

FACILITIES MANAGEMENT DESIGN GUIDELINES – VOLUME 3 – DELIVERABLE REQUIREMENTS

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SECTION B – CODES AND STANDARDS

From The University of Texas System, Owner's Design Guideline, Appendix C, updated 08/21/2023 Italicized text are UTSW specific requirements.

I. General Requirements

- A. Unless specifically directed by the Owner in writing, the Design Professional shall design all UT System Capital Improvement Program (CIP) projects (Projects) to comply with the current UT System adopted editions of the federal, state and UT System Board of Regents (BOR) mandated codes and standards indicated within this section. In order to confirm a minimal standard of compliance, certain baseline requirements are established for all Projects.
 - 1. *Refer to Volume 3, Section B2, Definitions for an understanding of Capital Projects budget ranges.*
 - 2. *NFPA Amendments from the Texas Secretary of State, from the Texas Register for March 31, 2023, Adopted Rules: [State Fire Marshall Office - NFPA Adoption - March 2023](#)*
 - a. *Direct Link: <https://www.tdi.texas.gov/rules/2023/documents/20237848.pdf>*
- B. The State Fire Marshal (SFMO) is the code Authority Having Jurisdiction (AHJ) for all issues pertaining to NFPA 101 Life Safety Codes and NFPA 1 Fire Code. Each institution's Fire Marshal, or the person they designate to represent them, shall be included in relevant NFPA code discussions and resolutions of conflict.
- C. The Owner's Designated Representative (ODR) is the AHJ and is the responsible party for coordination with other governing agencies having jurisdiction, as well as for all adopted building-related codes. The UT System adoption of NFPA 101 Life Safety Code and NFPA 1 Fire Code will continue to be coordinated with the SFMO. When conflicts or other relevant needs arise, the ODR will facilitate resolution and confirm interpretations after a thorough and joint review with the institution's designated Fire Marshal.
 - A. Refer to the UT System Risk Mitigation & Monitoring Plan for Major Capital Projects (RMMP), UT RMMP for confirmation of additional authorities having jurisdiction and for additional clarification on state and federal regulatory requirements.
 - 1. *UT Southwestern Medical Center Office of Safety and Business Continuity (OSBC) and the State Fire Marshal are the final code Authority Having Jurisdiction (AHJ) for all issues pertaining to NFPA 101 Life Safety Codes and NFPA 1 Fire Code for all property owned, leased, or operated by UT Southwestern Medical Center*
 - 2. *UTSW Medical Center leases spaces in various cities in the Dallas-Fort Worth area to provide medical care close to patient's homes. These off-campus lease spaces are subject to the review and approval of the AHJ of the respective city as well as OSBC in accordance with the Texas Government Code Section 417.0081. If deemed necessary by the cities' AHJ to review any aspect of the project, such review shall be arranged to allow the OSBC and UTSW PM and any other representatives the UTSW PM invites to attend with the Design Professional. In the instance of a conflict between a local city's codes and state fire codes, the more restrictive shall be followed.*

- D. *The Office of Facilities Management (FM) has the final determination in all questions related to the construction of buildings in accordance with the International Building Code (IBC) in projects located on UTSW property. The exceptions are lease spaces under the jurisdiction of the City Building Code Official and Chapters 9 and 10 of the IBC.*
1. *The Office of Facilities Management (FM) reserves the right to make a final determination on the Design Professional's interpretation and recommended best practices of International Building Code (IBC) questions related to the design and construction of buildings.*
- E. The Design Professional shall prepare a written code and standards analysis, "Building Code Analysis," for each project for review by ODR. This analysis shall provide a side-by-side comparison of the requirements of the codes and standards *noted in this document and UTSW Specification Section 01 41 00 Regulatory Requirements*. Analysis shall include:
1. *Basic Information: UTSW Project Name, UTSW Project Number, Date of Analysis, and current project phase.*
 2. *List of principal codes for analysis including NFPA and ICC.*
 3. *List of building code topics:*
 - a. *Each topic shall include code article references and shall indicate which is applied to the project.*
 - b. *Topics may include occupancy classification, construction classification, exiting requirements, and other project specific topics.*
 - c. *Where conflicts arise between codes, the Design Professional shall discuss with the ODR. If discussion is not immediately possible, the default is to design to the more restrictive or protective code.*
 - d. *These code discussions are project-specific and on a point-by-point basis within the codes.*
 4. The final approved Building Code Analysis shall be placed in the project construction document drawings for future reference by the Owner.
 - a. *If deemed necessary for the local authority to review any aspect of the project, such review shall be arranged to allow an ODR or institutional representative to attend with the Design Professional.*
- F. In the event of the need for interpretation among the codes and standards, the Design Professional shall inform ODR of the need for an interpretation and ODR will establish the requirements for compliance.
1. *In the event of the need for interpretation among the Fire and Life Safety codes and standards, the Design Professional shall inform the UTSW PM of the need for an interpretation, who will coordinate with OSBC for a project specific interpretation.*
 2. *When conflicts arise between NFPA and IBC, the UTSW PM will work directly with VP of FM and with OSBC to provide final resolution*
- G. ODR requires the Design Professional to comply with certain provisions of the local fire department that provides fire protection services for the institution. These provisions may include locations and dimensions for firefighting access, including fire lanes; locations and specifications for standpipes, fire hose cabinets, fire control room, and fire hose connections; elevator requirements; and other similar matters.

- H. The Design Professional shall be required to provide an affirmation statement that the project is designed in compliance with applicable codes and standards. The following statement shall be located on the drawing index page or adjacent to the project building code summary *at DD, CD phase, and at IFC*:
1. "Life Safety Code Compliance: The Design Professional acknowledges that construction projects for the University of Texas System must, at a minimum, be designed in accordance with the requirements of National Fire Protection Association (NFPA) 101 Life Safety Code and NFPA 1 Fire Code as currently adopted by the State Fire Marshal, Texas Administrative Code 34.303. Therefore, the Design Professional affirms that, to the best of their professional judgment, knowledge, and belief, the design of this project satisfies the requirements of NFPA 101 Life Safety Code and NFPA 1 Fire Code as well as any other codes or standards made applicable to the project by the professional services agreement."

II. Design Basis

- A. National Fire Protection Association National Fire Code NFPA 101 - Life Safety Codes (LSC), including the indicated edition date of all referenced standards.
 1. 2021 Edition effective September 1, 2023.
- B. National Fire Protection Association National Fire Code NFPA 1 Fire Code including the indicated edition date of all referenced standards.
 1. 2021 Edition effective September 1, 2023.
 2. NOTE: The NFPA 1 Fire Code includes provisions that allow State Fire Marshal inspectors to use their experience and judgment to accept reasonable accommodations through equivalencies, alternatives, and modifications. Any proposed variances must be coordinated with and approved by the State Fire Marshal's office. Refer to previous section for current NFPA Amendments.
- C. International Building Code 2021 Edition, effective September 1, 2023.
- D. *UT Southwestern Medical Center Facilities Management Guideline Specifications*

III. Architectural Design

- A. NFPA 45 Edition Standard on Fire Protection for Laboratories Using Chemicals as applicable.
- B. Texas Department of Licensing and Regulation (TDLR).
 1. Elimination of Architectural Barriers Texas Government Code Chapter 469, Texas Administrative Code 16 TAC part 4 chapter 68 and Texas Accessibility Standards (TAS).
 2. NOTE: If commencement of construction begins on or after March 15, 2012, then new construction or alterations shall comply with the 2012 TAS.
 3. Elevators and Escalators, Health & Safety Code chapter 754 and 16TAC § 74 (see 16TAC § 74.100 for effective dates of ASME standards)
(see 754.014(k) for date of installation definition).
 - a. *Elevators shall be selected and designed to comply with American Society of Mechanical Engineers (ASME) and American National Standards Institute (ANSI)*

b. *Comply with the Texas Accessibility Standards (TAS) ANSI 117.1 and ADA.*

c. *National Electrical Code (NEC) references to ANSI C1, NFPA 70.*

C. Americans with Disabilities Act, 28 CFR Part 35 Nondiscrimination on the Basis of Disability in State and Local Government Services, Final Rule, as published in the Federal Register Friday, July 26, 1991.

1. If physical construction or alterations commence on or after March 15, 2012, then new construction and alterations shall comply with the 2010 ADA Standards.

- A. ACI – 318 current edition, Building Code Requirements for Structural Concrete.
- B. AISC current edition, for Steel Construction Manual.
- C. Texas Department of Insurance Windstorm Inspection Program.
- D. FEMA 100-year flood plain.
- E. *NFPA 1: City of Dallas Amendments related to fire lane access.*

- A. International Mechanical Code 2021 Edition, effective September 1, 2023
- B. International Plumbing Code 2021 Edition, effective September 1, 2023.
- C. International Fuel Gas Code 2021 Edition, effective September 1, 2023.
- D. Guideline Specifications for Divisions 21, 22 and 23.

- A. Based upon the February 2017 Memorandum of Understanding (MOU) between the State Fire Marshal's Office (SFMO), Texas Department of Licensing and Regulation (TDLR), and U.T. System (UTS), the effective date of compliance with the latest adopted edition of NFPA 70 National Electrical Code (NEC) was established such that every three (3) years in September when the latest NEC is published and released by NFPA, TDLR announces on its website that the new version of the NEC will become effective in one year. The SFMO will allow the use of, and UTS will require compliance with, the latest edition of the NEC as adopted by the TDLR based upon the start of electrical work. Currently, the following effective dates are in effect:
1. National Electrical Code 2023 Edition for electrical construction beginning on or after September 1, 2023.
 2. Ongoing adoption will occur on a three-year cycle.
- NOTE: TDLR defines the start of electrical work as the day an electrician begins installing electrical materials or equipment within the building structure. Start of work includes the installation of temporary power for construction.**
3. Guideline Specifications for Divisions 26, 28 and 33.

VII. Energy & Water Conservation Design

- A. Energy Conservation Design Standard for New State Buildings (including major renovation projects), current edition, State Comptroller's Office, Government Code sec. 447.004 and 34 TAC § 19.32.
- B. ASHRAE and IESNA 90.1 2019 Edition (effective September 1, 2023) or International Energy Conservation Code (IECC) 2021 Edition (effective September 1, 2023)
- C. S.E.C.O.'s Water Conservation Design Standards for State Buildings and Institutions of Higher Education Facilities dated April 2020 (effective January 1, 2021).

VIII. Code Compliance Confirmation Reviews

- A. A project design "Code Compliance Confirmation Review" will be performed, documented, and submitted to the *UTSW PM* at DD and 75 percent CD submission to ensure compliance with the following codes as they apply to a specific project. Refer to Volume 3, Section B3, Deliverable requirements for format.
- B. CIP projects shall include an independent code review while renovation projects may provide an in-house review.
- C. *The UTSW PM* will direct the Design Professional to obtain this code confirmation review or will direct the Owner's Code Consultant to perform this code confirmation review *based on this document and UTSW Specification Section 01 41 00 Regulatory Requirements*.
- D. Codes to include but are not limited to: International Building Code (IBC), International Fuel Gas Code (IFGC), International Mechanical Code (IMC), International Plumbing Code (IPC), National Electrical Code (NEC)
- E. NFPA Codes as applicable, with emphasis on the following: NFPA 70, NFPA 101 Life Safety Code, NFPA 1 Fire Code, NFPA 101 Referenced Required Codes, NFPA 1 Referenced Required Codes, NFPA 12A, NFPA 20, NFPA 22, NFPA 54 (As adopted by Texas Railroad Commission), NFPA 58 (As adopted by Texas Railroad Commission), NFPA 70 (NEC), NFPA 92, NFPA 204, NFPA 2001,
- F. Additional requirements may include: FEMA 100-year flood plain verification and Texas Department of Insurance (TDI) First Tier Coastal Counties wind load criteria

IX. OSBC References

- A. *Specific projects shall be reviewed by OSBC and shall comply with the following standards and references:*
 - 1. *DEA (requirements for controlled substances storage location)*
 - 2. *CDC-NIH Biosafety in Microbiological and Biomedical Laboratories, 5th Edition*
 - 3. *American National Standard for Laboratory Ventilation (ANSI and AIHA Z9.5-2012)*
 - 4. *National Institutes of Health Design Requirements Manual, December 12, 2016, most recent edition.*
 - 5. *OSBC utilize and reference the following standards, guidelines, regulatory authorities, and recognized associations regarding the design of research and clinical laboratories: BMBL 5th edition, NIH Recombinant DNA Guidelines, NIH Laboratory Design Manual, ANSI, ASHRAE, OSHA (29 CFR), EPA, NCR, NFPA, CDC, FDA,*

USDA, APHIS, OLAW, Guide for the Care and Use of Laboratory Animals, 8th edition, CGA, and the Texas Administrative and Health and Safety Code

6. *For clinic spaces, OSBC sites the following standards, codes, and guidelines: TJC, CAP, CLIA, APIC, Oncology Nursing Society, NIOSH, USP standards and other relevant codes and standards.*

X. Communications Design

- A. *TIA and EIA Standards.*
- B. *BICSI.*
- C. *NFPA 75.*

XI. Acoustical Design

- A. *There are several standards organizations offering recommendations on best practice in acoustical design dependent on the space types. The Design Professional shall confirm with UTSW PM the applicable guidelines to comply with per project including UTSW standards in Section A, "Building Core Elements: Partition Standards,". Limited guidelines to consider are below.*
 1. *Hospital and Clinic Spaces:*
 - a. *Hospital Licensing Rules – Sound Transmission Limitations in Hospitals.*
 - b. *FGI Guidelines.*
 2. *Education Spaces:*
 - a. *ANSI S12.60 "Acoustical Performance Criteria, Design Requirements and Guidelines for Schools."*
 3. *Animal Resource Centers (A.R.C.) Spaces:*
 - a. *Assessment and Accreditation of Laboratory Animal Care (AAALAC).*
 - b. *National Institutes of Health (NIH) Guidelines.*
 - c. *National Academy of Sciences Guide for the Care and Use of Laboratory Animals.*
 - d. *United States Department of Agriculture "Animal Welfare Act and Regulations."*
 - e. *U.S. Department of Health and Human Services Biosafety in Microbiological and Biomedical Laboratories.*

XII. Noise Criteria (NC)

- A. *Design in accordance with good practice to achieve conventional ambient noise levels qualified in Noise Criteria (NC) defined in current ASHRAE Applications Volume, Chapter 42 and ANSI S1.8 Reference Quantities for Acoustical Levels – ASA 84 and associated requirements per building type.*
- B. *The ambient sound level of an occupied space is not to exceed the following NC listed for its respective typical occupancy unless specifically directed otherwise by the UTSW PM. Spatial forms, materials, assemblies, systems and equipment selections are to be designed as required to achieve a standard quality of specified level of maximum background noise.*

- C. *These conventional standards of the level of ambient noise in a space are independent of and prior to the installation of any Owner-furnished equipment, furniture and furnishings unless specified otherwise.*
- D. *Other resource material describing conventional ambient noise criteria is available in the current edition of Ramsey and Sleeper Architectural Graphic Standards.*
- E. *Refer to **Figures B.1 through B.4 for Maximum Noise Criteria Requirements** occupancy types for examples of noise criteria per occupancy.*

Figure B.1 – Maximum Noise Criteria (NC) Requirements for Office and Administrative Spaces.

This table shows examples of recommended noise criteria (NC) from ASHRAE, FGI, and NIH standards that a Design Professional could consider for review and application on projects.

Space / Occupancy Type	<i>Maximum Noise Criteria (NC) ASHRAE Applications Volume, Chap. 42 and ANSI S1.8 Reference Quantities for Acoustical Levels ASA 84.</i>	<i>FGI Outpatient 2022, Maximum Design Criteria Excerpt Table 1.2-4</i>	<i>NIH Design Requirements for Research Areas (excerpt)</i>
Executive, Private office	30	40	30 - 35
Open plan areas	40		35 - 45
Business machine areas	40		
Public circulation, Corridors	45	45	45
Conference		35	
Public Areas	40	45	

Figure B.2 – Maximum Noise Criteria (NC) Requirements for Research, Hospital, and Clinic Spaces. This table shows examples of recommended noise criteria (NC) from ASHRAE, FGI, and NIH standards that a Design Professional could consider for review and application on projects.

Space / Occupancy Type	<i>Maximum Noise Criteria (NC) ASHRAE Applications Volume, Chap. 42 and ANSI S1.8 Reference Quantities for Acoustical Levels ASA 84.</i>	<i>FGI Outpatient 2022, Maximum Design Criteria Excerpt Table 1.2-4</i>	<i>NIH Design Requirements for Research Areas (excerpt)</i>
Multiple occupant patient area, ward	35	45	
Procedure room	30 - 35	40	40 - 45
Medication safety zone		40	
Waiting area		45	
Dining room and lobbies			40
Central sterile, food service			45
Kitchen, lockers, warehouse, shops			50

Figure B.3 – Maximum Noise Criteria (NC) Requirements For Laboratory Spaces. This table shows examples of recommended noise criteria (NC) from ASHRAE, FGI, and NIH standards that a Design Professional could consider for review and application on projects.

Space / Occupancy Type	<i>Maximum Noise Criteria (NC) ASHRAE Applications Volume, Chap. 42 and ANSI S1.8 Reference Quantities for Acoustical Levels ASA 84.</i>	<i>FGI Outpatient 2022, Maximum Design Criteria Excerpt Table 1.2-4</i>	<i>NIH Design Requirements for Research Areas (excerpt)</i>
Research and General	35	55 – 50	40 - 45
Research Animal Housing			45
Teaching	30	45	

Figure B.4 – Maximum Noise Criteria (NC) Requirements For Education Spaces. This table shows examples of recommended noise criteria (NC) from ASHRAE, FGI, and NIH standards that a Design Professional could consider for review and application on projects.

Space / Occupancy Type	<i>Maximum Noise Criteria (NC) ASHRAE Applications Volume, Chap. 42 and ANSI S1.8 Reference Quantities for Acoustical Levels ASA 84.</i>	<i>FGI Outpatient 2022, Maximum Design Criteria Excerpt Table 1.2-4</i>	<i>NIH Design Requirements for Research Areas (excerpt)</i>
Classrooms	30	30	30 – 35
Conference rooms, lecture rooms	30	30	25 – 35
Auditorium	30		20 - 25

XIII. Sound Transmission Class (STC)

- A. *Construction standards such as Sound Transmission Class (STC) and Ceiling Attenuation Class (CAC) shall be used along with NC maximums in the design of spaces for UTSW projects. Guidelines to follow include those listed previously with references in the charts below in **Figures B.5 and B.6 for Room Adjacency and Sound Transmission Class (STC) Minimums**. Construction detailing shall follow standard best practice for partition, floor, and ceiling acoustic guidelines at a minimum.*
- B. *The acoustic quality of an occupied space shall meet minimum standards of the typical occupancy type unless specifically directed otherwise by the UTSW PM.*

Figure B.5 – Room Adjacency and Sound Transmission Class (STC) Minimums - Animal Resource Center (A.R.C.). This table shows examples of recommended minimum STC requirements between rooms from NIH standards that a Design Professional could consider for review and application on projects.

Space Type 1	Space Type 2	<i>Minimum STC Required (NIH Design Requirements Manual, ASTM E90)</i>
Small animal room and normally occupied rooms	Large animal room, cage wash, noise producing support spaces	60
Behavioral space	Other room types	58
Occupied areas	Public corridors	50

Figure B.6 – Room Adjacency and Sound Transmission Class (STC) Minimums – Healthcare.

This table shows examples of recommended minimum STC requirements between rooms from FGI standards that a Design Professional could consider for review and application on projects.

Space Type 1	Space Type 2	<i>Minimum STC Required FGI Outpatient 2022</i>	<i>Additional Requirement</i>
Exam Room	Corridor (with entrance to corridor)	35	Sound isolation at doors shall be determined per project.
Exam Room	Exam Room (with electronic masking)	40	Electronic masking shall provide a maximum background of 48 dBa.
Exam Room	Exam Room (no electronic masking)	50	
Exam Room	Public Space	50	
Exam Room	MRI	60	Refer to FGI requirements
Treatment Room	Corridor (with entrance to corridor)	35	Sound isolation at doors shall be determined per project.
Treatment Room	Treatment Room	50	
Procedure Room	Corridor (with entrance to corridor)	35	Refer to FGI requirements
Procedure Room	Procedure Room	50	
Telemedicine Room	Public space, office, consultation, treatment, exam,	55	
Toilet Room	Public Space	45	

XIV. Campus Protocols

- A. *UT Southwestern Medical Center is one of the leading academic medical centers, patient-care providers and research institutions in the United States. Because of this, there are special measures which Design Professional working on campus must be aware of at all times. Design Professionals and their consultants shall follow campus policies including “FSS-312 Campus Facilities and Key Controls,” which states that all employees and those who are contracted to perform a service on campus must wear a UT Southwestern badge at all times, regardless of the type of work being performed or where it is being performed.*
- B. *Per policy, any contractor or technician without an identification will be asked to leave. Badges should be worn above the waist in hospital and clinical areas. Patient safety and privacy is of the utmost concern. Before entering rooms in clinical and hospital areas, all Design Professional must contact the charge nurse for that area. Also, all Design Professional must yield to patients and care givers at all times.*

- C. *While working in research areas, Design Professional should be aware of their environment. They should take notice to all placards and signs posted on lab doors and notify occupants of their presence before entering lab areas. Should a problem or concern arise, the Office of Safety and Business Continuity can be contacted at 8-2250 from any campus phone or from off campus at 214-648-2250.*
- D. *Design Professional shall work closely with the UTSW PM to coordinate with users of various spaces for appropriate times to meet with users and gather information.*

XV. Campus Protocols: OSBC

- A. *The Office of Safety and Business Continuity is committed to the management and sustainability of safety, risk and insurance services, emergency management, and business continuity affairs for UTSW. Through the life of projects occurring on campus, the Design Professional will become involved with various OSBC groups for review, approval, and information. Early involvement with these groups is critical to address problems as well as code issues that drive design. These groups may include:*
- B. *Fire and Occupational Safety*
 - 1. *The Mission of the Fire Safety program is to ensure occupant safety, property conservation, and fire and life safety code compliance at all UT Southwestern owned or operated facilities. This is accomplished through a judicious surveillance and risk assessment program, comprehensive plan review process, and thorough inspections during construction, renovations and repairs, and identification and resolution of fire or life safety code deficiencies. The Fire Safety program fulfills the responsibility of the Authority Having Jurisdiction (AHJ) on all UT Southwestern properties.*
 - 2. *The goal of the Occupational Safety Program is to create and maintain a workplace which is free of accidents or injuries. This is accomplished through a proactive approach on the identification and mitigation of unsafe work practices or areas, the generation of permits for hazardous activities, educational programs for employees and contractors on the potential hazards in their work areas, and how to respond appropriately in the event of an emergency.*
- C. *Biological and Chemical Safety*
 - 1. *The Biological Safety Program's renovation, demolition, construction, and design review services focuses on ensuring the proper biocontainment and control of biological hazards and regulated medical waste. The group considers what is anticipated or recognized to be generated, handled, stored, and disposed of in all campus research, teaching, healthcare, and ancillary facilities. Additionally, the group considers all forms of biological contaminants (e.g. fungus, legionella) that may exist in the indoor environment, plumbing, or mechanical systems.*
 - 2. *The Chemical Safety Program's renovation, demolition, construction, and design review services focuses on ensuring proper containment of chemicals, physical hazards, and hazardous waste that will be generated, used, stored, and disposed. The group's purview includes all campus research, teaching, healthcare, and ancillary facilities. Additionally, all airborne hazards and pollutants that may be generated or entrained or that may infiltrate or penetrate through barriers, doorways, temporary structures, or building envelopes are reviewed.*

D. Radiation and Laser Safety

1. *The Radiation and Laser Safety group is dedicated to promoting a safe radiation work environment. The scope includes radiation-producing machines (x-ray, CT, linear accelerators), MR safety, radioactive materials (medical use in diagnostic and therapeutic cases, academic research, isotope production), and laser safety. The Radiation and Laser Safety group manages the radiation safety program for UTSW along with those for Parkland and Children's Medical Center. The Radiation and Laser Safety group supports the UTSW Radiation Safety Advisory Committee and Clinical Laser Safety Committee.*

E. Environmental Compliance Group

1. *This group is designed as an advisory group that ensures UTSW functions within the parameters of environmental regulations, statutes, and codes. The goals of the group are to ensure compliance with permits, regulations, and best practices for protection of the air, soil, groundwater, and surface waters of the State.*
2. *This group operates and updates specific compliance programs by obtaining and maintaining permits, reviewing regulations including new and revised regulations, conducting initial testing and routine monitoring, responding to emergency releases, collecting and maintaining records, and preparing registrations and reports for submittal to regulatory agencies such as the EPA and TCEQ.*

XVI. Radiation Safety Control

- A. *The University of Texas Southwestern Medical Center (UTSW) is authorized to procure, use and dispose of radioactive materials (RAM) under a Broad Scope License issued by the Texas Department of State Health Services (DSHS) – Radiation Control Program. Under the Broad Scope License, the Radiation Safety Officer (RSO) and Radiation Safety Advisory Committee (RSAC) have the authority and responsibility to establish radiation safety standards and maintain a sublicensing program that ensures compliance with the Texas Department of State Health Services – Radiation Control Program. These standards include an internal surveillance program to monitor the sublicensed users of radioactive materials.*
- B. *UT Southwestern's Broad Scope Radioactive Material License empowers the RSO and RSAC to establish policies for the safe use of RAM, to review, approve, and issue specific sublicenses to qualified users, to monitor the use of RAM by the sublicensees, and to suspend operations deemed unsafe. The use of RAM will be limited to the sites and locations authorized under the Broad Scope License.*
- C. *The Radiation Safety Group, within OSBC, monitors safety concerns and verifies equipment follows standards on UTSW campus.*
- D. *UTSW PM will provide the UTSW Radiation Safety Manual as needed to Design Professional.*

XVII. MRI Safety Control

- A. *Follows the American College of Radiology (ACR), Manual of MR safety (current version) and the Joint Commission.*
- B. *The Radiation Safety Group, within OSBC, monitors safety concerns and verifies equipment follows standards on UTSW campus.*
- C. *UTSW MR Operations and Safety Committee*
 - 1. *** Definitions of zones are taken from UHISMR 602.00: Magnetic Resonance Imaging (MRI) Safety Policy, October 2019.*

XVIII. Pest Control

- A. *UTSW follows the guidelines and regulations of the following for all pest control policies and procedures:*
 - 1. *UTSW Office of Safety and Business Continuity (OSBC)*
 - 2. *Texas Department of Agriculture (TDA)*
 - 3. *Texas Commission on Environmental Quality (TCEQ)*

SECTION B1 – DEFINITIONS

I. General Information

A. Common definitions in alphabetical order

Architect - Individual who has fulfilled education and experience requirements and passed rigorous exams that, under State licensure laws, permits them to offer and perform **architectural design** services directly to the public.

Board of Regents (BOR) - Governing body for the UT System composed of nine members appointed by the Governor and confirmed by the State Senate.

Calendar Days - Are every consecutive day on the calendar, including holidays and weekends.

Construction Documents (CDs) - Phase of design where more detail is shown as it relates to the scope of work. Completion of this will result in a bid document.

Change in Function - The change in the function of the current room to be renovated. Example: Current space is laboratory and needs to be converted to future open office space; Current office to future clinical exam room; Current restroom converted to future office.

Change in Room Assignment - The change in the current assigned room from one Department to another Department per the FSS-310 UTSW Policy.

Customer - Person representing the interest of the department requesting the renovation. Customer represents the End-users' and Department Head's best interests. The main point of contact through the duration of the project. AKA Project Champion.

Construction Manager (CM) - Supervising Manager of the Construction Coordination (CC) Shop managers.

Design Development (DD) - Phase of design where the Design Professional takes the scope developed by the PM and shows the intent of the scope in drawings that include plans, elevations, reflected ceiling plans, specifications.

Design Professional – Professionals contracted to plan, design, and construct projects. Can include Architects, Engineers, A/E, Construction Managers, etc.

Design Team – A UTSW Service Provider from Facilities Planning, Design, and Construction that manages UTSW Design Guidelines, standards, master specifications, and provides technical support for renovation projects.

Facilities Management (FM) - Department responsible for planning, construction, facilities maintenance and operations.

Facilities Planning, Design, and Construction (FPD&C) - A department under Facilities Management that focuses on Planning, Design, and Construction of capital projects that support the tripartite mission of UTSW.

Furniture - The portion of a capital project that only has to do with replacing and purchasing of fixed and unfixed furniture.

Financial Planning (FP) - Capital and Resource Planning that analyzes and routes capital project costs for funding approval.

General Contractor (GC) - Construction Contractor that sub-contract with other trades and manages all construction activities.

Information Resources (IR) - A UTSW Service Provider for communications services.

Office of Safety & Business Continuity (OSBC), AKA “Safety” - A UTSW Service Provider for UTSW including Fire Safety, the campus Authority Having Jurisdiction for NFPA, Biological Safety, Chemical Safety, Environmental Health, Occupational Safety, Radiation Safety, Laser Safety, and other teams committed to the management and sustainability of safety, risk and insurance services, emergency management, and business continuity.

Owner - A UTSW Owner Designated Representative, usually a Project Manager from Facilities Management or other UTSW department.

Owner Designated Representative (ODR) - The individual assigned by Owner to act on its behalf and to undertake certain activities as specifically outline in the Contract. ODR is the only party authorized to direct changes to the scope, cost, or time of the Contract for Design and Construction.

Owner, Architect, Contractor (OAC) - The Owner’s Designated Representative (FM PM), Architect, Contractor.

Point of Contact (POC) - Person who is the primary point of contact for the Customer department or Capital Project.

Professional Engineer (PE) - Individual who has fulfilled education and experience requirements and passed rigorous exams that, under State licensure laws, permits them to offer and perform **engineering** services directly to the public.

Project Manager (PM) - The one POC for all estimating, design and construction activities involved in a capital project. The UTSW PM represents the Customers’ best interests.

Project Team - All UTSW stakeholders such as UTSW Service Providers, Vendors, End-Users, Customer

Purchase Order (PO) - An account approved by Procurement to fund a design and construction contract for services.

Procurement - Supply Chain Management department that approves requisitions for services and goods.

Scope of Work (SOW) - SOW is a document generated by a PM during Scope Development to understand Customer’s project needs and how it will support the department’s goals.

Schematic Design (SD) - Preliminary phase of design that includes demolition and proposed floor plans that reflect the scope of work involved.

Senior Construction Manager - The Renovations Manager that oversees Project Managers that manage Capital Projects under \$10m.

Service Provider - Is any member of a group of UTSW departments that provide services to the University. For example, Information Resources, Office of Safety & Business Continuity (OSBC) , Media Technology, Interior Architecture, etc.

Service Request (SR) - A Customer request entered in PeopleSoft for a renovation budget, feasibility study, and design services for new furniture.

Total Project Cost (TPC) Estimate - Preliminary project budget established after the PM has developed a scope of work for the renovations to support the department's mission.

Work Order (WO) - Billable Service Request with labor tasks assigned for management of renovation project.

Capital Project need < \$50,000 - Projects that involve make-ready or furniture or small equipment purchases.

Capital Project need with estimated construction cost between \$51,000 and \$250,000 - Projects that involve minor renovation (with furniture or equipment) and that require capital budget and procurement approval.

Capital Project need with estimated construction between \$251,000 and \$10m - Projects with major renovation and large equipment or furniture purchases.

Capital Project need with estimated construction > \$10m - Projects with major renovation and large equipment or furniture purchases managed by the Capital Improvement Program (CIP).

SECTION B2 – MASTER SPECIFICATIONS

I. General Information

- A. UT Southwestern Medical Center provides campus Master Specification sections for use by Design Professionals on campus projects.
- B. UTSW utilizes RIB SpecLink to manage the campus Master Specifications in a cloud-format. At the beginning of a new project, the UTSW PM shall provide the Design Professional with contact information, links, and access to the UTSW Master Specifications.
- C. The Design Professional shall utilize the campus Master Specifications as the framework for their project specifications. The Design Professional is responsible for and ensures specifications are finished to provide each project with the required elements for a completed design.
 - 1. The Design Professional shall review the UTSW Master Specifications then share questions, concerns, and proposed deviations with the UTSW PM and Design Team.
 - 2. The Design Professional will finalize specifications by editing all required sections to include all project scope.
 - 3. The Design Professional shall remove items from the project specification that are not within the project scope.
- D. While the information is housed on the SpecLink cloud, each Design Professional determines if they will utilize the SpecLink application for production or if production will take place in another software platform. Regardless of the production, the Design Professional shall confirm adherence to the Master Specification requirements.
- E. The Design Professional may suggest product substitutions to those noted in the Master Specifications with the UTSW PM.
 - 1. Consultation with the UTSW PM and Design Team along with review of the UTSW Design Guidelines are required for substitutions.
 - 2. The General Contractor will be required to provide pricing for any substitutions with cost and quality implications.
- F. Master Specifications shall be updated by UTSW Facilities Management and notifications shall be sent to Design Professionals on the Design IDIQ and on CIP contracts.

II. IR Specification Guide

- A. Design Professionals shall confirm the following scope assignments in early design phase with UTSW IR and PM.
 - 1. Pathways: Always provided by General Contractor.
 - 2. Low Voltage Scope for IR cabling and clinical USB cabling:
 - a. On Campus Renovations: IR will manage cabling unless directed otherwise in writing by UTSW IR.
 - b. Off Campus Renovations: Cabling will be determined by project contract. UTSW PM shall confirm.
 - c. Capital Improvement Projects (CIP) and large projects: Cabling will be by General Contractor unless directed otherwise in writing by UTSW IR.
- B. IR Scope will be determined per project and the Design Professional shall confirm specification sections for inclusion with UTSW PM and IR for each project during the design phase meetings.
- C. See sections below for “IR Specification Guide for Renovation Projects” and “IR Specification Guide for CIP Projects” to assist on IR scope per project.

III. Specification Inclusion

- A. The Design Professional shall confirm overall sections for inclusion with UTSW PM per project.
- B. Where possible, UTSW will confirm minimum sections to include per project type.
- C. Renovation Projects shall include:
 - 1. Division 01:
 - Section 01 10 00 - Summary
 - Section 01 21 00 – Allowances (if required)
 - Section 01 22 00 - Unit Prices (if required)
 - Section 01 23 00 - Alternates (CSP Only) (if required)
 - Section 01 25 00 - Substitution Procedures
 - Section 01 25 00.01 – Substitution Request Form
 - Section 01 31 00 - Project Management and Coordination
 - Section 01 32 00 - Project Planning and Scheduling
 - Section 01 33 00 - Submittal Procedures
 - Section 01 35 13 – Hospital Project Procedures
 - Section 01 35 16 – Alteration Project Procedures
 - Section 01 35 23 - Project Safety Requirements
 - Section 01 41 00 - Regulatory Requirements
 - Section 01 42 00 - References
 - Section 01 45 00 - Project Quality Control
 - Section 01 50 00 - Temporary Facilities and Controls
 - Section 01 57 19 – Airborne Contaminants Control
 - Section 01 60 00 - Product Requirements
 - Section 01 71 23 - Field Engineering
 - Section 01 73 00 - Execution
 - Section 01 73 29 - Cutting and Patching
 - Section 01 74 19 - Construction Waste Management and Disposal
 - Section 01 77 00 - Closeout Procedures and Submittals
 - Section 01 79 00 - Demonstration and Training
 - Section 01 81 13 - Sustainable Design Requirements
 - Section 01 91 00 - General Commissioning Requirements
 - 2. Division 02
 - Section 02 41 00 - Demolition
 - 3. Division 26 required sections:
 - Section 26 00 00 - Basic Electrical Requirements
 - Section 26 00 10 - UTSW Electrical Design Requirements
 - Section 26 05 00 - Basic Electrical Materials and Methods
 - Section 26 05 01 - Electrical Demolition
 - Section 26 05 53 - Electrical Identification
 - Section 26 08 00 - Commissioning of Electrical Systems (if required)

IV. IR Specification Guide for On-Campus Renovation Projects

Confirm With UTSW IR Per Project During Design Phase Meetings.

Sections Under the Scope of the GC are Standard Text.

Sections Under the Scope of IR or IR's Vendor are italic.

Division 26 – Electrical

26 33 53 - Uninterruptible Power Systems

26 36 00 - Transfer Switches

26 36 23 - Medium Voltage Automatic Transfer Switches

26 41 13 - Lightning Protection System

26 43 13 - Surge Protection Devices

26 51 00 - Lighting Fixtures

Division 27 – Communications

27 05 00 - Common Work Results for Communications

27 05 26 - Grounding and Bonding for Communications Systems

27 05 28.15 - Floorboxes and Poke-Thrus

27 05 28.29 - Hangers and Supports for Communications Systems

27 05 28.33 - Conduits and Boxes for Communication Systems

27 05 28.36 - Cable Trays for Communications Systems

27 05 53 - Identification for Communications Systems

27 07 00 - Communications Testing

27 11 00 - Communications Room Fit-Out

27 11 13 - Communications Entrance Protection

27 11 16 - Communications Cabinets, Racks, Frames, And Enclosures

27 11 19 - Communications Termination Blocks and Patch Panels

27 11 23 - Communications Cable Management

27 11 26 - Communications Rack Mounted Power and Power Strips

27 13 13 - Communications Copper Backbone Cabling

27 13 13.13 - Communications Copper Cable Splicing and Terminations

27 13 22 - Communications Optical Fiber Backbone Cabling

27 13 23 - Communications Optical Fiber Backbone Cabling, Exterior

27 13 23.13 - Communications Optical Fiber Splicing and Terminations

27 13 33 - Communications Coaxial Backbone Cabling

27 15 13 - Communications Copper Horizontal Cabling

27 15 33 - Communications Coaxial Horizontal Cabling (Confirm Per Project)

27 15 43 - Communications Faceplates and Connectors

27 16 19 - Communications Patch Cords and Station Cords

27 41 00 - Common Work Results for Audiovisual Systems and Equipment (If required per scope)

27 41 16 - Integrated Audiovisual Systems and Equipment (if required per scope)

27 51 14 - Television Distribution Equipment

27 51 19 - Sound Masking System (If required per scope)

27 52 23 - Nurse Call System (if required per scope)

27 52 24 - USB Vitals Monitoring System (if required per scope)

27 53 13 - Clock Systems (If required per scope)

27 53 13.13 - Wireless Clock System (If required per scope)

27 53 18 - WLAN

27 53 19 - Internal Cellular and Antenna Systems

27 84 13 - Communications Penetration Firestopping

V. IR Specification Guide for CIP Projects

Confirm With UTSW IR Per Project During Design Phase Meetings.

Sections Under the Scope of the GC are Standard Text.

Sections Under the Scope of IR or IR's Vendor are *italic* .

Division 26 – Electrical

26 33 53 - Uninterruptible Power Systems

26 36 00 - Transfer Switches

26 36 23 - Medium Voltage Automatic Transfer Switches

26 41 13 - Lightning Protection System

26 43 13 - Surge Protection Devices

26 51 00 - Lighting Fixtures

Division 27 – Communications

27 05 00 - Common Work Results for Communications

27 05 26 - Grounding and Bonding For Communications Systems

27 05 28.15 - Floorboxes and Poke-Thrus

27 05 28.29 - Hangers and Supports for Communications Systems

27 05 28.33 - Conduits and Boxes for Communication Systems

27 05 28.36 - Cable Trays for Communications Systems

27 05 53 - Identification for Communications Systems

27 07 00 - Communications Testing

27 11 00 - Communications Room Fit-Out

27 11 13 - Communications Entrance Protection

27 11 16 - Communications Cabinets, Racks, Frames, And Enclosures

27 11 19 - Communications Termination Blocks and Patch Panels

27 11 23 - Communications Cable Management

27 11 26 - Communications Rack Mounted Power and Power Strips

27 13 13 - Communications Copper Backbone Cabling

27 13 13.13 - Communications Copper Cable Splicing and Terminations

27 13 22 - Communications Optical Fiber Backbone Cabling

27 13 23 - Communications Optical Fiber Backbone Cabling, Exterior
27 13 23.13 - Communications Optical Fiber Splicing and Terminations
27 13 33 - Communications Coaxial Backbone Cabling
27 15 13 - Communications Copper Horizontal Cabling
27 15 33 - Communications Coaxial Horizontal Cabling
27 15 43 - Communications Faceplates and Connectors
27 16 19 - Communications Patch Cords and Station Cords
27 41 00 - Common Work Results for Audiovisual Systems and Equipment (If required per scope)
27 41 16 - Integrated Audiovisual Systems and Equipment (if required per scope)
27 51 14 - Television Distribution Equipment
27 51 19 - Sound Masking System (If required per scope)
27 52 23 - Nurse Call System (if required per scope)
27 52 24 - USB Vitals Monitoring System (if required per scope)
27 53 13 - Clock Systems (If required per scope)
27 53 13.13 - Wireless Clock System (If required per scope)
27 53 18 - WLAN
27 53 19 - Internal Cellular and Antenna Systems
27 84 13 - Communications Penetration Firestopping

SECTION B3 – DELIVERABLE REQUIREMENTS FOR DESIGN DOCUMENTS

I. Introduction

- A. Projects at UT Southwestern Medical Center are typically divided up into two main types: Capital Improvement Projects (CIP) and Renovations. This section and its exhibits are applicable to both project types. Design Professionals shall utilize this section and exhibits dependent on the project type and scope of the project.
- B. The UTSW PM and Procurement shall indicate conformance requirements and as noted in the “General Information” in the Introduction of the UTSW Facilities Management Design Guidelines, all projects shall conform to the most recent Design Guidelines posted online.
- C. Design Professional shall confirm deliverable requirements with the UTSW PM for each project but all projects shall provide deliverables identified in Volume 3, including any required exhibits indicated.

II. Standard Provided Documents

- A. UTSW Medical Center provides Design Professionals with standard documents for use and references on projects:
 - 1. Front End Documents are provided by Procurement.
 - 2. Master Specification access provided by the UTSW PM, refer to Volume 3, Section B2 – Master Specifications for more information including on required Division 01 sections.
 - 3. UTSW PM to provide any hazardous material report(s).
 - 4. UTSW Document: “Furniture: Standards and Layouts” provided by the UTSW PM.
 - 5. UTSW Signage manuals and nomenclature standards provided by the UTSW PM.
 - a. Manuals may include: Comprehensive Interior Signage Manual, Comprehensive Exterior Signage Manual, and the Garage Signage Manual.
 - 6. UTSW Template sheets - MEP1 and T1 provided by the UTSW PM. These sheets are to be included, and project symbols shall match this sheet.
- B. These documents do not relieve the Design Professional of their professional duties to provide content that is correct, accurate and appropriate for each project.

III. CIP Deliverables

- A. Design Professional shall confirm deliverable requirements with the UTSW PM for each project but all projects shall provide deliverables identified in Volume 3, including any required exhibits indicated.
- B. CIP Projects shall also provide the following:
 - 1. Basic System Data: This document will provide building and system design information. Design Professional shall begin providing this in early design with updates at each issuance. The final version shall be submitted to UTSW PM at the conclusion of Design Development.

- a. Basic Information: UTSW Project Name, UTSW Project Number, Date of Analysis, and current project phase.
 - b. Building Area: Provide gross and assignable areas.
 - c. Thermal Performance: Provide transmission coefficients (U-value) and Shading Coefficient (SC) for each exterior wall type, glass type, roof type, floor type, and slab edge condition in tabular format.
 - d. Cooling System Data: Identify type(s) of cooling systems planned with their design capacities in tons of refrigeration and gallons per minute (GPM) if it is a chilled water system.
 - i. Indicate the prime energy source.
 - ii. If the system will be served by a central plant, confirm that plant capacity has been verified and include source of verification.
 - e. Heating System: Identify types of heating systems with heating capacities expressed in British Thermal Units per hour (BTUH) for steam systems and GPM for hot water system.
 - i. Indicate the prime energy source.
 - ii. If the system will be served by a central plant, confirm that plant capacity has been verified and include source of verification.
 - f. Air System Data: Identify type(s) planned with number of prime units and total cubic feet per minute (CFM) required.
 - g. Ventilation Rates: Identify the design ventilation air supplied expressed in CFM per person, CFM per square feet, air changes per hour, minimum and maximum outside air, and additional requirements such as vent cycling.
 - h. Plumbing Design: Provide planned plumbing load in both fixture units and GPM for sanitary, cold water, hot water, and storm water.
 - i. Electrical Design: Provide planned loads in both watts per square foot and kilowatt totals for lighting, general power, and types of special power required for the project.
2. Life Cycle Cost:
- a. Employ a life cycle cost study to determine Return on Investment (ROI) timeline and present the results to UTSW. Perform the analysis with up-front costs, energy costs, maintenance costs, and end-of-life costs, for at least four of these concepts, or for other energy efficient measures under consideration:
 - b. Demonstrate energy usage design compliance via a whole-building energy model for the Envelope, Mechanical Systems, and Lighting as is in project scope.
 - i. Provide output of energy model for base building design and ECM strategies, annual usage profile for electric and gas from the model.
 - ii. Provide a template of the format of final deliverables to UTSW PM and Utilities for approval prior to study.

IV. Deliverables Required for All Projects

- A. At all levels of submission, the Design Professional will be held to a standard of care for the documents provided to UTSW. All documents submitted shall provide information that is clear, concise, complete, and correct.
- B. Drawing Sets shall be provided at each deliverable phase, compiled per discipline, and containing index information bookmarked with Optical Character Recognition (OCR).
- C. Project Manual and Specifications shall be provided at each deliverable, compiled, and contain the index information bookmarked with Optical Character Recognition (OCR).
 - 1. Specifications:
 - a. Each document shall follow the most current Construction Specifications Institute (CSI) format, utilizing the current UTSW Master Specifications as provided by the UTSW PM as well as required.
 - b. Schematic Design:
 - i. Descriptive Specifications: Provide brief narrative descriptions of the proposed component systems, materials, and equipment.
 - ii. Descriptive Literature: Include catalogue cut sheets for all equipment, fixtures, and products proposed.
 - c. Design Development:
 - i. Provide an outline or preliminary specifications for all disciplines that indicate project specific components, products, and equipment including the levels of quality.
 - ii. Provide descriptive literature in the form of catalogue cut sheets of proposed components, products, materials, and equipment.
 - d. Construction Documents:
 - i. Specifications revised to the appropriate stage of completion shall be included with each stage of construction documents submitted.
 - ii. Prepare Project Manuals as indicated in the Contract and with UTSW PM confirmation. Utilize Volume 3, Section B2 for specification section understanding.
 - iii. Prevailing Wage Rates: UTSW PM will provide the UT System's prevailing wage rates to be used for the project.
 - 2. Additional project specific requirements may include furniture package, equipment package, physicist report, shielding report, and geotechnical report. (if required) – Refer to **Exhibit B3-6 Geotechnical Investigation** for requirements.
- D. Cost Quantity Survey and Construction Cost Estimate: Provide an estimate at the end of each design phase, or as indicated by UTSW PM, and at the Issue for Construction (IFC). Design Professionals on CIP projects shall utilize an independent estimating company.
 - 1. Overall Format: Each submission shall include the construction cost estimate, a schedule of values, with unit costs for all materials, labor, equipment, building systems, General Conditions, fees, and contingencies.
 - a. Use the CSI Master Format divisions, the current edition, or the Unifomat Assemblies format to organize the information.
 - b. Provide the following basic information with every submission: UTSW Project Name, UTSW Project Number, Submission Date, and current project phase.
 - c. Include the current total and base bid amount at each submission.

2. Process: In earlier phases, document base costs using square footage costs for building systems at a minimum. Typical systems may include foundations, structure, envelope, roof, specialties, conveying, MEP, etc. During later phases, information shall become more detailed and be generalized on quantities, volumes, lengths, square footage, etc.
- E. UTSW Comment Form
1. At each phase of document submission, the UTSW PM will collect review comments from UTSW teams within a standard UTSW review spreadsheet.
 2. The Design Professional shall review and provide responses to the comments within the same spreadsheet. These responses shall be returned to UTSW PM. The specific deadline for returning responses shall be confirmed with the UTSW PM but shall be prior to the next document submission.
 3. The Design Professional shall determine if corrections, revisions, or additions are required to the documents to fully address UTSW comments. These changes shall be made to the documents for the following document submission.
 - a. For any questions or concerns about comments received, the Design Professional shall request clarification through UTSW PM.
 - b. Any conflict about UTSW comments shall be reviewed with the UTSW Design Team.
 - c. The Asst. VP of FPD&C shall provide final determination on remaining conflicts.
- F. Pending Issues Report
1. The Design Professional shall prepare, maintain, and submit a Pending Issues Report throughout the Schematic Design, Design Development, and Construction Document Phases to record and track outstanding issues, concerns, and decisions.
 2. Report should include:
 - a. Basic Information: UTSW Project Name, UTSW Project Number, Date, and Project Phase.
 - b. Original project scope summary or narrative.
 - c. List of any approved scope changes with summary description and approval date.
 - d. Pending issues shall be presented in tabular format with columns including sequential number, initiation date, requestor name, requested action, responsible party, resolution due date, comment, and status (open or closed).
- G. Code Compliance Confirmation Reviews
1. The Design Professional team shall provide a Code Compliance Confirmation Review and submit to the UTSW PM at 75-percent CD, and IFC submission at a minimum, as noted in Section B. Refer to the codes listed and Master Specifications.
 - a. CIP projects shall use an independent code consultant to provide reviews.
 - b. This review does not relieve the Design Professional from complying with the approved codes and standards for the project.
 - c. During the UTSW team's review, OSBC will perform all fire code reviews.
 2. *Review shall include:*
 - a. *Basic Information: UTSW Project Name, UTSW Project Number, Date of Review, and Project Phase Documents being analyzed.*
 - b. *List of principal codes with versions used for the review.*

- c. *Summary of the project scope.*
 - d. *List of building code issues with explanation for each issue, code article reference, and drawing reference(s).*
 - i. *Issues may include requirements for hazardous materials, requirements for laboratories, means of exit, emergency or stand-by power, fire water supply, FEMA 100-year floor plan, TDI Windstorm Inspection Program, and other summaries.*
 - e. *Compliance statement: Compliance with the comments stated in this letter, does not relieve the Design Professional from complying with the Owners Design Guidelines, Owner's insurance or underwriting requirements, applicable NFPA Standards, and State requirements.*
 - f. *Signature by Design Professional with professional license number.*
- H. TAS Accessibility Plan Review
- 1. The Design Professional shall submit sealed documents to a RAS for an accessibility review.
 - a. The Design Professional shall send UTSW PM a copy of the receipt of submittal from the RAS.
 - b. Refer to Volume 1, Section A – Regulation Requirements for additional requirements.
 - 2. The Design Professional shall provide UTSW PM with a corrective action plan to address non-compliant issues noted in the report while documenting issues in the "Pending Issues Report and Project Tracking".
 - a. The Design Professional shall identify associated accessibility issues outside of project scope and report to UTSW PM.
 - b. The Design Professional shall advise UTSW PM for any additional services proposal (ASP) to provide corrective action plan for issues outside of scope.
 - 3. The Design Professional shall review the proposed corrections and potential cost implications with the UTSW PM for approval prior to final documentation. UTSW PM and Design Professional will determine the course of action to issue updates.
 - 4. The Design Professional shall document corrections through issuance of documentation such as an ASI or Addendum to confirm the corrective action plan has been completed.
- I. CAD Backgrounds
- 1. The Design Professional shall provide CAD backgrounds at IFC.
 - 2. AutoCAD version will be confirmed by UTSW PM.
 - 3. All CAD files submitted shall follow UTSW CAD Drafting Standards and Archibus Requirements. Use **EXHIBIT B3-1 – UTSW CAD Standards** and **EXHIBIT B3-2 – UTSW Archibus Export Requirements in the UTSW Design Guidelines**.
 - a. Background shall include rooms, spaces, and areas exported as polylines.
 - b. All files shall be in root directories with drawing files before support files. Bind all files to prevent external x-refs.

J. Life Safety CAD

1. The Design Professional shall provide CAD file(s) at close out of the life safety plans created for the project.
2. AutoCAD version will be confirmed by UTSW PM.

V. **Special Deliverables**

- A. Deliverables required only on specific projects shall be confirmed with the UTSW PM. Refer to exhibits at the end of Section B3 for requirements.
- B. Special Deliverables may include the following with exhibit name:
 1. **Exhibit B3-1 CAD Standards**
 2. **Exhibit B3-2 Archibus Export Requirements**
 3. **Exhibit B3-3 BIM Deliverables**
 4. **Exhibit B3-4 Survey**
 5. **Exhibit B3-5 Storm Water Pollution Prevention Plan (SWPPP)**
 6. **Exhibit B3-6 Geotechnical Investigation.**

VI. **Documentation Format for All Projects**

- A. All text shall be Arial on floor plans and specifications.
- B. Drawing Minimum Requirements:
 1. Drawing sheets: ARCH E1 – 30- by 42-inches or ARCH D 24- by 36-inches. Confirm project sheet size with UTSW PM prior to sheet creation.
 2. Overall plans shall be provided for each level and discipline.
 - a. Overall plans shall be sized a minimum at one-eighth-inch scale or appropriate scale to fit entire plan on one page.
 - b. Enlarged plans sized a minimum at one-quarter-inch scale.
 - c. All disciplines shall include room names and UTSW room numbers on their respective plans.
 3. Design Drawings for project area shall fit onto one page. If size is prohibitive, areas may be broken into consecutive pages with match lines at 1/8-inch scale minimum.
 4. Associated details shall be at larger scales appropriate to view critical components.
 5. Enlarged plans shall, at a minimum, be created at each: elevation changes (such as stairs), toilet room, typical room types, electrical rooms, mechanical rooms, IR rooms, and specialty or unique spaces.
- C. Backgrounds for all disciplines shall include project grid lines, grid designations, callouts, and any dimensioning that is required to coordinate the project.
 1. Structural grids and callouts shall match facilities provided CAD plans.
- D. Plan North and Project North arrows and graphic scales shall be shown on each sheet.
- E. All sheets shall have completed title blocks as noted within “Standard Drawing Set Requirements for All Projects.”
- F. All sheet number sequences shall be matched by other disciplines. As an example, A1.01 Demolition Plan shall be matched to E1.01, M1.01, etc.
- G. All disciplines shall provide symbols and abbreviations for their work. Sheets shall have general notes referencing the symbols and abbreviations on that sheet.

- H. All disciplines shall provide disclaimers on their work, for each design phase submitted, indicating interim review.
 - 1. This disclaimer shall include the responsible Design Professional name, license or registration number, and professional designation.
 - 2. Professional seals with signature are required for construction, bidding, or permit purposes on all documents produced.
- I. Compile Design Drawings into one pdf in an order that matches the sheet index numbers and names. PDF shall include index information bookmarked with Optical Character Recognition (OCR).
 - 1. If file size is prohibitive to use easily, file may be broken into packages or into disciplines following the order of the index.

VII. Standard Drawing Set Requirements for All Projects

- A. The following items shall be included in each design phase submittal.
- B. Cover Sheet: Cover sheet shall include at a minimum:
 - 1. UTSW project name, UTSW Work Order number, and UTSW PM Name with their email contact information.
 - 2. UTSW project address and location.
 - 3. Design Professional name and street address with contact name and information. Include email address, phone number and fax number.
 - 4. All companies shall be licensed or registered to practice in Texas with the Design Professional of record to be licensed or registered to practice in Texas.
 - 5. Design Professional consultants' names and professional discipline(s) with contact name and information. Include email address, phone number and fax number.
 - 6. Project location plan to a scale appropriate to the building size.
 - 7. List of applicable UTSW building codes.
- C. Title Block: Design Professional shall create a Title block draft to be reviewed with UTSW PM prior to first deliverable. The following items at a minimum shall be included in each drawing title block:
 - 1. UTSW project name, UTSW Work Order number, and PM name with email contact information.
 - 2. UTSW project address and location.
 - 3. Design Professional name and street address.
 - 4. Design Professional consultants' names and professional discipline(s) on their sheets.
 - 5. Location for the date of issue of the plans with space for several revision dates.
 - 6. Location for professional seals and registration numbers.
 - 7. Location for the sheet title.
 - 8. Location for Sheet Name and Number which matches other disciplines.
 - a. As an example, sheet A1.01 Demolition Plan shall be matched to E1.01, M1.01, etc.
 - 9. Deliverable Phase Title.
 - 10. Project Key Map for larger projects shall indicate which project area is identified on the sheet.

- D. Project Data Sheet: The project data sheet shall include, at a minimum, the following information specific to the project design and the phase of deliverable:
1. List of Drawings, Tables, and Schedules.
 2. Square footage per project level and the project total (gross and assignable square footage).
 3. Project information, including approximate square feet of space to be renovated or constructed.
 4. List of applicable UTSW building codes including codes and standards analysis summary (Can be submitted as an independent code page).
 5. Abbreviations used.
 6. Drawing symbols.
 7. Alternate bid descriptions.
 8. Future provisions for expansion (all design disciplines).
 9. Materials legend.
 10. Vicinity map.

VIII. Standard Accessibility Sheet

- A. Each project shall have the Design Professional's standard sheets demonstrating the ADA and TAS 2012 standard heights, clearances, and requirements as references.
- B. Sheets provided shall include knee and toe clearances, clear floor or ground space, protruding objects, stairways, doors, and applicable site requirements at a minimum.

IX. Fire and Life Safety Drawings

- A. The Fire and Life Safety drawings would include as a minimum:
 1. Construction type, fire exposure analysis, building occupancy type, and occupancy loads including tabulations and totals.
 2. Required egress capacity, means of egress, and egress widths with egress distances noted to nearest exits.
 3. Transportation systems including elevators and dumbwaiters.
 4. Required fire and smoke barriers including wall ratings, shafts, and ratings per occupancy type including existing building core partitions.
 - a. Existing information from UTSW OSBC Fire Safety Life Safety maps will be provided.
 5. Adjacent space ratings (if required) for renovation projects.
 6. Fire suppression, emergency notification, smoke control, stair pressurization, vertical openings, emergency lighting, etc.
 7. Fire extinguisher locations and coverage identified.
 8. Locations for AED, Stop the Bleed Kits, and Stair Chairs, as required.
 9. Provide technical documentation support with any proposed equivalencies and list anticipated building code variance requests or known deficiencies.
 10. Confirm code requirements with Fire Safety.

X. Symbols and Abbreviations

- A. Each discipline to have separate page indicating symbols and abbreviations standard to the discipline's pages.

XI. Alternates (if required)

- A. Show flexibility for expansion and alterations. Clearly identify, in notes and plans, the scope of the alternates. Coordinate information in the specifications.

XII. Equipment Schedules and Coordination

- A. Provide equipment scheduling for all equipment requiring a space allocation, mechanical, electrical, plumbing, data, or any rough-in including the provisions for future equipment.
- B. Equipment schedules shall be included in deliverables as early as possible but not later than Design Development deliverables.
- C. Categories shall include the following at a minimum:
 - 1. Equipment designator.
 - 2. Equipment Manufacturer, Item number.
 - 3. Quantity.
 - 4. Measurements: Length by Width by Height.
 - 5. Required clearances for service, maintenance and code.
 - 6. Utility Requirements (Electrical, water service, gas, grounding, etc.).
 - 7. Specification section number.
 - 8. Special notes.
 - 9. Furnish and Install assignment.
- D. Furnish and Install assignment of which entity furnishes the item as well as which entity shall install, or be responsible, the item shall follow the following categories:
 - 1. Contractor Furnished - Contractor Installed (CFCI).
 - 2. Owner Furnished – Contractor Installed (OFCI).
 - 3. Owner Furnished - Owner Installed (OFOI).
 - 4. Owner Furnished – Vendor Installed (OFVI).
- E. Responsibility assignments shall be confirmed per project and have the following general rules of thumb:
 - 1. Items in-wall, above ceiling, or infrastructure systems are typically CFCI.
 - 2. Life safety and code-required systems are CFCI.
 - 3. Technology systems are typically CFCI in large projects and OFOI/OFVI in smaller projects.
 - 4. Loose furnishings, décor, and non-fixed equipment are typically OFOI.
 - 5. Major medical equipment and laboratory equipment are typically OFOI with contractor support for installation, utilities, and protection.
- F. In all cases, the infrastructure designed by the Design Professional shall be coordinated to provide for all known pieces of equipment. In some instances, equipment that is more specialized may require utilizing more than just two entities for a complete installation. In these cases, the equipment schedule shall indicate multiple categories, as seen in the next example.

1. Example: A cage wash machine will be purchased by the owner, with the vendor installing the machine. The contractor will be required to perform hard connections to the utilities. While the infrastructure of the building shall inherently be designed to provide for the cage wash, this does not clearly identify the need for electricians or plumbers at installation. This machine shall show the following in the furnish and install column: OFVI and CFCI.

XIII. Civil and Landscaping

- A. Programming:
 1. The Facility Program shall include the project requirements, design approach, proposed siting, layouts, and massing.
 2. Matrix identifying desired types of spaces, sizes, features, intended operations, adjacencies, and other features of the project.
 3. Narratives describing the major components and assumptions.
 4. Applicable Code Requirements include confirmations that the program is compliant with these codes and guidelines.
- B. Survey according to **EXHIBIT B3-4 Survey Requirements**.
- C. SWPPP deadline and deliverables per contract and **EXHIBIT B3-5 Storm Water Pollution Prevention Plan (SWPPP)**.
 1. Note: At 50-percent through 75-percent CDs or as otherwise indicated by UTSW PM, submit Stormwater Pollution Prevention Plan (SWPPP) to UTSW PM for review, comment, and approval. Confirm with OSBC.
- D. Schematic Design:
 1. Reports per discipline shall be provided that indicate the scope of work involved including descriptions of all necessary systems in the project. Narrative shall clearly state any extreme deviations from Design Guidelines in design approach and justification for deviation. Any deviations will need to be reviewed and approved by CIP and FPD&C (Planning and Design).
 2. Civil design report: describe proposed hardscape including discussion of storm water collection, detention, and disposal.
 3. Landscape design report: describe both hardscape and soft scape, include proposed special features such as fountains, sculpture, etc. Indicate potential challenges and decisions that will need to be addressed during the next phase of development. Include potential power needs, lighting needs for accent or focal points, and any heating requirements due to local climate conditions.
- E. Design Development:
 1. Expansion of SD report with further development as well as a summary of the site investigation with field notes and plans, if required.
 2. Area tabulations compared to program requirements, if required
 3. Special requirements.
 4. Final and updated design criteria for any systems.
 5. Life Cycle Cost Analysis as applicable.

F. Drawings beginning in Design Development through IFC:

1. Landscape Drawings:

- a. Plan(s) of proposed areas to be planted and irrigated at a scale consistent with Architectural Site Plan.
- b. Show location of water source for irrigation.
- c. Show major space defining elements such as trees, walls, fences, etc. to convey overall Site design concept.
- d. Show major vehicular and pedestrian circulation patterns.
- e. Show minor features such as benches, light fixtures, and unique elements.
- f. Shall reflect Campus Master Plan and Facility Program requirements.
- g. These may be included on the Architectural Site Plan itself unless the degree of complexity requires a separate Plan sheet.
- h. Further refine site plan to evolve into a separate plan sheet at DD with complete hierarchy of proposed plant materials shown and identified, show proposed landscape accessories such as seating, litter receptacles, tables, tree grates, drinking fountains, etc.
- i. Show landscape lighting if applicable.
- j. Show proposed grading in background from Civil, as applicable.
- k. Identify hardscape materials.
- l. Show irrigation diagrammatically in terms of number of zones and type of components (sprays on risers, pop-up sprays, rotary heads, drip, etc.).
- m. Requires licensed landscape architect and licensed irrigator for IFC.
- n. Final approved site plans and plans to scale, fully developed, and coordinated with all disciplines, code requirements and existing conditions.
- o. Plans shall show landscape accessories, hard-scapes, soft-scapes, proposed grading, lighting, irrigation, and other required components of the design.
- p. Plans, details, sections, schedules, and other items to fully document the design.

2. Civil Drawings:

- a. Site Plan(s) at a scale consistent with Architectural Site Plan.
- b. Requires licensed Civil Engineer for IFC.
- c. Show and identify required site utilities with spot elevations.
- d. Show connections to existing site or City utilities.
- e. Show major civil engineering elements to convey overall site design concept.
- f. Show major vehicle and pedestrian circulation layout at least diagrammatically.
- g. Show relationships of all proposed work to existing site survey.
- h. Refine all plans incorporating SD review comments from UTSW PM and Users.
- i. Incorporate erosion control drawing and details.
- j. Site plans should illustrate the complete scope of hardscape and engineered features.
- k. Show outdoor lighting if within Consultant's scope of work.
- l. Show proposed grading contours with applicable spot elevations, drain inlets, manholes and other related structures.
- m. Show temporary storm water runoff and containment to meet applicable standards.
- n. Identify all hardscape materials within scope of civil work.

- o. Final approved plans with complete scope of the hardscape and engineered features.
- p. Fully coordinated plans with other disciplines including outdoor lighting if within the scope.
- q. Drawings shall include details, sections, and other drawing aids to show the complete design.
- r. Show grading contours with applicable spot elevations, drain inlets, manholes and other related structures.
- s. Show temporary storm water runoff and containment to meet applicable standards.
- t. All site plans showing existing and proposed utilities, connections to existing or City utilities underground and overhead, with sizes shown, valves, boxes, cleanouts, access ways, manholes, fire protection Siamese and hydrant locations.

XIV. Structure

- A. Programming:
 - 1. Project Requirements.
 - 2. Design Approach.
 - 3. Proposed siting, layouts, and massing.
 - 4. Matrix identifying desired types of spaces, sizes, features, intended operations, adjacencies, and other features of the project.
 - 5. Narratives describing major components and assumptions.
 - 6. Applicable Code Requirements include confirmations that the program is compliant with these codes and guidelines.
- B. Schematic Design:
 - 1. Reports per discipline shall be provided that indicate the scope of work involved including descriptions of all necessary systems in the project. Narrative shall clearly state any extreme deviations from Design Guidelines in design approach and justification for deviation. Any deviations will need to be reviewed and approved by CIP and FPD&C Planning and Design.
 - 2. Outline of Structural Criteria: Include a brief description of structure including building functions, number of floors, basement, exterior walls, interior partitions, overall building dimensions, frequency of expansion joints including those at exposed exterior building components.
 - a. Unusual design features.
 - b. Describe the floor and roof structural systems. Discuss reasons for selection of System chosen. This should include comments on the economics of the system as opposed to others, unusual spans, and loads, fireproofing and any other factors governing selection of structural system. The Engineer shall be prepared to provide typical framing plans (i.e., one to two (1-2) bays) for pricing and determination of the most cost-effective system.

- c. The structural design report shall provide a description of the proposed structural system, special features and project understanding. This shall include an outline of Structural Design Criteria as noted in the Structural section, below.
- 3. Schematic Design drawings to include major analysis and design assumptions shall be briefly described in the "Structural Notes" on the design drawings.
- 4. Calculations, if requested, will show at a minimum:
 - a. Members shall be cross-referenced to plans and (rough) details with any number system that permits easy identification of the member and its location in the structure.
 - b. Unit dead loads with partitions load assumptions.
 - c. Unit live loads with sustained load assumptions and reduction factors.
 - d. Deflections. Show justification for long, slender members.
 - e. Ponding.
 - f. Vibration considerations where applicable.
- C. Drawings beginning in Design Development through IFC:
 - 1. Provide preliminary structural demolition drawings if demolition is required for the project, revise and refine at each following deliverable.
 - 2. Provide load schedule to conform with IBC requirements as well as provide for specific project scope requirements.
 - 3. Give a brief statement of the method of distributing loads and moments throughout frame. Except for complex structures, any recognized method will be satisfactory.
 - 4. If required, discuss methods of distributing wind loads. Wind loads must be taken to the integral parts of the structure.
 - 5. State method of stress analysis i.e., working stress, ultimate strength. List Codes, Standards, and pertinent references to be used as criteria for sizing members. Give class and strength of structural materials to be used.
 - 6. List unit loads, wind loads, seismic load factors.
 - 7. As soon as soils investigations have been completed, give detailed description of foundation type and soils capacities actually used in sizing foundation members. State anticipated settlements if known.
 - 8. Crawl Space, Basement and Ground floor foundations shall be designed in accordance with the Geotechnical Recommendations given in the Geotechnical Report.
 - 9. Discuss below grade waterproofing and method of removing water at exterior walls, under slab or in crawl space.
 - 10. Discuss lateral load assumptions at below grade locations.
 - 11. Discuss unusual foundation and shoring problems due to nature of soils, proximity of adjacent structures, etc.
 - 12. Provide a detailed discussion of why the particular framing and foundation system was chosen.
 - 13. Provide schematic layout drawings and framing plans.
 - 14. Provide sample calculations
 - 15. proposed for use on project - computer input, program utilized, etc. if requested by UTSW PM.
 - 16. Provide live load maps.

17. Foundation, floor, and roof plans to scale with all major structural members, preliminary sizes with approximate reinforcing quantities.
18. Show all major structural members along with approximate reinforcing quantities to assist in the preliminary pricing of the structure.
19. Indicate recessed areas in slabs, major openings, elevator, and sump pits.
20. Indicate subsurface drainage system (if required). Coordinate with Architectural, Civil and Plumbing.
21. Provide typical details including pier layout, lateral bracing, and framing details to assist in the preliminary pricing of the structure.
22. Show locations and heights of soil retentions systems.
23. Preliminary structural demolition drawings (if required).
24. Show Roof drawings, pipe penetrations, AHU curb locations, and details.
25. Provide preliminary Live Load maps. Floor Live Load maps shall have an Architectural Background.
26. Backgrounds shall include appropriate grid lines and callouts and any dimensioning that is required.
27. Provide Roof Uplift Load maps showing gross uplift loads for all roof areas, including canopies and other architectural features that may be subject to wind uplift forces.
28. Foundation, floor, and roof plans shall show all major structural members along with approximate reinforcing quantities.
29. Indicate recessed areas in slabs, major openings, elevator, and sump pits.
30. Indicate a subsurface drainage system if required.
31. Provide typical details including pier layout, lateral bracing, and framing details.
32. Show locations and heights of soil retentions systems.
33. Roof drawings, pipe penetrations, AHU curb locations, details including roof mounting equipment, and loads.
34. Design drawings shall include plan Live Load maps for all floors including the foundation. The maps shall indicate live loads and dead loads requiring special consideration. The floor load maps shall have an Architectural Background in lieu of a Structural Background as these maps will be used for future renovation projects. Backgrounds shall include appropriate grid lines and callouts.
35. Design drawings shall include Roof Uplift Load maps showing gross uplift loads. Coordinate roof uplift maps with Architectural Drawings and Specifications. Backgrounds shall include appropriate grid lines and callouts and any dimensioning that is required.
36. Design documents (drawings and specifications) shall include general post-construction penetration guidelines including:
 - a. Where penetrations are allowed (with noted restrictions).
 - b. Where penetrations may be allowed with the review and approval of a Structural Engineer.
 - c. Where penetrations will never be allowed.

XV. Architecture

A. Programming:

1. The Facility Program shall include the project requirements, design approach, proposed siting, layouts, and massing.
2. Matrix identifying desired types of spaces, sizes, features, intended operations, adjacencies, and other features of the project.
3. Narratives describing the major components and assumptions.
4. Applicable Code Requirements include confirmations that the program is compliant with these codes and guidelines.
5. Expected schedule projections for design and construction phases.
6. Preliminary Total Project Budget based on assemblies and anticipated quantities.

B. Schematic Design:

1. Reports per discipline shall be provided that indicate the scope of work involved including descriptions of all necessary systems in the project.
 - a. Provide updated scope narrative.
 - b. Provide a program variance document to describe significant changes from original project scope.
 - c. Narrative shall clearly state any extreme deviations from Design Guidelines in design approach and justification for deviation. Any deviations will need to be reviewed and approved by CIP and FPD&C (Planning and Design).
2. A Life Safety Code design report shall be included that describes means of compliance as well as any major code issues. Shall describe systems required for compliance.
3. The architecture design report shall briefly describe the proposed building, how it meets the Facility Program requirements, state the design statement of intent, and discuss how design goals will be met in the spaces provided.
4. The interior design report shall describe the proposed solutions for finishes and furniture layouts.
5. A copy of the approved Facility Program.

C. Design Development

1. Revision and progression of elements presented in SD report.
 - a. Scope narrative.
 - b. Program variance document.
 - c. Design guideline deviation.
2. Summary of site investigation with field notes and plans, if required.
3. Area tabulations compared to program requirements, if required.
4. Description of construction phasing, if required.

D. Leadership Presentations:

1. Confirm requirements with UTSW PM.
 - a. Initial submissions may include:
 - i. Perspective drawing(s) showing visual appearance and orientation of the Project with adjacent structures and amenities.
 - ii. Elevation drawing(s) showing proposed façade(s) and massing.
 - iii. Typical floor plans.
 - b. Final submissions

- i. Site plan(s) showing building orientation and proximity to adjacent buildings, roads and drives, pathways, and other features.
- ii. Elevation and Perspective Drawings to show scale and visual exterior elements of the proposed design.
- iii. Main level floor plan with spaces identified and circulation paths illustrated.
- iv. Upper-level typical floor plan(s) depending on the nature of the project and the number of floor levels included.
- v. Fact sheet outlining square footage, including both gross and net assignable, costs and other pertinent data.
- vi. Project Planning Form (PPF).

E. Drawings:

1. Site plan indicating areas of demolition, building location and footprint, adjacent structures, parking or parking structures, pedestrian and vehicular circulation, emergency vehicle access, loading dock or truck access, all major landforms, site features and constraints, topographical contour lines, sub-surface conditions, survey, landscaping scheme, coordinate with Civil Engineering and Landscape disciplines.
2. Circulation Path Plan:
 - a. All patient focused project types shall include a circulation path plan overlay. Scale of drawing must be easily readable for clarity and sign-off by Owner.
 - b. Circulation path plan shall be submitted at any partial Design Development issuances, at final Design Development submittal with plan(s) on full-size sheets.
 - c. At a minimum, it shall have differing line types to indicate the following circulation types:
 - i. Public or General Circulation.
 - ii. Patient Unescorted Circulation.
 - iii. Patient Escorted Circulation.
 - iv. Staff Open Circulation.
 - v. Restricted Staff Circulation.
 - vi. Specialty Circulation based on Project Specifics.
 - d. Related discussions to be included shall include access control, door hardware types, automatic door openers, and other project specific requirements that affect the workflow and functions.
3. Demolition Plans:
 - a. Renovation projects shall include plans of the existing building, building structural system, and areas requiring demolition.
 - b. Any hazardous material locations identified in the UTSW provided environmental testing report shall be indicated in drawings and noted as "Not in scope – to be removed by abatement contractor."
4. Floor Plans:
 - a. Floor Plans of final scheme showing room layout, room number and room name, gross areas, doors with swings, columns, shear walls, rated partitions, shafts, and stairs.
 - b. Notes shall be included indicating any special requirements for spaces such as HVAC, electrical or plumbing unique conditions.
 - c. Equipment rooms shall show clearances for maintenance and access.

- d. All proposed floor plans showing overall dimensions, room numbers and sizes, door swings, furniture layout (both fixed and mobile), equipment layout (both fixed and mobile), fire rated walls, gross area, and net assignable area calculations, as well as smoke control zones.
- e. Plan shall document any occupied spaces.
- f. Room numbers shall follow UTSW assigned numbering.
- g. All associated spaces including mechanical, electrical, service closets, etc. shall be noted on plans as required in renovation projects.
- h. Include levels above and below plan areas affected by the work.
- i. Include approximate square footage or linear footage affected by associated scope of work planned.
- j. Includes all stairs, elevator shafts, or shafts associated with the work.
- 5. Kitchen and food service shall indicate serving areas, seating areas, and circulation.
- 6. Interior finish schemes shown on floor plans coordinated with finish and material schedules.
- 7. Reflected ceiling plans including mechanical items, electrical items, material types, elevations, and other details to describe intent.
- 8. Roof plans shall be coordinated to show all equipment, pathways, roofing changes, walk pads, etc.
- 9. Enlarged Plans of spaces shall indicate required clearances for accessibility, maintenance clearances and indicate any potential items of non-compliance. Spaces include at a minimum: Toilet rooms, stairs, TR closets, mechanical spaces, electrical rooms, and spaces with special design criteria, etc.
- 10. Exterior Elevations: At least two exterior elevations (final agreed scheme), a building profile section showing floor to floor dimensions, ground floor elevation to mean sea level (MSL), a primary elevation and other significant façades (street-facing, loading dock area, adjacent to recognized neighbor, etc.), with materials and extents described on drawings.
 - a. A continuation and refinement of elevations to expand to all exterior elevations including exterior materials referenced to wall sections and details. Indicate material transition locations, expansion joints, control joints, etc. Fully noted and dimensioned back to structural grid.
- 11. Building Sections shall indicate critical building components, hierarchies, elevations, special conditions, etc. including heights and dimensions.
- 12. Wall sections shall show all exterior finishes, materials, and fenestration types, parapet condition, assemblies, and indicate floor-to-floor types as well as dimensions back to structural grid.
 - a. Indicate each wall type at a minimum graphically with specific information including sound attenuation, fire ratings, UL, or other testing design numbers.
- 13. Construction details: Indicate details at large scale to clearly show components and assemblies including waterproofing, assemblies, windows, storefronts, equipment, shielding, etc., countertop details, casework elevations, and typical sections, details of unique finishes, dimensioned with notes indicating materials and components.
- 14. Door schedule indicating doors, frames, fire ratings, and special conditions planned.

15. Interior elevations for all special design criteria, such as finish, acoustics, environmental, transportation, security, details of unique features to be included at enlarged scales, dimensions to indicate finish heights and extents, important elevations to be enlarged as required.
 16. Furniture and Equipment Plans: Preliminary furniture layouts for the entire building to substantiate and verify that program space requirements are being met, and to confirm electrical, communication, and audio-visual locations.
 - a. Preliminary furniture layouts shall be both well resolved and workable, while conforming to ADA standards.
 - b. Indicate electrical requirements and connections.
 - c. Final layouts shall include walls, windows, doors, room numbers, built-in cabinetry, and equipment.
 - d. Furniture layouts shall be half-toned.
 17. Perspective Renderings: If required per contract, provide according to requirements.
 18. Schedules: Refer to Volume 3, Section B3 for deliverable requirements.
 - a. Room schedules and space schedule that validate program requirements.
 - b. Door schedules, opening schedules, glazing schedules, etc.
 - c. Toilet accessory schedule
 - d. Signage schedule including standards. **Refer to Exhibit B3-7 Room Sign Schedule.**
 - e. Interior finishes and materials schedule to coordinate with interior finish plans.
 - f. Equipment responsibility matrix showing OFCI, OFOI, CFCl, etc. with indications of equipment on emergency power - Refer to Volume 3, Equipment Schedules and Coordination.
 19. Phasing: Information and drawings if required.
- F. Finish Binders: Provide digital copy of finish information the Owner, UTSW PM and UTSW Design Team indicating all finish items in the project. This binder shall include a finish schedule and each material sample shall be noted with an identification number for reference.

XVI. Plumbing

- A. Programming:
 1. The Facility Program shall include the project requirements, design approach, proposed siting, layouts, and massing.
 2. Matrix identifying desired types of spaces, sizes, features, intended operations, adjacencies, and other features of the project.
 3. Narratives describing the major components and assumptions.
 4. Applicable Code Requirements include confirmations that the program is compliant with these codes and guidelines.
- B. Schematic Design:
 1. Reports per discipline shall be provided that indicate the scope of work involved including descriptions of all necessary systems in the project. Narrative shall clearly state any extreme deviations from Design Guidelines in design approach and

justification for deviation. Any deviations will need to be reviewed and approved by CIP and FDP&C (Planning and Design).

C. Design Development Report:

1. Design loads for Plumbing and Plumbing Fixture requirements per code.
2. Special environmental requirements (such as equipment, space pressurization, processes, animals, odors, sterility, etc.)
3. Provide final calculations for all systems.
4. Final updated design criteria for each plumbing system, including set points, water quality, piping levels, etc.
5. Life Cycle Cost Analysis as applicable.

D. S.E.C.O.

1. Provide "Water Conservation Design Standard Compliance Certification for State-Funded Buildings" with initial draft of form submitted at SD.

E. Drawings:

1. All site plans showing existing and proposed utilities, underground and overhead, with sizes shown, valves, boxes, cleanouts, access ways, manholes, fire protection Siamese and hydrant locations.
2. Utility Plans: Provide location, types, and sizes of existing and proposed utilities. Plumbing Engineer, Civil Engineer, and Landscape Architect shall collaborate and coordinate plans. Indicate any areas of specialty systems including lawn irrigation.
3. Demolition Plans: For renovation projects, provide domestic water piping, sanitary waste piping, and other specialty piping demolition plans.
 - a. Any hazardous material locations identified in the UTSW provided environmental testing report shall be indicated in drawings and noted as "Not in scope – to be removed by abatement contractor."
4. Diagrams:
 - a. Indicate routing of vent stacks up through roof for all project vents.
 - b. Isometric riser diagrams for all plumbing risers in the building (each main stack identified by a number on both the plans and the riser diagram), including domestic water, sanitary, storm, laboratory water, medical gas, RODI, etc.
 - c. One-line (riser) diagrams for every plumbing system including domestic hot water, domestic cold water, sanitary, storm, laboratory water, medical gas, RODI, vent etc.
 - d. Control diagrams for all plumbing systems.
 - e. Flow diagrams for all pressure systems including heating and cooling, water, steam, gas, oxygen, air, vacuum, fire protection, etc.
5. Floor Plans: To show:
 - a. All plumbing fixtures, lab fixtures, floor and roof drains, special devices
 - b. Locations and details of fire hose connections, lavatory connection, pump connection, hot water generator, water softener, acid dilution basin, sewer manholes, backflow prevention, water header, etc., including details.
 - c. All sanitary waste and vent piping.
 - d. Roof and Overflow Storm Drain piping.
 - e. Main water supply taps and piping, sized.
 - f. Indicate required service areas.

- g. Any special plumbing system requirements such as vacuum, compressed air, de-ionized water, medical or laboratory gases or laboratory waste.
 - h. Back Flow prevention locations.
 - i. All spaces shall be identified by name and room numbers with column grids and numbers on all plans.
 - j. Plans shall note where space is limited.
 - k. Schedule all major equipment on drawings.
 - l. Plumbing plans shall have all fire and smoke walls and partitions (and their ratings) clearly indicated.
 - m. For renovations: identify any relocation of main plumbing risers or other elements.
- 6. Roof plans shall be coordinated to show all equipment, pathways, roofing changes, walk pads, etc.
 - 7. Enlarged Floor Plans: Any congested spaces shall be shown at 1/4-inch minimum scale.
 - 8. Construction Details: Provide plumbing details.
 - 9. Schedules: Equipment responsibility matrix showing OFCI, OFOI, CFCI, etc. with indications of equipment on emergency power. Refer to Volume 3, Equipment Schedules and Coordination for information.
 - 10. Design criteria for each plumbing system, including set points, water quality, piping levels, etc.

XVII. Mechanical

- A. Programming:
 - 1. The Facility Program shall include the project requirements, design approach, proposed siting, layouts, and massing.
 - 2. Matrix identifying desired types of spaces, sizes, features, intended operations, adjacencies, and other features of the project.
 - 3. Narratives describing the major components and assumptions.
 - 4. Applicable Code Requirements include confirmations that the program is compliant with these codes and guidelines.
- B. Schematic Design:
 - 1. Reports per discipline shall be provided that indicate the scope of work involved including descriptions of all necessary systems in the project. Narrative shall clearly state any extreme deviations from Design Guidelines in design approach and justification for deviation. Any deviations will need to be reviewed and approved by CIP and FPD&C Planning and Design.
 - 2. Design loads for HVAC, requirements per code.
 - 3. Special environmental requirements (such as equipment, space pressurization, processes, animals, odors, sterility, etc.)
 - 4. Provide final calculations for all MEP systems.
 - 5. Life Cycle Cost Analysis as applicable.
- C. S.E.C.O. (As required)
 - 1. Provide S.E.C.O. and ASHRAE 90.1 Compliance form initial draft to be issued at SD.

- D. Design Criteria: To be submitted with each deliverable.
1. Code Review, UT Guidelines Review, and Occupancy classification, Construction Envelope, International Mechanical Code, International Plumbing Code, International Fuel Gas Code, Texas Department of Licensing and Regulation.
 2. Design loads for HVAC, Plumbing; and Plumbing Fixture requirements per code
 3. Special environmental requirements (such as equipment, space pressurization, processes, animals, odors, sterility, etc.).
 4. Update and resubmit "Basic Systems Data" at final DD design calculations.
- E. Drawings:
1. Site plans showing existing and proposed utilities, underground and overhead, with sizes shown, valves, boxes, cleanouts, access ways, manholes, fire protection Siamese and hydrant locations.
 2. Demolition plans: For renovation projects, provide schematic HVAC system ductwork and air devices demolition plans.
 - a. Any hazardous material locations identified in the UTSW provided environmental testing report shall be indicated in drawings and noted as "Not in scope – to be removed by abatement contractor."
 3. Diagrams showing control diagrams, riser diagrams, flow & riser, and other as determined per project.
 4. Floor Plans:
 - a. Overall project area air flow diagram indicating air handlers, exhaust fans, duct risers, main ducts, and shafts.
 - b. HVAC Floor Plans showing equipment layout in mechanical rooms.
 - c. Building floor plans indicating ductwork in single line format for Supply Air (SA), Return Air (RA) and Exhaust Systems; indicate estimated SA, RA, and Exhaust airflow rates; piping mains.
 - d. Show locations, orientation and size of major equipment, risers, lines, and connections. Include clearances with dimensions for any enlarged equipment plans.
 - e. Plumbing fixtures and equipment may be shown on Architectural Floor Plans.
 - f. All HVAC floor plans shall include:
 - i. Plans shall indicate the egress route for large equipment including height requirements.
 - ii. Remodel projects shall also indicate egress routes for major components.
 - iii. Medium pressure ductwork shown in double line format, placement of single and dual duct terminal units, thermostats. Show major taps and splits, duct sizes.
 - iv. Low-pressure ductwork shown in single line format, not sized, diffusers, grilles and returns shown but not sized. Indicate SA, RA, and Exhaust Device cfm from current Load Calculations.
 - v. Duct layout for typical spaces including required dampers, fire dampers, smoke dampers and combination fire and smoke dampers.
 - vi. Routing of HVAC piping and pipe sizes shown.

- vii. Show in special detail, cross-section or other appropriate manner above ceiling spaces dedicated to specific services, such as special laboratory services, conduit, piping, ductwork, fire protection piping, etc.
 - viii. Indicate shafts, chases access clearance requirements including wall ratings that match floor plans.
 - ix. Identify all systems including air, hydronic, steam, condensate and other HVAC related systems, and other materials as required to describe the fundamental design concept for all mechanical systems.
 - x. Indicate the amount of redundancy for all major pieces of mechanical equipment. This is to be provided in the preliminary building assessment report prior to designing.
 - xi. On major equipment, indicate air intake, discharge locations and special occupancy zones (if required)
 - xii. Identify space classification (hospital, clinic, laboratory, BSL level, etc.)
 - xiii. Indicate Gross HVAC zoning and typical individual space zoning including quantity of VAV boxes per space type.
5. Construction Documents:
- a. All air conditioning systems are drawn to scale including all ductwork in two lines with all fittings to scale.
 - b. Sections through mechanical rooms to adequately describe the construction requirements.
 - c. Schedule of all major items of equipment to indicate performance characteristics.
 - i. Include humidification schedule, where required. Schedule shall include equipment number or tag, sheet number, room number of installation, and fire alarm device location.
 - d. All complete piping systems with necessary sections to clarify routing.
 - e. Applicable details.
 - f. All columns numbered.
 - g. All rooms numbered.
 - h. Flow diagrams for each piping system except drains - show quantities in each major branch take-off and the base of each main.
 - i. Identify all systems including air, hydronic, steam, condensate and other HVAC related systems, and other materials as required to describe the fundamental design concept for all mechanical systems.
 - j. Provide one-line diagrams for each air, hydronic, steam, condensate, and all other HVAC related systems.
 - k. On major equipment, indicate air intake, discharge locations and special occupancy zones (if required).
 - l. Identify space classification (hospital, clinic, laboratory, biosafety level, etc.).
 - m. Indicate Gross HVAC zoning and typical individual space zoning including quantity of VAV boxes per space type.
 - n. Roof plans shall be coordinated to show all equipment, pathways, roofing changes, walk pads, etc. Indicate clearances and access for roof-top equipment on plans.

- o. Enlarged Floor Plans: Mechanical room plan (1/4-inch minimum scale) laid out with HVAC and associated equipment (air handlers, pumps, compressors, etc.) shown to scale.
 - i. Mechanical room plans to indicate service clearances for all equipment, including coil pull space for Air Handling Units (AHU) and door clearances.
- p. Construction Details: Show in special detail, cross-section or other appropriate manner above ceiling spaces dedicated to specific services, such as special laboratory services, conduit, piping, ductwork, fire protection piping, etc.
- q. Controls: Describe the proposed controls sequence of operation for each system. This may reside within the narrative or on a drawing sheet in early design.
 - i. For systems with multiple fans or pumps, indicate size of each relative to full load capacity, and how many operate at a time.
 - ii. For AHU controls, indicate if economizer cycle and CO2 demand ventilation sequences will be included.
 - iii. Describe any required network integration of packaged controls systems for equipment such as chillers, boilers, computer room AHUs, etc.
 - iv. Include connections to building management system.
 - v. Provide preliminary points list or outline for all systems that is complete enough to allow accurate scope of work for the pricing of controls work.
 - vi. Provide detailed sequence of operations for all systems.
 - vii. Control diagram in concept form for all mechanical systems.
 - viii. Indicate type of controls to be removed or replaced such as pneumatic or Direct Digital Control (DDC).
 - ix. Include connections to building management system.
 - x. Provide points list or outline for all systems that is complete enough to allow accurate scope of work for pricing controls work.
 - xi. Provide detailed sequence of operations for all systems.
 - xii. Control diagram in final form for all mechanical systems.
- r. Schedules: Equipment responsibility matrix showing OFCI, OFOI, CFCl, etc. with indications of equipment on emergency power. Refer to Volume 3, Equipment Schedules and Coordination for information.

XVIII. Electrical

- A. Programming:
 - 1. The Facility Program shall include the project requirements, design approach, proposed siting, layouts, and massing.
 - 2. Matrix identifying desired types of spaces, sizes, features, intended operations, adjacencies, and other features of the project.
 - 3. Narratives describing the major components and assumptions.
 - 4. Applicable Code Requirements include confirmations that the program is compliant with these codes and guidelines.

B. Schematic Design:

1. Reports per discipline shall be provided that indicate the scope of work involved including descriptions of all necessary systems in the project. Narrative shall clearly state any extreme deviations from Design Guidelines in design approach and justification for deviation. Any deviations will need to be reviewed and approved by FPD&C Planning and Design.
2. The electrical design report shall briefly describe the proposed normal and emergency electrical power distribution systems, preliminary design loads, interior and exterior lighting, fire detection and alarm, communication, audio visual, central clock, CCTV, and security systems. Include any other items relevant to the project, such as lightning protection, special grounding requirements, UPS, power quality, hazardous locations, etc.
3. Lighting controls Sequence of Operation (SOO) or Narrative shall describe needs of each space type within project, amount of operability, system type, and the level of integration.

C. Design Development:

1. Special environmental requirements (such as equipment, space pressurization, processes, animals, odors, sterility, etc.).
2. Provide final calculations for all MEP systems.
3. Final Fault current and coordination studies shall be used to specify equipment ratings.
4. 100 percent Electrical load calculations.

D. Drawings:

1. Site plans showing location of existing or new utility source, characteristics, and proposed routing of new electrical service to building.
 - a. Indicate the provider of the power, utility company, campus generated, etc.
 - b. Show normal and emergency electrical service system equipment locations, include electric utility switches, power poles, sub-stations, vaults, duct-banks, manholes, exterior lighting, etc., as applicable.
2. Utility Plans shall identify, locate, and determine any applicable capacity of normal power, emergency power, and pathways for low voltage systems.
3. Demolition Plans shall indicate existing demolition in site and in plan, including equipment to be removed, repurposed, relocated, or to remain.
 - a. Any hazardous material locations identified in the UTSW provided environmental testing report shall be indicated in drawings and noted as "Not in scope – to be removed by abatement contractor."

E. Diagrams:

1. One-line or riser diagram indicating electrical service supply (primary and secondary as applicable), switchgear, switchboards, MCC's, large individual mechanical equipment, distribution panel boards, branch circuit panel boards, generators, fire pumps, etc. including equipment ratings.
2. Nominal power riser diagram with circuit breaker, fuse, conduit, and wire sizes
3. Emergency power riser diagram with circuit breaker, fuse, conduit, and wire sizes.
4. Grounding riser diagram.

F. Floor Plans:

1. Typical lighting and power layouts and main distribution gear locations.
2. Show locations, orientation and size of major equipment, risers, lines, and connections. Include clearances with dimensions for any enlarged equipment plans.
3. Coordinate minimum size of electrical rooms with Architectural plans.
4. Data and Technology: indicate required spaces on floorplans with basic equipment layout and clearances dimensioned.
5. Updated estimate of total normal and emergency electrical loads with line-item breakout of power, lighting, mechanical, receptacles, misc., etc.
6. All floor plans showing typical light fixture layout and types, both interior and exterior, typical power layouts including outlets, all distribution equipment locations, electrical rooms and vaults, communications rooms, etc. Unless permitted otherwise, provide separate sets of sheets as needed for power, lighting, fire alarm, communications, audio-visual and security.
7. Schedule of typical spaces, including exterior, with design footcandle levels and calculated lighting levels for the corresponding spaces.
8. Switchgear, switchboards, MCC's, large individual mechanical equipment, distribution panel boards, branch circuit panel boards, generators, fire pumps, etc. including equipment ratings.
9. Security: Indicate required spaces on floorplans with basic equipment layout and clearances dimensioned.
10. Lighting plans shall note elevation heights, other high installed items like milli-q's, clocks, etc. Identify undercounter light locations and extents.
11. Roof plans shall be coordinated to show all equipment, pathways, roofing changes, walk pads, etc.
12. Enlarged Floor Plans - Any congested spaces, equipment rooms, electrical rooms, substation, and generator room plans including standard details (if required) and ATS descriptions.
13. Construction Details - Provide the required details for the contractor to build the work.
14. Controls - Lighting control system and control device descriptions including dimming, daylighting, and low voltage control zones.
15. Panel schedules with load calculations.
16. Light fixture schedule including fixture type.
17. Schedules: Equipment responsibility matrix showing OFCI, OFOI, CFCI, etc. with indications of equipment on emergency power. Refer to Volume 3, Equipment Schedules and Coordination for information.
18. Electrical Calculations:
 - a. Lighting photometrics with calculated values on plans of each floor with only emergency egress lighting calculated values.
 - b. Provide lighting photometric values for each building and discharge to a public way.
 - c. Fault current and coordination studies are used to specify equipment ratings.
 - d. Final Calculations shall have the list of equipment on emergency power with electrical load calculations for service equipment and each distribution panel.

XIX. Data, Technology, and Security

- A. Programming:
 - 1. The Facility Program shall include the project requirements, design approach, proposed siting, layouts, and massing.
 - 2. Matrix identifying desired types of spaces, sizes, features, intended operations, adjacencies, and other features of the project.
 - 3. Narratives describing the major components and assumptions.
 - 4. Applicable Code Requirements include confirmations that the program is compliant with these codes and guidelines.
- B. Schematic Design:
 - 1. Reports per discipline shall be provided that indicate the scope of work involved including descriptions of all necessary systems in the project. Narrative shall clearly state any extreme deviations from Design Guidelines in design approach and justification for deviation. Any deviations will need to be reviewed and approved by FPD&C Planning and Design.
 - 2. Provide summary of all security services requested including cameras, duress alarms, panic devices, card readers, and other security devices. Include floor plans to show quantity, types, and locations.
- C. Design Development:
 - 1. Design criteria for each discipline, code requirements, special environmental requirements, final calculations for all systems.
- D. Drawings:
 - 1. Site plans showing the location of existing or new elements.
 - 2. Utility Plans to provide location, types, and sizes of existing and proposed utilities.
 - 3. Demolition Plans to indicate existing demolition in site and in plan, including equipment to be removed, repurposed, relocated, or to remain.
 - a. Any hazardous material locations identified in the UTSW provided environmental testing report shall be indicated in drawings and noted as “Not in scope – to be removed by abatement contractor.”
 - 4. Diagrams including raceway and grounding riser diagrams.
 - 5. Data and Technology:
 - a. Full floor plans showing outlets, equipment, associated rooms and spaces, conduit and cable trays, backboard locations, identify receptacles in existing walls, and Technology Room (TR) and Intermediate Distribution Frame (IDF) locations, sizes, and door swings.
 - b. Typical voice, data and video outlet location plans including installation heights.
 - c. Refer to any data connection not identified on plans as ‘to be located in coordination with IR infrastructure coordinator’.
 - d. Wall phone locations.
 - e. Wi-Fi locations shall be provided by UTSW.
 - 6. AV and Special Systems:
 - a. System descriptions (if present).
 - b. Finalized device location plans.
 - c. Including clock, AV equipment, camera, microphone, white noise location plans as provided by vendor.

7. Security: Full floor plans shall show
 - a. Equipment location plans including device location, card access-control equipment, etc.
 - b. Equipment descriptions and specific information.
 - c. Panel or tie-in locations.
8. Reflected Ceiling Plans - In separate reflected ceiling plan, locate cable trays and heights as it relates to structure and utilities.
9. Roof plans to show any equipment, routing, or connections within the project scope.
10. Enlarged plans of TR and IDF rooms shall be at 1/4-inch scale minimum.
 - a. Security office layout, access control equipment, closet layout, and elevations.
11. Construction Details shall indicate special conditions and requirements including dimensions.
12. Control systems and control device descriptions.
13. Schedules: Equipment responsibility matrix showing OFCI, OFOI, CFCI, etc. with indications of equipment on emergency power. Refer to Volume 3, Equipment Schedules and Coordination for information.
 - a. Equipment list for shared communication rooms.

XX. Fire Protection

- A. Programming:
 1. The Facility Program shall include the project requirements, design approach, proposed siting, layouts, and massing.
 2. Matrix identifying desired types of spaces, sizes, features, intended operations, adjacencies, and other features of the project.
 3. Narratives describing the major components and assumptions.
 4. Applicable Code Requirements include confirmations that the program is compliant with these codes and guidelines.
- B. Schematic Design:
 1. Reports per discipline shall be provided that indicate the scope of work involved including descriptions of all necessary systems in the project. Narrative shall clearly state any extreme deviations from Design Guidelines in design approach and justification for deviation. Any deviations will need to be reviewed and approved by FPD&C Planning and Design.
- C. Design Development
 1. Summary of site investigation with field notes and plans, if required
 2. Special environmental requirements that affect discipline.
 3. Final updated design criteria.
 4. Life Cycle Cost Analysis as applicable.
- D. Drawings
 1. Site plans showing locations of existing or new elements, utility connections, etc.
 2. Utility plans indicating utility relationships.
 3. Demolition plans to indicate existing demolition in site and in plan, including equipment to be removed, repurposed, relocated, or to remain.

- a. Any hazardous material locations identified in the UTSW provided environmental testing report shall be indicated in drawings and noted as “Not in scope – to be removed by abatement contractor.”
- 4. Floor Plans: Fire protection plans shall include:
 - a. Location of incoming supply, valves, fire pump, etc.
 - b. All piping routes, sprinkler head locations in architecturally sensitive areas only, fire department connections.
 - c. Show sizes of risers and trunks.
 - d. Fire Alarm Plans shall include FA panel device and appliance location plans.
 - e. Indicate existing approximate sprinkler head locations in demolition RCP plans.
 - f. Sequence matrix.
 - g. In architecturally sensitive areas, include main piping sizes and head locations.
- 5. Enlarged Plans of spaces shall indicate required clearances for maintenance clearances. Spaces include at a minimum:
 - a. Spaces with special design criteria, fire pump rooms, etc.
- 6. Construction Details shall indicate special conditions and requirements.
- 7. Schedules: Equipment responsibility matrix showing OFCI, OFOI, CFCI, etc. with indications of equipment on emergency power. Refer to Volume 3, Equipment Schedules and Coordination for information.

XXI. Construction Administration and Closeout Requirements for All Projects

- A. Note: Due to security protocols, no zipped or compressed files shall be accepted.
- B. Some projects may utilize project management software during construction documentation and construction administration. The version a4 shall be confirmed by UTSW PM.
- C. Documentation provided in “.pdf” format with index information bookmarked and shall be provided with Optical Character Recognition (OCR) .
- D. Dependent on contract requirements, Design Professional shall revise the drawings and specifications upon Final Completion of the construction, to incorporate all Addenda, all Change Orders for the Work, and any modifications recorded by the Contractor on the As-Built Drawings and Specifications maintained at the job site.
 - 1. The Design Professional shall label the revised drawings and specifications as “Record Drawings” and “Record Specifications” and shall deliver copies to the UTSW PM for record purposes, as follows:
 - 2. Record Specifications: Provide one (1) bound hard copy set and one (1) electronic set of the fully conformed records specifications incorporating all changes and as-built conditions in PDF format containing index information bookmarked with optical character recognition (OCR) .
 - 3. Record Drawings: Provide one (1) complete bound print set of record drawings, and one (1) complete electronic set of the full record drawings incorporating all changes and as-built conditions in PDF format with optical character recognition.
- E. Confirm contract requirements:
 - 1. CAD files of drawings shall comply with UTSW CAD Standards. Utilize information in **EXHIBIT B3-1**.

2. BIM files of project shall comply with UTSW BIM Standards, refer to **EXHIBIT B3-3**.

XXII. Office of Safety and Business Continuity (OSBC) Coordination Requirements

- A. Project shop drawing documentation required for review by OSBC shall conform to the following as well as specific requirements from UTSW Master Specification sections.
- B. Civil: (NFPA 1: 1.7.11.1, 12.8)
 1. New Construction
 2. Renovation and Modification
- C. Architectural and Engineering: (NFPA 1: 1.7.11.5, 1.7.11.6, 12.8)
 1. New Construction
 2. Renovation, Modification, or Tenant Fit Out
- D. Automatic Fire Sprinkler System: (NFPA 1: 1.7.11.1, 1.7.11.6, 12.8; NFPA 13: 23.1)
 1. New Installations
 2. Renovation, Modifications, or Tenant Fit Outs which require the addition or movement of more than 2 sprinkler heads.
- E. Hydraulic Calculations:
 1. Required for the addition or modification of more than 5 fire sprinkler heads.
- F. Fire Alarm System: (NFPA 1: 1.7.11.1, 1.7.11.6, 12.8; NFPA 72: 7.1.1, 7.1.2)
 1. New Installations
 2. Renovation, Modifications, or Tenant Fit Outs which require the addition or movement of more than 2 fire alarm devices.
- G. Battery Calculations:
 1. Required for the addition or modification of more than 2 devices.
- H. Clean Agent System: (NFPA 1: 1.7.11.1, 1.7.11.6, 12.8; NFPA 2001: 5.1.2.1)
 1. New Installations.
 2. Renovation, Modifications, or Tenant Fit Outs which require the addition or modification of nozzles or fire alarm devices.
- I. System Calculations:
 1. Required for the addition of any nozzles or fire alarm devices.
- J. Ansul System: (NFPA 1: 1.7.11.1, 1.7.11.6, 12.8; NFPA 17A: 6.3)
 1. New Installations.
 2. Renovation, Modifications, or Tenant Fit Outs which require the addition or modification of nozzles or fire alarm devices.
- K. Agent Calculations:
 1. Required for the addition of any nozzles.
- L. Other Plans and Permits required by the Fire Code:
 1. Permits for Tank Installation, Removal, or for Change of: Occupancy; Means of Egress; Fire Suppression; Fire Alarm; Private Fire Hydrants; Open Fires and Burning; Tents; Hot Works; Construction; Etc.
 2. NFPA 1: 1.12.2.1 – Applications for permits shall be accompanied by such data as required by the AHJ and fees as required by the jurisdiction.
 3. NFPA 1: 12.8 – Permits shall be required in accordance with Table 1.12.8 (a) – (d)

- M. New Construction:
 - 1. NFPA 1:1.7.11.1 – The AHJ shall have the authority to require plans and specifications to ensure compliance with the applicable codes and standards. (Note: OSBC is the AHJ on UTSW campus).
- N. Existing Construction:
 - 1. NFPA 1: 1.7.11.6 – Plans shall be submitted to the AHJ proper to the alteration of the means of egress of fire protections systems of any existing structure.

XXIII. Exhibit B3-1 UTSW CAD Standards

- A. The following items must be accurate for acceptance of the files submitted into UTSW FPD&C for record documents:
 - 1. All lines indicating objects (walls, doors, windows, etc.) must be continuous lines and not made up of partial lines or duplicated lines.
 - 2. Walls must match architectural conditions as found in the field. Specifically, walls must meet the exterior walls at mullions, not simply end into a window.
 - 3. If any special conditions found in the field must be noted along with the drawing file at the time of submittal for review by UTSW FPD&C.
 - 4. Layers as shown below are to be maintained and limited to only those layers listed. Any variance from this list requires prior written approval from UTSW FPD&C.
 - 5. Plans shall contain room names and room numbers within each room.
- B. Symbols used in CAD programs by the A/E shall match the symbols on UTSW provided MEP1 sheet.
- C. Layer Names with items included on layer:
 - 1. A-EQUIP - Built-in equipment
 - 2. A-CABT – Built in lower casework.
 - 3. A-CABT-UPPR – Built in upper casework.
 - 4. A-DOOR – Doors.
 - 5. A-HOOD – Fume hood.
 - 6. A-FIXT – Plumbing fixtures such as sinks, toilets, etc.
 - 7. A-FURN – Furniture.
 - 8. A-LAB-BENCH – Modular laboratory benches and built in laboratory casework.
 - 9. A-ROOM-NAME – Room name.
 - 10. A-ROOM-NUMBER – Room number.
 - 11. TITLE – Elements on drawings including drawing title, scale, and north arrow.
 - 12. A-WALL – Interior partitions.
 - 13. A-WAL-PERM – Permanent and building elements including exterior window walls and stairs.
 - 14. A-WIND – Windows on interior.
 - 15. S-COL – Structural elements.
 - 16. S-COL-GRID – Structural grid.
 - 17. S-COL-IDEN – Structural identification.

XXIV. Exhibit B3-2 Archibus Export Requirements

A. Deliverables

1. Project deliverables must include an AutoCAD background with rooms, spaces, and areas exported as polylines for use by Archibus. Archibus requires polylines to attach e-handles which contain data and are used in conjunction with the AutoCAD file to create the floor plan graphic visible in the application.
2. Drafting programs used by an A/E without conversion procedures inherent to the application should manually populate electronic backgrounds with polylines prior to sending deliverables to UTSW PM
3. The DWG export setup for REVIT is included but similar procedures exist in AutoCAD Architecture (3-D CAD) as well as other applications

B. Revit Example

1. Revit Detail Level: Change to “coarse” to limit the visibility of components, prior to DWG export.
2. Detail Level: Structural framing changes depending on the detail level. At coarse levels, it appears as lines. At medium and fine levels, it displays with more geometry.
3. Manage Visibility Graphics: Do not show detail lines of geometry and/or components.
4. Polylines are not shown for clarity in following images

Figure B3.2-1 – Example of acceptable DWG export: This close-up of a plan drawing shows a room. The drawing only includes the lines for partitions and doors as well as the room number.

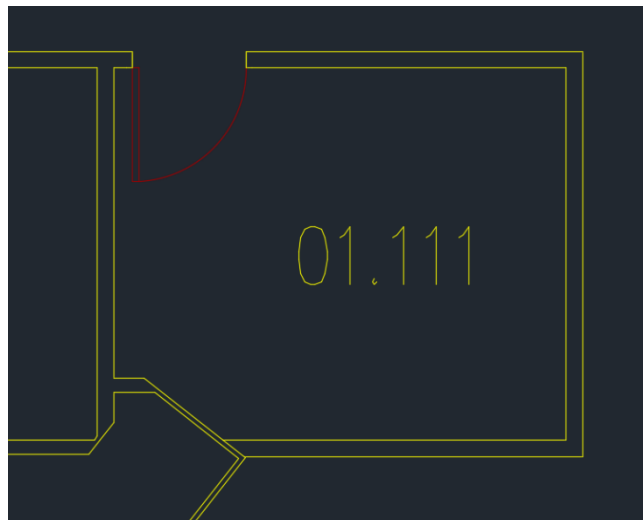
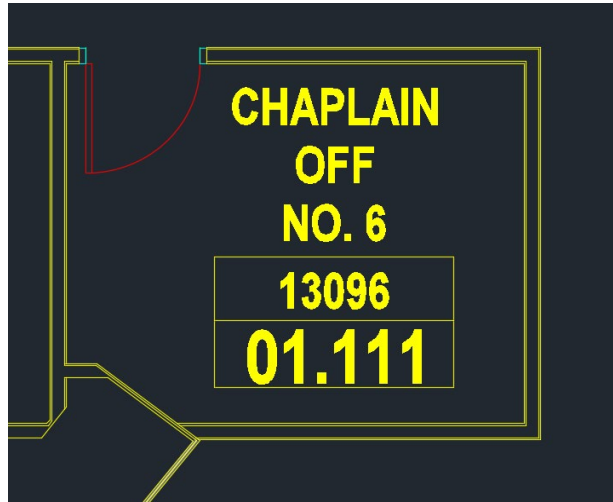
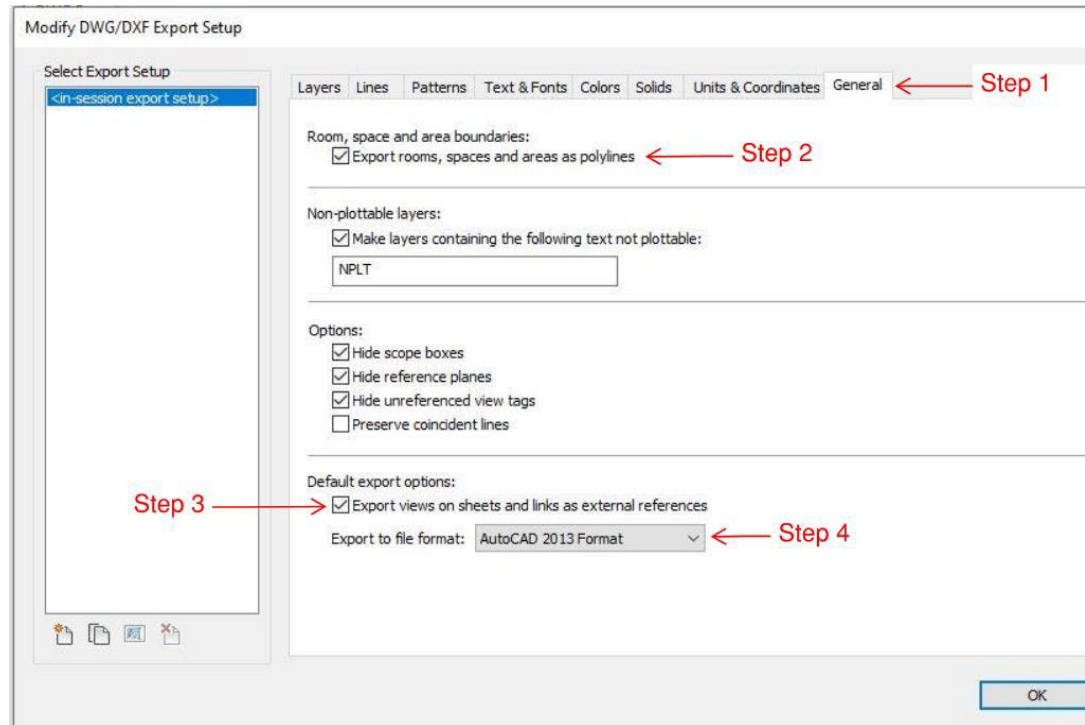


Figure B3.2-2 – Example of unacceptable DWG export: This plan drawing includes the lines for partitions and doors. Additionally, it includes room name and room number, which is not acceptable.



5. Revit Detail Level: Change to “coarse” to limit the visibility of components, prior to DWG export.
6. Within the Revit DWG Export option box, choose the CAD Format from the “Select Export Setup.” View **Figure B3.2-3**.
 - a. Select the "General" tab.
 - b. Under “Room, space and area boundaries,” check the box for "Export rooms, spaces and areas as polylines."
 - c. Under the “Default Export Options” check the box for "Export views on sheets and links as external references."
 - d. Unless told otherwise, choose “AutoCAD 2013 Format” under the “export to file format.”

Figure B3.2-3 – Example of Revit Dialogue Box: This image shows the Revit dialogue box to “Modify DWG/DWX Export Setup” and is on the “General” tab. There are red notes added to show the options noted in this step.



XXV. Exhibit B3-3 BIM Standards

- A. Design Professional shall provide Building Information Modeling (BIM) files to match UTSW Standards per contract requirements.
- B. Symbols used in BIM programs by the Design Professional shall match the symbols on UTSW provided MEP1 and T1 sheet.
- C. Summary: This document establishes general and administrative requirements pertaining to BIM to meet UTSW’s expectations for projects of various sizes and delivered under various contracting methodologies.
 1. BIM practices require cooperation and involvement of all parties throughout the project delivery process, regardless of the delivery method being used for a given project.
 2. BIM practices encompass and coordinate traditionally separate functions of design and construction in order to assemble all related building information into one Project Information Matrix that will provide the information needed to efficiently operate and maintain the facility once Substantial Completion has been achieved and the Project has been turned over to the Owner.

3. It is of primary concern that all building modeling and facility information developed during the design and construction of the Project be timely and efficiently developed, maintained, and exchanged from initiation of the Project through Final Completion in accord with all Contract Documents and with Owner's operational and maintenance needs.
4. Throughout the project lifecycle, the Design Professional and the Contractor are expected to systematically demonstrate to the Owner that all building and system information is current to the extent that it can be at a given time during the design and construction process.
5. It shall be the responsibility of the Design Professional and each of its consultants, as well as the Contractor and each of its Subcontractors, to have or obtain, at their cost, the trained personnel, hardware, and software necessary to successfully fulfill their respective obligations as set forth in the mutually developed BIM Execution Plan.

D. Definitions:

1. BIM Execution Plan (BEP) – A document developed by the BIM Team that prescribes how Building Information Modeling will be implemented for the Project and how requisite information will be transferred into the Project Information Matrix prior to Substantial Completion of the Project.
2. BIM Level – The extent to which model and information development will be required on a specific project. The BIM Level initially will be determined by the Owner but may be adjusted, with Owner's express approval, by the BIM Team over the course of the Project. The BIM Level will depend upon several factors, including the scope of project, project schedule; project cost; availability of existing BIM models; and availability of existing BIM data, etc.
3. Building Automation System (BAS) – The distributed control system that is used to monitor and control infrastructure systems within its facilities.
4. Building Information Modeling (BIM) – The process of generating and managing building data using three-dimensional (3-D), real-time, dynamic building modeling software resulting in a Building Model.
5. Building Information Modeling Team (BIM Team): Working group made up of representative(s) from the Design Professional, consultants, contractors, subcontractors and Owner.
6. Design Professional will provide ad hoc representation of the consultants on the BIM Team as required for the implementation of the BIM Execution Plan. Contractor will provide ad hoc representation of Subcontractors on the BIM Team as required for implementation of the BIM Execution Plan.
7. Building Model – A 3-D digital representation of physical and functional characteristics of a facility, or the components or systems thereof that encompass building geometry, spatial relationships and quantities and properties of building components and systems.
8. Computerized Maintenance Management System (CMMS) – The computer software package that is used to manage a digital database of information related to its facilities equipment and systems for the purpose of optimizing its maintenance operations.

9. CMMS Integration Process (CIP) – The prescribed process by which the information generated during Building Information Modeling will be fully integrated into Owner’s CMMS. The CIP is to be developed by the BIM Team and is to be included in the BIM Execution Plan.
10. Construction Documents – In addition to the items set forth in the UTSW UGCs, the Construction Documents shall include the Building Model and the Project Information Matrix.
11. Construction Model – A 3-D digital representation of physical and functional characteristics of a facility, or the components or systems thereof, that encompasses building geometry, spatial relationships and quantities and properties of building components and systems and that is developed by the Contractor or one of its Subcontractors before or during the Construction Phase of the Project.
12. Design Model – A 3-D digital representation of physical and functional characteristics of a facility, or the components or systems thereof, that encompasses building geometry, spatial relationships and quantities and properties of building components, and systems and that is developed during the preconstruction (Design) phase of the Project.
13. Facilities Information Management (FIM) – The process of gathering, maintaining, and distributing data associated with Owner’s facilities for the purposes of operating and maintaining those facilities.
14. Level of Development (LOD) – The degree to which information included within the Building Model can be relied upon.
15. Project Information Matrix (PIM) – The electronic file for a spreadsheet or database that identifies the information required from the Building Model, Drawings, and any other data source(s) developed for the Project and the parameters and properties of the content. During the design phase, the Design Professional will populate the PIM as information becomes available. Throughout the construction phase, the Contractor will update the PIM and will issue scheduled renditions during construction in addition to the final PIM to UTSW at Substantial Completion of the Project.
16. Record Documents – The electronic files, hard copy drawings, hard copy submittals, RFI’s, ASI’s and all other forms of documentation that are required to represent the final AS BUILT condition of the project. Reference the Owner’s Design Guidelines for details and requirements for record documentation, which includes CAD Standards.
17. System – A group or collection of items or equipment that work together or in tandem to function as a whole. Examples of systems include but are not limited to: HVAC systems, Bulk Gas Systems (any gases or vacuum not supplied by a point-of-service device), Plumbing, Fire Rated Assemblies such as doors/frames, Glazing, etc. or any items that are commonly known as systems by the Design and Construction Industries. If uncertainty exists, Consultants and the contractor are to coordinate with the owner for clarification.
18. Test, Adjust, and Balance (TAB) Firm: The Owner may engage a Test, Adjust, and Balance Firm for the Project under a Separate Contract. When engaged for the Project, the TAB Firm shall be a part of the BIM Team and shall provide services as set forth in the Specifications and its Separate Contract.

E. Coordination:

1. BIM Team – Includes the representatives assigned by Owner’s Designated Representative, the Design Professional, including sub-consultant BIM manager(s), except for projects implemented with design-build methodology, and the TAB Firm, when engaged for the Project.
2. Contractor’s Members – Includes individuals, each having authority to act on behalf of the entity they represent, explicitly organized to implement all BIM and FIM activities through coordinated actions.
 - a. Representatives of Contractor, including but not limited to contractor’s project manager, contractor’s BIM coordinator, Design Professional; including sub-consultant BIM manager(s); (for projects implemented with design-build methodology), subcontractors, as needed for Contractor to fulfill its BIM obligations, and equipment suppliers, as needed for Contractor to fulfill its BIM obligations.
3. Scheduling
 - a. Design (Preconstruction) Phase
 - i. For projects implemented using the competitive sealed proposal, construction manager-at-risk, or job order contracting methodology, the Design Professional shall integrate all BIM activities into its Project Work Plan and the design schedule.
 - ii. For projects implemented using the construction manager-at-risk or design-build methodology, the Contractor shall integrate all BIM activities into the Baseline Schedule, the Work Progress Schedule, and shall ensure that BIM requirements are clearly set forth in all solicitation documents used to select subcontractors or suppliers for the Project. All parties will address scheduling problems and make necessary notifications in a timely manner to expedite all BIM activities.
 - b. Construction Phase
 - i. The Contractor shall integrate all BIM activities into the Baseline Schedule and the work Progress Schedule. All parties will address scheduling problems and make necessary notifications in a timely manner to expedite all BIM activities.
 - ii. The Contractor shall provide the initial schedule of primary BIM activities at the project kick-off meeting. Prior to the start of Schematic Design, Contractor shall have incorporated and integrated all BIM activities into
 - iii. the Baseline Schedule and Work Progress Schedule with appropriately linked predecessors and successors.
4. Roles and Responsibilities
 - a. Roles and responsibilities of BIM Team members are set forth below to help to clarify Owner’s expectations with respect to the BIM and FIM processes.
 - b. Owner’s Role and Responsibilities:
 - i. Provide specifications related to the format and content for the Project Information Matrix.
 - ii. Provide the initial direction as to the extent the BIM is to be used on the Project. BIM Level to be used on the Project.

- iii. Approve the BIM Execution Plan and Design Professional's and Contractor's schedules for completing all BIM activities.
 - iv. Participate in BIM Team meetings.
 - v. Review and validate adequacy of Building Model development and project data collection.
 - c. Design Professional's Role and Responsibilities:
 - i. Attend BIM Team meetings.
 - ii. Incorporate all BIM activities into the design Work Plan and the design phase schedule.
 - iii. Produce for Owner's approval, the initial BIM Execution Plan, the initial Project Information Matrix of all devices, systems and equipment supplied.
 - iv. Review and approve Contractor's edits to the BIM Execution Plan, and the Project Information Matrix.
 - d. Contractor's Role and Responsibilities:
 - i. Receive from Design Professional and assume lead responsibility for the BIM Execution Plan, the Building Model and the Project Information Matrix.
 - ii. Administer updates to the BIM Execution Plan, the Building Model and the Project Information Matrix with the intent that all BIM-FIM Team members will have up-to-date information as the Project progresses.
 - iii. Provide an individual, subject to Owner's approval, experienced in Building Information Modeling to document changes to Building Model and complete the implementation of the BIM Execution Plan. The Contractor shall assign this individual to act as the BIM Coordinator, who may have additional duties such as MEP Coordinator, but shall not be Contractor's project manager or superintendent. The contractor shall submit qualifications demonstrating the BIM Coordinator's technical expertise and experience to the Owner for approval. In the event that Contractor chooses to subcontract its BIM obligations, Contractor must submit the name and qualifications of the proposed subcontractor for Owner's approval.
 - iv. Ensure that Building Modeling activities are incorporated into the Baseline Schedule and the Work Progress Schedule.
 - v. Schedule and conduct periodic meetings with Subcontractors and equipment suppliers related to BIM to ensure the Building Model and the Project Information Matrix are being routinely and accurately updated.
- F. BIM Execution Plan
 - 1. Throughout its development, efforts shall be made to align the responsibilities set forth in the BIM Execution Plan with the skills customarily contributed by each party associated with the Project.
 - 2. The BIM Execution Plan shall be considered a "living document" that is updated and refined throughout the life of the Project. It shall be available for review and verification by Owner at any time.

3. To the extent practical, the BIM Execution Plan shall minimize redundant efforts in favor of a single, organized approach to all activities required to successfully complete the BIM- FIM process.
 - a. The BIM Execution Plan shall include all pertinent Project Information, as a baseline for required information. It shall also identify and specify.
 - b. The extent to which Building Model(s) are to be used on the Project.
 - c. The expected timeline for when information will become available.
 - d. The information workflow process, include the requirements for transferring information, the Depth of Detail, and the party responsible for authoring and supplying the information at the appropriate time.
 - e. The software version to be used.
 - f. The file structure for the Building Model.
 - g. The model types, names, content, and relationships.
 - h. The Level of Development for each element to be included within the Building Model at each stage of the Building Model development.
 - i. The Depth of Detail for each element to be included within the Building Model.
 - j. The drawings to be generated from the Building Model(s) and the process(es) to be used for generating two-dimensional drawings from
 - k. the Building Model(s) which meet Owner's CAD standards.
 - l. The CMMS Integration Process to be used on the Project, including the requisite process for receiving Owner's CMMS Asset Numbers and for incorporating those numbers into the design documents and the PIM.
 - m. The data transfer protocol.
 - n. Conventions to be used for naming files.
 - o. Measures to be taken to ensure that there is no significant loss of drawing entities or data during drawing generation and data extraction.
 - p. Identifying areas in for laser scanning, if applicable.
4. Development of the BIM Execution Plan shall be included as an agenda item for all Project Team meetings throughout the Preconstruction (Design) Phase of the Project. The discussion items shall include, as a minimum:
 - i. The status of the development of the BIM Execution Plan.
 - ii. The identification of any issues related to the timing for exchanging information between the various Building Models and the timing and the means, and methods for entering information into the Project Information Matrix.
 - iii. The Level of Development of each of the Building Models,
 - iv. The Depth of Detail for information within the Building Models and to be entered into the Project Information Matrix.

G. Extracted Database

1. Unless Owner specifically agrees otherwise, all data input into the model(s) or CAD drawings shall be extracted from its various sources and delivered in a single Microsoft Access database. This Extracted Database shall include:

- a. Equipment data gathered during the course of design and construction that is related to equipment listed in the PIM, but for which a data field does not exist within the PIM. This data may or may not physically reside with a table or schedule located within the drawings or specifications.
- b. Fixed equipment data gathered during the course of design and construction that is not associated with equipment listed in the PIM (e.g., manufacturer's maintenance information related to sinks, faucets, emergency showers, light fixtures, life safety items, etc.). This data may or may not physically reside with a table or schedule located within the drawings or specifications.
- c. Data related to all fixed architectural and finish features (e.g., manufacturers maintenance information related to doors, hardware, finishes, glazing, etc.). This data may or may not physically reside with a table or schedule located within the drawings or specifications.
- d. All information that is contained within a schedule or table located within the drawings.
- e. All information contained within a schedule or table within the specifications.

H. Document Index

1. An index shall be included with each document delivery. The document index shall be in the form of a Microsoft Excel spreadsheet and shall identify every file included in the delivery. Identification information shall include:
 - a. Owner's project number.
 - b. Owner's project name.
 - c. File name.
 - d. File description.
 - e. Identity of the file authoring entity (i.e., who generated the file Design Professional, consultant, Contractor, Subcontractor).
 - f. Cross references to any required support files.

I. Laser Scans

1. Unless Owner specifically directs or agrees otherwise, Contractor shall provide laser scans for the following types of spaces:
 - a. Operating rooms.
 - b. Intensive care units.
 - c. Imaging suites.
 - d. Mechanical equipment rooms.
 - e. Plenum spaces through which significant mechanical, electrical, plumbing and information technology distribution systems are routed.
2. When conducted, laser scans shall be completed for walls and plenums before final cover-up begins.
3. Laser scan deliverables shall be in the form of three-dimensional models or two-dimensional drawings as set forth below in the BIM-FIM Deliverables section of this document and the final point cloud file generated by the laser scan used to create the models or drawings.

- J. Record Documents - Unless Owner specifically directs or agrees otherwise, Design Professional and Contractor shall provide all Project Record Documentation as defined in the Definitions section of this document. When any questions arise as to whether documentation, electronic or hard copy, should be considered.
- K. The BIM-FIM deliverables shall be set forth in the BIM Execution Plan and are based upon this Project requirements.
1. All files delivered in portable document file (pdf) format shall be searchable (i.e., “smart” or “vector” pdf’s).
 2. Unless Owner expressly agrees otherwise the project deliverables for each Project type shall be as follows:
 - a. BIM Execution Plan
 - b. Project Information Matrix
 - c. Design Model(s) – in the most current release of Autodesk REVIT or other software as indicated by the UTSW PM.
 3. In order to achieve maximum usage of the deliverables for Post Construction Facilities Management purposes the following modelling guidelines shall be adhered to unless Owner’s BIM representative agrees otherwise:
 - a. Design Professionals shall utilize REVIT to generate all design models.
 - b. Design Professional shall maximize the use of REVIT “Spaces” and “Zones” within the models. Each item that is placed within the model will be linked to a Space and/or Zone.
 - c. ALL Mechanical, Electrical, Plumbing, Security, Communications and all other items or equipment that is part of a System will be linked to both the “Space” it is located within and the “Zone” (groups of Spaces and/or Zones) that are served by said items or equipment.
 - d. Systems and their related Zones and Spaces shall be scheduled within their respective models.
 - e. All physical items that are documented in a table, schedule, list, external spreadsheet/database, submittal, RFI, ASI, etc. that pertain to final completion of the project will be required to be represented within the model as a 3-D object with inherent parameters or as part of a property set, etc.
 4. Construction Model(s) – in the most current release of Autodesk REVIT.
 5. In order to achieve maximum usage of the deliverables for Post Construction Facilities Management purposes the following modelling guidelines shall be adhered to unless owners BIM representative agrees otherwise.
 - a. Contractors and subcontractors shall utilize REVIT to generate all final as-build construction models.
 - b. Contractor shall maximize the use of REVIT “Spaces” and “Zones” within the models. Each item that is placed within the model will be linked to a “Space” and/or “Zone.”
 - c. ALL Mechanical, Electrical, Plumbing, Security, Communication and all other items or equipment that are part of a System will be linked to both the “Space” it is located within AND the “Zone” (groups of Spaces and/or Zones) that are served by said items or equipment. Systems and their related Zones and Spaces shall be scheduled within their respective models.

- d. All physical items that are documented in a table, schedule, list, external spreadsheet/database, submittal, RFI, ASI, etc. that pertain to final completion of the project will be required to be represented within the model as a 3-D object with inherent parameters or as part of a property set, etc.
- 6. All hard copy documents, i.e. submittals, RFI's, ASI's, etc. shall be scanned into a searchable PDF format and hyperlinked from the model to their proper folder location within Project Workspace.

XXVI. Exhibit B3-4 Survey Requirements

- A. A topographic survey (where required) will be performed for each project involving new construction and for FM capital projects where necessary by a surveyor licensed in the State of Texas.
- B. The survey shall include information for, but not limited to, topography, existing construction (buildings, roads, sidewalks, etc.), existing utilities on site including closest point of connection if not on site, significant vegetation, easements, etc.
- C. The survey shall be drawn using AutoCAD.
- D. The survey shall be modeled at one-to-one scale. All dimensions and elevations shall be in Imperial units. The plotted scale shall be 1-inch equals 20-feet, and the title block shall include the project name and project number.
- E. Include a legend of symbols and abbreviations used on the drawing, a north arrow, and a graphic scale.
- F. Provide contours at 1-foot intervals with an error not to exceed 1/2 contour per interval unless directed otherwise by UTSW.
- G. Provide at least two horizontal and one vertical control points with description and elevation to nearest .01 foot.
 - 1. Datum shall be NAD 83 for horizontal.
 - 2. Datum shall be NGVD 88 for vertical.
- H. Provide spot elevations at street intersections and curb, crown of roads, sidewalks, edge of paving including far side of paving, drainage flow line, manhole rims/covers, top and bottom of retaining walls, etc.
 - 1. Spot elevation on paving or other hard surfaces shall be to the nearest .05 foot and spot elevations on other surfaces to the nearest .1 foot.
- I. Include the location of above and below ground structures, man-made and natural features, all floor elevations, and finish floor elevations at each entrance of buildings on the property, if applicable.
- J. Include the location, size and depth of water bodies and reservoirs, gas and thermal utilities.
 - 1. For depths of utilities on UTSW campus, coordinate with the Facilities Management Department.
 - 2. For depths of utilities in City right of way, coordinate with each City.
- K. Include the location of fire hydrants available to the property and the size of the main serving each.
- L. Include the location and characteristics of power and communications systems above and below grade.
- M. Include the locations, size, depth, and direction of flow of sanitary sewers, combination sewers, storm drains and culverts serving or on the property; location of catch basins,

- N. manholes, and inverts of pipe at each.
- O. Provide the name of operating authority of each utility.
 - 1. Utility information may be provided by the Facilities Management Department, Facilities Planning Division, Real Estate Services and Academic Planning.
- P. Provide the mean elevation of water in any excavation, well, or nearby body of water.
- Q. Provide the location of 1 percent annualized potential and 0.2 percent annualized potential for 100- and 500-year floodplains.
- R. Provide the extent of watershed onto the property.
- S. Provide the location of trees with the species name in English, the caliper in inches and the canopy width. Provide the perimeter outline only of any thickly wooded areas unless otherwise directed.
- T. Show boundary lines, giving length and bearing (including reference or basis) on each straight line; interior angles; radius, point of tangency and length of curved lines.
- U. Locate existing benchmarks. Where no monument exists, set permanent iron pin (monument) or other suitable permanent monument at property corners; drive pin into ground to prevent movement, mark with wooden stake; state on the drawing(s) whether corners were found or set and describe each.
- V. The survey shall be reviewed by UTSW PM and Facilities Management Department before being finalized.
- W. The final drawing shall be sealed by a Texas Registered Professional Land Surveyor (RPLS).
- X. Upon completion of the survey, provide two copies of the plotted survey and one electronic set containing the native CAD file, an IFC copy of the file, as well as an ASCII file of the point elevations.

XXVII. Exhibit B3-5 Storm Water Pollution Prevention Plan (SWPPP)

- A. General Requirements
 - 1. The Design Professional is required to visit the site in person, to evaluate the existing conditions before preparation of the SWPPP. They shall notify the UTSW PM at least ten (10) business days in advance of the site visit. The Owner may choose to participate in the site review. After visiting the site, the Design Professional shall prepare the SWPPP book to include the sections listed below.
 - 2. The SWPPP will include the SWPPP drawing and all the relevant SWPPP information for the project.
 - 3. The UTSW SWPPP requirements will be used in conjunction with UTSW Specification Section 01 57 23, Temporary Storm Water Pollution Control.
- B. SWPPP Book Format
 - 1. As a minimum, one digital submission and two hard copies of the SWPPP book (one for UTSW headquarters, and one for jobsite) shall be prepared in the following format:
 - a. 8-1/2 by 11-inch size paper bound in a 3-ring binder, 1-1/2-inch minimum, with table of contents, tabbed sections as described below, and with plan drawings (size and scale may vary depending on nature of project) folded and inserted.
 - 2. The binder is to include a cover page and spine insert on the outside of the binder indicating the title Storm Water Pollution Prevention Plan, the institution name, the UTSW project name and number, the consultant's name, and date prepared (month and year).

- C. Title Page, Engineer's Seal, Signature and Date
 - 1. The first page of the SWPPP book shall identify the title Storm Water Pollution Prevention Plan, the institution name, the UTSW project name and number, the consultant's name, and date (month and year) of preparation of SWPPP.
 - 2. Provide the project engineer's seal, signature, and date.
- D. Table of Contents
 - 1. Include a table of contents listing the following the ten sections indicated below.
- E. Section 1 - Notices of Intent (NOIs) And Permits or Construction Site Notices (CSNs) For Owner and Contractor and Notice of Termination (NOTs)
 - 1. Draft versions of the SWPPP book shall include the incomplete unsigned NOI, CSN or NOT forms.
 - 2. After filing NOIs for Owner and Contractor, Owner shall distribute both completed and signed NOIs or CSNs for each copy of the SWPPP book, along with both copies of TCEQ TPEDES Construction Discharge Permits.
- F. Section 2 –Posting Notice/Contacts and Delegation Letters
 - 1. For large construction sites of five (5) acres or larger, include two (2) incomplete copies of the UTSW Posting Notice/Primary Points of Contacts form. Both forms will be completed later and posted at the entrance of the facility.
 - 2. A copy of the Owner's and Contractor's delegation of authority letters are to be kept in this section.
 - 3. Shared SWPPP Acceptance Certification
- G. Section 3 – Site Description
 - 1. This section of the SWPPP shall include a written description of the following items or map when appropriate:
 - a. A description of the project site with an 8-1/2 by 11-inch vicinity map. The vicinity map shall be of sufficient scale to show the project site location and the major streets and highways in and around the project location.
 - b. A description of the nature of the project including impacts to other elements and any environmental impacts.
 - c. Latitude and longitude of the site.
 - d. A description of the intended sequence of major activities that disturb soils for major portions of the site (e.g., on-site mobilization, demolition, clearing, grubbing, excavation, grading, utilities, and infrastructure installation.). Include timing of activities when it becomes available.
 - e. Estimates of the total number of acres of the campus and the total area of the site that are expected to be disturbed by excavation, grading, or other activities including off-site borrow and fill areas.
 - f. An estimate of the runoff coefficient of the site for both the pre-construction and post-construction conditions and data describing the soil or the quality of any discharge from the site.
 - g. The name of receiving waters and extent of wetlands.
 - h. Identify any industrial activities such as concrete or asphalt batch plants associated with the construction of the project. If none, state so.

- i. A general location map or vicinity map (e.g. a portion of a city or county map), which locates the site within the overall drainage pattern of the city and/or county and shows the receiving waters and surface waters. The preference for the general location map is a color US Geological Survey Quadrangle map or equal.
 - j. An 8 -1/2 by 11-inch general location map should be kept in this section or a larger quad map in the back of the 3-ring binder with other SWPPP drawings in the section titled exhibits.
- H. Section 4 – General Permit Requirements
 - 1. Copy of the permit requirements. Include a copy of TCEQ TPDES General Permit TXR150000, March 5, 2013, containing the general permit requirements.
- I. Section 5 – Erosion and Sedimentation Controls
 - 1. Each SWPPP shall include a written description of appropriate control measures (i.e., Best Management Practices – BMPs) that will be implemented as part of the construction activity to control pollutants in storm water discharges. The written description must clearly describe for each major activity, the appropriate control measures, and the general timing (or sequence) during the construction process that the measures will be implemented.
 - 2. Include an Erosion and Sediment Control Drawing and any control detail drawings illustrating the BMPs as exhibits in Section 10. Ensure the proposed locations of stabilized construction entrances and exits are shown on the Erosion and Sediment Control Drawing (see Section 10 of the A/E Guideline for additional contents of the drawing).
 - 3. Include a statement identifying which permittee is responsible for implementation.
 - 4. Include statements for Erosion and Sediment Controls – Short- and Long-Term Goals and Criteria that include the following:
 - 5. The construction-phase erosion and sediment controls should be designed to retain sediment on site to the extents practicable.
 - 6. All control measures must be properly selected, installed and maintained in accordance with the manufacturer’s specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, the permittee must replace or modify the control for site situations.
 - 7. If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts. (i.e. sediment accumulation in streets and curbs).
 - 8. Sediment must be removed from sediment traps or sedimentation ponds when the design capacity has been reduced by 50 percent.
 - 9. Litter, construction debris, and construction chemicals exposed to storm water shall be prevented from becoming a pollutant source for storm water discharges (i.e. screening outfalls, picked up daily) Stabilization Practices – include a description of interim and permanent stabilization practices for the project site, including a schedule of when the practices will be implemented. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Use of impervious surfaces for stabilization should be avoided. Stabilization practices may include, but are not limited to:

- a. Establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, and preservation of mature vegetation.
- 10. Structural Practices – include a description of structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable. Structural practices may include, but are not limited to:
 - a. Silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, temporary and permanent sediment basins (detention ponds), stabilized construction exit, and rock berms.
- J. Section 6 – Maintenance
 - 1. As a minimum, include a statement indicating that if site inspections identify BMPs that are not operating effectively, maintenance shall be performed before the next anticipated storm event or as necessary to maintain the continued effectiveness of storm water controls.
- K. Section 7 – Spill Prevention
 - 1. List and describe the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. The general construction site superintendent is responsible for cleaning up and disposition of spills.
 - 2. Include a statement that spills and releases of hazardous material shall be reported to the UT Southwestern OSBC, as soon as there is knowledge of the spill. The OSBC Environmental Compliance Manager will determine if the spill is a reportable quantity and determine who must be notified. Include a statement that the contractor shall contain the spill until such time the OSBC can give direction or clean up.
 - 3. Include a statement that the SWPPP must be modified within 14 days of the spill to show any BMP modifications for spill prevention.
- L. Section 8 – Inspections
 - 1. Note to CE: Construction site “owned” by GC and responsibility of UTSW PM to make sure GC is being monitored to appropriately manage SWPPP process and any permits. This includes dumpsters.
 - 2. Include in the SWPPP a written description of all steps to be taken, by a qualified person, to perform inspections of site controls. Steps include but are not necessarily limited to items b. through h. below.
 - 3. Include statements that the owner and contractor’s construction inspector shall be responsible for a routine inspection of on-site controls, once every seven (7) days, on Tuesday. One standard UTSW form shall be used for routine inspections. An after-rain event inspection will not be required if the 7-day inspection is followed.
 - 4. Include instructions to perform site inspections, at specified intervals and using UTSW inspection forms. Verify that all implemented site controls are functioning properly to prevent erosion and sedimentation. Note any and all deficiencies in site controls on inspection form. Inspection report forms are to be signed in accordance with the

5. General Permit by a person qualified to make such inspections and by the individual designated as having certification authority.
 6. Include instructions to provide a copy of the inspection report for the party responsible for maintenance and repair of site controls. Keep copies of all inspection reports filed with SWPPP on site for review by EPA, TCEQ, MS4 operator officials, or Owner's representatives.
 7. Include instructions requiring when controls are found to be ineffective, or require modification to adequately prevent erosion and sedimentation, revise on-site copy of SWPPP to reflect changes made. Describe and illustrate the change and note date of change.
 8. Direct Contractor to perform regular inspections at beginning of workweek (Tuesday) to allow sufficient time for maintenance and repair of site controls during same workweek.
 9. Include instructions that all inspection reports, along with noted revisions to the SWPPP, shall be retained for a period of at least three years from the date the site is finally stabilized. Include copy of UTSW SWPPP Inspection Report Form. These forms are to be duplicated and used for inspection purposes.
- M. Section 9 – Non-Storm Water Discharges
1. Include an inventory of the non-storm water substances expected to be present onsite during construction. Examples are:
 - a. Discharges from firefighting.
 - b. Fire hydrant flushing.
 - c. Vehicles, buildings, and pavement wash water.
 - d. Water used for dust control.
 2. If no non-storm water substances are expected, then include a statement indicating there are none.
- N. Section 10 – Exhibits
1. Erosion and Sediment Control Drawing (SWPPP drawing) – plan drawing(s) and detailed drawing of controls, with plan sheet showing proposed improvements (building, paving, etc.) and indicating the following:
 2. Existing drainage patterns indicated with post construction arrows to show direction of flow on site with destinations of flow described (both on-site and off-site destinations).
 3. Approximate slopes anticipated after major grading activities (steeper slopes shall require additional control measures until final stabilization).
 4. Areas of soil disturbance (limit disturbance as much as possible and protect as much of existing vegetation in place as possible).
 5. Areas which will not be disturbed (indicate intent to protect or preserve existing vegetation).
 6. Show limits of construction.
 7. Locations of major structural and non-structural controls identified in SWPPP (silt fences, berms, swales, dikes, inlet protection, etc).
 8. Locations where stabilization practices are expected to occur (exposed embankments during excavations, etc.).
 9. Locations of off-site material, waste, borrow or equipment storage areas (concrete wash pits, lay-down areas, soil stockpile areas, etc.).

10. Surface waters (including wetlands or low areas, drainage channels, creeks, lakes, etc.).
11. Locations where storm water discharges to surface water.
12. Location and description of any discharge associated with industrial activity other than construction, including storm water discharges from dedicated asphalt plants and dedicated concrete plants, which is covered by this permit.
13. Offsite material storage areas (also including overburden and stockpiles of dirt, borrow areas, etc.) used solely by the permitted project are considered a part of the project and shall be addressed in the SWPPP.
14. General Location Map (Quadrangle Map or equal).

XXVIII. Exhibit B3-6 Geotechnical Investigation

- A. Where geotechnical investigations are required, reports shall be as follows:
- B. All parts of the report are to be made on white or off-white paper measuring 8-1/2 by 11-inches, suitable for photocopying and bound in booklet form. If larger drawings are necessary, they shall be folded to 8-1/2 by 11-inches to fit into the report booklet.
- C. Written reports and analysis shall be on geotechnical firm's letterhead.
- D. Include with the report a chart illustrating the soils classification criteria and the terminology and symbols used on the boring logs.
- E. Identify the ASTM or other recognized standard sampling and test methods utilized.
- F. Provide a plot plan with horizontal location and ground elevation of test borings using same datum as survey.
- G. Provide vertical sections for each boring plotted and graphically presented showing the number of borings, sampling method used and date of start and finish.
- H. Soil classified in the field logs in accordance with current applicable ASTM and other standards.
- I. Surface elevation at all bores.
- J. Description of soil and thickness of each layer Hydraulic pressure required or number of blows per foot (N value) and where applicable.
- K. Depth to loss or gain of drilling fluid.
- L. Depth to wet cave-in.
- M. Depth to artesian head.
- N. Ground water elevation and time when water reading was made (repeat observation after 24 hours).
- O. Presence of gases.
- P. Location of strata containing organic materials, wet materials or other inconsistencies that might affect engineering conclusions.
- Q. Description of the existing surface conditions and summarize the subsurface conditions.
- R. As a minimum, the following tests are to be performed: Moisture Contents, Atterberg Limits, percent Passing #200 Sieve, Hydrometer, Pocket Penetrometer, Unconfined Compression, and Unit Dry Weight.

- S. Two final reports sealed by a Texas Registered Professional Land Surveyor with the project name and project number on the cover page and one electronic submission with the report in PDF format. The PDF shall contain a Table of Contents bookmarked and linked to the corresponding pages with optical character recognition (OCR) .

XXIX. Exhibit B3-7 Room Sign Schedule

- A. The table below shows the standard room signage schedule. The table shall include the following information and list of standard comments.

Sign Number	Room Number	Sign Content	Sign Type	2nd Sign	Braille (Yes or No)	Quantity	Comments
1.	NE2.704	AUTHORIZED PERSONNEL ONLY ZONE III	343	363A	Y	1	
2.	NE2.704A	MRI CONTROL	342		Y	1	
3.	NE2.704B	SPIN LAB ZONE IV	343	363A	Y	1	TWO ENTRANCES TO NE2.704B
4.	NE2.704C	MRI ZONE IV	343	363A	Y	1	1, 2, 3, 4, 5, 6, 7
5.	NE2.704G	ELECTRICAL	341		Y	1	
6.	NE2.705	MRI EQUIPMENT	342	362	Y	1	
7.	NE2.706A	TBD	343	363A	Y	1	DOORS FROM NE2.704
8.							
9.							

B. Comments:

1. General contractor to remove all existing signs.
2. General contractor to patch and prep all signage locations for new signage.
3. All signs are provided and installed by UTSW Sign Shop.
4. All signs are to be manufactured in accordance with the UTSW Comprehensive Interior signage Manual and Texas Accessibility Standards (TAS), 2012, Section 703. Proofs are to be supplied for all signs for approval by UTSW prior to manufacture.
5. All signs are to be installed in accordance with the UTSW Comprehensive Signage Manual and TAS, 2012, Section 703.4. If that is not possible, alert construction PM before installation for guidance.

FACILITIES MANAGEMENT DESIGN GUIDELINES – VOLUME 3 UPDATE LOG JUNE 25, 2026

FORMAT AND TERMINOLOGY UPDATES

The UTSW Design Guidelines was reformatted to comply with new requirements under Title II of the Americans with Disabilities Act (ADA) from April 24, 2024 as well as UTSW Policy ETH-151, which requires compliance with WCAG 2.1 Level A and AA Standards.

The original document is now divided into three volumes to provide greater accessibility of the information. The following identifies the old and new format, noting where components have moved or been removed.

Previous Document Format	New Document Format
No Volume	Volume 1 – Design Philosophy, Codes, and Standards
Section A – Design Philosophy	Section A – Design Philosophy
Section A1 – Master Specifications (now B2)	NA
Section A2 - Animal Resource Center (A.R.C.) Design Requirements	Section A1 - Animal Resource Center (A.R.C.) Design Requirements
Section A3 – Clinical Design Requirements	Section A2 – Clinical Design Requirements
Section A4 – Laboratory Design Requirements	Section A3 – Laboratory Design Requirements
No Volume	Volume 2 – Design Requirements
Divisions 00 00 00 through 32 00 00	Divisions 00 00 00 through 32 00 00
No Volume	Volume 3 – Deliverable Requirements
Section B – Codes and Standards	Section B – Codes and Standards
Section B1 - Definitions	Section B1 – Definitions
NA	Section B2 – Master Specifications (previously A1)
Section C – Deliverable Requirements for Design Documents	Section B3 – Deliverable Requirements for Design Documents
Section C1 – Deliverables Checklist (Removed)	NA
Index (Removed)	NA

Format changes:

- Images and tables have new descriptions preceding each one to describe the content shown.
- Images have alternate text added and color has been revised to provide greater contrast.
- Tables have been revised to simplify the content to provide more accessible content. In some cases, larger individual tables have been divided into multiple, smaller tables. In general, the content has not changed unless it is noted in the revisions list below.
- For sections 00 00 00 through 32 00 00, subchapter II, Design Review Submittal Requirements have all been revised to indicate the new format. They now say to refer to Volume 3 – Deliverable Requirements

Terminology changes:

- “AE” changed to “Design Professional”
- “OSBC....” changed to “Safety”
- “Director FPD&C” changed to “Asst. VP of FPD&C”

CONTENT REVISIONS

The following changes were implemented. Updated text in **bold**.

Section	Revision/Addition
Table of Contents	Updates for new sections, section name changes, and page number adjustments.

Volume III

Section B, XII. Noise Criteria (NC)

Reformatting of table for accessibility and changed to multiple smaller tables. New description of table.

FGI column updated from 2014 to 2022 version.

Figure B.1 – Maximum Noise Criteria (NC) Requirements for Office and Administrative Spaces. This table shows examples of recommended noise criteria (NC) from ASHRAE, FGI, and NIH standards that a Design Professional could consider for review and application on projects.

Space / Occupancy Type	<i>Maximum Noise Criteria (NC) ASHRAE Applications Volume, Chap. 42 and ANSI S1.8 Reference Quantities for Acoustical Levels ASA 84.</i>	<i>FGI Outpatient 2022, Maximum Design Criteria Excerpt Table 1.2-4</i>	<i>NIH Design Requirements for Research Areas (excerpt)</i>
Executive, Private office	30	40	30 - 35
Open plan areas	40		35 - 45
Business machine areas	40		
Public circulation, Corridors	45	45	45
Conference		35	
Public Areas	40	45	

Figure B.2 – Maximum Noise Criteria (NC) Requirements for Research, Hospital, and Clinic Spaces. This table shows examples of recommended noise criteria (NC) from ASHRAE, FGI, and NIH standards that a Design Professional could consider for review and application on projects.

Space / Occupancy Type	<i>Maximum Noise Criteria (NC) ASHRAE Applications Volume, Chap. 42 and ANSI S1.8 Reference Quantities for Acoustical Levels ASA 84.</i>	<i>FGI Outpatient 2022, Maximum Design Criteria Excerpt Table 1.2-4</i>	<i>NIH Design Requirements for Research Areas (excerpt)</i>
Multiple occupant patient area, ward	35	45	
Procedure room	30 - 35	40	40 - 45
Medication safety zone		40	
Waiting area		45	
Dining room and lobbies			40
Central sterile, food service			45
Kitchen, lockers, warehouse, shops			50

Figure B.3 – Maximum Noise Criteria (NC) Requirements For Laboratory Spaces. This table shows examples of recommended noise criteria (NC) from ASHRAE, FGI, and NIH standards that a Design Professional could consider for review and application on projects.

Space / Occupancy Type	<i>Maximum Noise Criteria (NC) ASHRAE Applications Volume, Chap. 42 and ANSI S1.8 Reference Quantities for Acoustical Levels ASA 84.</i>	<i>FGI Outpatient 2022, Maximum Design Criteria Excerpt Table 1.2-4</i>	<i>NIH Design Requirements for Research Areas (excerpt)</i>
Research and General	35	55 – 50	40 - 45
Research Animal Housing			45
Teaching	30	45	

Figure B.4 – Maximum Noise Criteria (NC) Requirements For Education Spaces. This table shows examples of recommended noise criteria (NC) from ASHRAE, FGI, and NIH standards that a Design Professional could consider for review and application on projects.

Space / Occupancy Type	<i>Maximum Noise Criteria (NC) ASHRAE Applications Volume, Chap. 42 and ANSI S1.8 Reference Quantities for Acoustical Levels ASA 84.</i>	<i>FGI Outpatient 2022, Maximum Design Criteria Excerpt Table 1.2-4</i>	<i>NIH Design Requirements for Research Areas (excerpt)</i>
Classrooms	30	30	30 – 35
Conference rooms, lecture rooms	30	30	25 – 35
Auditorium	30		20 - 25

Section B, XIII. Sound Transmission Class (STC)

Reformatting of table for accessibility and changed to multiple smaller tables. New description of table.

Figure B.5 – Room Adjacency and Sound Transmission Class (STC) Minimums - Animal Resource Center (A.R.C.). This table shows examples of recommended minimum STC requirements between rooms from NIH standards that a Design Professional could consider for review and application on projects.

Space Type 1	Space Type 2	<i>Minimum STC Required (NIH Design Requirements Manual, ASTM E90)</i>
Small animal room and normally occupied rooms	Large animal room, cage wash, noise producing support spaces	60
Behavioral space	Other room types	58
Occupied areas	Public corridors	50

Figure B.6 – Room Adjacency and Sound Transmission Class (STC) Minimums – Healthcare.
This table shows examples of recommended minimum STC requirements between rooms from FGI standards that a Design Professional could consider for review and application on projects.

Space Type 1	Space Type 2	<i>Minimum STC Required FGI Outpatient 2022</i>	<i>Additional Requirement</i>
Exam Room	Corridor (with entrance to corridor)	35	Sound isolation at doors shall be determined per project.
Exam Room	Exam Room (with electronic masking)	40	Electronic masking shall provide a maximum background of 48 dBa.
Exam Room	Exam Room (no electronic masking)	50	
Exam Room	Public Space	50	
Exam Room	MRI	60	Refer to FGI requirements
Treatment Room	Corridor (with entrance to corridor)	35	Sound isolation at doors shall be determined per project.
Treatment Room	Treatment Room	50	
Procedure Room	Corridor (with entrance to corridor)	35	Refer to FGI requirements
Procedure Room	Procedure Room	50	
Telemedicine Room	Public space, office, consultation, treatment, exam,	55	
Toilet Room	Public Space	45	

Section B1 - Definitions

Deletions and Revisions

~~Architect & Engineer (A/E) – A consultant specializing in Architecture and Engineering also known as the Design Team.~~

Design Professional – Professionals contracted to plan, design, and construct projects. Can include Architects, Engineers, A/E, Construction Managers, etc.

Facilities Planning, Design, and Construction (FPD&C) - A department under Facilities Management that focuses on Planning, Design, and Construction of capital projects that support the tripartite mission of UTSW.

Office of Safety & Business Continuity (OSBC), AKA “Safety” - A UTSW Service Provider for UTSW including Fire Safety, the campus Authority Having Jurisdiction for NFPA, Biological Safety, Chemical Safety, Environmental Health, Occupational Safety, Radiation Safety, Laser Safety, and other teams committed to the management and sustainability of safety, risk and insurance services, emergency management, and business continuity.

Section B3, II Standard Provided Documents

Revision

5. UTSW Signage manuals and nomenclature standards provided by the UTSW PM.
 - a. **Manuals may include: Comprehensive Interior Signage Manual, Comprehensive Exterior Signage Manual, and the Garage Signage Manual.**

Section B3, III CIP Deliverables

Revisions based on formatting changes for accessibility.

Basic Systems Data is no longer in table format, now described with text.

- A. **Design Professional shall confirm deliverable requirements with the UTSW PM for each project but all projects shall provide deliverables identified in Volume 3, including any required exhibits indicated.**
- B. CIP Projects shall also provide the following:
 1. **Basic System Data: This document will provide building and system design information. Design Professional shall begin providing this in early design with updates at each issuance. The final version shall be submitted to UTSW PM at the conclusion of Design Development.**
 - a. **Basic Information: UTSW Project Name, UTSW Project Number, Date of Analysis, and current project phase.**
 - b. **Building Area: Provide gross and assignable areas.**
 - c. **Thermal Performance: Provide transmission coefficients (U-value) and Shading Coefficient (SC) for each exterior wall type, glass type, roof type, floor type, and slab edge condition in tabular format.**

- d. **Cooling System Data:** Identify type(s) of cooling systems planned with their design capacities in tons of refrigeration and gallons per minute (GPM) if it is a chilled water system.
 - i. Indicate the prime energy source.
 - ii. If the system will be served by a central plant, confirm that plant capacity has been verified and include source of verification.
 - e. **Heating System:** Identify types of heating systems with heating capacities expressed in British Thermal Units per hour (BTUH) for steam systems and GPM for hot water system.
 - i. Indicate the prime energy source.
 - ii. If the system will be served by a central plant, confirm that plant capacity has been verified and include source of verification.
 - f. **Air System Data:** Identify type(s) planned with number of prime units and total cubic feet per minute (CFM) required.
 - g. **Ventilation Rates:** Identify the design ventilation air supplied expressed in CFM per person, CFM per square feet, air changes per hour, minimum and maximum outside air, and additional requirements such as vent cycling.
 - h. **Plumbing Design:** Provide planned plumbing load in both fixture units and GPM for sanitary, cold water, hot water, and storm water.
 - i. **Electrical Design:** Provide planned loads in both watts per square foot and kilowatt totals for lighting, general power, and types of special power required for the project.
2. **Life Cycle Cost:**
- a. Employ a life cycle cost study to determine Return on Investment (ROI) timeline and present the results to UTSW. Perform the analysis with up-front costs, energy costs, maintenance costs, and end-of-life costs, for at least four of these concepts, or for other energy efficient measures under consideration:
 - b. Demonstrate energy usage design compliance via a whole-building energy model for the Envelope, Mechanical Systems, and Lighting as is in project scope.
 - i. Provide output of energy model for base building design and ECM strategies, annual usage profile for electric and gas from the model.
 - ii. Provide a template of the format of final deliverables to UTSW PM and Utilities for approval prior to study.

Section B3, IV Deliverables Required for All Projects

Revisions based on formatting changes for accessibility.

Cost Quantity Survey is no longer in a table format.

Pending Issues Report is no longer in a table format.

Code Compliance Confirmation review is no longer in a table format.

- A. **At all levels of submission, the Design Professional will be held to a standard of care for the documents provided to UTSW. All documents submitted shall provide information that is clear, concise, complete, and correct.**
- B. Drawing Sets shall be provided at each deliverable phase, compiled per discipline, and containing index information bookmarked with Optical Character Recognition (OCR).
- C. Project Manual and Specifications shall be provided at each deliverable, compiled, and contain the index information bookmarked with Optical Character Recognition (OCR).
 - 1. Specifications:
 - a. Each document shall follow the most current Construction Specifications Institute (CSI) format, utilizing the current UTSW Master Specifications as provided by the UTSW PM as well as required.
 - b. Schematic Design:
 - i. Descriptive Specifications: Provide brief narrative descriptions of the proposed component systems, materials, and equipment.
 - ii. Descriptive Literature: Include catalogue cut sheets for all equipment, fixtures, and products proposed.
 - c. Design Development:
 - i. Provide an outline or preliminary specifications for all disciplines that indicate project specific components, products, and equipment including the levels of quality.
 - ii. Provide descriptive literature in the form of catalogue cut sheets of proposed components, products, materials, and equipment.
 - d. Construction Documents,:
 - i. Specifications revised to the appropriate stage of completion shall be included with each stage of construction documents submitted.
 - ii. Prepare Project Manuals as indicated in the Contract and with UTSW PM confirmation. Utilize Volume 3, Section B2 for specification section understanding.
 - iii. Prevailing Wage Rates: UTSW PM will provide the UT System's prevailing wage rates to be used for the project.
 - 2. Additional project specific requirements may include furniture package, equipment package, physicist report, shielding report, and geotechnical report. (if required) – Refer to **Exhibit B3-6 Geotechnical Investigation** for requirements.
- D. **Cost Quantity Survey and Construction Cost Estimate: Provide an estimate at the end of each design phase, or as indicated by UTSW PM, and at the Issue for Construction (IFC). Design Professionals on CIP projects shall utilize an independent estimating company.**
 - 1. **Overall Format: Each submission shall include the construction cost estimate, a schedule of values, with unit costs for all materials, labor, equipment, building systems, General Conditions, fees, and contingencies.**
 - a. **Use the CSI Master Format divisions, the current edition, or the Uniformat Assemblies format to organize the information.**
 - b. **Provide the following basic information with every submission: UTSW Project Name, UTSW Project Number, Submission Date, and current project phase.**

- c. **Include the current total and base bid amount at each submission.**
- 2. **Process: In earlier phases, document base costs using square footage costs for building systems at a minimum. Typical systems may include foundations, structure, envelope, roof, specialties, conveying, MEP, etc. During later phases, information shall become more detailed and be generalized on quantities, volumes, lengths, square footage, etc.**
- E. **UTSW Comment Form**
 - 1. At each phase of document submission, the UTSW PM will collect review comments from UTSW teams within a standard UTSW review spreadsheet.
 - 2. The Design Professional shall review and provide responses to the comments within the same spreadsheet. These responses shall be returned to UTSW PM. The specific deadline for returning responses shall be confirmed with the UTSW PM but shall be prior to the next document submission.
 - 3. The Design Professional shall determine if corrections, revisions, or additions are required to the documents to fully address UTSW comments. These changes shall be made to the documents for the following document submission.
 - a. For any questions or concerns about comments received, the Design Professional shall request clarification through UTSW PM.
 - b. Any conflict about UTSW comments shall be reviewed with the UTSW Design Team.
 - c. The Director of Planning, Design, and Construction shall provide final determination on remaining conflicts.
- F. **Pending Issues Report**
 - 1. **The Design Professional shall prepare, maintain, and submit a Pending Issues Report throughout the Schematic Design, Design Development, and Construction Document Phases to record and track outstanding issues, concerns, and decisions.**
 - 2. **Report should include:**
 - a. **Basic Information: UTSW Project Name, UTSW Project Number, Date, and Project Phase.**
 - b. **Original project scope summary or narrative.**
 - c. **List of any approved scope changes with summary description and approval date.**
 - d. **Pending issues shall be presented in tabular format with columns including sequential number, initiation date, requestor name, requested action, responsible party, resolution due date, comment, and status (open or closed).**
- G. **Code Compliance Confirmation Reviews**
 - 1. **The Design Professional team shall provide a Code Compliance Confirmation Review and submit to the UTSW PM at 75-percent CD, and IFC submission at a minimum, as noted in Section B. Refer to the codes listed and Master Specifications.**
 - a. **CIP projects shall use an independent code consultant to provide reviews.**
 - b. **This review does not relieve the Design Professional from complying with the approved codes and standards for the project.**

- c. During the UTSW team's review, OSBC will perform all fire code reviews.
- 2. **Review shall include:**
 - a. **Basic Information: UTSW Project Name, UTSW Project Number, Date of Review, and Project Phase Documents being analyzed.**
 - b. **List of principal codes with versions used for the review.**
 - c. **Summary of the project scope.**
 - d. **List of building code issues with explanation for each issue, code article reference, and drawing reference(s).**
 - i. **Issues may include requirements for hazardous materials, requirements for laboratories, means of exit, emergency or stand-by power, fire water supply, FEMA 100-year floor plan, TDI Windstorm Inspection Program, and other summaries.**
 - e. **Compliance statement: Compliance with the comments stated in this letter, does not relieve the Design Professional from complying with the Owners Design Guidelines, Owner's insurance or underwriting requirements, applicable NFPA Standards, and State requirements.**
 - f. **Signature by Design Professional with professional license number.**
- H. TAS Accessibility Plan Review
 - 1. The Design Professional shall submit sealed documents to a RAS for an accessibility review.
 - a. The Design Professional shall send UTSW PM a copy of the receipt of submittal from the RAS.
 - b. Refer to Volume 1, Section A – Regulation Requirements for additional requirements.
 - 2. The Design Professional shall provide UTSW PM with a corrective action plan to address non-compliant issues noted in the report while documenting issues in the "Pending Issues Report and Project Tracking".
 - a. The Design Professional shall identify associated accessibility issues outside of project scope and report to UTSW PM.
 - b. The Design Professional shall advise UTSW PM for any additional services proposal (ASP) to provide corrective action plan for issues outside of scope.
 - 3. The Design Professional shall review the proposed corrections and potential cost implications with the UTSW PM for approval prior to final documentation. UTSW PM and Design Professional will determine the course of action to issue updates.
 - 4. The Design Professional shall document corrections through issuance of documentation such as an ASI or Addendum to confirm the corrective action plan has been completed.
- I. CAD Backgrounds
 - 1. The Design Professional shall provide CAD backgrounds at IFC.
 - 2. AutoCAD version will be confirmed by UTSW PM.
 - 3. All CAD files submitted shall follow UTSW CAD Drafting Standards and Archibus Requirements. Use **EXHIBIT B3-1 – UTSW CAD Standards** and **EXHIBIT B3-2 – UTSW Archibus Export Requirements in the UTSW Design Guidelines.**
 - a. Background shall include rooms, spaces, and areas exported as polylines.

- b. All files shall be in root directories with drawing files before support files. Bind all files to prevent external x-refs.

J. **Life Safety CAD**

- 1. **The Design Professional shall provide CAD file(s) at close out of the life safety plans created for the project.**
- 2. **AutoCAD version will be confirmed by UTSW PM.**

Section B3, V Special Deliverables

New section to provide clarity on special deliverables and where they are noted in the document.

- A. **Deliverables required only on specific projects shall be confirmed with the UTSW PM. Refer to exhibits at the end of Section B3 for requirements.**
- B. **Special Deliverables may include the following with exhibit name:**
 - 1. **Exhibit B3-1 CAD Standards**
 - 2. **Exhibit B3-2 Archibus Export Requirements**
 - 3. **Exhibit B3-3 BIM Deliverables**
 - 4. **Exhibit B3-4 Survey**
 - 5. **Exhibit B3-5 Storm Water Pollution Prevention Plan (SWPPP)**
 - 6. **Exhibit B3-6 Geotechnical Investigation.**

Section B3, XXIII Exhibit B3-1 UTSW CAD Standards

Revision to description of several layers.

- C. Layer Names with items included on layer:
 - 1. A-EQUIP - Built-in equipment
 - 2. ~~A-EQUIP-HIDN – Built-in equipment~~
 - 3. A-CABT – Built in lower casework.
 - 4. **A-CABT-UPPR – Built in upper casework.**
 - 5. A-DOOR – Doors.
 - 6. A-HOOD – Fume hood.
 - 7. A-FIXT – **Plumbing fixtures such as sinks, toilets, etc.**
 - 8. A-FURN – Furniture.

New description of image

Figure B3.2-1 – Example of acceptable DWG export: This close-up of a plan drawing shows a room. The drawing only includes the lines for partitions and doors as well as the room number.

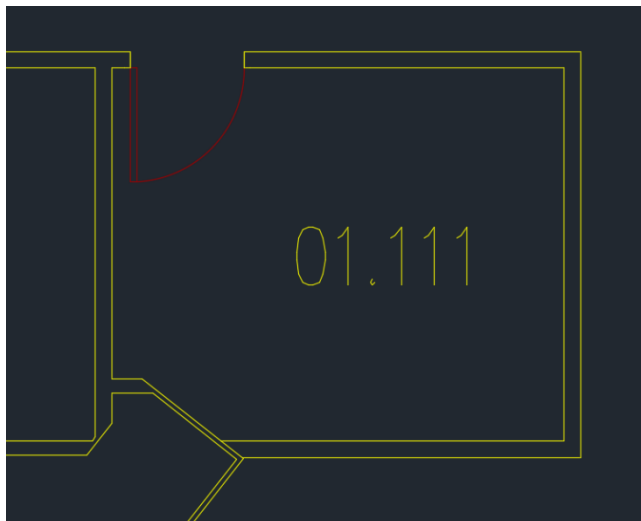


Figure B3.2-2 – Example of unacceptable DWG export: This plan drawing includes the lines for partitions and doors. Additionally, it includes room name and room number, which is not acceptable.

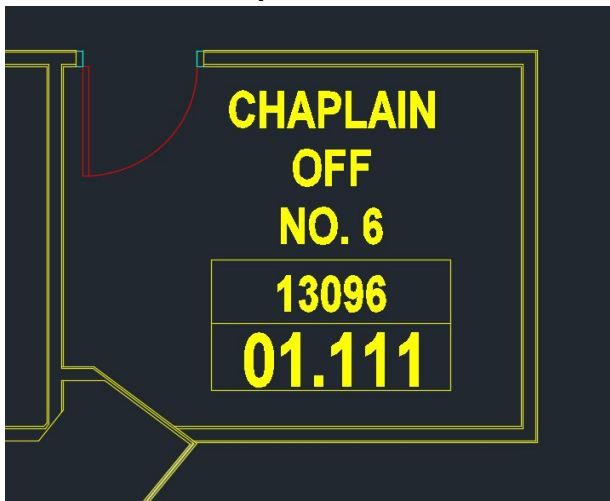
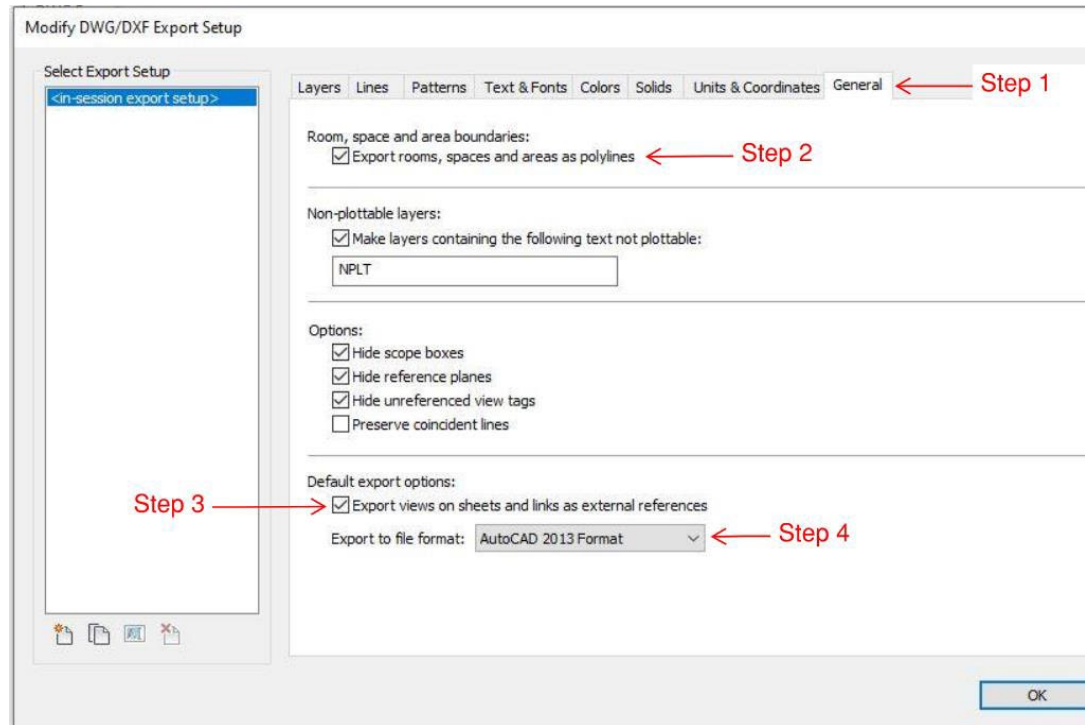


Figure B3.2-3 – Example of Revit Dialogue Box: This image shows the Revit dialogue box to “Modify DWG/DWX Export Setup” and is on the “General” tab. There are red notes added to show the options noted in this step.



Section B3, XXV Exhibit B3-3 BIM Standards

Revision

- A. ~~Refer to the project's Owners Design Guidelines for other requirements related to the development, maintenance and exchange of design information, the formatting of design documents, and the completion and submittal of Record Documents.~~
- B. ~~Refer to Owner's Master Construction Specifications for other requirements related to the development, maintenance, and exchange of construction project information, and the completion and submittal of Record Documents.~~
- A. Design Professional shall provide Building Information Modeling (BIM) files to match UTSW Standards per contract requirements.
- B. Symbols used in BIM programs by the Design Professional shall match the symbols on UTSW provided MEP1 **and T1 sheet.**

Section B3, XXVI Exhibit B3-4 Survey Requirements

Revision, paragraph moved from previous section.

- A. **A topographic survey (where required) will be performed for each project involving new construction and for FM capital projects where necessary by a surveyor licensed in the State of Texas.**
- B. The survey shall include information for, but not limited to, topography, existing construction (buildings, roads, sidewalks, etc.), existing utilities on site including closest point of connection if not on site, significant vegetation, easements, etc.
- C. The survey shall be drawn using AutoCAD.

Section B3, XXIX Exhibit B3-7 Room Sign Schedule

Revision of Table for accessibility.

- A. The table below shows the standard room signage schedule. The table shall include the following information and list of standard comments.

Sign Number	Room Number	Sign Content	Sign Type	2nd Sign	Braille (Yes or No)	Quantity	Comments
1.	NE2.704	AUTHORIZED PERSONNEL ONLY ZONE III	343	363A	Y	1	
2.	NE2.704A	MRI CONTROL	342		Y	1	
3.	NE2.704B	SPIN LAB ZONE IV	343	363A	Y	1	TWO ENTRANCES TO NE2.704B
4.	NE2.704C	MRI ZONE IV	343	363A	Y	1	1, 2, 3, 4, 5, 6, 7
5.	NE2.704G	ELECTRICAL	341		Y	1	
6.	NE2.705	MRI EQUIPMENT	342	362	Y	1	
7.	NE2.706A	TBD	343	363A	Y	1	DOORS FROM NE2.704
8.							
9.							

B. Comments:

- General contractor to remove all existing signs.
- General contractor to patch and prep all signage locations for new signage.
- All signs are provided and installed by UTSW Sign Shop.
- All signs are to be manufactured in accordance with the UTSW Comprehensive Interior signage Manual and Texas Accessibility Standards (TAS), 2012, Section 703. Proofs are to be supplied for all signs for approval by UTSW prior to manufacture.
- All signs are to be installed in accordance with the UTSW Comprehensive Signage Manual and TAS, 2012, Section 703.4. If that is not possible, alert construction PM before installation for guidance.