226 | Operable Partitions | Panel Finish Material: Two sides of Two Panels |
| | 122413 | Roller Window Shades | Roller Shades: 5% of Installed, but No Fewer Than 2 Units, for Each Size, Color, and Shadeband |
| | 211313 | Wet-Pipe Sprinkler Systems | Spare Heads and Wrenches in Cabinets |
| | 224700 | Drinking Fountains & Water Coolers | Filter Cartridges: 10% of Installed, not <1 Each Type |
| | 232123 | Hydronic Pumps | Seals: (1) for Each Pump |
| | 233300 | Air Duct Accessories | Fusible Links: 10% of Installed |
| | 233416 | Centrifugal HVAC Fans | Belts: 1 Set for Each Belt-Driven Unit |
| | 233423 | HVAC Power Ventilators | Belts: 1 Set for Each Belt-Driven Unit Motor Puller for Fans >5 HP |
| | 233600 | Air Terminal Units | Pan-Powered-Unit Filters: (1) Spare Filter for Each Filter Installed |
| | 234100 | Particulate Air Filtration | Filters: (2) Sets for Each Filter Bank |

| | | | |
|--|-----------|--|--|
| | 237313 | Modular Indoor Central-StationAir-Handling Units | Filters: (2) Sets for Each AHUBelts: (1) Set for Each AHU Fan |
| | 238126 | Split-System Air-Conditioners | Filters: (1) Set / Unit Fan Belts: (1) Set / Unit |
| | 238219 | Fan Coil Units | Filters: (2) Spare for Each Installed Belts: (2) Spare for Each Installed |
| | 261300 | Medium-Voltage Switchgear | Touch-Up Paint Can: Munsell Green 9999-058 |
| | 271500 | Communications Horizontal Cabling | Patch-Panel Units, Connecting Blocks Device Plates Multiuser Telecom Outlets: (1) Each Type |
| | 283111 | Digital, Addressable Fire-Alarm System | Lamps, Smoke Detectors, Fire Detectors, Detector Bases, Keys and Tools, Notification Appliances, Fuses |
| | 321413.19 | Permeable Interlocking Concrete Pavement | (1) Palette of Each Color and Type Used |
| | 328400 | Planting Irrigation | (5) Parts Each of Irrigation Components |

ATTACHMENT F

PAYMENT BOND

Surety Bond No. _____

STATE OF TEXAS §
COUNTY OF §

KNOW ALL MEN BY THESE PRESENT: That we, _____, as Principal, and _____, as Surety, are hereby held and firmly bound unto the University of North Texas System, as Oblige, in the sum of Dollars (\$_____) for payment whereof the said Principal and Surety bind themselves, their heirs, executors, administrators, and successors, jointly and severally, by the terms and conditions herein.

The conditions of this obligation are such that whereas the Principal entered into a certain contract with the Oblige, as an entity of the State of Texas, dated the ____ day of ___, 200_ ("Contract"), which is hereto attached and made a part hereof for all purposes, for the purpose of _____.

NOW THEREFORE, the condition of this obligation is such that this Payment Bond shall remain in full force and effect unless and until 120 days after Principal has faithfully performed the Contract in accordance with the Contract documents and Principal has executed a copy of the attached Payment Affidavit and provided it to Oblige.

In the event that the Principal fails to promptly pay when due any amount owed to persons who have supplied labor, materials, or supplies used in Principal's performance of the said Contract, the Surety will, upon receipt of notice from the Oblige or a claim in the form required by law, satisfy all undisputed balances due, and make arrangements satisfactory to the interested parties to resolve all amounts disputed in good faith, but in no event shall the liability of the Surety for the Principal's failure to promptly pay for labor, materials, or supplies exceed the amount of this bond.

The Surety agrees to pay to the Oblige upon demand all loss and expense, including attorney's fees, incurred by the Oblige by reason of or on account of any breach of this obligation by the Principal or the Surety.

Provided further, that this bond is made and entered into for the protection of all parties supplying labor or materials in the prosecution of the work provided for in the said Contract, and all such parties shall have a direct right of action under this bond as provided in Chapter 2253 of the Texas Government Code. If any legal action is filed upon this bond, venue shall lie in Denton County, Texas.

The liabilities, rights, limitations and remedies concerning this Bond shall be determined in accordance with the provisions of Chapter 2253 of the Texas Government Code, pursuant to which this bond is executed.

IN WITNESS WHEREOF, the above parties have executed this instrument under their several seals this _____ day of _____ in the year 20____, the name and seal of each party being hereto affixed, and duly signed by its undersigned representative pursuant to authority of its governing body.

CONSTRUCTION MANAGER-AT-RISK

(Firm Name)

(Address)

(Signature)

(City, State, Zip)

(Typed Name and Title)

(Telephone)

(Texas Vendor ID No.)

PERFORMANCE BOND

Surety Bond No.

STATE OF TEXAS §
COUNTY OF §

LET IT BE KNOWN BY THIS INSTRUMENT: That we, _____, as Principal, and _____ a corporation duly authorized to do business in the State of Texas, as Surety, are hereby held and firmly bound unto the University of North Texas System, as Obligee, in the sum of _____ Dollars (\$ _____) for payment whereof the said Principal and Surety bind themselves, their heirs, executors, administrators, and successors, jointly and severally, by the terms and conditions herein.

The conditions of this obligation are such that whereas the Principal entered into a certain contract with the Obligee, as an entity of the State of Texas, dated the _____ day of _____, 20 ("Contract"), which is hereto attached and made a part hereof for all purposes, for the purpose of _____

NOW THEREFORE, the condition of this obligation is such that this Performance Bond shall remain in full force and effect unless and until the Principal has faithfully performed the Contract in accordance with the Plans, Specifications and Contract documents. Further, under the terms of this Performance Bond, Principal shall fully indemnify and save harmless the Obligee from all cost and damage which the Obligee may suffer by reason of Principal's default or failure to perform and shall fully reimburse and repay the Obligee all outlay and expense which the Obligee may incur in making good any such default.

In the event that the Principal's failure as defined by the Contract Documents, to faithfully perform the Contract, Surety will within fifteen (15) days of determination of default, assume full responsibility for completion of said Contract and become entitled to payment of the balance of the Contract amount. Conditioned upon the Surety's faithful performance of its obligations, the liability of the Surety for the Principal's default shall not exceed the penalty of this Bond.

The Surety agrees to pay to the Obligee upon demand all loss and expense, including attorney's fees, incurred by the Obligee by reason of or on account of any breach of this obligation by the Principal or the Surety.

Provided further, that the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the said Contract, or to the work to be performed thereunder, or the Specifications accompanying the same, shall in anyway affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition, to the terms of the said Contract or to the work or to the Specifications.

Provided further, that if any legal action be filed upon this Bond, venue shall lie in Denton County, Texas.

The liabilities, rights, limitations and remedies concerning this Bond shall be determined in accordance with the provisions of Chapter 2253 of the Texas Government Code, pursuant to which this Bond is executed.

IN WITNESS WHEREOF, the above parties have executed this instrument under their several seals this _____ day of _____ in the year 20____, the name and corporate seal of each corporate party being hereto affixed, and these present duly signed by its undersigned representative pursuant to authority of its governing body.

ATTEST:

(Principal)

(Signature)

(Signature)

(Typed Name and Title)

(Typed Name and Title)

(SEAL)

ATTEST:

(Surety)

(Signature)

(Signature)

(Typed Name and Title)

(Typed Name and Title)

(SEAL)

Surety's Texas Local Recording
Agent or Resident Agent:

Surety's Home Office Agent or
Servicing Agent:

(Signature)

(Name)

(Typed Name)

(Title)

(License No.)

(Address)

(File No)

(City, State, Zip)

(Address)

(Telephone)

(City, State, Zip)

(Telephone)



HUB Subcontracting Plan (HSP)

QUICK CHECKLIST

While this HSP Quick Checklist is being provided to merely assist you in readily identifying the sections of the HSP form that you will need to complete, it is very important that you adhere to the instructions in the HSP form and instructions provided by the contracting agency.

- **If you will be awarding all of the subcontracting work you have to offer under the contract to only Texas certified HUB vendors, complete:**
 - Section 1 - Respondent and Requisition Information
 - Section 2 a. - Yes, I will be subcontracting portions of the contract.
 - Section 2 b. - List all the portions of work you will subcontract, and indicate the percentage of the contract you expect to award to Texas certified HUB vendors.
 - Section 2 c. - Yes
 - Section 4 - Affirmation
 - GFE Method A (Attachment A) - Complete an Attachment A for each of the subcontracting opportunities you listed in Section 2 b.
- **If you will be subcontracting any portion of the contract to Texas certified HUB vendors and Non-HUB vendors, and the aggregate percentage of all the subcontracting work you will be awarding to the Texas certified HUB vendors with which you do not have a continuous contract* in place for more than five (5) years meets or exceeds the HUB Goal the contracting agency identified in the "Agency Special Instructions/Additional Requirements", complete:**
 - Section 1 - Respondent and Requisition Information
 - Section 2 a. - Yes, I will be subcontracting portions of the contract.
 - Section 2 b. - List all the portions of work you will subcontract, and indicate the percentage of the contract you expect to award to Texas certified HUB vendors and Non-HUB vendors.
 - Section 2 c. - No
 - Section 2 d. - Yes
 - Section 4 - Affirmation
 - GFE Method A (Attachment A) - Complete an Attachment A for each of the subcontracting opportunities you listed in Section 2 b.
- **If you will be subcontracting any portion of the contract to Texas certified HUB vendors and Non-HUB vendors or only to Non-HUB vendors, and the aggregate percentage of all the subcontracting work you will be awarding to the Texas certified HUB vendors with which you do not have a continuous contract* in place for more than five (5) years does not meet or exceed the HUB Goal the contracting agency identified in the "Agency Special Instructions/Additional Requirements", complete:**
 - Section 1 - Respondent and Requisition Information
 - Section 2 a. - Yes, I will be subcontracting portions of the contract.
 - Section 2 b. - List all the portions of work you will subcontract, and indicate the percentage of the contract you expect to award to Texas certified HUB vendors and Non-HUB vendors.
 - Section 2 c. - No
 - Section 2 d. - No
 - Section 4 - Affirmation
 - GFE Method B (Attachment B) - Complete an Attachment B for each of the subcontracting opportunities you listed in Section 2 b.
- **If you will not be subcontracting any portion of the contract and will be fulfilling the entire contract with your own resources (i.e., employees, supplies, materials and/or equipment), complete:**
 - Section 1 - Respondent and Requisition Information
 - Section 2 a. - No, I will not be subcontracting any portion of the contract, and I will be fulfilling the entire contract with my own resources.
 - Section 3 - Self Performing Justification
 - Section 4 - Affirmation

***Continuous Contract:** Any existing written agreement (including any renewals that are exercised) between a prime contractor and a HUB vendor, where the HUB vendor provides the prime contractor with goods or service, to include under the same contract for a specified period of time. The frequency the HUB vendor is utilized or paid during the term of the contract is not relevant to whether the contract is considered continuous. Two or more contracts that run concurrently or overlap one another for different periods of time are considered by CPA to be individual contracts rather than renewals or extensions to the original contract. In such situations the prime contractor and HUB vendor are entering (have entered) into "new" contracts.



HUB Subcontracting Plan (HSP)

In accordance with Texas Gov't Code §2161.252, the contracting agency has determined that subcontracting opportunities are probable under this contract. Therefore, all respondents, including State of Texas certified Historically Underutilized Businesses (HUBs) must complete and submit this State of Texas HUB Subcontracting Plan (HSP) with their response to the bid requisition (solicitation).

NOTE: Responses that do not include a completed HSP shall be rejected pursuant to Texas Gov't Code §2161.252(b).

The HUB Program promotes equal business opportunities for economically disadvantaged persons to contract with the State of Texas in accordance with the goals specified in the 2009 State of Texas Disparity Study. The statewide HUB goals defined in 34 Texas Administrative Code (TAC) §20.284 are:

- **11.2 percent for heavy construction other than building contracts,**
- **21.1 percent for all building construction, including general contractors and operative builders' contracts,**
- **32.9 percent for all special trade construction contracts,**
- **23.7 percent for professional services contracts,**
- **26.0 percent for all other services contracts, and**
- **21.1 percent for commodities contracts.**

- - Agency Special Instructions/Additional Requirements - -

*In accordance with 34 TAC §20.285(d)(1)(D)(iii), a respondent (prime contractor) may demonstrate good faith effort to utilize Texas certified HUBs for its subcontracting opportunities if the total value of the respondent's subcontracts with Texas certified HUBs meets or exceeds the statewide HUB goal or the agency specific HUB goal, whichever is higher. When a respondent uses this method to demonstrate good faith effort, the respondent must identify the HUBs with which it will subcontract. If using existing contracts with Texas certified HUBs to satisfy this requirement, only the aggregate percentage of the contracts expected to be subcontracted to HUBs with which the respondent **does not** have a **continuous contract*** in place for **more than five (5) years** shall qualify for meeting the HUB goal. This limitation is designed to encourage vendor rotation as recommended by the 2009 Texas Disparity Study.*

SECTION 1: RESPONDENT AND REQUISITION INFORMATION

- a. Respondent (Company) Name: _____ State of Texas VID #: _____
Point of Contact: _____ Phone #: _____
E-mail Address: _____ Fax #: _____
- b. Is your company a State of Texas certified HUB? ☐ - Yes ☐ - No
- c. Requisition #: _____ Bid Open Date: _____
(mm/dd/yyyy)

Enter your company's name here: _____ Requisition #: _____

SECTION 2: RESPONDENT'S SUBCONTRACTING INTENTIONS

After dividing the contract work into reasonable lots or portions to the extent consistent with prudent industry practices, and taking into consideration the scope of work to be performed under the proposed contract, including all potential subcontracting opportunities, the respondent must determine what portions of work, **including contracted staffing, goods and services will be subcontracted**. Note: In accordance with 34 TAC §20.282, a "Subcontractor" means a person who contracts with a prime contractor to work, to supply commodities, or to contribute toward completing work for a governmental entity.

a. Check the appropriate box (Yes or No) that identifies your subcontracting intentions:

- ☐ - Yes, I will be subcontracting portions of the contract. (If Yes, complete Item b of this SECTION and continue to Item c of this SECTION.)
- ☐ - No, I will not be subcontracting any portion of the contract, and I will be fulfilling the entire contract with my own resources, including employees, goods and services. (If No, continue to SECTION 3 and SECTION 4.)

b. List all the portions of work (subcontracting opportunities) you will subcontract. Also, based on the total value of the contract, identify the percentages of the contract you expect to award to Texas certified HUBs, and the percentage of the contract you expect to award to vendors that are not a Texas certified HUB (i.e., Non-HUB).

| Item # | Subcontracting Opportunity Description | HUBs | | Non-HUBs |
|---|--|--|--|--|
| | | Percentage of the contract expected to be subcontracted to HUBs with which you do not have a continuous contract* in place for more than five (5) years . | Percentage of the contract expected to be subcontracted to HUBs with which you have a continuous contract* in place for more than five (5) years . | Percentage of the contract expected to be subcontracted to non-HUBs. |
| 1 | | % | % | % |
| 2 | | % | % | % |
| 3 | | % | % | % |
| 4 | | % | % | % |
| 5 | | % | % | % |
| 6 | | % | % | % |
| 7 | | % | % | % |
| 8 | | % | % | % |
| 9 | | % | % | % |
| 10 | | % | % | % |
| 11 | | % | % | % |
| 12 | | % | % | % |
| 13 | | % | % | % |
| 14 | | % | % | % |
| 15 | | % | % | % |
| Aggregate percentages of the contract expected to be subcontracted: | | % | % | % |

(Note: If you have more than fifteen subcontracting opportunities, a continuation sheet is available online at <https://www.comptroller.texas.gov/purchasing/vendor/hub/forms.php>.)

c. Check the appropriate box (Yes or No) that indicates whether you will be using **only** Texas certified HUBs to perform **all** of the subcontracting opportunities you listed in SECTION 2, Item b.

- Yes (If Yes, continue to SECTION 4 and complete an "HSP Good Faith Effort - Method A (Attachment A)" for **each** of the subcontracting opportunities you listed.)
- No (If No, continue to Item d, of this SECTION.)

d. Check the appropriate box (Yes or No) that indicates whether the aggregate expected percentage of the contract you will subcontract **with Texas certified HUBs** with which you **do not** have a **continuous contract*** in place with for **more than five (5) years**, **meets or exceeds** the HUB goal the contracting agency identified on page 1 in the "Agency Special Instructions/Additional Requirements."

- Yes (If Yes, continue to SECTION 4 and complete an "HSP Good Faith Effort - Method A (Attachment A)" for **each** of the subcontracting opportunities you listed.)
- No (If No, continue to SECTION 4 and complete an "HSP Good Faith Effort - Method B (Attachment B)" for **each** of the subcontracting opportunities you listed.)

***Continuous Contract:** Any existing written agreement (including any renewals that are exercised) between a prime contractor and a HUB vendor, where the HUB vendor provides the prime contractor with goods or service under the same contract for a specified period of time. The frequency the HUB vendor is utilized or paid during the term of the contract is not relevant to whether the contract is considered continuous. Two or more contracts that run concurrently or overlap one another for different periods of time are considered by CPA to be individual contracts rather than renewals or extensions to the original contract. In such situations the prime contractor and HUB vendor are entering (have entered) into "new" contracts.

Enter your company's name here: _____

Requisition #: _____

SECTION 2: RESPONDENT'S SUBCONTRACTING INTENTIONS (CONTINUATION SHEET)

This page can be used as a continuation sheet to the HSP Form's page 2, Section 2, Item b. Continue listing the portions of work (subcontracting opportunities) you will subcontract. Also, based on the total value of the contract, identify the percentages of the contract you expect to award to Texas certified HUBs, and the percentage of the contract you expect to award to vendors that are not a Texas certified HUB (i.e., Non-HUB).

| Item # | Subcontracting Opportunity Description | HUBs | | Non-HUBs |
|---|--|--|--|--|
| | | Percentage of the contract expected to be subcontracted to HUBs with which you do not have a <u>continuous contract*</u> in place for <u>more than five (5) years</u> . | Percentage of the contract expected to be subcontracted to HUBs with which you have a <u>continuous contract*</u> in place for <u>more than five (5) years</u> . | Percentage of the contract expected to be subcontracted to non-HUBs. |
| 16 | | % | % | % |
| 17 | | % | % | % |
| 18 | | % | % | % |
| 19 | | % | % | % |
| 20 | | % | % | % |
| 21 | | % | % | % |
| 22 | | % | % | % |
| 23 | | % | % | % |
| 24 | | % | % | % |
| 25 | | % | % | % |
| 26 | | % | % | % |
| 27 | | % | % | % |
| 28 | | % | % | % |
| 29 | | % | % | % |
| 30 | | % | % | % |
| 31 | | % | % | % |
| 32 | | % | % | % |
| 33 | | % | % | % |
| 34 | | % | % | % |
| 35 | | % | % | % |
| 36 | | % | % | % |
| 37 | | % | % | % |
| 38 | | % | % | % |
| 39 | | % | % | % |
| 40 | | % | % | % |
| 41 | | % | % | % |
| 42 | | % | % | % |
| 43 | | % | % | % |
| Aggregate percentages of the contract expected to be subcontracted: | | % | % | % |

***Continuous Contract:** Any existing written agreement (including any renewals that are exercised) between a prime contractor and a HUB vendor, where the HUB vendor provides the prime contractor with goods or service under the same contract for a specified period of time. The frequency the HUB vendor is utilized or paid during the term of the contract is not relevant to whether the contract is considered continuous. Two or more contracts that run concurrently or overlap one another for different periods of time are considered by CPA to be individual contracts rather than renewals or extensions to the original contract. In such situations the prime contractor and HUB vendor are entering (have entered) into "new" contracts.

Enter your company's name here: _____ Requisition #: _____

SECTION 3: SELF PERFORMING JUSTIFICATION (If you responded "No" to SECTION 2, Item a, you must complete this SECTION and continue to SECTION 4.) If you responded "No" to SECTION 2, Item a, in the space provided below **explain how** your company will perform the entire contract with its own employees, supplies, materials and/or equipment.

SECTION 4: AFFIRMATION

As evidenced by my signature below, I affirm that I am an authorized representative of the respondent listed in SECTION 1, and that the information and supporting documentation submitted with the HSP is true and correct. Respondent understands and agrees that, if awarded any portion of the requisition:

- The respondent will provide notice as soon as practical to all the subcontractors (HUBs and Non-HUBs) of their selection as a subcontractor for the awarded contract. The notice must specify at a minimum the contracting agency's name and its point of contact for the contract, the contract award number, the subcontracting opportunity they (the subcontractor) will perform, the approximate dollar value of the subcontracting opportunity and the expected percentage of the total contract that the subcontracting opportunity represents. A copy of the notice required by this section must also be provided to the contracting agency's point of contact for the contract no later than ten (10) working days after the contract is awarded.
- The respondent must submit monthly compliance reports (Prime Contractor Progress Assessment Report – PAR) to the contracting agency, verifying its compliance with the HSP, including the use of and expenditures made to its subcontractors (HUBs and Non-HUBs). (The PAR is available at <https://www.comptroller.texas.gov/purchasing/docs/hub-forms/ProgressAssessmentReportForm.xls>).
- The respondent must seek approval from the contracting agency prior to making any modifications to its HSP, including the hiring of additional or different subcontractors and the termination of a subcontractor the respondent identified in its HSP. If the HSP is modified without the contracting agency's prior approval, respondent may be subject to any and all enforcement remedies available under the contract or otherwise available by law, up to and including debarment from all state contracting.
- The respondent must, upon request, allow the contracting agency to perform on-site reviews of the company's headquarters and/or work-site where services are being performed and must provide documentation regarding staffing and other resources.

Signature

Printed Name

Title

Date
(mm/dd/yyyy)

Reminder:

- If you responded "Yes" to SECTION 2, Items c or d, you must complete an "HSP Good Faith Effort - Method A (Attachment A)" for each of the subcontracting opportunities you listed in SECTION 2, Item b.
- If you responded "No" SECTION 2, Items c and d, you must complete an "HSP Good Faith Effort - Method B (Attachment B)" for each of the subcontracting opportunities you listed in SECTION 2, Item b.

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(Attachment A)

HSP Good Faith Effort - Method B (Attachment B)

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Enter your company's name here: _____ Requisition #: _____

IMPORTANT: If you responded “No” to **SECTION 2, Items c and d** of the completed HSP form, you must submit a completed “HSP Good Faith Effort - Method B (Attachment B)” for **each** of the subcontracting opportunities you listed in **SECTION 2, Item b** of the completed HSP form. You may photo-copy this page or download the form at <https://www.comptroller.texas.gov/purchasing/docs/hub-forms/hub-sbcont-plan-gfe-achm-b.pdf>.

SECTION B-1: SUBCONTRACTING OPPORTUNITY

Enter the item number and description of the subcontracting opportunity you listed in SECTION 2, Item b, of the completed HSP form for which you are completing the attachment.

Item Number: _____ Description: _____

SECTION B-2: MENTOR PROTÉGÉ PROGRAM

If respondent is participating as a Mentor in a State of Texas Mentor Protégé Program, submitting its Protégé (Protégé must be a State of Texas certified HUB) as a subcontractor to perform the subcontracting opportunity listed in **SECTION B-1**, constitutes a good faith effort to subcontract with a Texas certified HUB towards that specific portion of work.

Check the appropriate box (Yes or No) that indicates whether you will be subcontracting the portion of work you listed in SECTION B-1 to your Protégé.

- Yes (If Yes, continue to SECTION B-4.)
- No / Not Applicable (If No or Not Applicable, continue to SECTION B-3 and SECTION B-4.)

SECTION B-3: NOTIFICATION OF SUBCONTRACTING OPPORTUNITY

When completing this section you **MUST** comply with items **a, b, c and d**, thereby demonstrating your Good Faith Effort of having notified Texas certified HUBs and trade organizations or development centers about the subcontracting opportunity you listed in SECTION B-1. Your notice should include the scope of work, information regarding the location to review plans and specifications, bonding and insurance requirements, required qualifications, and identify a contact person. When sending notice of your subcontracting opportunity, you are encouraged to use the attached HUB Subcontracting Opportunity Notice form, which is also available online at <https://www.comptroller.texas.gov/purchasing/docs/hub-forms/HUBSubcontractingOpportunityNotificationForm.pdf>.

Retain supporting documentation (i.e., certified letter, fax, e-mail) demonstrating evidence of your good faith effort to notify the Texas certified HUBs and trade organizations or development centers. Also, be mindful that a working day is considered a normal business day of a state agency, not including weekends, federal or state holidays, or days the agency is declared closed by its executive officer. The initial day the subcontracting opportunity notice is sent/provided to the HUBs and to the trade organizations or development centers is considered to be “day zero” and does not count as one of the seven (7) working days.

- a.** Provide written notification of the subcontracting opportunity you listed in SECTION B-1, to three (3) or more Texas certified HUBs. Unless the contracting agency specified a different time period, you must allow the HUBs at least seven (7) working days to respond to the notice prior to you submitting your bid response to the contracting agency. When searching for Texas certified HUBs and verifying their HUB status, ensure that you use the State of Texas’ Centralized Master Bidders List (CMBL) - Historically Underutilized Business (HUB) Directory Search located at <http://mycpa.cpa.state.tx.us/tpasscmbldsearch/index.jsp>. HUB status code “A” signifies that the company is a Texas certified HUB.
- b.** List the **three (3) Texas certified HUBs** you notified regarding the subcontracting opportunity you listed in SECTION B-1. Include the company’s Texas Vendor Identification (VID) Number, the date you sent notice to that company, and indicate whether it was responsive or non-responsive to your subcontracting opportunity notice.

| Company Name | Texas VID (Do not enter Social Security Numbers.) | Date Notice Sent (mm/dd/yyyy) | Did the HUB Respond? |
|--------------|--|----------------------------------|----------------------|
| | | | - Yes - No |
| | | | - Yes - No |
| | | | - Yes - No |

- c.** Provide written notification of the subcontracting opportunity you listed in SECTION B-1 to **two (2)** or more trade organizations or development centers in Texas to assist in identifying potential HUBs by disseminating the subcontracting opportunity to their members/participants. Unless the contracting agency specified a different time period, you must provide your subcontracting opportunity notice to trade organizations or development centers at least seven (7) working days prior to submitting your bid response to the contracting agency. A list of trade organizations and development centers that have expressed an interest in receiving notices of subcontracting opportunities is available on the Statewide HUB Program’s webpage at <https://www.comptroller.texas.gov/purchasing/vendor/hub/resources.php>.
- d.** List **two (2) trade organizations or development centers** you notified regarding the subcontracting opportunity you listed in SECTION B-1. Include the date when you sent notice to it and indicate if it accepted or rejected your notice.

| Trade Organizations or Development Centers | Date Notice Sent (mm/dd/yyyy) | Was the Notice Accepted? |
|--|----------------------------------|--------------------------|
| | | - Yes - No |
| | | - Yes - No |

HSP Good Faith Effort - Method B (Attachment B) Cont.

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Enter your company's name here: _____ Requisition #: _____

SECTION B-4: SUBCONTRACTOR SELECTION

Enter the item number and description of the subcontracting opportunity you listed in **SECTION 2, Item b**, of the completed HSP form for which you are completing the attachment.

- a. Enter the item number and description of the subcontracting opportunity for which you are completing this Attachment B continuation page.

Item Number: _____ Description: _____

- b. List the subcontractor(s) you selected to perform the subcontracting opportunity you listed in **SECTION B-1**. Also identify whether they are a Texas certified HUB and their Texas Vendor Identification (VID) Number or federal Employer Identification Number (EIN), the approximate dollar value of the work to be subcontracted, and the expected percentage of work to be subcontracted. When searching for Texas certified HUBs and verifying their HUB status, ensure that you use the State of Texas' Centralized Master Bidders List (CMBL) - Historically Underutilized Business (HUB) Directory Search located at <http://mycpa.cpa.state.tx.us/tpasscmbsearch/index.jsp>. HUB status code "A" signifies that the company is a Texas certified HUB.

| Company Name | Texas certified HUB | Texas VID or federal EIN <small>Do not enter Social Security Numbers. If you do not know their VID / EIN, leave their VID / EIN field blank.</small> | Approximate Dollar Amount | Expected Percentage of Contract |
|--------------|---------------------|---|------------------------------|---------------------------------------|
| | - Yes - No | | \$ | % |
| | - Yes - No | | \$ | % |
| | - Yes - No | | \$ | % |
| | - Yes - No | | \$ | % |
| | - Yes - No | | \$ | % |
| | - Yes - No | | \$ | % |
| | - Yes - No | | \$ | % |
| | - Yes - No | | \$ | % |
| | - Yes - No | | \$ | % |
| | - Yes - No | | \$ | % |

- c. If any of the subcontractors you have selected to perform the subcontracting opportunity you listed in **SECTION B-1** is not a Texas certified HUB, provide written justification for your selection process (attach additional page if necessary):

REMINDER: As specified in SECTION 4 of the completed HSP form, if you (respondent) are awarded any portion of the requisition, you are required to provide notice as soon as practical to **all** the subcontractors (HUBs and Non-HUBs) of their selection as a subcontractor. The notice must specify at a minimum the contracting agency's name and its point of contact for the contract, the contract award number, the subcontracting opportunity it (the subcontractor) will perform, the approximate dollar value of the subcontracting opportunity and the expected percentage of the total contract that the subcontracting opportunity represents. A copy of the notice required by this section must also be provided to the contracting agency's point of contact for the contract no later than ten (10) working days after the contract is awarded.



HUB Subcontracting Opportunity Notification Form

In accordance with Texas Gov't Code, Chapter 2161, each state agency that considers entering into a contract with an expected value of \$100,000 or more shall, before the agency solicits bids, proposals, offers, or other applicable expressions of interest, determine whether subcontracting opportunities are probable under the contract. The state agency I have identified below in Section B has determined that subcontracting opportunities are probable under the requisition to which my company will be responding.

34 Texas Administrative Code, §20.285 requires all respondents (prime contractors) bidding on the contract to provide notice of each of their subcontracting opportunities to at least three (3) Texas certified HUBs (who work within the respective industry applicable to the subcontracting opportunity), and allow the HUBs at least seven (7) working days to respond to the notice prior to the respondent submitting its bid response to the contracting agency. In addition, at least seven (7) working days prior to submitting its bid response to the contracting agency, the respondent must provide notice of each of its subcontracting opportunities to two (2) or more trade organizations or development centers (in Texas) that serves members of groups (i.e., Asian Pacific American, Black American, Hispanic American, Native American, Woman, Service Disabled Veteran) identified in Texas Administrative Code §20.282(19)(C).

We respectfully request that vendors interested in bidding on the subcontracting opportunity scope of work identified in Section C, Item 2, reply no later than the date and time identified in Section C, Item 1. Submit your response to the point-of-contact referenced in Section A.

SECTION A: PRIME CONTRACTOR'S INFORMATION

Company Name: _____

State of Texas VID #: _____

Point-of-Contact: _____

Phone #: _____

E-mail Address: _____

Fax #: _____

SECTION B: CONTRACTING STATE AGENCY AND REQUISITION INFORMATION

Agency Name: _____

Point-of-Contact: _____

Phone #: _____

Requisition #: _____

Bid Open Date: _____

(mm/dd/yyyy)

SECTION C: SUBCONTRACTING OPPORTUNITY RESPONSE DUE DATE, DESCRIPTION, REQUIREMENTS AND RELATED INFORMATION

1. Potential Subcontractor's Bid Response Due Date:

If you would like for our company to consider your company's bid for the subcontracting opportunity identified below in Item 2,

we must receive your bid response no later than _____ on _____ .
Central Time Date (mm/dd/yyyy)

In accordance with 34 TAC §20.285, each notice of subcontracting opportunity shall be provided to at least three (3) Texas certified HUBs, and allow the HUBs at least seven (7) working days to respond to the notice prior to submitting our bid response to the contracting agency. In addition, at least seven (7) working days prior to us submitting our bid response to the contracting agency, we must provide notice of each of our subcontracting opportunities to two (2) or more trade organizations or development centers (in Texas) that serves members of groups (i.e., Asian Pacific American, Black American, Hispanic American, Native American, Woman, Service Disabled Veteran) identified in Texas Administrative Code, §20.282(19)(C).

(A working day is considered a normal business day of a state agency, not including weekends, federal or state holidays, or days the agency is declared closed by its executive officer. The initial day the subcontracting opportunity notice is sent/provided to the HUBs and to the trade organizations or development centers is considered to be "day zero" and does not count as one of the seven (7) working days.)

2. Subcontracting Opportunity Scope of Work:

3. Required Qualifications:

- Not Applicable

4. Bonding/Insurance Requirements:

- Not Applicable

5. Location to review plans/specifications:

- Not Applicable



Reporting Utilization of Texas Historically Underutilized Businesses when the HSP and PAR are not required

Please route this form with the Pay Application.

Purchase Order Number:

UNT Point of Contact:

Phone:

Prime Contractor/Vendor/Supplier:

Texas Vendor ID (if a State of Texas HUB):

Vendor Point of Contact:

Phone:**Pay Application or Invoice Number:**[illegible]