

FACILITIES MANAGEMENT DESIGN GUIDELINES – VOLUME 1 - DESIGN PHILOSOPHY, CODES, AND STANDARDS

TABLE OF CONTENTS

INTRODUCTION	6
I. General Information	6
SECTION A – DESIGN PHILOSOPHY	7
I. Design Philosophy	7
II. Campus Design Standards	7
III. Operating and Building Maintenance	8
IV. Codes and Standards	8
V. Regulation Requirements	8
VI. Environmental Practices: Sustainability and Energy Design	9
VII. Environmental Practices: Water Efficiency and Design	10
VIII. Environmental Practices: Daylighting	11
IX. Environmental Practices: Building Materials	11
X. Environmental Practices: Indoor Air Quality	11
XI. Environmental Practices: Commissioning	12
XII. Safety and Design	12
XIII. Safety and Design: Radiation and MRI Safety	13
XIV. Healthcare Regulations	14
XV. Building Core Elements: Partition Standards	14
XVI. Building Core Elements: Entries	15
XVII. Building Core Elements: Egress Stairs	15
XVIII. Building Core Elements: Emergency Command Center	15
XIX. Building Core Elements: Mechanical Rooms	16
XX. Building Core Elements: Air-Handling Rooms	17
XXI. Building Core Elements: Electrical Rooms and Closets	17
XXII. Building Core Elements: Rooftop Requirements	18
XXIII. Building Core Elements: Intermediate Distribution Frame (IDF), Technology Room (TR) Requirements	19
XXIV. Building Core Elements: Restrooms	19
XXV. Building Core Elements: Maintenance Spaces	20
XXVI. Food Service	22
XXVII. Parking and Garages	24
XXVIII. Accessibility	24
XXIX. Space Standards	25
XXX. Pharmacy Design and Requirements	25
XXXI. MRI Design and Requirements	27
XXXII. Loading Docks and Receiving Requirements	32
XXXIII. Institutional Design and Branding Committee	33
XXXIV. Nursing Mother Rooms	34
XXXV. Vending Standards	34
XXXVI. Vibration Criteria in Buildings	34
XXXVII. Assignment of Room Names	34
XXXVIII. Assignment of Room Numbers	35
SECTION A1 – ANIMAL RESOURCE CENTER (A.R.C.) DESIGN REQUIREMENTS	45
I. General Information	45

II.	Design	46
III.	Section 03 00 00 Concrete	51
IV.	Section 04 20 00 Concrete Unit Masonry	51
V.	Section 05 40 00 Cold-Formed Metal Framing	52
VI.	Section 06 83 16 Fiberglass Reinforced Paneling	52
VII.	Section 07 90 00 Joint Protection	52
VIII.	Section 08 10 00 Doors and Frames	52
IX.	Section 08 31 13 Access Doors and Frames	52
X.	Section 08 71 00 Door Hardware	52
XI.	Section 08 71 13 Automatic Door Operators	53
XII.	Section 08 80 00 Glazing	53
XIII.	Section 09 00 00 Finishes	53
XIV.	Section 09 29 00 Gypsum Board	54
XV.	Section 09 22 16 Non-Structural Metal Framing	54
XVI.	Section 09 50 00 Ceilings	55
XVII.	Section 09 60 00 Flooring	55
XVIII.	Section 09 91 23 Interior Painting	55
XIX.	Section 10 26 00 Wall and Door Protection	55
XX.	Section 10 44 00 Fire Protection Specialties	56
XXI.	Section 10 50 00 Storage Specialties	56
XXII.	Section 11 00 00 Equipment	56
XXIII.	Section 11 53 19 Laboratory Specialty Equipment	57
XXIV.	Section 11 53 53 Biological Safety Cabinets	58
XXV.	Section 12 35 53 Laboratory Casework	58
XXVI.	Section 12 36 00 Countertops	59
XXVII.	Section 12 50 00 Furniture	59
XXVIII.	Section 13 31 13 Animal Monitoring and Watering Systems (A.M.W.S.)	59
XXIX.	Section 14 00 00 Conveying Equipment	59
XXX.	Section 21 00 00 Fire Suppression	60
XXXI.	Section 22 00 00 Plumbing	60
XXXII.	Section 22 11 19 Plumbing Specialties	60
XXXIII.	Section 22 40 00 Plumbing Fixtures	61
XXXIV.	Section 23 00 00 Heating, Ventilating, and Air Conditioning (HVAC)	61
XXXV.	Section 26 00 00 Electrical	62
XXXVI.	Section 26 51 00 Interior Lighting Fixtures	63
XXXVII.	Section 27 00 00 Communications	64
XXXVIII.	Section 28 00 00 Electronic Safety and Security	64
SECTION A2 – CLINICAL DESIGN REQUIREMENTS		65
I.	General Information	65
II.	Design	65
III.	Design Review Process and Documents	66
IV.	Spaces	66
V.	Section 06 40 23 Interior Architectural Woodwork	68
VI.	Section 06 80 13 Resin Composite Paneling	69
VII.	Section 06 83 16 Fiberglass Reinforced Paneling	69
VIII.	Section 07 90 00 Joint Protection	69
IX.	Section 08 10 00 Doors and Frames	69
X.	Section 08 34 00 Special Function Doors	70

XI. Section 08 71 00 Door Hardware	70
XII. Section 08 80 00 Glazing	70
XIII. Section 09 00 00 Finishes	71
XIV. Section 09 22 16 Non-Structural Metal Framing	71
XV. Section 09 29 00 Gypsum Board	71
XVI. Section 09 30 00 Tiling	72
XVII. Section 09 50 00 Ceilings	72
XVIII. Section 09 60 00 Flooring	72
XIX. Section 09 65 00 Resilient Flooring	73
XX. Section 09 90 00 Painting and Coating	73
XXI. Section 09 91 23 Interior Painting	73
XXII. Section 10 14 00 Signs and Graphic Elements	73
XXIII. Section 10 21 23 Cubicle Curtain and Track	74
XXIV. Section 10 26 00 Wall and Door Protection	74
XXV. Section 10 28 00 Toilet and Bath Accessories	75
XXVI. Section 10 50 00 Storage Specialties	76
XXVII. Section 11 00 00 Equipment	76
XXVIII. Section 11 70 00 Healthcare Equipment	76
XXIX. Section 12 05 13 Fabrics	77
XXX. Section 12 36 00 Countertops	77
XXXI. Section 13 21 66 Audiology Booths	80
XXXII. Section 13 49 00 Radiation Protection	80
XXXIII. Section 12 50 00 Furniture	80
XXXIV. Section 14 00 00 Conveying Equipment	80
XXXV. Section 21 00 00 Fire Suppression	80
XXXVI. Section 22 00 00 Plumbing	80
XXXVII. Section 22 40 00 Plumbing Fixtures	80
XXXVIII. Section 23 00 00 Heating, Ventilating, and Air Conditioning (HVAC)	81
XXXIX. Section 23 09 00 Instrumentation and Control for HVAC	81
XL. Section 26 00 00 Electrical	82
XLI. Section 26 51 00 Lighting Fixtures	82
XLII. Section 27 00 00 Communications	82
XLIII. Section 27 52 23 Nurse Call System	82
XLIV. Section 28 00 00 Electronic Safety and Security	83
XLV. Section 28 10 00 Access Control	83
XLVI. Section 28 20 00 Video Surveillance	83
SECTION A3 – LABORATORY DESIGN REQUIREMENTS	84
I. General Information	84
II. Laboratory Design: Codes and Safety	84
III. Laboratory Design: Biosafety Level	85
IV. Laboratory Design: Space Planning	85
V. Laboratory Design: Utilities	89
VI. Laboratory Design: Finishes	90
VII. Laboratory Space Types	91
VIII. Section 08 00 00 Openings	92
IX. Section 11 53 13 Laboratory Fume Hood	92
X. Section 11 53 19 Laboratory Specialty Equipment	92
XI. Section 11 53 53 Biological Safety Cabinets	93

XII.	Section 12 35 53 Laboratory Casework	93
XIII.	Section 11 53 43 Laboratory Service Fittings	93
XIV.	Section 13 21 01 Controlled Environmental Rooms	93
XV.	Section 21 00 00 Fire Suppression	93
XVI.	Section 22 00 00 Plumbing	93
XVII.	Section 23 00 00 Heating, Ventilation, and Air-Conditioning	94
XVIII.	Section 26 00 00 Electrical	94
XIX.	Section 27 00 00 Communications	94

INTRODUCTION

I. General Information

- A. The Facilities Management Design Guidelines provide guidance for Design Professionals, those contracted to plan, design, and construct projects, for The University of Texas Southwestern Medical Center (UTSW).
- B. The Design Guidelines are divided into the following sections: Design Philosophy, Design Requirements, as well as Codes, Standards, and Deliverable Requirements.
- C. The scope of Design Professionals includes the responsibility for compliance with applicable codes, regulations, best practices, and requirements documented in the Design Guidelines, services agreements, and project scopes.
- D. The Design Professional shall utilize the Design Guidelines throughout their contracted work.
- E. In the event of conflict between these guidelines and specific project requirements, the Design Professional shall contact the UTSW Project Manager (UTSW PM) who shall coordinate clarification by the Assistant VP of Facilities Planning, Design, and Construction (FPD&C)
- F. The guidelines in this document are not intended to prohibit the use of alternative methods, systems, products, or devices not covered in this document. All alternatives shall be documented by the Design Professional and submitted to the UTSW Design Team for review.
- G. UTSW Projects will be managed under different divisions including Capital Improvement Projects (C.I.P.) and Renovations.
- H. Through these Guidelines and under Campus Specific Information, there are references to single products and manufacturers. These are NOT intended to be sole source items unless specifically noted. The project Design Professional is required to identify and include in the Contract Documents at least three (3) comparable products and manufacturers.

SECTION A – DESIGN PHILOSOPHY

I. Design Philosophy

- A. The University of Texas Southwestern Medical Center Facilities Management Department (F.M.) is committed to excellence in the design of capital projects for new and existing buildings. To accomplish this, the institution is committed to the highest quality of aesthetics in meeting the requirements of the various buildings while delivering a project that is cost-effective to operate and maintain throughout its useful life.
- B. All capital projects shall be designed with flexibility and adaptability as a core objective to allow for future reconfigurations and functional changes.
 - 1. Project stakeholders will be determined per project but will include project customers or users, F.M. teams such as Utilities, Building Maintenance, and Design Team, and Safety teams.
 - 2. The Design Professional shall guide and educate project stakeholders on the design process, code requirements, and best practices to successfully support each project.
 - 3. The Design Professional shall work with the UTSW PM to schedule early involvement from project stakeholders to address the complexity of functions, buildings, and systems present in UTSW projects.
 - 4. Project stakeholders will be included in design reviews and approval processes.

II. Campus Design Standards

- A. Design of UTSW projects shall conform to the guidelines in this document, UTSW Master Specifications, and standards established by the University Institutional Design and Branding Committee (IDBC).
 - 1. UTSW utilizes the University of Texas System (UTS) Group Purchasing Organizations (GPOs) to assist in financial management, including Vizient contracts. UTSW PM will provide the Design Professional with contract information to assist with designation of products including finishes.
- B. In limited instances, leadership may identify special elements or features outside of the campus standards. These items must be presented to the IDBC for review and approval.
 - 1. Examples include upgraded fixtures, furnishings, or building systems.
 - 2. In all cases, these elements shall conform to requirements for Campus Codes, Regulations, safety, privacy, acoustics, and be easily maintainable.
 - 3. For the review, the Design Professional shall include product cut sheets identifying standard manufacturer information, materials, compliance with Codes and Regulations, information on replacement components, information on required maintenance, dimensions, and utility requirements.
- C. Capital projects shall conform to the UTSW master plan guidelines. In the event of a conflict between these Design Guidelines, the UTSW master plan, and the standards established by the IDBC; the Asst. VP of FPD&C will coordinate with the Vice President of the Facilities Management Department for a resolution.

III. Operating and Building Maintenance

- A. Design solutions for systems and materials shall incorporate easy and efficient operations with life cycle costs documented. They shall provide ease of repairs, safe solutions, cost efficiency of maintenance, and standardization.
- B. The Design Professional should obtain constant project stakeholder feedback.
- C. The Design Professional shall document the design intent for projects including each affected building system, showing understanding of the operating and maintenance procedures.

IV. Codes and Standards

- A. Refer to the Volume 3 for Codes, Standards, and Deliverable Requirements.
- B. Compliance with all state and federal laws applicable to construction is required.
- C. The Office of Safety and Business Continuity (OSBC) is the Authority Having Jurisdiction (AHJ) for NFPA for on-campus projects. OSBC will be referred to as “Safety” with individual teams being labeled.
- D. On UTSW property, the final determination of International Building Code (IBC) is the Vice President of Facilities Management.
- E. As authorized by the VP of F.M., Design and Renovations, the Design Professional and the UTSW PM shall coordinate with municipalities as necessary.
- F. All documentation required by an outside entity must be reviewed and approved by UTSW and the Executive Vice President of Business Affairs before release.
- G. Renovations located off UTSW property will follow the codes of the respective city while utilizing UTSW preferences. Requirements of Safety teams will be identified for incorporation into each renovation.
- H. Design Professional shall utilize UTSW Master Specification Section 01 41 00 Regulatory Requirements and Section B – Codes and Standards for a complete list of UTSW applicable codes and standards with the approved editions.
- I. The Design Professional shall ensure that review and direction from Safety teams are documented and coordinated with all disciplines.
- J. Projects shall meet the minimum requirements of OSHA.
- K. Where additional safety requirements are required, the Design Professionals shall request a review with Safety teams.

V. Regulation Requirements

- A. The Design Professional will provide a summary of any permits required from the local, state, and federal government agencies to the UTSW PM for review and approval. The City of Dallas, Texas Department of Highways and Public Transportation, and the Texas Health Department are an example of local municipalities that may require permits. The cost of any permits will be borne by the Owner.
- B. The Design Professional is required to submit sealed documents for an accessibility review per State requirements. The required review should be accomplished by a Registered Accessibility Specialist (RAS) located near the project site.

1. The same RAS will be utilized for the plan review and the post-construction inspection unless otherwise approved by UTSW PM.
- C. Upon receipt of the completed plan review, the Design Professional shall provide a corrective action plan to the UTSW PM that addresses all non-compliant issues within the project scope. This plan shall ensure the design is code compliant and shall be reviewed with the UTSW PM for approval. Issues outside of Design Professional scope shall be identified by the Design Professional to UTSW PM. Upon final direction from UTSW PM, the Design Professional shall confirm when all items have been corrected in the documentation through the issuance of updated documents showing completion of the corrective action plan.
- D. Refer to B3 –Deliverables Requirements for Design Documents for additional information.
- E. For any projects defined as “mission critical” by the Texas Government Code Title 10, Chapter 2311, Design Professional shall conduct feasibility study to consider the technical opportunities and economic value of implementing a Combined Heating and Power (C.H.P.) technology.
 1. The feasibility study shall show financial cost estimate with expected energy savings of C.H.P. over a minimum of a 20-year period including initial costs, operation, and maintenance. The feasibility study must include all requirements of S.E.C.O., C.H.P., and TAC Title 10 Chapter 2311.
 2. Design Professional shall provide a template of the deliverables format to UTSW Utilities for approval prior to finalizing the study.
 3. If C.H.P. is feasible, the design of C.H.P. system shall comply.

VI. Environmental Practices: Sustainability and Energy Design

- A. Sustainable practices, materials, and goals should be considered for each project as appropriate.
- B. The Texas State Energy Conservation Office (S.E.C.O.) sets the minimum energy standards for state agencies and institutions of higher education for both new construction and major renovation projects.
 1. Where the project scope meets S.E.C.O. minimums, the Design Professional shall coordinate with UTSW PM to identify compliance requirements. Design Professional shall complete S.E.C.O. compliance forms and submit forms to the UTSW PM and the Asst. VP of FPD&C .
 2. For projects required to include energy conservation scope, the Design Professional shall provide a life cycle cost study to determine Return on Investment (ROI) timeline and present the results to UTSW.
 - a. Provide design with at least 5-percent above the minimum requirements outlined in 90.1 ASHRAE and IECC or most up to date energy code.
 - b. The analysis shall include up- front costs, energy costs, maintenance costs, and end-of-life costs, for at least 4 of these concepts, or for other energy-efficient measures under consideration:
 - i. High-performance envelopes and glazing (required).
 - ii. Active building shading.
 - iii. Heat and or energy recovery options (required).
 - iv. Heat pump chiller options (required).
 - v. Thermal energy storage (required).

- vi. Photovoltaics.
 - vii. AHU condensation recovery.
- c. For renovation projects, confirm concepts with UTSW PM and Utilities prior to modeling.
- 3. Demonstrate compliance with 5-percent improvement via a whole-building energy model for the Envelope, Mechanical Systems, and Lighting shown in the project scope.
 - a. Provide output of energy model for base building design and ECM strategies, annual usage profile for electric and gas from the model.
 - b. Provide a template of the format of final deliverables to UTSW PM and Utilities for approval prior to study.
 - c. Provide final study with expected equipment in construction documents or at IFC.
- C. Energy Star appliances are required.
- D. Requirements to conform to LEED criteria will be determined in consultation with the project Steering Committee or VP F.M. The Design Professional shall coordinate with the UTSW PM for what should be recommended to the project Steering Committee or VP F.M.
- E. Potential strategies to improve energy performance include, but are not limited to:
 - 1. Orienting buildings in the East-West direction.
 - 2. Improved insulation levels.
 - 3. Improved glazing performance.
 - 4. Higher performing mechanical equipment.
 - 5. Colored roof materials.
 - 6. Improved access to daylighting with daylight sensors, occupancy sensors to reduce lighting needs.
 - 7. High performance lighting.
 - 8. Light-colored exterior paving.
 - 9. Air changes and ventilation.

VII. Environmental Practices: Water Efficiency and Design

- A. The Texas State Energy Conservation Office (S.E.C.O.) directs state agencies and institutions of higher education, for both new construction and major renovation projects, to reduce water usage.
 - 1. Where the project must comply with S.E.C.O., the Design Professional shall coordinate with UTSW PM for projects requirements, complete S.E.C.O. compliance forms, and submit forms to the UTSW PM and the Asst. VP of FPD&C .
 - 2. Comply with the most recent "Water Conservation Design Standards for State Buildings and Institutions of Higher Education Facilities" adopted by the Texas Legislature (34 Texas Administrative Code (T.A.C.)(§19.32) and The State Energy Conservation Office (S.E.C.O.).
 - a. Before beginning construction of a new state building or state-supported higher education facility, the Design Professional shall complete a water conservation compliance certification form for UTSW to submit to S.E.C.O.

- b. Confirm which water reuse strategy (Rainwater Harvesting, treated graywater, condensate collection or cooling tower blowdown, or a combination of these strategies) is to be employed on this project if the project exceeds a 10,000-square foot roof per S.E.C.O. requirements
- B. A goal of 20-percent indoor water use reduction beyond the Energy Policy Act (EPAct) of 1992.
- C. 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, usage costs, maintenance costs, and end of life costs.
- D. Demonstrate compliance with the minimum 20-percent reduction by one of the following:
 - 1. Provide interior water use reduction calculator demonstrating 20-percent reduction.
 - 2. Ensure that all eligible fixtures carry the EPA's WaterSense label.
 - 3. All eligible products on site have flush and flow rates at or below these thresholds:
 - a. Water Closet - 1.28 gallons per flush
 - b. Urinal - 0.125 gallons per flush
 - c. Private Faucet - 1.75 gallons per minute
 - d. Public Faucet - 0.4 gallons per minute
 - e. Breakroom or Kitchen Faucet - 1.75 gallons per minute
 - f. Shower - 1.8 gallons per minute
 - g. If applicable, 30-percent exterior water use reduction.

VIII. Environmental Practices: Daylighting

- A. To maintain a relationship between the building occupants and the outdoors, direct views of the outside should be provided or maintained for most of the regularly occupied areas unless the needs of the spaces dictate otherwise.

IX. Environmental Practices: Building Materials

- A. Wherever possible, products and materials with recycled content and no volatile organic compounds (VOC) should be specified in capital project design according to VOC levels in Section 01 81 13 Sustainable Design Requirements.
- B. Design Professional team ensure that non-fibrous materials are specified. Reference product submittal and closeout requirements for products with no asbestos, lead, and hazardous materials in Section 01 81 13 Sustainable Design Requirements.

X. Environmental Practices: Indoor Air Quality

- A. F.M. capital projects designs shall comply with ASHRAE 62.1- latest edition.

XI. Environmental Practices: Commissioning

- A. All F.M. capital projects shall employ appropriate commissioning practices to assure delivery of program goals and related performance requirements. The project Design Professional shall coordinate commissioning practices with the UTSW PM, the UTSW Utilities Department, the Commissioning Authority (if contracted) and the contractor (if the delivery method is construction manager at risk or design-build) during design.
- B. Design Professional shall provide guidance to UTSW PM as part of the collaborative effort to advise on when a project would benefit from commissioning including key systems, equipment, or processes to be included.
- C. Commissioning scope and practices are to comply with Section 01 91 00 General Commissioning Requirements with associated specification sections included per project scope.

XII. Safety and Design

- A. UTSW Safety teams advise and direct in matters of safety for projects. Review Volume 3, Section B: Campus Protocols.
 - 1. Imaging, laboratory, and any projects with hazardous materials shall be reviewed in design development by each appropriate Safety team.
- B. Design Professional shall add project specific code requirements from Safety teams review to the project, refer to Volume 3 for required compliance documentation including code compliance confirmation review submissions.
- C. Refer to Section 10 14 00 Signs and Graphic Elements in Volume 2 and Master Specifications.
- D. Site Projects: Refer to Volume 2, Division 31 00 00 and **EXHIBIT B3.5 Storm Water Pollution Prevention Plan** for UTSW requirements.
- E. Special Spaces and Elements:
 - 1. Dry Ice Storage:
 - a. Refer to Volume 2, Section 23 09 00 Instrumentation and Control for HVAC for specific ventilation and monitoring requirements.
 - b. Fixed gas monitoring considerations should be given to both CO₂ and O₂ to ensure the ventilation levels are maintained.
 - c. Storage equipment provided for dry ice shall slow sublimation of dry ice while allowing for expansion. Tightly sealed devices for dry ice storage are not allowed.
 - d. Areas with dry ice storage shall provide additional storage space for safety supplies including scoops, tongs, lab coats, safety glasses or goggles, thermally insulated gloves supplies and storage accommodation to ensure appropriate usage.
 - e. Signage: indicating the presence of positive pressure gases shall be posted on the exterior of the space, near the entrance. Confirm signage required with UTSW Signage Shop, Safety, and the UTSW Comprehensive Interior Signage Manual.
 - 2. Natural Gas Piping – Within Education and Research Spaces:
 - a. In newly constructed research labs, installation of natural gas piping is no longer allowed.

- i. Any exceptions must be approved in writing by the Office of the Provost and Safety teams.
 - b. In existing facilities with existing natural gas piping, reconfiguration and extensions of the system may be permitted.
 - c. All natural gas piping shall be painted as required in UTSW Master Specification Section 22 05 53 Plumbing Identification.
- 3. Additional considerations may be required to safely store items including but not limited to inert gases, oxygen, nitrogen gas, and liquid nitrogen.

XIII. Safety and Design: Radiation and MRI Safety

- A. Refer to Volume 3 for codes, standards, and “Radiation Safety Control and Volume 1 for “MRI Design and Requirements.”
- B. The UTSW Medical Physics group will provide a shielding design based on the machine type and project requirements to the UTSW PM and Design Professional in most projects. Specialty machines or purposes may require outside shielding consultants working with UTSW Medical Physics and Radiation Safety. Shielding designs provided shall be used for coordination of infrastructure needs.
 - 1. The Medical Physicist Shielding Report shall be included in project manual as reference for the construction team.
 - 2. Shielding materials may include lead sheet, RF cages, concrete, high-density materials, or combinations determined by the project Medical Physicists.
 - a. On renovation projects with existing shielding, Medical Physicists will evaluate existing shielding for validation.
 - b. In renovation projects with existing shielding, confirm with UTSW if the original shielding consultants or contractors shall be involved on the project due to their expertise with the existing conditions.
 - 3. When the contractor has completed the shielding installation, but before walls are closed, the UTSW Medical Physics team and Radiation Safety shall be notified for inspection. The Medical Physics team shall inspect and verify if the shielding design was followed. Walls shall only be closed once the installation is verified.
 - 4. After construction, the UTSW Medical Physics team will perform source testing prior to the project receiving the Certificate of Occupancy (COO).
- C. The UTSW Radiation Safety Team will provide review and direction for projects with radioactive equipment and materials. Equipment types include, but are not limited to, X-ray, MRI, Linac, PET, and CT.
 - 1. Projects under the Radiation Safety Team may include compliance with 25 TAC 289.256, 25 TAC 289.229 and 10 CFR 35. Confirm requirements for back-up power, interlocks, and other safety requirements per project.
- D. MRI spaces shall include the following in their projects:
 - 1. Utility Requirements:
 - a. The required equipment includes power conditioners and Computer Room Air Conditioning (CRAC) units. Confirm requirements with UTSW User representatives, equipment manufacturer, UTSW PM, and other groups indicated per project.

2. Life Safety Requirements:
 - a. Special life safety requirements include providing non-ferrous sprinkler systems.
 - b. For MRI and imaging life safety considerations refer to Volume 2, Section 21 13 13 Automatic Fire Sprinkler Systems.
3. Badge readers – refer to Section 28 10 00 Access Control.
4. Signage:
 - a. A lighted sign shall be above the door to the MRI Zone IV (or Zone III as applicable). If this location is not feasible, an alternative location shall be determined by the Director of Radiation Safety or their representative.
 - b. The sign shall be wired to the building electrical system in accordance with NFPA 70 (2014 ed.). If primary power is lost, the sign shall have battery backup providing not less than 24 hours of internal illumination or be wired to the emergency electrical backup generator if the building has generator backup.
 - c. The sign shall be internally illuminated with the words “Magnet Always On” and be red in color on a contrasting white background.
 - d. The sign shall be fastened to the wall according to the manufacturers’ specifications.
 - e. Refer to Section 10 14 00 Signs and Graphic Elements in the Volume 2 and Master Specifications.
5. Refer to other sections of the UTSW Design Guidelines:
 - a. Fire Sprinkler Systems – Volume 2, Refer to Division 21.
 - b. Quench Ventilation – Volume 2, Division 23 for Special Exhaust Systems.
 - c. Fire Alarm Devices – Volume 2, Division 28 for Addressable Fire Alarm Systems.
 - d. Fire Extinguisher – Volume 2, Division 10 for Fire Protection Specialties.

XIV. Healthcare Regulations

- A. Projects in healthcare settings shall comply with regulations appropriate to that facility as confirmed by UTSW Leadership.
- B. Coordination and conflict resolution between healthcare regulation and other requirements, such as ADA and TAS, shall be confirmed with UTSW per project.
 1. Example: JCAHO and NIOSH have higher mounting height for sharps containers than ADA and TAS.

XV. Building Core Elements: Partition Standards

- A. Partitions standards for UTSW include:
 1. Full height partitions to the underside of structure shall be used in Animal Resource Center (A.R.C.) spaces, clinical spaces, laboratory spaces, and where required by code.
 2. Partitions with gypsum board stopping 6-inches above the ceiling shall be standard in other space types unless greater noise control or privacy are required.
 - a. Where additional acoustic control is required but budget constraints or existing conditions prevent partitions from extending to the underside of deck, the

Design Professional shall provide additional strategies for review and cost implications.

- B. Design and construction of partitions shall allow access for maintenance and minimize repair costs. Locate access panels at regular intervals and at all equipment access points.

XVI. Building Core Elements: Entries

- A. All stoops, porches, ramps, docks, and steps, either exterior and interior, shall have non-slip surfaces and nosings, where applicable.
 - 1. Slope exterior porches and treads as allowed by ADA and Texas Accessibility Standards (TAS) to drain water.
 - 2. Ponding of water in these areas is unacceptable.
- B. Primary entry floors or heavy patient traffic areas are not preferred to be constructed using brick or pavers. These finishes are trip hazards for people with mobility issues, they create maintenance issues over time and are excessively noisy when carts are used.
- C. Granite curbs are not preferred as they have long-term maintenance issues and become slip hazards when wet.
- D. Truncated domes are not acceptable on campus except to comply with public right of way, platform boarding edges or other TAS requirements.
- E. All control joints shall be constructed at minimum widths to prevent trip hazards with maintained elevations between separate surfaces. Control joints shall have backer rod and sealant.
- F. Full height glazing adjacent to entries or along corridors shall have visible safety indicators or cross mullions. Refer to Volume 2, Section 08 80 00 Glazing for additional information.

XVII. Building Core Elements: Egress Stairs

- A. Doors entering egress stairs from within a building shall not be locked or prevent access.
 - 1. Locked exit doors at egress stairs with card readers in the stair area shall be connected to the fire alarm system and release the door for occupant egress during a general alarm.
- B. Egress doors shall open to follow the direction of the path of travel or as required by code.

XVIII. Building Core Elements: Emergency Command Center

- A. Hi-rise buildings shall have an exterior entrance to the Emergency Command Center.
- B. Where required, an Emergency Command Center shall contain a minimum of the following equipment required in the Code and shall also include the following:
 - 1. Table and chair.
 - 2. Building Plans: Architecture, Mechanical, Electrical, Plumbing, and all Fire Protection Plans.
 - 3. Floor map of each floor.
 - 4. Smoke Control Board, where applicable.
 - 5. All lighting and electrical outlets shall be on emergency generator power.
 - 6. Data ports and or WIFI in the room.

XIX. Building Core Elements: Mechanical Rooms

- A. All mechanical rooms added or modified during F.M. capital projects must be designed with adequate aisle space and clearances around equipment to accommodate maintenance from the floor and replacement of items. All design shall be reasonably planned for human access.
 - 1. Clearances shall include 3-foot wide by 7-foot 6-inch clear height minimum walk path for safe exiting from the space, permanently marked on the floor.
 - 2. There must be a defined pathway from all mechanical rooms to the building exterior of adequate size to permit the replacement of equipment. Means of removal of equipment shall be by the most cost-efficient path approved by UTSW PM and UTSW F.M.
 - 3. The Design Professional shall indicate all required clearances and pulls required for maintenance and repair of equipment for coordination purposes.
- B. The overall design of mechanical areas shall assure safe maintenance access to all pieces of equipment. Run piping underground or overhead rather than floor-mounting to prevent trip hazards. All mechanical rooms must be designed to control noise transmission to adjacent spaces including corridors.
 - 1. Sound transmission through mechanical room walls shall not cause adjacent space's noise levels to be exceeded per values indicated in Acoustic Design sections. Design Professional shall coordinate requirements for walls, slabs, penetrations, and door hardware to meet acoustic requirements.
- C. Depress the floor of all mechanical rooms 1-1/2-inches and uniformly slope the entire floor to the required number of 4-inch floor sinks connected to the building sanitary sewer system as required by code or as directed by UTSW PM and UTSW F.M.. Slopes shall follow requirements from Volume 2, Division 22.
 - 1. Mechanical rooms are preferred to be recessed or have integral curbs to allow fluids up to 4-inches in height. These areas shall have a waterproofing system to seal all sides of the floor and wall construction.
 - a. Waterproofing systems shall have primer, topcoat, and traction components as part of topcoat to prevent slippage. During construction, these areas shall be tested to prove water-tight construction.
 - b. Floor drains and sinks shall be placed in a location that is accessible for maintenance, near air handling units and pumps.
 - c. Layout of mechanical spaces shall consider how maintenance crews can move equipment into the space considering the elevation change. Ramping to assist with equipment movement is preferred if reasonably possible with spatial requirements.
 - 2. Housekeeping pads are required for floor-mounted equipment installed in mechanical rooms.
 - a. Housekeeping pads shall be sealed to match floor waterproofing system and pad edges shall be painted Safety Yellow.
 - b. Confirm locations for inertia Equipment pads to reduce vibration, excessive movement, vibration isolation and longevity.
- D. Refer to Electrical Rooms and Closets for space requirements for electrical panel boards including access and egress.
- E. Refer to Volume 2, Divisions 22, 23, and 26.

XX. Building Core Elements: Air-Handling Rooms

- A. Air Handler rooms added in FM capital projects should be designed so that NO wall is centered on a structural beam that would interfere with vertical risers.
- B. The spaces must be arranged and sized to provide maintenance staff with safe access to all pieces of equipment for routine maintenance. Clearances shall include 3-foot wide by 7-foot 6-inch clear height minimum walk path for safe exiting from the space, permanently marked on the floor.
 - 1. Housekeeping pads are required for floor-mounted equipment installed in mechanical rooms.
 - a. Housekeeping pads shall be sealed to match floor waterproofing system and pad edges shall be painted Safety Yellow.
- C. Access to air handler rooms must be from within the building from the corridor system and not through any other space. Door should open out from space to maximize usable interior floor and wall area.
- D. Provide a minimum of 2-foot clearance on two sides and one end of the air handlers. Provide clearance for removing coils and filters.
- E. Air handler rooms shall be insulated for sound. Refer to Mechanical Rooms above in Section A for requirements on sound transmission and spaces required for electrical equipment.
- F. Refer to Volume 2, Divisions 22 and 23.

XXI. Building Core Elements: Electrical Rooms and Closets

- A. Electrical rooms and closets added in FM capital projects must be designed so that NO wall is centered on a structural beam that would interfere with vertical risers.
- B. Designs shall comply with the current codes and regulations for each project.
 - 1. Do not route mechanical or plumbing utilities capable of conveying air or liquids through or above electrical rooms and closets. The only exception allowed is the branch sprinkler line serving only the sprinkler head in an electrical room and closet.
 - 2. Access to electrical rooms and closets must be from within the building and not through any other spaces. Doors should open out from the rooms into the corridor system to maximize usable interior floor and wall area.
 - a. Clearances shall include 3-foot wide by 7-foot 6-inch clear height minimum walk path for safe exiting from the space, permanently marked on the floor.
 - b. The overall design of electrical areas shall assure safe maintenance access to all pieces of equipment. Run piping underground or overhead rather than floor-mounting to prevent trip hazards.
 - 3. Electrical rooms with electrical equipment rated 1,200 amperes and over is considered "large equipment" and:
 - a. Required to have two means of exit.
 - b. Required to have one door at each end of room.
 - c. Required to have panic hardware on doors with one being a double door entrance for oversized equipment. Or single door as allowed by NEC 110.
 - d. Doors shall open in the direction of the path of travel.
- C. Housekeeping pads are required for floor-mounted equipment installed in electrical rooms.

1. Housekeeping pads shall be sealed to match floor waterproofing system and pad edges shall be painted Safety Yellow.
- D. Sound transmission through electrical room walls shall not cause adjacent space's noise levels to be exceeded per values indicated in Acoustic Design.
- E. Lighting in electrical rooms and at panel boards located in other spaces shall not be controlled by automatic means only per NEC 110.26.
- F. Refer to Volume 2, Division 26.

XXII. Building Core Elements: Rooftop Requirements

- A. The design of building rooftops shall be discussed in early programmatic stages to assist in determining building heights and building systems appropriate for the project. UTSW Building Envelope Coordinator shall be included as a stakeholder from these early stages.
- B. Buildings shall be designed for compliance with OSHA.
 1. Design preference is for buildings to have parapets designed to comply with OSHA requirements for fall protection. If a parapet is not provided, the design shall provide alternative safety systems such as an engineered davit system to comply with OSHA.
 2. Rooftop areas shall provide OSHA required fall protection or prevention systems in all areas.
 3. Any elevation variations between roof areas shall be accessed with either a permanent ladder or roof hatch with a permanent ladder.
- C. The overall design of roof areas shall ensure safe maintenance access to all pieces of equipment as well as to the entire roofing surface for inspection and repair of the membrane.
 1. UTSW preference is for an elevator to open at roof levels to allow easy access for equipment repairs and updates. The elevator, opening, and hoist way shall be protected from weather infiltration to protect the machines from damage.
 - a. If UTSW determines that elevator access is not possible, a stairway shall extend up to the roof.
 2. Design Professional shall designate walk paths to reach all pieces of equipment and access points. Additional walk-path areas shall be designed adjacent to and around large pieces of equipment to allow for lay-down or tool placement during repairs.
 3. Roof layouts and drawings shall include equipment clear floor areas as well as required clearances for proper operation.
 4. Locations of equipment, piping, rooftop hoists, access points, davits, roof drains, etc. shall be organized in a holistic design that optimizes access and membrane preservation.
 - a. One example is to minimize piping runs crossing the main walking path which can be trip hazards as well as causing damage to the membrane.
- D. The roofing membrane systems shall provide long-term, high-performance protection for the building. Membrane selection shall consider the potential chemical output from rooftop equipment such as exhaust fans. Design of slopes and drains shall promote positive runoff from the building in a rapid manner, preventing ponding.
- E. Roof surfaces with equipment shall be screened with parapets or engineered equipment screens.

1. Structural requirements including bracing shall be designed in a manner to minimize roof penetrations while meeting the code requirements for wind and safety.
2. Aesthetics, maintenance, and cost shall be considered in the design of screening elements to ensure a long-term, positive solution.
3. Screens shall not limit access to equipment or restrict manufacturer required clearances for service or air flow.

XXIII. Building Core Elements: Intermediate Distribution Frame (IDF), Technology Room (TR) Requirements

- A. Information Resources (IR) manage Intermediate Distribution Frame (IDF) or Technology Rooms (TR) added in FM capital projects. These must be designed so that NO wall is centered on a structural beam that would interfere with vertical risers.
- B. An IDF shall be provided on each floor and located so the cable length complies with IR requirements. Refer to Volume 2, Division 27 and Master Specifications.
- C. Access to IDF must be interior and to the corridor system. Access to an IDF through an intermediate space is not allowed.
- D. Doors should open out from the IDF to maximize usable interior floor and wall area. In limited locations, when an outward opening door would impede corridor width, Design Professional shall carefully coordinate door placement with IR to maximize interior space and wall space.
- E. TR and IDF spaces require air conditioning to maintain the temperature and humidity required by the electronic equipment installed.

XXIV. Building Core Elements: Restrooms

- A. Restrooms added in FM capital projects must be located on each floor and should be located within 200 feet of every occupied space unless code requirements dictate otherwise.
- B. Restrooms should be grouped with housekeeping closets and electric water coolers for ease of maintenance and to reduce plumbing runs.
- C. Due to the wide array of spaces and services on campus, there may be many types of restrooms on campus.
 1. Patient rooms with toilet rooms shall have smooth flooring transitions without lip or raised strips.
- D. Types utilized shall be determined for each project and naming shall follow the UTSW Comprehensive Interior Signage Manual for restroom identification. Each type shall follow the numbering formula noted within this volume and within the Signage Manual.
- E. Restrooms should be sized to accommodate a minimum fixture count determined by the International Plumbing Code (IPC) and accessibility based on the Texas Accessibility Standards (TAS). Restrooms serving assembly areas must accommodate short-term, high-volume traffic and will require higher fixture counts.
 1. The number of fixtures for women's restrooms shall be higher than the minimum determined by the IPC and to comply with the Texas "Potty Parity law."
 2. The increase will vary according to project and campus, up to a fixture ratio of 1/3 men to 2/3 women.
 3. Confirm fixture count with the FM Maintenance Department through the UTSW PM.

- F. Thoughtful layout shall prevent the direct or reflected lines of sight into restrooms and dressing rooms from the corridor.
 - 1. All high traffic restrooms on the ground floor shall provide space for queuing as well as adequate trash capacity for the expected volume.
- G. Baby Changing Stations:
 - 1. Public toilet rooms in the main lobby and on main floors shall provide baby changing stations in both men's and women's toilet rooms.
 - a. Projects within patient focused areas shall confirm locations of baby changing stations within both public spaces and clinic spaces (if required).
 - 2. Baby changing stations are not required in spaces where children are not allowed per UTSW operations.
 - 3. Design Professional shall propose the layout of toilet rooms and location of baby changing station to provide efficient use of space while meeting requirements of ADA and TAS.
 - 4. Baby changing station locations may be installed as a built-in element or as a manufactured unit. Refer to Section 10 28 00 Toilet and Bath Accessories in this document for additional information.
 - 5. Confirm per project if there is a requirement for a special need changing stations.
 - 6. Design Professional shall utilize current Standard Toilet Accessories and preferences as seen in Volume 2, Division 10, Master Specification 10 28 00 and Volume 3, Equipment Schedules and Coordination. Locate accessories in a manner that prevents protruding objects as identified by ADA and TAS.

XXV. Building Core Elements: Maintenance Spaces

- A. For new buildings, the following spaces shall be discussed in early planning:
 - 1. Building Maintenance Workstation and Storage: This space supports the building(s). Determine requirements with Building Maintenance and Operations with the sizes finalized per project requirements to successfully support the building.
 - a. Locations near freight elevators or on a transition floor are preferred.
 - b. Components to discuss include:
 - i. Workstation for computer(s).
 - ii. Space for maintenance cart(s).
 - iii. Attic stock and repair materials storage.
 - iv. Ladder storage.
 - v. Secure storage for hand tools.
 - vi. Housekeeping or handwashing sink.
 - vii. Door size minimum 3-foot 6-inch.
 - 2. Housekeeping Management:
 - a. Provide a small office with a workstation and computer connected to housekeeping breakroom.
 - b. Provide a key box.
 - c. Provide breakroom area with space for tables and chairs, sink, counter, microwave, metal lockers, and refrigerator. Size shall be determined according to project requirements.

3. Housekeeping Closets:

- a. Housekeeping Closets in FM capital projects should consist of 80 square foot minimum floor space with a minimum clear width of six feet. A closet of this size can serve a floor area up to 50,000 gross square feet.
 - i. Building designs with floor areas larger than 50,000 gross square feet shall require more than one housekeeping closet per floor.
 - ii. Housekeeping closets not less than fifty (50) square feet with a minimum clear width of five feet may be approved by BMO and UTSW PM in small buildings. Small closets will have the basic items such as mop sink, shelving, mop, and broom hangers.
 - iii. Housekeeping closets shall be located near restrooms on each floor with an out swinging door to maximize space.
 - iv. Housekeeping closets shall have a waterproofing flooring system with integrated base up to 4-inches minimum in height. This system is to seal all sides of the floor and wall construction. The system shall have a primer, topcoat, and traction component as part of topcoat to prevent slippage.
 - v. Housekeeping spaces shall not contain equipment or access for other services including communications, cable television, mechanical, and electrical.
 - vi. Housekeeping spaces shall not provide access to roof spaces, crawlspaces, or underfloor spaces.
- b. Plumbing requirements include:
 - i. Locate a standard 2-foot square by 8-inch-tall, corner mounted mop sink close to door. Refer to Division 22 Specifications for fixture information.
 - ii. Wall surface materials around the mop sink must be water resistant, such as stainless steel or Fiberglass Reinforced Plastic (FRP). Extend this finish to 24-inches above the top of the mop sink and extend 12-inches beyond each side of the mop sink.
 - iii. Install a wall hung lavatory near the door.
 - iv. An eye wash is required in some locations where concentrated hazardous chemicals are stored or dispensed. Confirm requirements with Biological and Chemical Safety.
- c. Accessories located with the closet:
 - i. Locate six mop hangers above the mop sink and twelve mop and broom hangers along the wall near the mop sink.
 - ii. Locate a hanger with an integrated shelf to be mounted 72-inches minimum above the finish floor.
 - iii. Provide 12-inch-deep shelving on one side wall with a minimum of 4 shelves. Space shelves vertically 16- to 18-inches apart with the lowest shelf mounted approximately two feet above the floor. Adjustable heavy duty shelving systems are acceptable.
 - iv. Provide space to store a cart and expected floor cleaning equipment.
- d. Electrical Requirements:
 - i. An overhead LED lighting shall be controlled from a wall switch located inside next to the door.

- ii. Locate one electrical GFI duplex outlet on each side wall installed at 48-inch AFF.
- 4. Housekeeping Storage shall be created to support the building(s) as determined with BMO and the UTSW PM.
 - a. Locations near elevators or on a transition floor are preferred.
 - b. Items to consider for discussion shall include:
 - i. Size of space needed to serve building(s) area required.
 - ii. Storage and holding for carts and gondolas.
 - iii. Storage of equipment including vacuums, cleaning equipment, wet vacuums, and others required per project needs. Considerations include a washer and dryer.
 - iv. Power receptacles for equipment and charging including additional power and circuits for future needs.
 - v. Storage or shelving for supplies to serve the building.
 - vi. Floor sinks and drains.
 - vii. Wall mounted chemical mixing dispenser(s).
 - viii. Double door for access.
- B. Cart wash - refer to "Loading Docks and Receiving Requirements."

XXVI. Food Service

- A. On campus, food service is managed by the Hospital through Nutrition Services and by Auxiliary Enterprises through the Food Service Group. Include representatives from these groups starting at early design discussions throughout construction and value engineering to maintain design and operational intent.
 - 1. The Hospital food services includes dining, coffee, and convenience locations at various buildings across campus which follow Title 25 T.A.C., Chapter 133, Hospital Licensing Rule and are not considered business occupancy type.
- B. The Auxiliary Enterprises group or Real Estate manages food service operators in non-hospital buildings including convenience stores and performs the Health Department Inspections for the campus.
- C. Where food service is in project scope, the Design Professional shall discuss requirements with the UTSW PM to determine if an outside food service consultant is needed or an external sanitarian is recommended.
- D. Design consideration to be discussed per project:
 - 1. Infrastructure shall be designed and coordinated between scope, regulation, code, and between disciplines to address the complexities of these spaces.
 - 2. Coordination between equipment layouts and engineering is critical.
 - a. Examples include that shut-off locations meet codes, floor sinks are accessible while not located under planned equipment, that ductwork has required access points, required safety equipment including eye wash and hand wash locations are approved by Biological and Chemical Safety, and that the end-product will pass inspections.

- b. Ensure user representatives have opportunities to review layouts, utilities, and spatial relationships. Identify any potential future opportunities that need to be included in scope.
- 3. Design exhaust and hood performance for all cooking equipment to ensure safe operation, code compliance, and to ensure all fumes leave the building.
- 4. Lighting levels shall meet or exceed code requirements.
- 5. Floors shall slope from wall to drains or floor sinks with consideration that drain locations will not hinder cart traffic.
- 6. Projects shall provide emergency eye wash per the code.
- 7. Sizes of storage areas and electrical capacity shall allow for future growth.
- 8. Technology requirements include Point-of-Sale (POS) systems; safe(s) security cameras for cash and access points; panic or duress buttons at cash areas; and digital signage requirements. Refer to Volume 2, Section 11 97 00 Security Equipment.
- 9. Security and requirements to close off food services areas.
- E. UTSW provides large food service equipment, refer to Volume 2, Section 11 40 00 Food Service Equipment for more information.
- F. Design Professional shall review and suggest if recessed sprinkler heads are appropriate for project scope to minimize cleaning costs while reducing the potential for head damage.
- G. Finishes and spaces shall meet requirements as determined by the Texas Department of State Health Services and Hospital Licensing Rules per project. All finishes shall be highly durable, smooth, and easily cleanable.
 - 1. All finishes shall be reviewed with and approved by UTSW Users, PM, and Design Team.
 - 2. Wood finishes, wood, or plastic laminate doors are not preferred.
 - 3. Where surfaces meet, such as a counter meeting a wall or a floor meeting a wall, they shall be coved to ensure ease of cleaning.
 - 4. All permanent equipment affixed to walls in food service areas shall be caulked at the walls to prevent growth of bacteria.
- H. Back of house finishes can include:
 - 1. Walls: Ceramic tile, FRP, stainless steel, and diamond plate in receiving areas.
 - 2. Floors: Non-slip products including urethane and polyvinyl flooring systems with integrated base are allowable. Offices spaces shall not have carpet.
 - 3. Ceilings: Gypsum and food service safe ceiling tiles.
 - 4. Equipment and Tables: Stainless steel.
 - 5. Wall protection shall be metal and able to stand up to cart traffic.
 - 6. Wet areas shall have rust proof fixtures including doors, hardware, sprinklers, air vents and other items. Bs shall be fiberglass.
- I. Movable furniture, fixtures and storage are preferred to millwork.
- J. Support spaces required include:
 - 1. Cart wash, refer to "Loading Docks and Receiving Requirements."
 - 2. Housekeeping closet with mop sink, water spigot, mop racks, storage, etc. Refer to requirements in Volume 1, "Building Core Elements: Maintenance Spaces."
 - 3. Food service chemical storage and exhaust requirements to be assessed and coordinated by Design Professional.
 - 4. Single person accessible toilet room(s) located near food service spaces.

5. Hospital projects may require locker areas.
6. Receiving area and dry storage area:
7. Hospital storage areas shall have the code minimum ceiling height, but taller heights are preferred.
8. Access to gondola wash at that building.
9. Grease barrel storage:
 - a. Interior storage locations must not have floor drains near enough for a spill to reach the drain.
 - b. Exterior storage locations must be beneath a well-constructed, sturdy, and permanent roof structure. Secondary containment is required.

XXVII. Parking and Garages

- A. Parking on campus is managed by Auxiliary Enterprises through Parking Services. This team shall be interfaced at early stages to confirm space requirements, garage technologies, facility layout and current parking demands on campus.
- B. Design considerations include:
 1. Capacity levels and future expansion potential.
 2. Open-air and above ground parking are preferred to facilities that require mechanical exhaust.
 3. Inclusion of services such as valet.
 - a. Provisions to support valet services include power and secure space for key storage.
- C. Typical equipment in garages includes Parking Guidance System, card readers through UTSW Access Control, pay stations, and security cameras through UTSW Access Control and the UTSW Police.
- D. Typical MEP considerations include pre-wiring 30-amp capacity for electric charging and providing water locations on each level for cleaning.
 1. Locked covers are preferred on utilities to prevent unauthorized access.
- E. Elevator enclosures in exterior locations shall be waterproofed. Consider including conditioned lobbies at levels with greatest chance of water infiltration to provide the best protection for elevator equipment.
- F. Refer to Volume 2 and Specifications for Division 32 for Paving Specialties.
- G. Refer to Volume 2 and Section 32 17 23 Pavement Markings for T.A.C. requirements.

XXVIII. Accessibility

- A. On UTSW campus, all spaces shall be designed with accessibility and best practices in mind.
- B. Wherever possible, UTSW preferences are:
 1. To provide the minimum 12-inches clear push-side or 18 inches clear pull-side to doors in work and non-work areas.
 2. To provide the minimum clearances at all doors, hallways, stairs, etc. in both work and non-work areas as best practice.
- C. Provide maneuvering clearances as a standard in projects as this could lessen future compliance concerns.

XXIX. Space Standards

- A. Refer to UTSW Policies FSS-310 and FSS-310P for guidance on space standards.
- B. UTSW follows the following sources for space assignments and area calculation requirements for State reporting requirements:
 - 1. Texas Administrative Code, Title 19: Education, Part 1: Texas Higher Education Coordinating Board, Chapter 17: Resource Planning, Subchapter A: General Provisions, Rule: §17.3 Definitions
 - 2. Postsecondary Education Facilities Inventory and Classification Manual, U. S. Department of Education, Office of Educational Research and Improvement, NCES 92165, November 1992.
 - 3. Texas Higher Education Facilities Inventory Procedures Manual 1983, Coordinating Board, Texas College and University System.
- C. Campus Room Standards and Space Assignments:
 - 1. UTSW maintains standard space sizes as seen in “Furniture Typical and Layouts for Campus Space Use” (FSS-310P-01). Design Professional and UTSW PM shall confirm with UTSW Planning Team and Design Team for the appropriate sizes to be used within each project.

XXX. Pharmacy Design and Requirements

- A. UTSW operated pharmacies must comply with the Texas Pharmacy Act, Chapters 133, 281 – 315 of the Texas Administrative Code, Texas Health and Safety Code chapters including 241, 243, 577, Federal Food, Drug and Cosmetic Act (FD&C Act), Texas Controlled Substance Rules, United States Pharmacopeia (USP) 795, 797, and 800. Confirm other codes and updates per project.
 - 1. Texas State Board of Pharmacy inspections and outside inspectors may review spaces for required certification including clean rooms.
 - 2. Confirm controlled substances expected and any additional security requirements required.
- B. User groups shall include Pharmacy representatives, Police Department, Access Control, Facilities Management, Supply Chain Management, Information Technology, and other groups as determined per project.
- C. UTSW operates the following pharmacy types:
 - 1. Class A – Community
 - 2. Class AS – Community and Sterile
 - 3. Class B - Nuclear
 - 4. Class C – Institutional
- D. Space planning of each pharmacy shall include studies for operational and patient proximity, delivery pathways, required equipment, building services, and controlled access to the space and medications.
 - 1. Within employee work areas, discuss workflow efficiencies for pharmacy tasks, storage types and depths, countertop heights, office requirements, employee break and locker areas, and other needs identified.

2. Each project shall include considerations for existing infrastructure and required modifications for new equipment including capacity requirements, structural requirements, and utility requirements.
- E. The design of pharmacy spaces shall include design strategies and technology solutions to maximize the safety and security of the spaces.
1. Design of components shall ensure visibility across both employee and patient spaces to minimize opportunities for crime. Visibility into the pharmacy shall be limited and staff shall have the ability to prevent views with shades or other devices as required.
 2. Pharmacy envelope construction shall be confirmed with site specific security requirements. Considerations include automatic overhead roll-down doors at pharmacy windows, security partition types, shatter-resistant glazing, etc.
 3. Security components of pharmacies may include access control components, card readers, panic buttons, specialized key control cabinets, intrusion panels, and IP camera requirements. Refer to Volume 2, Section 28 10 00 Access Control and Specification Section 08 71 00 Door Hardware.
 4. Coordinate the security of each pharmacy location with unique elements such as dumbwaiters and elevators.
- F. Electrical Systems:
1. Locations of electrical services and panels shall ensure limited access to the pharmacy systems.
 2. Emergency Power and Notifications:
 - a. CDAS is required for refrigerators, freezers, and incubators.
 - b. Emergency power or backup power is required for refrigerators, freezers, incubators, automated dispensing systems, HVAC and power for clean rooms, and computer systems.
 - c. Confirm additional power and CDAS requirements per project.
 3. Lighting systems and controls shall ensure safe operations during pharmacy working hours. Dimming is not required to ensure consistent security.
- G. Mechanical Systems:
1. Design of mechanical systems shall incorporate regulation, licensing requirements, and best practices for the various space types within each pharmacy.
 - a. Design N+1 redundant equipment to ensure maintenance and repairs may be made while space conditions are maintained.
 2. Design for required positive and negative air pressures shall include all components to properly maintain needed pressurization include sealants, gaskets, etc.
 3. Temperature and humidity requirements to be confirmed within pharmacy and medication storage areas. Provide system components, monitoring, and controls to ensure compliance. Temperature and humidity sensors shall have logging capabilities.
- H. Plumbing:
1. Provide a sink with hot and cold water in the pharmacy space.
 2. Confirm requirements for staff toilet room access.
- I. Technology Requirements:
1. Typical elements include data, phones, IP addresses (security system, cameras, desktops), special equipment, and printers. Confirm needs per project.

J. Potential Special Equipment:

1. Pharmacy special equipment may include: medicine carousels, pneumatic tube systems, incubators, freezers, refrigerators, automated dispensing systems, clean rooms, pass-through cabinets, biosafety cabinets, fume hoods, medication dispensing robots, IV Workflow Management System, Point of Sale (POS) systems, and conveyor systems.
2. Special care shall be given to understand the noise levels created by the expected equipment and design to ensure work area ambient noises are within standard Noise Criteria (NC) design ranges.

K. Finishes:

1. Pharmacy spaces shall be compliant with regulations and licensing requirements, be easy to clean, and hold up to wear and tear.
2. Clean room finishes shall be carefully detailed and documented.
3. Where higher levels of equipment noise may be present, consider higher CRC ceiling tiles and products.

L. Furniture:

1. Considerations with furniture layouts shall include maximizing workflow, preventing injuries, and addressing project specific requirements.
2. Anti-fatigue mats shall be planned for work areas.

XXXI. MRI Design and Requirements

- A. The design and implementation of MRI suites is a complex process, requiring thorough planning for successful projects.
- B. Reference Volume 1, Section A “Safety and Design: Radiation and MRI Safety” and Section B “MRI Safety Control” for shielding, signage, and regulatory requirements.
- C. The overall design and size considerations are determined by:
 1. Magnet type: procedure, diagnostic, or combination.
 2. Machine: attached or detached table.
 3. Clinical Applications: inpatient or outpatient location.
 - a. Inpatient locations shall comply with TJC and FGI classification and size for procedure room types.
 4. Processes: imaging only, imaging and procedures, or procedures only.
 - a. The planned procedures and exams will determine the types, sizes, and numbers of coils as well as the storage for these items.
- D. Structural Considerations:
 1. Early investigations may include vibration and structural studies.
 2. Projects shall account for the weight and size of the magnet within the suite and along a travel path to allow for future changes.
 3. Knock out panels may be designed for future changes as part of the travel path.
 4. Structural elements and equipment located outside of the MRI space may affect the performance of the magnetic field. These should be indicated for shielding studies.
- E. Zone 4: Zone IV is considered the MRI scanner suite itself (magnet room). Access to Zone 4 is controlled by the MR Technologist with screening prior to entering the space.

1. Zone 4 should be clearly labeled with signage to indicate the potential hazards of entering this area. Refer to Section A “Radiation and MRI Safety.”
2. Shielding Considerations: Shielding will be designed by a third-party shielding vendor to meet machine and project requirements.
 - a. Adjacent spaces to the MRI room may be within magnetic fields. Usages shall be studied to prevent health, safety, and noise issues.
 - b. All doors, windows, and frames shall comply with shielding design.
 - i. Specialty doors are preferred with designed notch for IV tubing and special MRI safe door hardware. Pneumatic controls will require power connection in zone 3
 - ii. Glazing shall provide radio frequency interference and be nonferrous.
3. Utility Considerations:
 - a. HVAC requirements will be determined by the manufacturer for both ambient temperature and humidity.
 - i. Provide separate monitors for temperature, humidity, and oxygen monitoring.
 - ii. The thermostat for the suite will be in Zone 3, near the Zone 4 door.
 - b. Quench ventilation shall be coordinated with vendor and existing conditions.
 - c. Chilled water is required to cool the magnet. Independent chillers or hospital facility chilled water loop are preferred.
 - i. Back-up loops will use a manual switch and may not be served by city water.
 - d. MRI-safe lighting must not interfere with the magnet’s operation. Dimmable lights are required to ensure all necessary processes, including cleaning and starting IVs, have full light levels.
 - i. Emergency lights are required for safe exiting during power outages.
 - ii. Controls will be located in Zone 3, next to the Zone 4 door.
 - e. Emergency power is required at inpatient locations, which operate 24 hours a day and 7 days per week.
 - f. Data will be required for camera and CPU locations.
 - g. Medical gas may include oxygen and vacuum.
4. Life Safety Considerations:
 - a. Fire Sprinkler types and layout to be confirmed with MRI team and Fire Safety. Sidewall mounted heads may be considered due to conflicts with ceiling mounted objects.
 - b. Smoke Detection will be air sampling types.
5. Finish Considerations
 - a. Flooring is preferred to be seamless with the ability to have multiple color options to demarcate the gauss lines.
 - b. Walls may include wall protection panels since damage is common from moving equipment.
 - c. Ceiling design discussions can include features including ceiling pictures and mood lighting in Zone 4.
6. Storage Considerations: Provide nonferrous millwork storage for coils, linens, and additional supplies.

7. Additional Considerations:

- a. Where procedures are planned, space requirements may vary from intensive, with the space acting as an operating room, to limited, providing biopsies or injections. Clear documentation of design requirements is needed.
- b. Special Procedures:
 - i. HIFU – High-Intensity Focused Ultrasound.
 - ii. TULSA – Prostate biopsy.
 - iii. Anesthesia – Required for some procedures.
 - iv. Breast biopsy – Outpatient.
 - v. IMRI – Intraoperative Magnetic Resonance Imaging.
 - vi. Pacemaker Remote Access – Dedicated laptop required.
- c. Additional utilities and equipment may include anesthesia, injectors, medical gas (oxygen, vacuum), compressors (elastography), HIFU, and emergency power.
- d. Installed tethers may be required to keep conditional equipment stays away from the magnet.
- e. Penetration panels may be required for other connections and usages.

F. Zone 4 to Zone 3 Access Point:

1. UTSW prefers installation of a ferromagnetic detector for screening and inspection prior to entering zone 4.
2. The door will be accessed with a physical key and a retractable, nonferrous traffic control “belt” attached at the doorway.
3. The window between the control room and the patient area shall include either blinds or electronically switchable glass.
4. Signage requirements include an OSBC Safety Signage and a lit “Magnet Always On.” Refer to Section A “Radiation and MRI Safety”

G. Zone 3: This is the control room and the computer room. It may contain patient dressing room(s), patient holding, and prep area(s). This area is outside the five (5) gauss line.

Occupants include screened MRI Patients and MR Personnel:

1. At this point, patient(s) must remove all ferrous objects from their person and leave all personal belongings.
2. Design and Size Considerations
 - a. From the control room desk, the technologist shall be able to view the patient in the MRI through the window while monitoring the Zone 4/3 door and Zone 3/2 door. This ability is essential for security and safety.
 - i. UTSW requires full bore visual from the control desk for patients.
 - b. For each project, confirm optimal workstation layout with manufacturers and users. Confirm if vendor furniture or casework increases functionality.
 - i. Storage types and sizes shall be designed to meet project specific needs.
 - ii. The control desk shall be coordinated to ensure continuous visual monitoring of the patient, appropriate layout of computers, screens, phones, other required equipment, and utility connections.
 - iii. When procedures are planned, the control and Zone 3 may become tight. Coordination with an understanding of processes and equipment are critical.

- iv. Remote cockpit cameras shall be coordinated for view and required data receptacles in the ceiling.
 - c. The size and layout of the control room, casework, and equipment shall ensure the various teams can complete their tasks. Users may include technologists, radiologists, nurses, vendors, and others.
- 3. Controls and Buttons:
 - a. The quench button shall be clearly labelled and have a cover to prevent accidental activation. It shall be located to ensure ease of access while complying with all codes and regulations.
 - b. All controls, including EOC and door release, shall be clearly labelled.
- 4. Equipment may include medical dispensing unit, blanket warmer(s), waste, sharps, biological waste, and others to meet space requirements.
 - a. A medical dispensing unit requires emergency power and CDAS or RTLS.
 - b. Blanket warmer(s) require CDAS or RTLS.
 - c. MRI safe fire extinguishers are required. Confirm locations and best practices with Fire Safety.
 - d. A metal detecting wand is to be used prior to entering zone 3.
- 5. Utility Considerations:
 - a. Lighting shall provide dimming.
 - i. Emergency light fixtures provided shall not prevent operations in the control room. Dimming fixtures are preferred when standard power is in operation.
 - ii. Controls and switching shall be discussed with users to confirm best practices.
 - b. Data requirements are very intensive so additional, unassigned plugs are required.
 - c. Hand sinks may be located in this area, as determined by procedures and processes expected. Discuss best practice for fixtures including foot pedal operation, size, requirements for splash guards, etc.
- 6. Finish Considerations
 - a. Wall finish to include wall protection panels since damage is common from moving equipment.
 - b. Flooring to be seamless.
 - c. Employee lockers shall be included in Zone 3 with push button locks. Standard types include 12-inch by 12-inch and Z-lockers.
 - d. Storage shall be locked with push button locks.
- 7. Equipment Room:
 - a. The equipment room shall be located in close proximity and adjacent to the scan room with a cable link connection to comply with manufacturer distance requirements. Size and clearances shall comply with manufacturers' requirements and best practices.
 - b. This room will open into Zone 3 or 2 with badge access or a keypad.
 - c. HVAC requirements are critical for the equipment operation. Provide a thermostat to monitor temperature and humidity.
 - d. Provide dedicated CRAC units.

- e. Provide dedicated power conditioner for MRI electrical supply. Provide electrical study to determine if chiller and additional equipment will need to be on a power conditioner.
- H. Zone 3 to Zone 2 access point:
 - 1. The door will be accessed with a card reader and have an auto operator.
 - 2. OSBC safety signage shall be installed on the door.
- I. Zone 2 – This area acts as a buffer between Zones 1 and 3 with MR personnel supervising and screening patients.
 - 1. This area may include a hallway outside Zone 3 with space types varying based on inpatient and outpatient locations.
 - a. Size and number of patients provided for will be determined by how many scanners or machines are being served.
 - b. A patient holding or recovery area may have curtains or walls. The size will be determined based on planned procedures and processes for the facility.
 - i. For inpatient areas, one holding area shall be large enough for 2 stretchers to provide an area for code events.
 - ii. Any IV will be started in this location.
 - c. Dressing area size and quantity shall be determined for each project.
 - d. Lockers area for patient storage will have push button locks and the size will be determined for each project.
 - e. Provide patient toilet room(s).
 - f. Confirm if lockers for firearm storage with lock and key will be required.
 - 2. Equipment:
 - a. Crash Cart (Inpatient) or Rapid Response Cart (Outpatient).
 - 3. Utilities:
 - a. Lighting shall be dimmable and zoning to be determined per project.
 - b. Hand sinks may be located in this area, as determined by procedures and processes expected.
 - 4. Finish options: Confirm finishes per project since they can vary between inpatient and outpatient.
 - a. Wall finish to include wall protection panels.
 - b. Flooring to be seamless.
- J. Zone 2 to Zone 1 access point:
 - 1. This door will be accessed with keycard access control.
 - 2. OSBC safety signage shall be installed on the door.
- K. Zone 1: This area of the MRI department is accessible to all. It may include admitting, lobbies, waiting areas, parking lots, as well as but not limited to hallways surrounding the Imaging department. These areas are described as having zero net magnetic attraction from Zone 4 and do not require supervision by MR personnel.
 - 1. The spaces may include:
 - a. Reception or check-in: Includes employee workstation(s), armband printer, and other equipment determined per project.
 - b. Waiting area: this will include seating options, access to water or coffee bar, mounted TV, and patient toilet(s).
 - c. UTSW PM will provide finish standards to the Design Professional.

L. Zone 1 access point:

1. This door will be a standard access point based on the facility.

XXXII. Loading Docks and Receiving Requirements

A. Dock design and renovation discussions shall include Supply Chain Management, Facilities Management, Safety teams, Police Department, Access Control, A.R.C. (if applicable), and other user groups identified per project.

1. A covered and protected dock provides the best solution for efficient deliveries and best waste practices.
 - a. Dock and receiving areas shall be designed to prevent fumes from lingering in the space and prevent fumes from entering buildings or intake systems.
 - b. Provide signage communicating that no engine idling is allowed.
2. Types of delivery vehicles, delivery frequency, and expected delivery sizes shall be determined during initial planning.
 - a. Identify dock heights needed for deliveries and compactor usage.
 - b. The height of overhead doors and overhangs shall ensure semitrucks can fully utilize docks at overhead doors.
 - c. Identify dock usage types.
 - d. Identify equipment required such as hydraulic lifts, air doors, grilles, etc.
 - e. Identify delivery volume to determine speed or type of overhead coiling doors. Refer to Volume 2, Section 08 32 23 Overhead Coiling Doors for additional requirements.
3. Security components shall include access control components, card readers, and IP camera requirements, refer to Volume 2, Section 28 10 00 Access Control.
4. Dock and receiving areas shall include striping for no parking areas, identification signage for docks, identification and safety signs for compactors and dumpsters, and other communication to ensure a compliant dock.
5. Dock areas shall meet requirements for the Texas Commission on Environmental Quality, TPDES Permits, and best practices for all drains and runoff.

B. Usage Types:

1. Management: Provide a dedicated space or small office with window overlooking dock area for dock management.
2. Receiving:
 - a. Receiving areas shall provide the ability for semi-truck tractor trailer delivery as well as hydraulic lifts for smaller vehicle delivery.
 - b. Receiving areas shall include interior space for secure delivery holding areas. Wire mesh partitions with locking gates and floor to ceiling panels may be considered for storage.
3. Waste:
 - a. Loading docks shall include space for dumpster and compactor locations at a lower elevation for ease of use.
 - b. Covers are required for:
 - i. Dumpsters must be under cover or have an individual cover.
 - ii. Provide covered area for compactors at dock.

- iii. A.R.C. bedding dumpster must be secure, covered, and enclosed.
 - c. Waste streams requiring permanent dock space include standard waste compactor, recycling compactor, autoclave compactor (where required), and A.R.C. bedding (where required).
 - d. CUH utilizes a transvac system for waste, which requires a dedicated space for the vacuum system with compactors below.
 - e. Confirm expected sizes for compactors per project.
- 4. Waste streams requiring dock access for waste pick-up includes chemical waste and regulated medical waste pick-up.
- 5. Provide area for temporary construction dumpsters and parking. Parking considerations include deliveries and maintenance vehicles.
- 6. Provide ample space for the delivery and removal of dumpsters and compactors.
- 7. Provide a holding area for pallets and other delivery items.
- C. Cart and Gondola Wash:
 - 1. Building requirements for cart wash and gondola wash shall be determined per project with users including BMO, Safety teams, and UTSW PM.
 - 2. Provide a covered enclosure with washing equipment and chemical dispensing (if required).
 - 3. The wash area must drain to the sanitary sewer with a curb designed to separate wash water and rainwater. The curb design must allow for a smooth rollover with large, heavy trash gondolas. The CUH wash area curb may be used as an example.
- D. Utilities:
 - 1. Where required, pressurized tanks for gas storage shall be located behind bollards and out of the main traffic pattern.
- E. For additional A.R.C. dock requirements, refer to Section A1, Animal Resource Center Design.

XXXIII. Institutional Design and Branding Committee

- A. All projects shall be submitted to the Institutional Design and Branding Committee (IDBC) for alignment with the campus standards and specifications.
- B. The exterior and interior design and materials shall be presented to the IDBC beginning with Schematic Design, continuing during the Design Development and Construction Document phases as needed.
- C. At each review, the IDBC will provide approvals, comments, and direction.
- D. After the final Construction Document review, when all items have been presented and approved by the IDBC, the project can proceed to the bidding phase.
- E. Final executive leadership approval may be necessary and is determined on a project-by-project basis.

XXXIV. Nursing Mother Rooms

- A. Nursing mother rooms shall be provided with an accessible counter and a sink but no refrigerator.
- B. Quantity of stations provided shall be 2 stations per 250 female employees. Stations for patients and visitors to be confirmed per project. Design Professional to discuss requirements with UTSW PM and user representative per project.
- C. Provide ceiling supported privacy curtains for each individual location inside a larger room offering more than one nursing seating location.
- D. Provide a quad electrical receptacle at each individual nursing seating location.
- E. Provide overhead dimmable light fixtures. In spaces with multiple stations, provide one light fixture at the sink switched separately from other ceiling mounted light fixtures.
- F. Furniture to include comfortable chair, bulletin board, full length mirror, and coat hook(s).
- G. Provide visual lock on doors for patients and visitors identifying if space is vacant or occupied. Confirm locking requirements for employees per project. Refer to UTSW Specification Section 08 71 01 Master Door Hardware Sets.

XXXV. Vending Standards

- A. Vending areas and machine locations shall be located on plans and coordinated with UTSW Auxiliary Enterprises.
- B. Finishes:
 - 1. Carpet shall not be installed in rooms containing vending machines.
 - 2. In larger rooms, provide a hard, non-waxed, low-maintenance floor surface under the machines and extending out 6-feet from the vending machines.
- C. Provide a GFCI breaker in the panel to protect each vending machine.
- D. Provide one data drop at each bank of vending machines.

XXXVI. Vibration Criteria in Buildings

- A. Individual buildings and floors within buildings shall be designed to treat vibration according to intended use and equipment.
- B. Low vibration will be required where sensitive equipment is expected including labs, hospital, and clinical spaces.
- C. Design Professional shall advise UTSW PM and user representative on recommended vibration criteria using industry standard as well as manufacturer guides to assure expected performance.

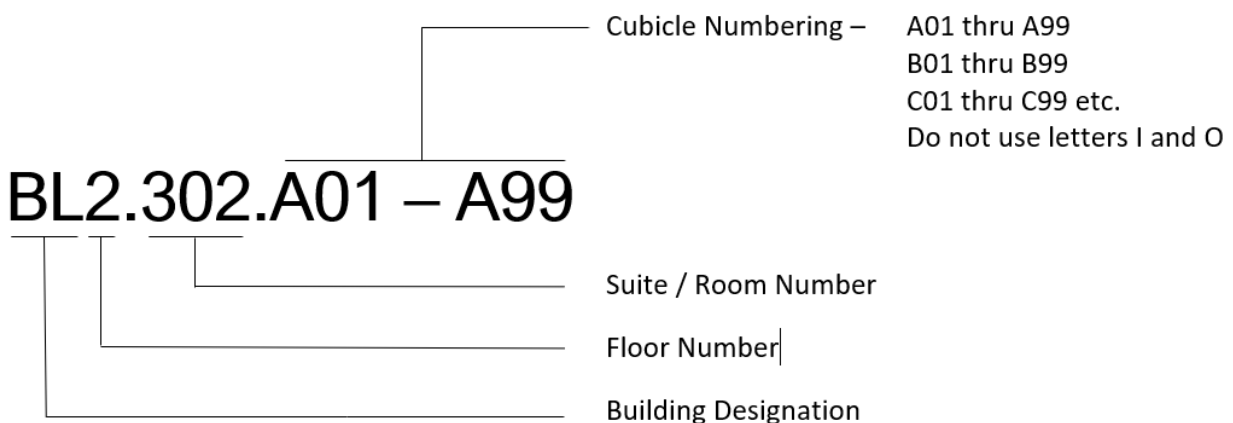
XXXVII. Assignment of Room Names

- A. Refer to UTSW Signage Manager for nomenclature standards.

XXXVIII. Assignment of Room Numbers

- A. The assignment of room numbers is described in this section.
- B. Design Professional shall use the following room numbering standards in all capital projects. Floor plans with room number and room names shall be submitted for review to the UTSW Planning and Masterbooks team and the FM Signage Manager during Schematic Design or Design Development (DD) for review and approval. After the DD review, all room numbers in design documents shall adhere to the approved standard numbering system. Any plan changes following DD shall be reviewed by the UTSW Planning Team for compliance.
- C. Room numbering system shall always make sense to the end user while creating a natural flow for users and guests. Room Numbering should facilitate visitor, employee, and faculty wayfinding. Room numbers shall be assigned using a holistic approach that considers how differing floor levels can still relate within a building. One way to do this is to have numbers 'stack' from floor to floor, where possible.
- D. The UTSW PM will provide the Design Professional with the existing facility CAD plan, identifying current room numbers prior to the design and renumbering process undertaken for the project.
- E. Cubicle Numbering.
 1. Design Professional shall assist departments with cubicle numbering as shown in **Figure A.1-1 – Cubicle Numbering Formula.**
 2. Refer to the UTSW Comprehensive Interior Signage Manual for cubicle sign type.
 3. Cubicle numbering is for individual Departments' use and reference only and may not be reflected in the Facilities CAD Plans.

Figure A.1-1 – Cubicle Numbering Formula: This formula begins with a standard building designation, the floor number, and room number. That is followed with a period and a cubicle number that begins with a letter designation from A through Z with a number from 01 up to 99. This example shows: BL2.302.A01 – A99 to show the range possible using A. The letters I and O should not be used.



- F. Overall Room Numbering Review Process:
 1. Design Professional begins with the current Facility CAD Plan sent from the UTSW PM to review the entire plan area. Consideration shall be given to the context around the project area as changes must be made in relationship to the existing spaces.

2. Review the existing numbers of all the spaces affected by the renovation.
3. Use the standards in this section to apply new numbers.
4. In large capital projects, end-user operational processes and workflows will need to be considered for numbered spaces to remain or change.

G. Design Phases:

1. During Schematic Design the Design Professional shall submit a PDF of the demolition and proposed plans to the UTSW Planning team for review and comment on room number convention.
 - a. The Design Professional shall consult with UTSW Planning if whole floor room numbering is required.
 - b. Sufficient notice is to be given to other end-users not involved in the scope of the project by the UTSW PM that room re-numbering will occur.
2. Prior to the final DD meeting, the Design Professional shall submit a PDF of the demolition and proposed plans for UTSW Planning and Masterbooks team for coordination and compliance with UTSW Room Numbering Standards
3. Any plan changes during design milestone reviews by the Design Professional shall be digitally scanned and emailed to the UTSW Planning and Masterbooks team for record-keeping.
4. Room numbers shall go through a final review at the Design Development stage by the UTSW Planning and Masterbooks team via the UTSW PM.
5. Any room number and name corrections shall be digitally scanned and emailed to the Design Professional via the UTSW PM
6. Design Professional shall include corrections in Construction Documents
7. UTSW PM may solicit consultation from the UTSW Planning and Masterbooks team and the Signage Manager to guide the Architect or Designers on room numbering and room nomenclature for complex wayfinding questions.

H. Beginning the Room Numbering Process:

1. Space numbers begin at Main Elevator or Entrance and flow clockwise, where possible, around the building, including stairwells
 - a. Note – Elevators are not given room numbers. They are simply designated as “Elevator 1,” “Elevator 2,” etc.
 - b. Elevators can be assigned room numbers for finish schedules but are not part of the overall room numbering sequence.
2. Spaces opening onto main and suite corridors alternate back and forth across the corridor, utilizing even numbers, like a hotel corridor.

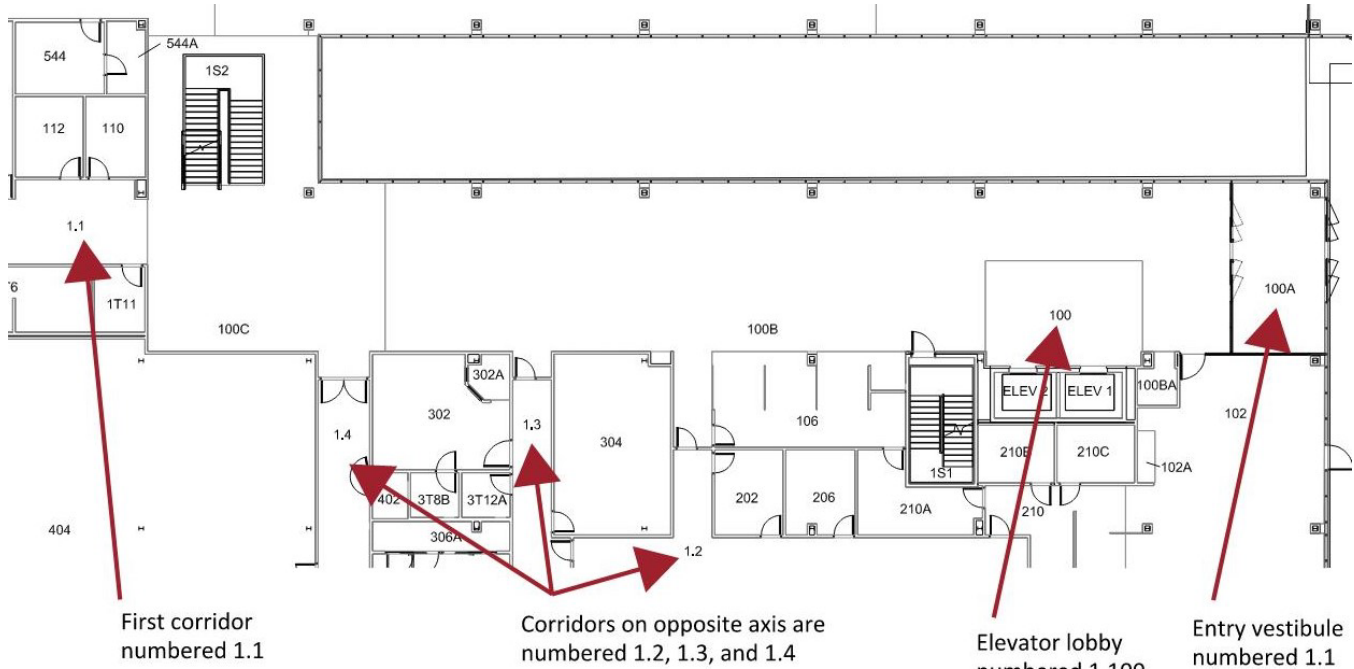
I. Existing Building and Small Renovation Information

1. See **Figure A.1-2 – Existing Building and Small Renovation** for a visual example.
2. Main Elevator Lobby is number 100
 - a. Room number process near the main elevator lobby can be as follows 100A, 100B, 100C, etc.
 - b. If there are additional spaces on 100A, such as a Vestibule, Guest Services, or Wheelchair Storage, room numbering can begin as 100AA, 100AB, 100AC, etc.

3. Corridors:

- a. The longest, most visible corridor from the main elevator lobby is numbered as 1. Otherwise, the corridors begin at the Main Entrance and either flow clockwise or are numbered with main corridors having 1, 2, on horizontal axis then secondary vertical axis corridors 3, 4, etc.
 - i. Corridor numbers shall only go up to 9. For example, Corridors 1.1, 1.2, 1.3, etc., up to 1.9.
 - ii. If additional corridor numbers are needed, a letter could follow behind corridor numbers such as 1.1a, 1.1b, and 1.1c. These additional corridors should be located near their main 1.1 corridor.

Figure A.1-2 – Existing and Small Renovation Example: Floorplan example showing the main lobby with elevator lobby of a building. The first corridor is numbered 1.1 with the elevator lobby being numbered 1.100. The entry vestibule is numbered 1.100A. As a visitor moves from the vestibule towards the building center, intersecting corridors, on the opposite axis, are numbered 1.2, 1.3, and 1.4 sequentially.

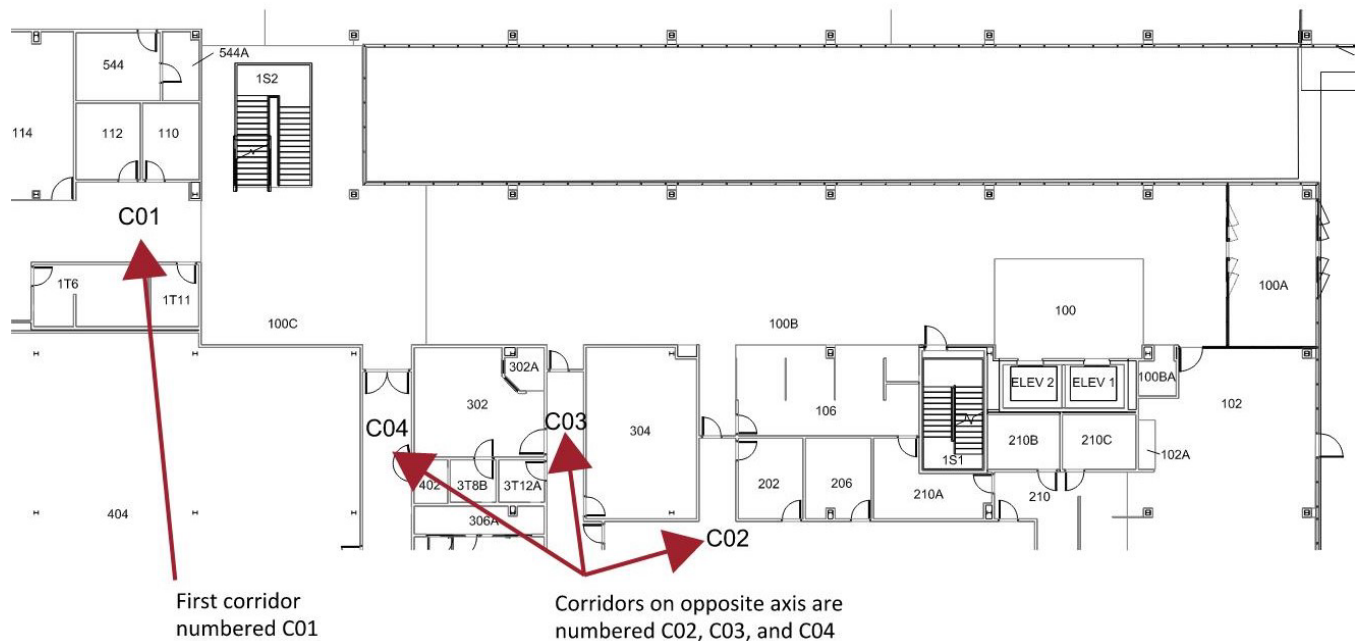


J. New Buildings and Major Renovations:

1. See **Figure A.1-3 – New Building and Major Renovation** and **Figure A.1-10 – Corridor Number Example ND-5** for visual examples.
2. The longest, most visible corridor is C01 from the main elevator lobby. Otherwise, the corridors begin at the Main Entrance and either flow clockwise OR are numbered with main corridors having C02, C03, on horizontal axis then secondary vertical axis corridors C04, C05, etc.
 - a. Corridor numbers shall only go up to 90. For example, Corridors C01, C02, C03, etc., up to C90.
3. If additional corridor numbers are needed, a letter could follow behind corridor numbers such as C01a, C01b, and C01c. These additional corridors should be located near their

main C01 corridor. If alcoves are located along the corridors, they will be identified as C01A, C01B, C01C, etc.

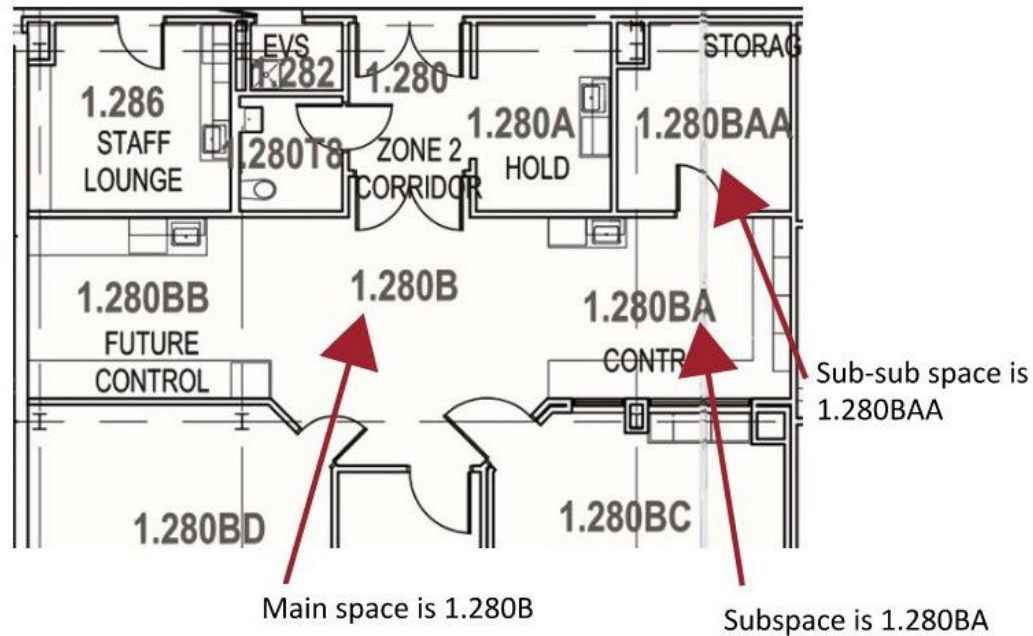
Figure A.1-3 – New Building and Major Renovation: Floorplan example showing main elevator lobby and corridor numbering. The first corridor is numbered C01 with the elevator lobby being numbered 100. The entry vestibule is numbered 100A. As a visitor moves from the vestibule towards the building center, intersecting corridors, on the opposite axis, are numbered C02, C03, and C04 sequentially.



K. General Room Numbering Rules

1. Rooms are numbered on the even numbers to allow for growth. For large areas that could be subdivided into smaller rooms later, skip several numbers in the sequence to prevent having to renumber the spaces not affected by renovations.
2. Rooms are numbered based on the hallway that they open into, even if they are generally accessed from an interior room.
 - a. Opening onto a corridor overrides general use.
3. Existing core and shell spaces will maintain their original room numbers, such as mechanical rooms, stairs, etc. whenever possible.
4. Rooms within a suite are typically numbered and lettered with direction depending on the point of main entry.
5. Subspaces receive the same number as the room they open from with a sub-letter designation (example 400 has 400A, 400B, etc.). See **Figure A.1-4 – Subspace Letter Designation** for a visual example.
 - a. Subspaces within subspaces continue to add letters up to 3 letters (example 400A has 400A and that has 400AA and 400AAA)
 - b. Subspaces do NOT carry an “I” or an “O” designation to avoid confusion between “1” or a “0”

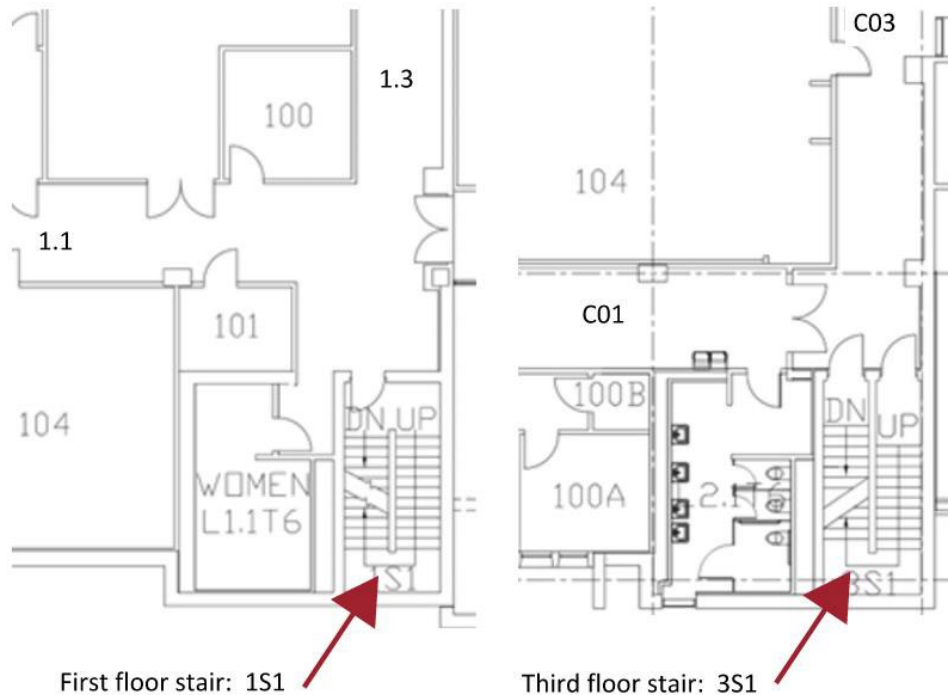
Figure A.1-4 – Subspace Letter Designation: Floorplan example showing subspaces within a suite, each with sub-letter designation. The main space is numbered 1.280B so the initial subspace example is 1.280BA. Through that subspace, there is an additional subspace, which is numbered 1.280BAA.



L. Stairs follow the formula below:

1. See **Figure A.1-5 – Stair Number Example** for a visual example.
2. Stairs are numbered in a new building project and will not be modified during renovations:
3. An example of a stair number is L1.1S1
 - a. L = Building Designate
 - b. 1 = Floor or Level
 - c. .1 = Period and Corridor Number that the stair opens from the current floor. This number can change between levels as it may vary with the corridor.
 - d. S = Designation for a Stairwell
 - e. 1 = Stair Number – This MUST remain constant between floors (S1 is ALWAYS S1 even if it begins with 1, 2, 3, etc. per floor. This is an Fire Safety requirement)

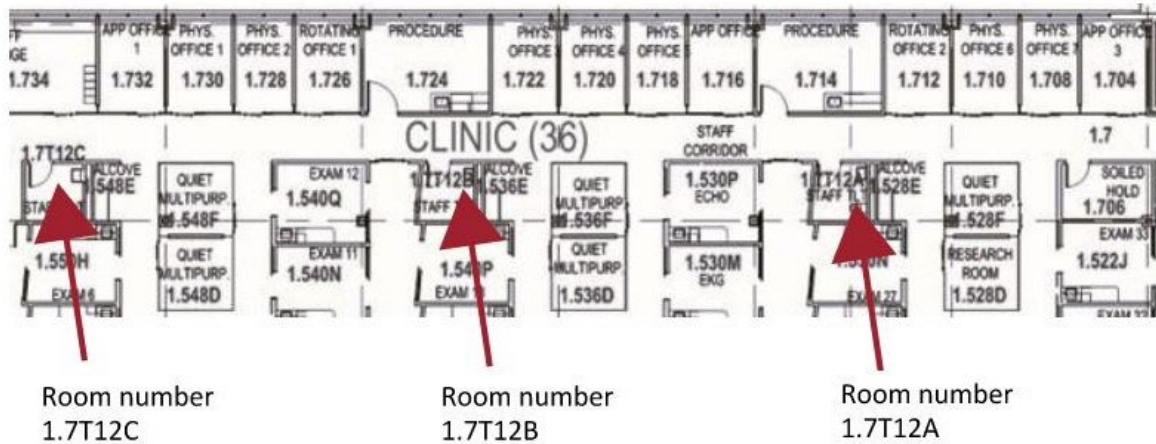
Figure A.1-5 – Stair Number Example: Two floorplans showing the stairs formula using a first floor and third floor of the same building. The first floor, on the left, has the older corridor numbering, with 1.1 as the main corridor. The perpendicular corridor is 1.3 with the stair numbered as 1S1. All levels of stair above will match the stair numbering from the first floor. The third floor, on the right, has the newer corridor numbering, with C01 as the main corridor. The perpendicular corridor is C03 while the stair is 3S1.



M. Restrooms follow the formula below.

1. See **Figure A.1-6 – Restroom Formula** for a visual example and use the Restroom Identification documented within the UTSW Comprehensive Interior Signage Manual.
2. An example of a restroom number is RB1.7T12.
 - a. RB = Building Designate for Redbird as an example.
 - b. 1 = Floor or Level.
 - c. .7 = Period and Corridor Number the room is accessed from or Number Series of the room that the toilet is a sub-room to.
 - d. T = Designation for a toilet room and restroom.
 - e. 12 = Toilet room type.
 - f. In this example, a unisex staff, ADA restroom. It is unusual, but you can have more than one T12 in the same corridor or room. In this instance, the T number will have a letter suffix added (i.e., RB1.7T12A, RB1.7T12B, etc.).
3. If a restroom is added to an existing building, provide the next letter suffix in the “T” series depending on what corridor number it opens into.

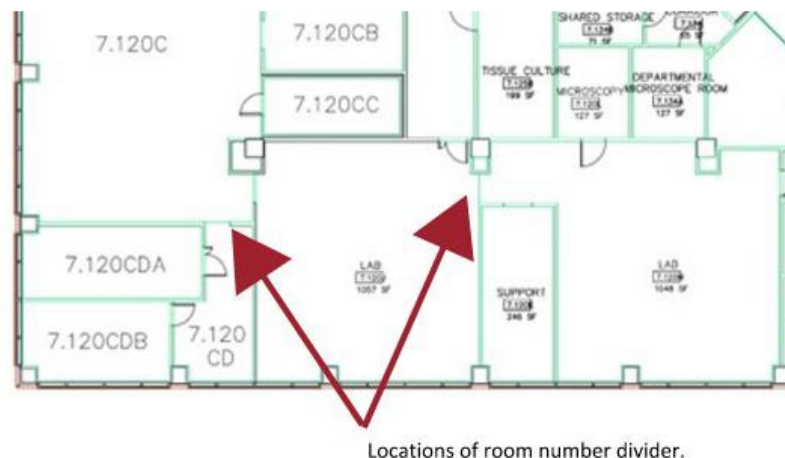
Figure A.1-6 – Restroom Formula – A floorplan showing the restroom formula for numbering multiple restrooms off the same corridor. The corridor is 1.7 and there are three toilet rooms opening into this corridor. Since they are all the same designation of T12, each number is followed with an additional letter. The three spaces are numbered RB1.7T12A, RB1.7T12B, and RB1.7T12C.



N. Exceptions to Standard Room Numbering

1. Labs and Open Offices pose specific challenges to room number assignments where open spaces may be further divided without continuous walls.
2. Labs:
 - a. See **Figure A.1-7 – Dividing Open Spaces in Labs** for a visual example.
 - b. Divisions within the larger spaces associated with benches and between hard walls carry a single room number.
 - c. The shared space that functions as a corridor is divided between adjacent room numbers, typically to the center of the area.

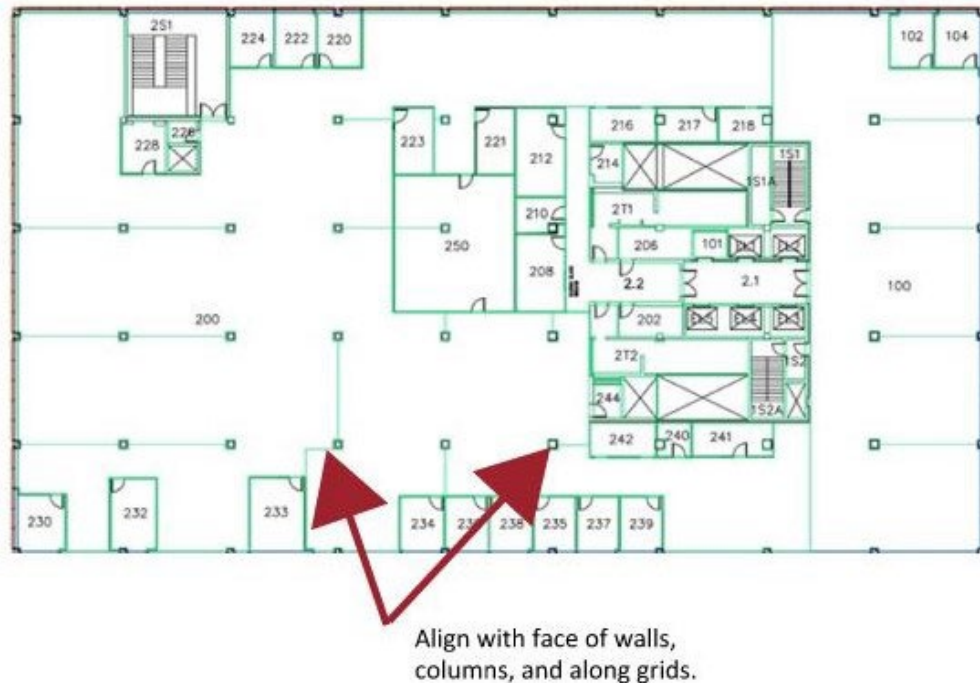
Figure A.1-7 – Dividing Open Spaces in Labs: Floorplan showing the division of open spaces between labs where multiple labs are operated within a larger space. In this visual, the room number division aligns with a wall. Since the wall is not continuous, the room number divider, extends through the walkway, to the next wall.



3. Open Office

- a. See **Figure A.1-8 – Dividing Open Office Spaces** for a visual example.
- b. UTSW may provide additional subspace designations to break larger spaces into smaller sizes.
- c. The Design Professional will indicate the subdivisions in plans, using walls and columns to locate the subdivisions.

Figure A.1-8 – Dividing Open Office Spaces – Floorplan showing a large open office space. The open space is further divided for room numbers utilizing the location of columns, grid lines, and face of walls to graphically locate subdivisions in plan.



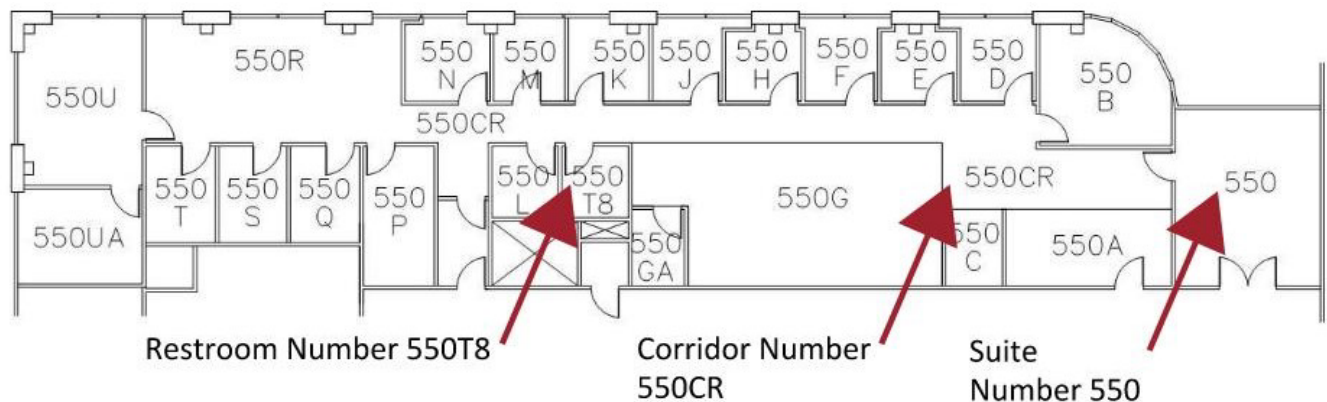
4. Leased Suites:

- a. See **A.1-9 – Lease Corridor Numbering** for a visual example.
- b. Begin with the room number provided by UTSW. Being offsite, the information may come from FPD&C Leadership, UTSW PM, or Director of Real Estate Services.
- c. After the suite number, the main corridor will be designated with a CR.
 - i. For suites with multiple restrooms located on the same corridor, the corridor number may be designated the first number of the suite followed by a period and the number of the corridor.
- d. Spaces located along the main corridor will have a letter designation added after the suite number. The letters O and I will never be used.
- e. The number assignments of restrooms in Suites will follow the UTSW Comprehensive Interior Signage Manual and the numbering requirements in this document.

- f. There are a few existing clinics and suites around UTSW campus which follow the same process for the suite exception. If there are renovation plans for existing clinic or hospital suites, here are some important items to remember:
 - i. Review the existing numbers of all the spaces affected prior to designing or modifying the function of a room.
 - ii. Review the new assigned numbers with the UTSW PM and Drafting Technician (Planning).

Figure A.1-9 – Lease Corridor Numbering: This floorplan shows an example of a clinical suite.

In this layout, the Suite is assigned as 550 and this is the main entrance as well as the patient waiting room. The main corridor is assigned 550CR and +rooms located along the corridor are numbered as 550B, 550C, 550D, and so on. This corridor could also be designated as 5.1 if there were multiple restrooms. The restroom located along the 550CR corridor will have the toilet designation added, such as 550T8 in this plan.



- O. Due to software limitations of UTSW Facility Management Software, toilet room numbers may occasionally be changed by UTSW during the numbering process.
- P. The following figures illustrate a variety of examples of room numbering within the context of the entire floor.

Figure A.1-10 – Corridor Numbering Example: This floorplan shows the second floor of building F as an example for overall numbering strategy of corridors and stairs. The main corridor in the horizontal direction is C01. Where a second horizontal corridor starts, that is numbered as C02. The secondary corridors running perpendicular are numbered C03 and C04. The main stair off of the main corridor is numbered 1S1.

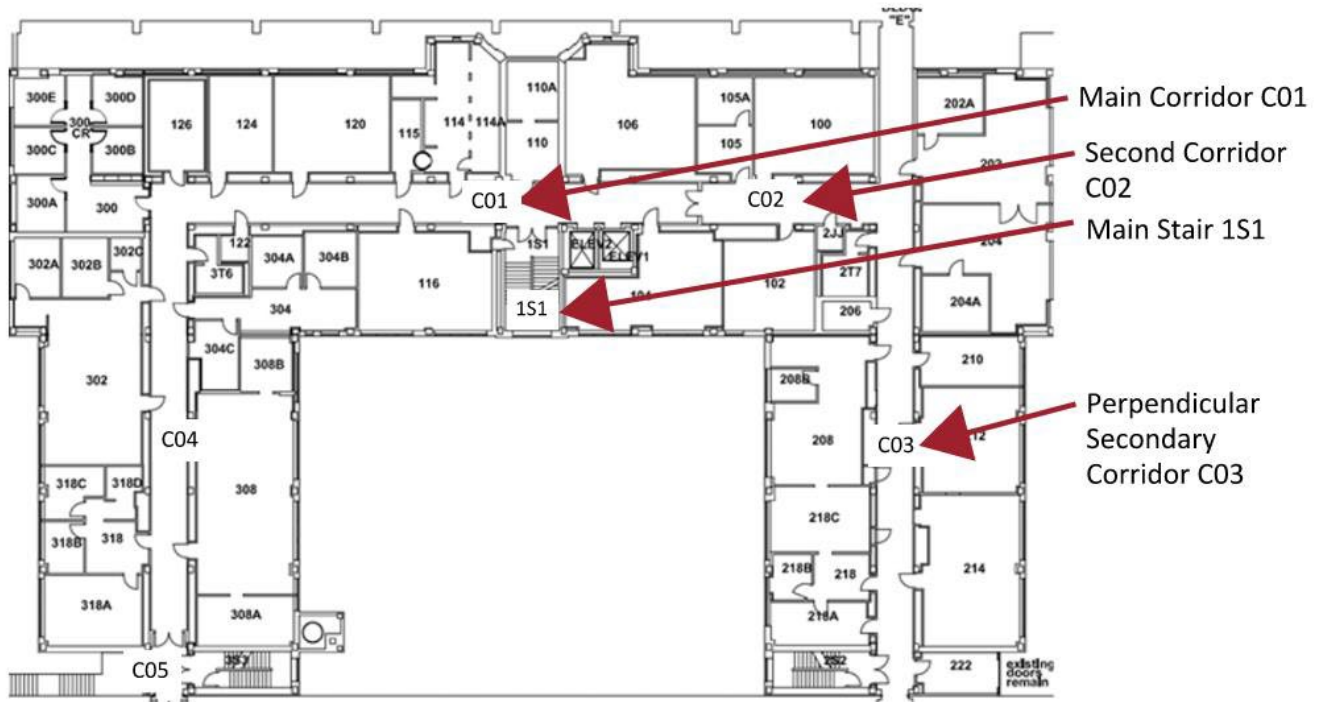
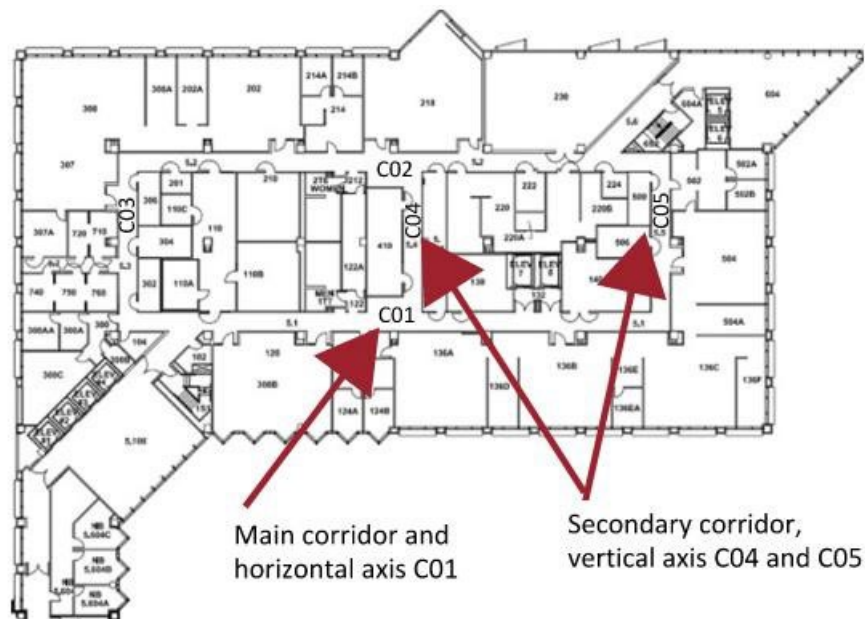


Figure A.1-11 – Corridor Numbering Example ND-5 – This floorplan shows ND-5 as an example of corridor numbering. The main corridor in the horizontal direction is C01. The secondary corridors running perpendicular are numbered C03, C04, and C05.



SECTION A1 – ANIMAL RESOURCE CENTER (A.R.C.) DESIGN REQUIREMENTS

I. General Information

- A. Animal Resource Center (A.R.C.) spaces on the campus shall be designed to follow the building codes as well as tenets of the several organizations and regulations in which they follow.
 - 1. Design Professional shall confirm specific requirements with A.R.C. Leadership before design work begins on each A.R.C. project.
 - 2. Projects shall utilize the NIH Design Requirements Manual (most recent edition), The Guide from the NRC, and the Biosafety in Microbiological and Biomedical Laboratories (BMBL)(CDC).
 - 3. All projects shall adhere to AAALAC standards.
 - 4. Where conflict arises between Federal, State, or Local requirements, Design Professional shall provide a comparison document identifying differences and compliance strategies. A.R.C. Leadership and UTSW FM VP will provide final compliance decisions.
 - 5. All projects shall follow requirements and regulations from Safety teams including Fire Safety, Chemical Safety, Biological Safety and other teams as required.
- B. A.R.C. projects can consist of several different types of facilities. A.R.C. Leadership, Fire Safety, Biological Safety, and Chemical Safety will all take part in determining the codes, strategies, and requirements for laboratory safety.
 - 1. Facility types include but are not limited to:
 - a. Conventional facilities.
 - b. Barrier facilities with a systemic approach to prevent pathogen contamination.
 - c. Containment facilities with biocontainment strategies to isolate dangerous biological agents. UTSW projects utilizes Animal Biological Safety Levels (ABSL) 2 and 3.
- C. UTSW A.R.C. leadership approvals are required for design, systems, equipment, and finishes starting from design phases and continuing through construction phases.
 - 1. A.R.C. designs shall be approved by UTSW A.R.C. leadership in writing before progressing into new design phases and before progressing into construction.
 - 2. Design Professional shall ensure submittal requirements for all A.R.C. project specifications document that all submittals shall be provided to A.R.C. leadership.
 - a. Design Professional shall confirm with A.R.C. leadership which submittals shall be reviewed and approved in writing by A.R.C.. At a minimum, submittals for commissioning, doors, door hardware, access control, finishes, equipment, Animal Monitoring and Watering Systems (A.M.W.S.), HVAC, and lighting shall be included.
- D. Design and construction of these facilities, which operate 24 hours a day and 7 days per week, shall contribute to safety and wellbeing for workers, animals, and the community.
 - 1. Design and layout considerations include containment and contamination control, which include ideas of clean and dirty areas and processes.
 - 2. Design considerations for animals specifically are the creation of spaces that are safe from environmental fluctuations including the transmission of noise and vibration.

- E. A.R.C. spaces rely heavily on a complex Animal Monitoring and Watering Systems (A.M.W.S.). The coordination between disciplines to correctly document and implement the project specific requirements shall include A.R.C. Leadership and vendor representative to provide guidance on standards and best practices. Refer to Section 13 31 13 and the Master Specification for requirements.
- F. Refer to Volume 3, Equipment Schedules and Coordination for standard identification of equipment, accessories, and other items per specification division.

II. Design

- A. Each A.R.C. space will be assigned an Animal Biosafety Level (ABSL) by Safety. Design Professionals shall use this to guide their design solutions. The descriptions below are from the “UT Southwestern Biosafety Manual” version Date: December 2023.
 - 1. ABSL1 is suitable for work involving well characterized agents that are not known to cause disease in immunocompetent adult humans, and present minimal hazards to personnel and the environment. ABSL1 facilities should be separated from the general traffic patterns of the building and restricted as appropriate. Special containment equipment or facility design may be required as determined by an appropriate risk assessment. Personnel must have specific training in animal facility procedures and must be supervised by an individual with adequate knowledge of potential hazards and experimental animal procedures. Staff must don, at a minimum, institutional required PPE prior to animal operations.
 - 2. ABSL2 builds upon the practices, procedures, containment equipment, and facility requirements of ABSL1. ABSL2 is suitable for work involving laboratory animals infected with agents associated with human disease and pose moderate hazards to personnel and the environment. ABSL2 addresses hazards from ingestion as well as from percutaneous and mucous membrane exposure.
 - a. ABSL2 requires that: 1) access to the animal facility is restricted; 2) personnel must have specific training in animal facility procedures, the handling of infected animals, and the manipulation of pathogenic agents; 3) personnel must be supervised by individuals with adequate knowledge of potential hazards, microbiological agents, animal manipulations, and husbandry procedures; and 4) procedures involving the manipulation of infectious materials, or where aerosols or splashes may be created, should be conducted in BSCs or by use of other physical containment equipment. Staff must don, at a minimum, institutional required PPE prior to animal operations to reduce exposure to infectious agents, animals, and contaminated equipment. Implementation of employee occupational health programs should be considered.
 - 3. ABSL3 involves practices suitable for work with laboratory animals infected with indigenous or exotic agents that present a potential for aerosol transmission and agents causing serious or potentially lethal disease. ABSL3 builds upon the standard practices, procedures, containment equipment, and facility requirements of ABSL2. ABSL3 laboratories have special engineering and design features.

- a. ABSL3 requires that: 1) access to the animal facility is restricted; 2) personnel must have specific training in animal facility procedures, the handling of infected animals, and the manipulation of potentially lethal agents; 3) personnel must be supervised by individuals with adequate knowledge of potential hazards, microbiological agents, animal manipulations, and husbandry procedures; and 4) procedures involving the manipulation of infectious materials, or where aerosols or splashes may be created, must be conducted in BSCs or by use of other physical containment equipment. Staff must don, at a minimum, institutional required PPE prior to animal operations to reduce exposure to infectious agents, animals, and contaminated equipment. Implementation of employee occupational health programs should be considered.

B. Building Design:

1. Buildings shall conform to the Americans with Disabilities Act (ADA) and the Texas Accessibility Standards (TAS) .
 - a. Within animal and work areas, levels of accommodation shall be discussed in programming with A.R.C. Leadership and UTSW PM.
2. Flexibility and adaptability shall be considered in overall design so future growth and changes can be accommodated.
 - a. Confirm required future growth strategies for each project for each MEP discipline and provide oversized chases, units, panels, etc. as confirmed with A.R.C. Leadership.
 - b. Due to the special nature of A.R.C. spaces, HVAC and exhaust systems capacities can easily become limiting factors in the life of a building. Provide future expansion possibility for all mechanical systems above the needs of the design for day one.
 - c. Placement of cage processing equipment including autoclaves should be peripheral in the animal facility design for ease of future renovation or replacement of equipment. Provide a planned access pathway for future modifications including considerations for knock-out panels.
3. Refer to Section B, Codes and Standards, for specific acoustic requirements for A.R.C. spaces in "Acoustical Design" for both noise criteria of equipment and sound transmission.
 - a. A.R.C. areas shall have full height partition to structure as standard.
4. Additional structural loading requirements shall be discussed with the user representative and UTSW PM for items including equipment and equipment travel paths.
5. Building Service:
 - a. Separate loading docks for A.R.C. services are preferred apart from standard building utilities and service functions.
 - b. Entry locations and path for delivery of animals shall be determined per project requirements including an entry width providing 48-inches minimum.
 - c. Refer to Section A, Building Core Elements: Rooftop Requirements. The location of a roof-top utility crane is preferred for future equipment replacement if elevators cannot be used for units designed in the project scope.

- C. Circulation shall guide the layout of the A.R.C. beginning in early programming discussions to confirm facility requirements.
1. A.R.C. circulation paths shall not converge with patient circulation paths, including patient building entries and patient elevator access.
 2. Access into A.R.C. animal areas shall be designed to control access into the animal facility.
 - a. Access into containment spaces shall follow regulations as indicated by A.R.C. Leadership and Safety requirements.
 3. Within the facility, clean and dirty process and spaces shall be separated to prevent contamination. Discuss requirements including HVAC supply, pressurizations, and exhaust.
 4. Dirty spaces shall be located along the waste removal pathway either at the barrier perimeter or outside of the barrier. These shall be negatively pressurized.
 5. Corridors:
 - a. Corridors shall be sized to wide enough for equipment movement and two-way traffic. All doorways shall be tall enough for standard equipment heights. Plan for 48-inches wide and 84-inches high.
 - b. The height of double doors across corridors shall be no lower than animal room door frame heights and provide clear width without any central mullion to allow for cage movement.
 - c. All areas of cage traffic have strict wall protection requirements which affect corridor design. Refer to A1, Section 10 26 00 and Master Specification for wall protection requirements.
 6. Elevators:
 - a. Clean and dirty elevators shall be located near the associated spaces.
 - b. Elevator vestibules shall minimize airflow or pressurization control issues.
 - c. Areas around elevators shall be sized to provide turning radii and marshaling areas.
 - d. Building freight elevators may serve both A.R.C. spaces and non-A.R.C. spaces if security card access provides controlled entry into the A.R.C. areas.
- D. A.R.C. spaces shall be designed to provide researchers and staff with the ability to perform their work within controlled environments. Spaces that may be present in the facility types include:
1. Animal housing:
 - a. Animal rooms must be separated from unrestricted traffic flow within their buildings using access control.
 - i. Risk assessment of individual spaces shall determine additional requirements for design and engineering within the facility.
 - b. Animal holding spaces shall be designed to provide proper housing areas for animals which are free of loud noises, uncontrolled light, and vibration. The spaces shall operate at required temperatures and humidity for the animal species indicated.
 - i. Document the components required of the A.M.W.S. for each project including animal watering distribution, access control, lighting control (white), temperature and humidity monitoring.

- ii. Document additional requirements including ventilated rack air supply and direct exhaust, lighting, red lights and controls.
 - iii. Preferred room size for rodent rooms shall accommodate six UTSW designated ventilated racks.
 - iv. Additional sizing standards will be confirmed with A.R.C. leadership.
- c. Required components within an animal housing room include a glove dispenser, mop holder, and wall protection.
 - i. Small animal holding spaces do not require plumbing fixtures.
 - ii. Large animal holding spaces require hose bibs and floor drains. Refer to Volume 2, Section 22 11 19 Plumbing Specialties.
- 2. Specialty Spaces include procedure rooms, surgery facilities, and associated support spaces.
 - a. Locations shall minimize traffic flow and potential contamination to and from animal housing spaces.
 - b. Procedure rooms:
 - i. Procedure rooms shall be distributed so one is adjacent to three holding rooms and the size shall match animal holding rooms sizes to provide future flexibility.
 - ii. Provide A.M.W.S. components to match holding rooms including access control, lighting control (white), temperature and humidity monitoring.
 - iii. Document additional project requirements, which could include lighting controls, red lights, red-light controls, euthanasia and anesthesia machines.
 - iv. Rooms shall include stainless steel countertops, metal casework, stainless steel sinks, wall phone, and surface mounted waterproof raceway for power and data. Equipment may include ducted Biological Safety Cabinets (BSCs) and with back draft ducted exhaust.
 - c. Specialty holding rooms:
 - i. These spaces may serve multiple functions including holding rooms and euthanasia spaces.
 - ii. Provide A.M.W.S. components to match standard holding room including animal watering distribution, access control, lighting control (white), temperature and humidity monitoring.
 - iii. Document additional requirements, not limited to ventilated rack supply and direct exhaust, lighting, red lights and controls, CO2 service, and additional equipment.
 - iv. Locations and sizes will be determined by facility. Usage for euthanasia shall consider the waste removal pathway.
 - d. Necropsy
 - i. The size of the space and location shall be confirmed per facility to ensure this space aligns with building waste removal pathways.
 - ii. This room shall be designed to be negatively pressurized per project specific needs.

- iii. Protection within imaging spaces shall be provided to users for all imaging spaces with designs approved by UTSW Medical Physicist and Radiation Safety.
 - iv. Behavioral studies areas shall be given special attention to minimize airborne transmission of noise, ground borne transmission of noise, and other intrusions to the testing environment.
- 3. Cage processing and sterilizing areas:
 - a. Locations of clean and dirty cage processing shall prevent cross traffic and shall not cause disruptive noise for animal rooms.
 - i. Size these areas for equipment space including clearances, marshaling space, pre-wash areas, and areas specific to the cleaning processes.
 - ii. Additional processes required include dirty bedding disposal, clean bedding distribution, and cage set-up.
 - iii. Design for 15 to 20-percent of caging census shall be in marshaling areas.
 - b. Wall protection shall be located throughout cage wash areas to protect the walls. Refer to A.R.C. Section 10 26 00 Wall Protection for specific requirements. The operational process will vary depending on the type of facility and must be confirmed for each project.
 - c. Chemical storage of cage wash chemicals are preferred to be pumped from a secondary location, such as remote storage or the dock.
- 4. Locker areas with toilets and showers are required in both barrier and conventional A.R.C. spaces for men and women. These shall be ADA and TAS compliant.
 - a. These may be used as transitions between personnel and barrier zones if they include anterooms and changing rooms.
 - b. Gowning vestibules shall provide sufficient PPE storage racks, disposal bins, circulation, changing, and egress.
- 5. Laundry Rooms shall provide space for laundry equipment, workspace, mobile rack spaces, built-in storage, and required clearances.
 - a. Laundry room sizes and needs shall be confirmed with A.R.C. Leadership per project requirements.
 - b. Utility requirements include floor drains, hot and cold-water service, exhaust, and appropriate power supply for required equipment.
 - c. Finishes shall include chemical resistant resinous flooring and epoxy paint.
- 6. Janitor closets shall be located along corridors and be sized large enough to hold necessary equipment for routine cleaning.
 - a. Rooms shall hold shelving, mop racks, water source, chemical proportioners, and chemically resistant floor-mounted mop sink.
 - b. Design Professional to confirm location(s) for chemical proportioners required in janitor closets throughout project and coordinate all required utilities.
 - c. Chemical proportioners shall be "owner provided, contractor installed" and fully coordinated in the Design Professional documents including blocking requirements.
 - d. Walls shall be protected from damage, water, and chemicals.

7. Receiving:
 - a. A.R.C. facilities may have separate receiving areas from general building dock areas. Locations may be adjacent to other building group's receiving spaces.
 - b. General A.R.C. deliveries include supplies, feed, and bedding.
 - c. Receiving may include small animal transfer stations and staging area, as approved by A.R.C. Leadership. Confirm HVAC requirements per species planned for within holding areas.
8. Storage:
 - a. Clean storage
 - i. Food storage areas shall have stable temperatures and be kept below 70F and at or below 50-percent humidity to meet regulatory requirements. Ensure building systems maintain these requirements at all times of day and through all seasons.
 - b. UTSW preference is for cage wash process bulk detergents and disinfectants to be located near the loading dock and pumped to the point of use. There shall be a secondary containment device or curb to prevent leakage.
 - c. Dirty storage:
 - i. Separate refrigerated storage shall be provided for storage of dead animals and animal tissue waste below 7°C (44.6°F).
 - ii. Waste holding areas.
9. Office and administrative spaces may be provided within or outside of the A.R.C. zone. Natural lighting and exterior views are preferred for employee work areas.
 - a. Space types could include offices, training rooms, break area, and conference room.

III. Section 03 00 00 Concrete

- A. In A.R.C. spaces, floor flatness shall adhere to ACI 117 unless more stringent requirements are necessary.
- B. Exposed concrete surfaces are not preferred in A.R.C. spaces. Any instances must be skim-coated with cementitious filler to provide a non-porous substrate with finishes applied to match A.R.C. requirements.

IV. Section 04 20 00 Concrete Unit Masonry

- A. Concrete unit masonry may be used for walls in large animal spaces or other areas as indicated by project requirements.
 1. Walls in large animal areas shall be constructed of concrete masonry units with a seamless finish that will be impact-, hose-, spray-, and chemical-resistant.
 2. Finishes for wet or chemical areas with block walls shall be confirmed with UTSW PM and A.R.C. Leadership.
- B. Preferred finishes include a minimum of two coats of block filling and industrial-grade epoxy paint over masonry units. All CMU shall be smooth finished, impervious to water.
- C. FRP panels or other systems that meet requirements may be considered for use in renovation projects, refer to Volume 2 section 06 83 16 Fiberglass Reinforced Paneling.

V. Section 05 40 00 Cold-Formed Metal Framing

- A. Utilize structural framing for partitions as required by AISI S220.

VI. Section 06 83 16 Fiberglass Reinforced Paneling

- A. Fiberglass Reinforced Paneling (FRP) may be used at approved locations in A.R.C. renovation spaces.

VII. Section 07 90 00 Joint Protection

- A. All penetrations in floors, walls and ceilings shall be sealed including structural joints to minimize flooding as well as passage of vermin, refer to Volume 2, section 07 90 00 Joint Protection.
- B. Any installed equipment, components, casework, or element installed in animal spaces shall have all penetrations, cracks, and joints sealed to prevent the passage of vermin.

VIII. Section 08 10 00 Doors and Frames

- A. Doors into animal areas shall provide controls required per space including but not limited to acoustic, light, and air conditioning. Refer to Volume 2, section 08 10 00 Doors and Frames.
- B. Door sizes shall allow easy passage of racks and equipment with 48-inch width by 84-inch height considered the minimum clearance.
- C. Door construction and finish shall be corrosion resistant, easily cleaned and disinfected while holding up to equipment movement and abuse. Doors shall be solid construction or solidly foam filled. Painted metal doors are typically used.
 - 1. Doors to animal holding and procedure rooms shall have hinged, magnetic closing doors or shutters and red film located on all lites. Refer to UTSW Specification sections 08 11 13 Hollow Metal Doors and Frames and Section 08 11 14 Interior Hollow Metal Doors for requirements.
 - 2. Armor plate shall be located on doors facing animal corridors and where cart traffic is expected.
 - 3. Any thresholds must provide for easy movement of carts and animals as well as adhering to TAS.

IX. Section 08 31 13 Access Doors and Frames

- A. Stainless steel or painted metal gasketed access doors and frames shall be provided at A.R.C. locations.

X. Section 08 71 00 Door Hardware

- A. Lock and access control strategies require close coordination between A.R.C. Leadership, UTSW Access Control, A.M.W.S. Vendor, door hardware consultant, and Design Professional.
 - 1. Access into A.R.C. facilities requires badge access on the A.R.C. segment within the campus-wide Lenel access control system.

- a. All external doors shall be self-closing and self-locking with seals to prevent the passage of pests.
2. Within the A.R.C. facility, internal doors shall be self-closing. Design Professional shall closely coordinate the A.M.W.S. system requirements with door hardware requirements.
 - a. Door hardware components include soft-close, tight fitting sound seals, integral door sweeps, door closers with friction hold open, and seals. Seals shall dampen door closing sounds, prevent light leakage, prevent air leakage, and prevent the movement of pests.
 - b. Doors with the passage of cages and carts shall have armor plate installed facing the corridors, 48-inches high, and continuous across the width of the door surface.
 - c. Doors to animal spaces or spaces where infectious items are located shall open inward and be self-closing.
 - d. Doors will have narrow viewing lites with metal shutters and application of a red film to limit light spectrum required for diurnal light cycle adherence.
 - e. Spaces with A.M.W.S. system pin code locks may include animal holding, procedure rooms, imaging spaces, bedding storage, and feed storage. Closely coordinate door hardware from both A.M.W.S. vendor and door hardware consultant
 - f. Spaces with standard UTSW door hardware and access control may include: offices, toilet rooms, janitor closets, laundry, electrical rooms, mechanical rooms, IDF rooms, RO rooms, and the bedding dumpster enclosure. Access shall be coordinated for each project.

XI. Section 08 71 13 Automatic Door Operators

- A. Automatic openers and power assist operators may be located on doors in A.R.C. spaces where cages are transported at high-traffic transport areas.
 1. Openers are required to have mechanical (pushbutton) operation.
 2. Jamb guards shall be installed at any opening along the path of travel.
 3. Placement of automatic openers and pushbuttons shall be confirmed with A.R.C. Leadership.

XII. Section 08 80 00 Glazing

- A. Film shall be installed on the door lites for animal spaces to protect diurnal lighting. Locations shall include animal housing, procedure spaces, and others as confirmed by Design Professional with A.R.C. users per project. Refer to UTSW Specifications for red dyed polyester film information.

XIII. Section 09 00 00 Finishes

- A. All finishes used in A.R.C. spaces must comply with the applicable standards and references.
 1. Floors, walls, and ceilings shall be moisture-resistant, non-absorbent, impact-resistant, chemical resistant, and smooth to allow proper disinfection and cleaning.

2. Walls and floors shall be monolithic.
 3. Moisture resistant drywall in A.R.C. ceilings shall have impervious finish.
- B. Regular cleaning and sanitizing will be carried out on all surfaces including floors, walls and ceilings. Materials must stand up against scrubbing, impact, and cleaning agents for long-term reliability while ensuring infection control.
1. High pressure sprays and hot water will be used in large animal spaces and cage wash areas. Ensure finishes will hold up to these harsher requirements.
 2. Design of walls, surfaces, and details including mounted casework and equipment shall not create recesses, cracks, or other openings.
- C. Paints and finishes shall be non-toxic.
- D. Refer to individual sections in the Volume 2 and Master Specifications for specific product requirements.

XIV. Section 09 29 00 Gypsum Board

- A. Reference NFPA 101 and Specification Section 09 29 00 Gypsum Board for required "Partition Identification" labels and locations as well as requirements for construction, fire-resistance ratings, and fire protection of existing and new fire-rated walls, partitions, compartments, assemblies, and smoke partition assemblies.
1. Renovation and remodel projects shall include revisions to existing partition identification when the wall conditions are modified.
 2. Renovation and remodel projects shall include partition identification be added where missing and as indicated by Fire Safety.
- B. Wallboard Types:
1. Type-X, fire-resistant, gypsum board shall be used at any locations requiring greater than 1/2-inch thickness.
 2. Use cement backer board for tile and wet installations.
 3. Impact resistant panels to be used in A.R.C. spaces including small animal holding spaces, procedure rooms, and recovery rooms. Confirm with UTSW PM and A.R.C. User the extent of panels in other A.R.C. spaces.
 4. Abuse resistant panels for high traffic areas will only be used in A.R.C. spaces with approval from UTSW PM and A.R.C. Leadership.
 5. Finishes for A.R.C. walls and ceilings shall be moisture-resistant, non-absorbent, impact-resistant, and smooth, without applied texture. Samples or a mock-up shall be approved by Design Professional and A.R.C. Leadership.

XV. Section 09 22 16 Non-Structural Metal Framing

- A. In high-abuse spaces, such as cage-wash areas, utilize a heavy-duty galvanized steel grid system.

XVI. Section 09 50 00 Ceilings

- A. A.R.C. ceiling surfaces shall be moisture-resistant, nonabsorbent, impact resistant, and smooth to ensure easy disinfection and cleaning
- B. Design of ceilings shall take room pressurization into account with design of finish and attachments to prevent sagging and deflection over time.
- C. Refer to Volume 2, Section 08 31 13 Access Doors and Frames.

XVII. Section 09 60 00 Flooring

- A. A.R.C. leadership shall approve flooring samples.
- B. A.R.C. floor surfaces shall be moisture-resistant, nonabsorbent, impact resistant, resistant to chemicals, and smooth for easy disinfection and cleaning. Slip resistance shall meet Occupational Safety requirements.
 - 1. Integral cove bases carried up 6-inches and seamless systems are a UTSW requirement.
 - 2. When finalizing floor types, confirm locations where extreme temperatures and high-pressure spray will be utilized.
- C. Large animal rooms and spaces with high abuse shall have seamless floors with a minimum thickness of 3/16-inch to 1/4-inch (5 to 6 mm).
- D. Flooring types common in small animal spaces and other spaces within the animal facility include epoxy, quartz resinous flooring, and methyl methacrylate (MMA) dependent on the project specific needs.
- E. Offices and non-animal rooms located outside the A.R.C. zones shall follow UTSW Volume 2.

XVIII. Section 09 91 23 Interior Painting

- A. Epoxy paint shall be utilized within A.R.C. spaces and laundry rooms. Refer to Specification Section 09 91 23 Interior Painting for A.R.C. paint types.
- B. The installation of epoxy coatings shall follow or exceed the manufacturer's recommendations.

XIX. Section 10 26 00 Wall and Door Protection

- A. Provide dual height, wall-mounted, aluminum crash rails along corridor walls in facility areas to protect walls from carts. Mounting heights to be determined per project requirements. See specification Section 10 26 00 Wall and Door Protection, for "Metal Crash Rail."
- B. Within animal housing areas, rubber bumper rails shall be mounted at heights appropriate to equipment requirements. See specification Section 10 26 00 Wall and Door Protection, for "Bumper Rail."
- C. Carefully coordinate design and installation of wall protection to include wall-mounted elements throughout the A.R.C. zone such as fire extinguisher cabinets.
- D. For general area protection requirements, refer to Volume 2, Section 10 26 00 and the Master Specification.

XX. Section 10 44 00 Fire Protection Specialties

- A. Provide recessed or semi-recessed fire protection cabinets within A.R.C. spaces.

XXI. Section 10 50 00 Storage Specialties

- A. Refer to Volume 2, Section 10 50 00 Storage Specialties for standard locker requirements.
- B. Wire rack shelving will be required in many areas such as anterooms storing PPE and within food storage rooms. Confirm requirements with user representative.

XXII. Section 11 00 00 Equipment

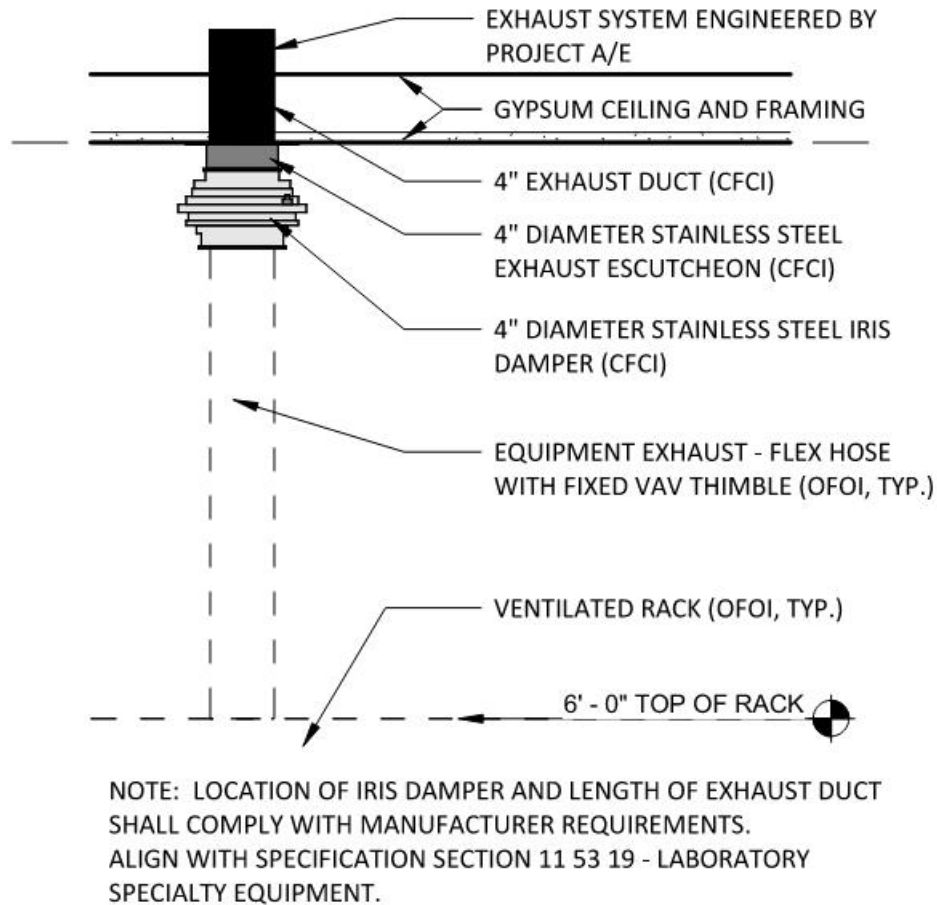
- A. The layout of equipment shall comply with manufacturer recommendations and best practices. Refer to Volume 2, Division 11 for UTSW requirements.
 - 1. Installation of equipment in A.R.C. spaces shall not create recesses, cracks, or other openings. Enclosures, joint sealant, and trim pieces shall be used to close all openings.
- B. Confirm requirements for emergency power as well as connection to the Central Data Acquisition System (CDAS) for critical equipment.
- C. Cages and Racks: Refer to Section 11 53 19 Laboratory Specialty Equipment.
- D. Cage Processing Equipment Requirements:
 - 1. Cage processing equipment will be compatible with standard A.R.C. cage processing facilities to allow for efficient transferrable usage across A.R.C. animal facilities and minimize down time with repairs by local sourcing of parts.
 - 2. Cage processing equipment must be easily maintained and all aspects of the equipment and layout shall be accessible for repairs or preventative maintenance.
 - 3. Utilities required may include domestic cold water, domestic hot water, chilled water, steam, reverse osmosis water, dry compressed air, exhaust ducting, steam ducting, drains, condensate drains, and others identified per project.
 - 4. To protect equipment, heat exchangers, process equipment loops, and other safeties may be included.
- E. Equipment:
 - 1. Bulk Autoclave: This unit shall be sized for the equipment and expected capacities of each facility. Pits are required below these units with services including steam, water and compressed air.
 - 2. Bedding Disposal: This vacuum system will be piped from the dirty cage wash space to a bedding dumpster located in the dock area.
 - a. Separate dock space is required for the dirty bedding dumpster outside of the building. This area must be accessible to the waste contractor for removal and replacement of these dumpsters, with connections to the vacuum system.
 - 3. Rack Washer: These large units wash the holding racks used for animal cages. Pits are required below these units with services including steam, water and compressed air.
 - 4. Tunnel Washer: These large units wash the smaller equipment and cages. These units require floor sinks, due to the large water requirements, with services including steam, water and compressed air.

5. Bedding Dispensing: This vacuum system provides dust-controlled bedding dispensing within the clean processing area. Piping for this system will go from a remote bedding storage area to the cage wash.
 6. Animal Watering: Additional equipment may include bottle fillers, hose stations, and rack flush stations. Water served to animals shall be reverse osmosis or filtered, as identified by A.R.C. Leadership.
- F. Refer to Volume 2, Section 11 13 00 Loading Dock Equipment.

XXIII. Section 11 53 19 Laboratory Specialty Equipment

- A. Refer to Volume 1 for Section A1 – Animal Resource Center (A.R.C.) Design Requirements and Volume 2 for Section 11 53 19 Laboratory Specialty Equipment for lab requirements including tank restraints.
- B. All utilities shall be clearly marked for fire safety.
- C. Cages and Racks shall be determined based on A.R.C. campus standards.
 1. Ventilated racks require water supply, air supply, ducted exhaust, and back-up power from the emergency generator.
 - a. Coordinate with Animal Ventilated Housing manufacturer for design and installation.
 - b. Exhaust for ventilated housing shall be 4-inch diameter stainless steel duct, unless indicated otherwise. Infrastructure shall provide stainless steel escutcheon at ceiling with iris damper at each location to interface with equipment. Refer to Specification Section 11 53 19 Laboratory Specialty Equipment and **Figure A1.1 Ventilated Housing Exhaust Requirements**.
 2. A 3-foot minimum wide aisle shall be provided between racks or cages from the rear of a space to allow for emergency egress.

Figure A1.1 - Ventilated Housing Exhaust Requirements: This section diagram shows a cut through a vertical exhaust duct where it connects to a ventilated housing unit. The top of the housing unit, which is an owner furnished and installed item, is six feet above the ground. The housing unit has an exhaust flex hose with fixed VAV thimble and connects to a 4-inch diameter, stainless steel, iris damper, which is contractor furnished and installed. The iris damper connects to a 4-inch diameter stainless steel exhaust escutcheon at the gypsum ceiling. The escutcheon, which is contractor furnished and installed, connects to the 4-inch diameter, stainless steel exhaust duct, constructed by the contractor. The location of dampers, lengths of exhaust ducts, and installation shall all comply with manufacturer requirements.



XXIV. Section 11 53 53 Biological Safety Cabinets

- A. Refer to Volume 2, Volume, 3 and specification section for requirements including Biological Safety practices.

XXV. Section 12 35 53 Laboratory Casework

- A. Casework within A.R.C. spaces shall be powder-coated metal units or stainless steel when required. Refer to Volume 2 and specification Section 12 35 53 Laboratory Casework for UTSW requirements.

- B. Installation of casework in A.R.C. spaces shall not create recesses, cracks, or other openings. Enclosures, joint sealant, and trim pieces shall be used to close all openings.

XXVI. Section 12 36 00 Countertops

- A. Countertops shall be impervious to water and resistant to heat, organic solvents, acids, alkalis and other chemicals.
- B. Stainless steel countertops are used for procedure rooms and locations within animal spaces. Integral sinks and integral splashguards are standard.

XXVII. Section 12 50 00 Furniture

- A. Furniture within A.R.C. spaces, including chairs, shall be easily cleaned and disinfected.

XXVIII. Section 13 31 13 Animal Monitoring and Watering Systems (A.M.W.S.)

- A. Refer to the corresponding Master Specification section for additional requirements.
- B. Animal Monitoring and Watering Systems (A.M.W.S.) include the following integrated systems:
 - 1. Animal room water distribution system includes stainless steel distribution piping to connect to all animal racks and components for cleanliness of the system.
 - 2. A reverse osmosis water system may be included to ensure water quality.
 - 3. A pressure reducing station ensures water system pressures.
 - 4. Monitoring and control systems include environmental monitoring, access control, and light system controls.
- C. The A.M.W.S. provides many critical elements to the A.R.C. operations. Maintaining the environment, services, and security helps to ensure validity of research results in these spaces.
- D. Due to the complexity and critical importance of A.M.W.S. it is required to involve A.R.C. leadership and vendor representative in all areas of the design of this system. Design Professional shall coordinate contract document contents to ensure A.R.C. Leadership is included in specification review, submittal approval, preconstruction meetings, testing, commissioning, and all close-out components.
- E. Testing and Commissioning are critical to coordinate building system testing and commissioning prior to A.M.W.S. testing and commissioning. Design Professional to work with commissioning agent, engineering teams, A.R.C. Leadership, and A.M.W.S. vendor to provide documentation that identifies the strategies required.

XXIX. Section 14 00 00 Conveying Equipment

- A. Elevators serving A.R.C. spaces shall not serve patient traffic.
 - 1. Building freight elevators may serve both A.R.C. spaces and non-A.R.C. spaces if security card access controls entry into the A.R.C. areas.
- B. Elevator controls shall include badge access to allow for controlling of access to the animal facility and include key operated emergency switch to allow for priority service.
- C. Elevators and elevator equipment shall have vibration breaks installed in A.R.C. areas.

- D. Elevator sizes shall be determined with consideration to hold the tallest racks as well as having the ability to hold two racks side-by-side.
 - 1. Elevator size and weight capacities should consider the ability to change equipment over time.

XXX. Section 21 00 00 Fire Suppression

- A. A risk assessment shall be run by Design Professional to determine where fire sprinklers are required within containment spaces. This assessment shall include which hazard is greater, a facility without a sprinkler or the contamination due to discharge with a sprinkler.
- B. Areas with storage or use of hazardous materials shall offer greater protection as determined by the risk assessment.
- C. Fully recessed sprinkler heads are preferred.
- D. High temperature sprinkler heads are required in cage processing and autoclave areas.

XXXI. Section 22 00 00 Plumbing

- A. All A.R.C. washroom sanitary and vent to be piped in solvent weld schedule 40 CPVC or fusion poly propylene to the building sewer.
 - 1. Floor sinks shall be stainless steel.
 - 2. No cast iron piping allowed in A.R.C. facilities.
- B. Drains:
 - 1. Trench drains are utilized in large animal areas located along the wall.
 - 2. Small animal holding rooms shall not have drains nor sloped floors due to operation concerns and maintenance issues.
 - 3. Drains in cage processing or autoclave areas shall be coated to stand up to high temperatures.
- C. Water type and quality used for animal drinking systems shall be confirmed per project to work with the animal watering system. Refer to Section 13 31 13 Animal Monitoring and Watering Systems for water distribution system, reverse osmosis system, and watering system requirements.
 - 1. RO systems may be required for rodent spaces and filtered water systems for larger animal spaces.
 - 2. Design Professional shall confirm requirements during the programming phase for required water treatment.
- D. Cage wash spaces shall have oversized, acid-resistant waste piping as well as hose stations and floor drains.
- E. For general plumbing requirements, refer to Volume 2, Division 22.

XXXII. Section 22 11 19 Plumbing Specialties

- A. Backflow preventors installed in A.R.C. areas shall be located out of animal housing and procedure locations in a manner to ensure cleaning, inspection, and sanitation requirements are maintained.

XXXIII. Section 22 40 00 Plumbing Fixtures

- A. A.R.C. lab zones shall have chemical resistant hand sinks with hands-free operation. Locations near exit doors will be confirmed with user representative and UTSW PM.
- B. Allowable finishes include stainless steel or epoxy-coated resins.

XXXIV. Section 23 00 00 Heating, Ventilating, and Air Conditioning (HVAC)

- A. Design Professional shall advise UTSW and A.R.C. User on project specific conditions and limitations as the ideal HVAC system is determined.
- B. For non-A.R.C. spaces and for renovation projects, refer to Volume 2, Division 23.
- C. HVAC systems shall be designed for reliability, ease of maintenance, energy conservation, and redundancy as required while meeting the changing needs of the animals.
 - 1. Humidification controls shall be determined based on species housed in the space.
 - 2. HVAC systems shall be designed to ensure there are no extraneous noises generated including ultrasonic frequencies. Additionally, systems shall be designed to minimize the creation of air noise.
 - 3. Barrier facilities shall have high-level filtration systems and pressurization to maintain the barrier to other spaces. Pressurization strategies shall be discussed with A.R.C. leadership and documented.
 - 4. HVAC system must provide 100 percent fresh air and non-recirculated air.
 - 5. In case of HVAC failure, system design should provide the minimum air supply at a reduced level while maintaining critical pressurization gradients.
 - 6. The design of chillers for animal rooms shall be $N+1$, where N is the number of best size of chillers for the installation.
 - 7. Temperature and humidity controls shall be located to minimize variations between spaces and animal rooms shall have individual controls.
 - 8. HVAC systems design must provide acceptable working environments for technicians in cage processing and sterilizing areas, accounting for excessive heat and steam creation.
 - 9. The VAV terminals with hot water reheat coils serving Animal Resource Center (A.R.C.) should maintain the Entering Water Temperature (EWT) of 120-degree Fahrenheit minimum and 150 degrees Fahrenheit maximum to avoid nuisance high temperature alarms from the Animal Monitoring and Watering System (A.M.W.S.) controls when hot terminal air hits the A.M.W.S. room temperature sensors located at a higher wall elevations.
- D. The A.M.W.S. System will monitor the A.R.C. animal spaces. Design of HVAC supply locations must be coordinated to be at least 4 feet away from A.M.W.S. sensors.
- E. Animal Spaces:
 - 1. Animals shall not be exposed to high velocity air.
 - 2. Consideration for air pressure differentials shall be discussed with users to confirm a range of activities that can be accommodated while meeting current scope requirements.
 - 3. Systems shall ensure directional airflow, create controlled access zones, and provide air locks as needed to provide proper containment.
 - 4. Air pressures for animal rooms should be negative to the corridor dependent on the project requirements.

5. Animal rooms shall be capable of temperatures adjusting between 65°F and 84°F with a relative humidity range between 30 and 70 percent. Fresh air shall be at least 15 changes per hour.
 - a. Relative humidity should be maintained within ten percent plus or minus of the set point.
6. HVAC systems must take the requirements of ventilated racks and any ducted biosafety cabinets into consideration as well as their layout.

F. Exhaust:

1. Building exhaust air shall not be discharged near supply air intakes or occupied areas.
2. Exhaust systems shall be designed to provide adequate exhaust for rooms, equipment, necessary air changes, pressurization while allowing for future growth. System design shall not allow for airflow reversal under failure conditions.
3. Exhaust for ABSL-3 spaces must be exhausted directly to the outside.
4. Exhaust ducts shall be made pressure tight including at all joints and seams for contaminated air.
5. Use of type 304 Stainless Steel for exhaust ducts shall be determined per code and discussed with user representative and UTSW PM.
6. Coordinate with ventilated rack manufacturer for design and installation. Exhaust for ventilated racks shall be 4-inch diameter stainless steel duct, unless indicated otherwise. Infrastructure shall provide stainless steel escutcheon at ceiling with iris damper at each location to interface with equipment. Refer to Specification Section 11 53 19 Laboratory Specialty Equipment.

XXXV. Section 26 00 00 Electrical

- A. The preferred power distribution system is a secondary selective radial, or double-ended system.
- B. The A.M.W.S. system shall be coordinated to provide ease of use for A.R.C. and UTSW Utilities.
 1. The A.M.W.S. relay panel shall be flush or recessed mounted next to the room doors.
 2. Design the power feed so each relay panel has disconnecting means for service to prevent hot work.
 3. Light fixture wiring will run through A.M.W.S. relay panel and Design Professional shall design a disconnecting means at each unit.
 4. Timers, automatic timeouts, and warning lights for over-ride usage shall be discussed to ensure proper care of the animals.
- C. Back-up power shall be determined with A.R.C. leadership and UTSW PM and shall include critical services. Critical services are typically considered:
 1. HVAC system.
 2. Ventilated cage systems.
 3. Life-support requirements for other species.
 4. Freezers and isolators.
 5. Support functions in animal rooms operating suites and other essential areas.
 6. Typical A.R.C. requirements:
 - a. Animal housing and procedure rooms do not require back-up lighting.
- D. Design Professional shall confirm equipment requiring data connection to CDAS.

E. Power:

1. Review power locations with A.R.C. Leadership for approval per project to ensure sufficient power locations for equipment and space usage.
 2. Confirm locations and quantities for above-counter raceways in procedure rooms.
 3. Animal spaces shall have additional convenience waterproof duplex GFCI outlets located throughout with “flip-lid” type covers with gaskets which are inaccessible to the animals.
 4. Weatherproof while-in-use covers shall not be used due to the chance of hazards created when they are broken.
- F. In large animal holding rooms, do not install conduit and device boxes below 48-inches AFF to prevent damage from animals.
- G. Containment spaces in some existing facilities may have exposed conduit only with approval from UTSW PM and user representatives. If such a design is proposed, the Design Professional shall present a design, for the approval of UTSW, which prevents the circulation of air within or around the conduit to any 1) non-containment areas, 2) any containment areas of different levels.
- H. All portions of conduit, junction boxes, and other electrical components shall be sealed to other spaces with seals installed to allow ready access for inspection and maintenance.
- I. Some conduit, fittings, and safety switches may be exposed in biomedical facilities for the hard wiring of equipment. These safety switches shall be NEMA 4x stainless steel with hinged gasketed covers.
- J. Aluminum rigid conduit is allowed when not installed below 24-inches above the floor. Boxes for devices shall be cast aluminum boxes with cast aluminum covers for devices. Junction boxes installed subject to moisture or water sprays shall be NEMA 4X stainless steel with hinged covers.
- K. Junction boxes shall contain an equipment ground bar with at least 20 percent spare spaces. Each equipment ground conductor shall be terminated in a separate lug on the equipment ground bar.

XXXVI. Section 26 51 00 Interior Lighting Fixtures

- A. Lighting requirements for animal spaces (procedure, holding, etc.) shall include A.M.W.S. for room lighting controls. All lighting levels are to be approved by A.R.C. leadership.
1. Combination white and red-light fixtures will be provided and installed through the General Contractors (GC) scope.
 - a. Red light is GC wired to local GC provided manual timed control. Daisy chain all red-light driver dimming wires to the controller. Locate this inside the A.M.W.S. controller housing.
 - b. White light – Dual control (low to high) with a step controller will be GC wired to A.M.W.S. controls and tap switch.
- B. Controls:
1. All off
 2. Red on, local timer.
 3. White on A.M.W.S. controls schedule, dual control (low to high) through A.M.W.S. tap switch.

- 4. Light fixtures in animal areas shall be installed in a manner to prevent dust accumulation and to minimize maintenance. Recessed fixtures shall have triple gaskets and lenses shall be smooth side out to aid with cleaning.
- C. Non-animal spaces including hallways, offices, toilet areas, etc. shall have standard light fixtures and will be wired to main building lighting control system by GC. Refer to Volume 2, Division 26.
- D. While these facilities are operating continuously, the lighting levels of non-animal areas shall be designed to operate at the lowest levels possible during the night-time.

XXXVII. Section 27 00 00 Communications

- A. Ruggedized outlets and patch cords shall be indicated in wet areas such as cage washrooms.

XXXVIII. Section 28 00 00 Electronic Safety and Security

- A. All animal holding spaces shall have a specialty fire alarm system that does not generate noise in the ultrasonic range, sometimes called “rodent friendly.”
- B. Design Professional shall confirm any additional safety or security requirements per project.
- C. Any areas with cryogen gases shall have oxygen sensors and provide the ability to increase room ventilation.

SECTION A2 – CLINICAL DESIGN REQUIREMENTS

I. General Information

- A. Design of clinics and clinic renovations shall include representatives from User Group, UTSW Clinical Programming & Facility Development, UTSW Medical Equipment Planning, Infection Prevention, and Design Team.
 - 1. Throughout design, additional UTSW teams will be invited to participate including but not limited to UTSW IR PMO, UTSW Access Control, and others as required. Safety teams may include Environmental, Chemical, Biological, Radiation, and Fire.
 - 2. Facility Management teams include Key Control Shop, Electrical Shop, Refrigeration, HVAC Shop, Elevator Shop, and others as required.
- B. Clinics may be located within UTSW owned properties or leased properties. The Design Professional shall confirm contract specific requirements in lease spaces for the following at a minimum:
 - 1. Door hardware.
 - 2. Provider of toilet accessories including paper towel dispenser, toilet paper dispenser, and soap dispenser.
 - 3. Signage: confirm requirements for signage within leased suites and outside of UTSW lease spaces.
- C. Regulations for clinical projects will vary between on-campus and off-campus locations. Refer to UTSW Specification 01 41 00 Regulatory Requirement for on-campus requirements. Off campus requirements include but are not limited to:
 - 1. Non-hospital-based clinics: Jurisdiction Codes, IBC, ADA, TAS.
 - 2. Hospital based clinics: Jurisdiction Codes, IBC, ADA, TAS, and JCAHO.

II. Design

- A. The design of clinical spaces shall consider the project guiding principles, current regulations, codes, best practices, budgets, flexibility over time, and longevity of materials.
 - 1. Design discussions shall include users representing each space type to confirm processes, patient types, workflows, relationships, space needs, budgets, accessibility, storage, equipment, waste types, and considerations for growth.
 - a. Exam room discussions shall include differing patient requirements, patient-focused layouts, spatial needs, workflow, workstation types, privacy, equipment, and storage at a minimum.
 - b. Include discussions for special requirements such as humidity monitoring, temperature monitoring, back-up utility needs, lighting variations, individual thermostat control, and more determined by project.
 - 2. Acoustical privacy discussions shall include code and regulation requirements, HIPPA, partition construction, door types, adjacencies, noise creating activities, and quiet zones.
 - 3. Employee spaces shall include discussions for overall layout and adjacencies, workflows, deliveries, break room(s), nursing mother room(s), personal storage, staff toilets, workstation requirements, meeting spaces, IR spaces, and support spaces.
- B. Design shall consider patient comfort, ease of wayfinding, and provider efficiencies.

- C. UTSW has Space Design Guidelines (SDG) created to guide design discussions for various space types. Spaces not documented in the SDG may be identified in “Spaces” below.
- D. Design Professional shall confirm patient arrival point and path of travel. Discussions shall include parking, valet (if applicable), wayfinding, guest and patient services, and other project specific topics. Refer to “circulation path plan” for interior circulation.
- E. The Design Professional shall identify and document deviations from UTSW standards. Deviations shall be reviewed with UTSW User Group, UTSW Clinical Team, and others as identified. Acceptance of deviations shall be documented and approval in writing by UTSW is required.

III. Design Review Process and Documents

- A. Circulation Path Plan:
 - 1. 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.
 - 2. Circulation path plan shall be submitted at any partial Design Development issuances, at final Design Development submittal with plan(s) on full-size sheets.
 - 3. At a minimum, it shall have differing line types to indicate the following circulation types:
 - a. Public and General Circulation.
 - b. Patient Unescorted Circulation.
 - c. Patient Escorted Circulation.
 - d. Staff Open Circulation.
 - e. Restricted Staff Circulation.
 - f. Specialty Circulation based on Project Specifics.
 - 4. Related discussions shall include door types, visibility, privacy, access control, door hardware types, automatic door openers, and other project specific requirements.

IV. Spaces

- A. Office – Follows the UTSW standard office layout. Include a wall-mounted coat hook mounted behind the door or in a location as indicated by clinical leadership.
- B. Telehealth Room – A standard, small private office size with door lock to prevent interruption.
- C. Dressing Room – An accessible, private space for patients to undress for procedures.
 - 1. Size and layouts shall be determined per project including existing conditions.
 - 2. The opening width at doorways shall be 42 inches minimum with hardware providing easy access for clinic staff to enter, in case of emergency.
 - 3. Each cubicle shall include a seat or bench as well as a 2-foot by 6-foot mirror located 1 foot above the floor.
 - 4. Lighting controls shall have vacancy sensors in lieu of occupancy sensors.
 - 5. Lockers may be included in some instances or be within a larger gowning, sub-waiting area.
 - 6. Wall surfaces.
 - 7. Do not provide glazed components to ensure ultimate privacy.
- D. Isolation Spaces shall include a designated patient toilet.

- E. Imaging – These areas shall not have daylighting.
 - 1. Imaging Rooms – may include MRI, X-ray, CT, and others per project. Confirm special requirements including shielding, loading, structure, access control, HVAC ranges, humidity ranges, lighting, etc.
 - 2. Read Rooms – Dedicated work areas for viewing imaging results with strict lighting requirements. UTSW PM will provide special finish requirements.
- F. Medication Room, Medication Storage –
 - 1. An access-controlled space for dispensing and storage of medications. Temperature and humidity must be controlled according to the location's regulatory requirements. Confirm operational requirements for views into these spaces and if blinds or other privacy devices are needed.
 - 2. Confirm if medication disposal is required. Provide security camera(s) to monitor both medication dispensing and disposal units.
 - 3. Millwork requirements may include splash guards, 30-inch-deep countertops over equipment, and full panel supports underneath medication dispensing units.
- G. Vitals Alcove – A small room or alcove used for initial vitals that will not impede circulation. Any cased openings shall have 42-inch clear openings minimum.
 - 1. Components may include wheelchair scale, individual scale, and small table or chair for patient possessions.
- H. Blood Draw – Includes private stations or alcoves for individual patient specimen taking.
 - 1. FRP wall finish is standard to chair-rail height.
- I. Laboratory – Various types of laboratories may be present including Point-of-Care (POC) and processing.
 - 1. Millwork requirements may include splash guards, 30-inch-deep countertops over equipment, clean and dirty work areas, storage, and workflow considerations.
- J. Wheelchair Storage – An area for easy access to wheelchairs for patient escort. Walls, corners, and jambs shall be protected from damage. Ensure door clear widths are sufficient for the largest wheelchair size expected. Confirm door hardware requirements including locks.
- K. Workspaces – Areas for employees may include individual or shared workstations, lockers, coat hooks, and other items determined per clinic.
- L. Lockers – Types of locks will be determined per clinic.
 - 1. Patient Lockers
 - 2. Employee Lockers
- M. Check-In and Check-Out –
 - 1. Areas set aside for patients to queue for paperwork, arm bands, payment, scheduling, etc.
 - 2. Confirm privacy requirements and heights of partitions per clinic.
 - 3. Confirm locations for posting required statements as part of the signage packages.
 - 4. Confirm security requirements for cameras, access control, locked casework, and duress buttons.
- N. Clean Supply – A room for storage of supplies for patient care. May include refrigerators and other equipment. For storage of sterile instruments, confirm requirements for humidity and temperature control.

- O. Specialty Spaces Not Listed – For unique spaces, Design Professional shall confirm requirements for each type, not limited to regulations, special processes, lighting requirements, temperature, humidity, exhaust, finishes, security, etc.
- P. Behavioral Health Space Considerations
 - 1. Observation areas – Confirm the privacy requirements, direction of camera views, and the usage security cameras versus observation cameras
 - 2. Duress button locations.
 - 3. Secure pathway requirements including traffic flow
 - 4. Safety requirements and considerations in any patient spaces

V. Section 06 40 23 Interior Architectural Woodwork

- A. Millwork shall be coordinated with equipment, utilities, and circulation pathways for proper operation. Locations shall not decrease code compliance.
- B. Materials and fabrication shall conform to Architectural Woodwork Institute specification. Use “Custom Grade” for standard casework and “Premium Grade” for unique and special features.
- C. Hard wood nosing or edge banding where plastic laminate is used on panels. Tape banding is not preferred.
- D. UTSW preference is for plywood construction for casework and millwork.
 - 1. MDF or particleboard is only to be used if approved in writing by UTSW.
 - 2. Products used for panels or doors shall have good screw holding face to hold up over time. Refer to Table 4-007 – Characteristics of Core Performance in AWI’s standards.
- E. Flat or Low-Profile Countertop Brackets
 - 1. Concealed brackets are preferred. Brackets shall provide a minimum loading of 300 pounds per bracket.
 - 2. All brackets shall be flat or low-profile to provide maximum knee space and flexibility for changes in undercounter equipment.
- F. Restrooms and Breakrooms:
 - 1. No particleboard is allowed.
 - 2. In wet areas, including breakroom sinks, UTSW preference is the use of high-grade plywood to construct lower cabinets with finished interiors such as plastic laminate for protection.
 - 3. Solid surface countertops and front panels are preferred for longevity and lower maintenance.
 - 4. Front panels shall be designed with clip-system attachment for maintenance.
 - 5. Stainless steel is the preferred finish for any visible hardware.
- G. Casework hardware standards include: Refer to Volume 2 and Specifications for Section 06 41 00 Architectural Woodwork.
 - 1. Drawer glides – ball bearing with minimum 100-pound capacity.
 - 2. Wire pulls – 3-1/2-inch or 4-inch with brush chrome finish or to match existing.
 - 3. Locks: Confirm project requirements and, for each type included, document locking strategy.
 - a. Cam Lock 1 and 3/16-inch, bright nickel or to match existing
 - b. Digital, Combination, or Push Button Lock – Confirm project requirements and document locations.

4. Shelf Standards, extra heavy duty in an anochrome finish.
5. Shelf Brackets, extra heavy duty in an anochrome finish.
6. Hinges, 120 degree opening angle, full overlay, concealed with wing plate.

VI. Section 06 80 13 Resin Composite Paneling

- A. Typical installations include panels as space dividers or dividers at reception and check-out areas.
- B. Any proposed product shall be submitted with a minimum 12-inch square sample to the UTSW PM and UTSW Design Team.

VII. Section 06 83 16 Fiberglass Reinforced Paneling

- A. Fiberglass Reinforced Paneling (FRP) may be used at approved locations to address heavy wear and tear. Areas may include wheelchair storage, equipment storage, and blood draw bays.
- B. All panels shall be moisture-, chemical-, and abuse-resistant panel systems. Seams and fasteners shall be fully gasketed, sealed and designed to adequately prevent sagging or delamination when rooms are pressurized.
- C. System shall include heavy-duty corrosion resistant clips. Installation techniques, such as glue, shall be determined to maximize the lifespan of the installation.
- D. Heights of installations, textures, colors, and surface options shall be approved by UTSW Design Team. Accessories including trim and moldings shall match FRP color.
- E. All components shall be sealed firmly with continuous sealant behind all components, caps and trims.
- F. Design documents shall show panel layout with dimensions indicated. Installations shall limit the number of cut panels used per applied surface.

VIII. Section 07 90 00 Joint Protection

- A. All penetrations in floors, walls and ceilings shall be sealed including structural joints to minimize flooding and, be easy to clean and disinfect, refer to Volume 2, Section 07 90 00 Joint Protection.

IX. Section 08 10 00 Doors and Frames

- A. Patient toilet rooms shall have smooth flooring transitions without lip or raised strips (thresholds).
- B. Clinical Entries:
 1. All entry points into clinical suites and clinical pods shall have a 42-inch minimum wide opening with an automatic wave plate operator.
 2. Provide an access control card reader with wave plate operated automatic door opener located at doors from the patient waiting to treatment areas. Access control shall be located on the egress side of the doors.

- C. Design Professional shall confirm other opening requirements with Health Systems Administration.
- D. All entry points along the pathway of clinical service to the patient shall be 42-inch minimum in panel width. The typical clear opening width shall be 39-inches.
 - 1. Where sliding doors are part of the patient path, the clear opening width shall match that of the typical swinging door.
- E. Doors from the waiting room to the clinical areas shall be wide style with full panel glass.
- F. Wall-mounted doorstops are preferred in Clinical areas with strong in-wall blocking to prevent wall damage or overhead stops.

X. Section 08 34 00 Special Function Doors

- A. When sliding or barn-style doors are desired the UTSW preference in clinical spaces is the use of interior aluminum-framed top-hung sliding doors. Refer to specification Section 08 34 00 Special Function Doors.
- B. Design Professional shall confirm acoustic privacy requirements and document STC minimum for each usage.
- C. Where these sliding systems are used along the patient path, the clear opening width shall be 39-inches.

XI. Section 08 71 00 Door Hardware

- A. UTSW prefers out-swinging single toilet doors. Any in-swinging patient toilet doors shall be dual swinging with rescue hardware. Ensure privacy is provided along both hinge and latch conditions.
- B. All door hardware within UTSW spaces shall comply with the UTSW Specifications. The UTSW Key Shop shall review all door hardware packages prior to the Issue for Construction and shall provide approval.
- C. Automatic opener locations, purposes, and styles shall be confirmed in each project. Each location shall be confirmed for timing requirements to prevent injury.
 - 1. Wheelchair or ADA Automatic opener locations shall be at public locations including main building entry, waiting room entry, public restrooms, and as indicated.
 - 2. Automatic opener: Typically locate at secure locations with access control. This may include at clinic access to the waiting rooms.
 - 3. Wave plates: Typically located within secured areas for hands-free access through corridor doors or smoke compartment boundaries.

XII. Section 08 80 00 Glazing

- A. Refer to UTSW Master Specification for privacy film.
- B. Refer to Volume 2, Section 08 80 00 Glazing for Visual Safety Indicators with areas of full glazing.

XIII. Section 09 00 00 Finishes

- A. Materials must meet applicable regulation requirements, stand up against scrubbing, impact, and cleaning agents for long-term reliability while ensuring infection control.

XIV. Section 09 22 16 Non-Structural Metal Framing

- A. Wall blocking for toilet areas shall address potentiality of patients of size and provide additional blocking capacities for grab bars.
- B. Provide blocking at wall mounted door stops, locations for wall mounted equipment, casework, guard rails, handrails, and where indicated.

XV. Section 09 29 00 Gypsum Board

- A. Reference NFPA 101 and Specification Section 09 29 00 Gypsum Board for required “Partition Identification” labels and locations as well as requirements for construction, fire-resistance ratings, and fire protection of existing and new fire-rated walls, partitions, compartments, assemblies, and smoke partition assemblies.
 - 1. Joint Commission projects do not allow scab patches.
 - 2. Renovation and remodel projects shall include revisions to existing partition identification when the wall conditions are modified.
 - 3. Renovation and remodel projects shall include partition identification be added where missing and as indicated by Fire Safety.
- B. Wallboard Types:
 - 1. Type-X, fire-resistant, gypsum board shall be used at any locations requiring greater than 1/2-inch thickness.
 - 2. Use cement backer board for tile and wet installations.
 - 3. Abuse resistant panels to be used in high traffic areas as confirmed by UTSW PM.
- C. Wallboard Finish Levels:
 - 1. The level of finish on walls in public areas shall be level 4 as standard.
 - 2. Level 5 finish is recommended for public areas with a significant amount of natural light, dark paint or paints with sheen or gloss, and walls that receive graphics.
 - a. Design Professional shall document level 5 and specialty finish locations in finish schedules at each drawing issuance.
 - 3. Refer to the Gypsum Associations’ GA-210-10e “Recommended Levels of Gypsum Board Finish” document for guidelines for non-public and service areas.
- D. Wall Textures:
 - 1. Walls in public areas shall have a light texture applied only after sample or mock-up approval from Design Professional .
- E. Refer to Volume 3, Codes and Standards the “Acoustical Design” for required acoustic Sound Transmission Class (STC) ratings.
 - 1. Where walls intersect with mullions, sound barrier mullion cap products, to isolate sound, are preferred solutions. STC rating of product shall match requirements of wall.

XVI. Section 09 30 00 Tiling

- A. For tile installations on floors and walls in restrooms of healthcare and heavy use spaces, utilize water-cleanable epoxy grout complying with ANSI A118.3.
 - 1. Design considerations in these spaces include infection prevention, chemical resistance, stain resistance, color consistency, lower maintenance requirements, and durability.

XVII. Section 09 50 00 Ceilings

- A. Clinical Space considerations include:
 - 1. A mock-up is recommended to be built with conditions that will achieve the STC required in patient settings as seen in Volume 3, Section B, Sound Transmission Class. Projects shall be designed with STC Minimums, code, and jurisdictional requirements.
 - a. Design Professional to confirm mock-up requirements with UTSW PM and User Representative per project.
 - b. Utilize white noise to meet code requirements with design provided by acoustic design consultant.
 - 2. Design walls constructed to deck in exam rooms with MEP systems coordinated among Design Professional Team.
 - a. Where walls cannot extend to deck, install sound batt insulation above ceiling, extending 3-foot minimum from each wall.
 - 3. Utilize products with higher acoustical performance with NRC 0.70 to 0.75 and CAC 35 and greater, at a minimum.
 - 4. When an open return air plenum is present, utilize coordinated sound boots at supply and return air grilles at exam rooms and adjacent corridors.
 - 5. Additional acoustical control may include door hardware solutions, acoustic wall putty in electrical and data outlets, installing perimeter gasketing, and other solutions as determined by the Design Professional.
 - 6. Toilet rooms shall have gypsum ceilings.

XVIII. Section 09 60 00 Flooring

- A. Ambulatory spaces shall meet requirements to minimize infection control including code requirements and best practices.
- B. All flooring shall comply with requirements for moisture vapor emissions in concrete and be installed per manufacturer's recommendations.
- C. Building entry doors shall have walk-off areas protected from weather. This can include surface walk-off carpet or owner provided walk-off mats. Design Professional to review entry suggestions with UTSW Design Team.

XIX. Section 09 65 00 Resilient Flooring

- A. Healthcare areas shall have seamless systems including heat or chemically welded floor joints for infection control in areas such as procedure rooms, operating rooms, recovery, soiled hold, sterilization, isolation rooms, and observation rooms.
- B. Exam rooms, corridors and similar spaces may have LVT products without joint welding unless required by code.

XX. Section 09 90 00 Painting and Coating

- A. UTSW preference is for finishes to have no volatile organic compounds (VOC). When required finish is not available without VOC content, a low VOC product shall be used. Air quality shall be of prime importance especially in occupied spaces and those near healthcare areas.
- B. CMU surfaces minimum finish shall have block filler applied according to manufacturer's recommendations.
- C. Any temporary coatings shall be removed according to manufacturer's instructions with new finishes applied with specified primers and surface preparation.
- D. Repainting of existing spaces shall include jobsite inspection and evaluation of the existing surface prior to issuing construction documents. Project documentation shall ensure entire walls, surfaces, planes, etc. have a consistent surface texture, finish, and clean aesthetic upon completion.

XXI. Section 09 91 23 Interior Painting

- A. Paint Sheen:
 - 1. Wall surfaces in public spaces may be eggshell or satin in finish.
 - 2. Metal frames, metal trims, doors, and door frames shall be semi-gloss finish.
 - 3. Private spaces such as offices shall have eggshell finish.
 - 4. Accent walls shall have satin finish.
 - 5. Gypsum ceilings shall be flat.
 - 6. Dark rooms and reading rooms shall have flat paint but, otherwise, flat paint is prohibited at UTSW.

XXII. Section 10 14 00 Signs and Graphic Elements

- A. Signage: Types:
 - 1. Orientation: Includes building directory, floor directory, and maps.
 - 2. Directional: Includes overhead, bulkhead, wall mounted and floor mounted locations.
 - 3. Primary Identification Signs: Includes logos, clinic identification, and other types.
 - 4. Room Identification: Includes room and space types as well as workstation identification.
 - 5. Regulatory and Informational: Stairwell signage, elevator egress, regulatory, and other messaging.
 - a. Due to the varied space types required by UTSW, additional regulatory signs may include fire safety, lab safety, biological and chemical safety information, access limitations, MRI and magnet safety, AED locations, Stop the Bleed locations, audiology booth messaging, and others as determined by project

requirements. These types and locations will be coordinated by the UTSW Signage Shop with Safety teams.

6. Donor Recognition Signage: Locations will be identified by the UTSW Signage Shop.

B. Room Numbering:

1. Room numbering by Design Professional shall follow the system documented in Section A, the Room Numbering Standard.
2. Room numbers shall be sent to the UTSW Planning/Masterbooks Team prior to the DD meeting for review and approval.
3. Projects under development shall only have one numbering system, which follows the UTSW system. Coordination with Facilities Management early in the design phase shall be done by the Design Professional .

XXIII. Section 10 21 23 Cubicle Curtain and Track

A. Curtain:

1. Curtains shall be washable and anti-microbial. Provide a continuous seam where applicable.
2. Provide a 12 by 12-inch sample for review to UTSW Design Team prior to final approval.
3. Cubicle curtains shall be 12-inches above the ground with mesh height variable per project.
4. Shower curtains shall end 1-inch above the ground.

B. Track:

1. The aluminum track shall have a proven track record in health care environments.
2. Coordinate track locations with the UTSW PM and user representative. Refer to UTSW Specification 10 21 23 Cubicle Curtains and Track for preferred products.

C. Design Considerations:

1. Coordinate track layout with light fixtures to ensure:
 - a. Individual room light layouts and switching provide lighting in all zones.
 - b. Multi-person and multi-use rooms light layouts and switching provide required light levels and functionality in each zone.
2. Curtain layout shall include where curtain to curtain connections are required to ensure privacy in larger spaces. Document requirements in the drawings or specifications clearly.
3. Coordinate curtain stacking location to prevent interference with space processes and wall-mounted equipment.

XXIV. Section 10 26 00 Wall and Door Protection

- A. Confirm per project to address high-traffic locations.
- B. Reference Volume 2 and Master Specification for specific requirements and product information.

XXV. Section 10 28 00 Toilet and Bath Accessories

- A. Standard toilet accessories, soap dispensers, hand sanitizers, and paper towel dispensers will be specified in project toilet rooms and for clinical spaces. Design Professional shall confirm contract requirements for furnishing these items and user requirements per space type.
 - 1. Refer to Volume 3, Equipment Schedules and Coordination for preferred procurement per project type.
- B. Clinic coordination shall include paper towel dispensers, soap dispensers, hand sanitizers, and trash can locations at a minimum.
 - 1. All elements required at the same location shall be coordinated fully with millwork and processes to meet design needs with User groups, UTSW Medical Equipment Team, and UTSW PM.
 - 2. Coordinate plumbing fixtures, emergency plumbing fixtures, and splash guards to ensure full operation of each accessory.
- C. Toilet room coordination shall include ADA and TAS compliance for accessories located within the spaces and stalls.
 - 1. Coordinate point-of-care lab requirements with patient toilet rooms for location and specimen pass-throughs.
- D. Under lavatory Guards:
 - 1. Design Professional to confirm the look of lavatory counter and casework desired for each project with UTSW PM. In all instances, lavatories shall meet all ADA and TAS requirements for safety and access.
 - 2. Clinical areas may utilize casework or aprons.
- E. Baby Changing Stations:
 - 1. Provide baby changing stations in common and public area toilet room locations. Confirm with UTSW for locations within clinical toilet rooms.
 - 2. Baby changing stations must be installed in a place where they will not become a protruding object, not project into required clearances or walkways, will not hinder door usage, and will not restrict the use of an accessible toilet.
 - a. Baby changing tables within a restroom or single person toilet room cannot be located within the required clear floor space of other objects in the toilet room including the door, toilet, and sink.
 - b. Baby changing tables may be installed inside an accessible stall but it's open and closed condition cannot restrict the function of the toilet stall and must have the forward approach for the changing table. The clear floor space of the changing table may overlap the toilet clear floor space.
 - i. This is not an ideal location because it limits both the use of the accessible toilet stall and the changing station.
 - c. Manufactured units with an opening and closing function shall be located in manner so a malfunctioning unit shall not prevent access and function of the toilet room.
- F. Confirm per project requirements the requirement for special needs changing stations.

XXVI. Section 10 50 00 Storage Specialties

- A. Plastic laminate casework furrdowns, sloped tops, or gypsum furrdown are required in healthcare areas to prevent any dust build-up.
- B. Lockers are typically provided for employees without assigned offices or guests undergoing procedures. Confirm sizes, type, and quantity per project requirements.
 - 1. Patient locker areas are typically plastic laminate construction or metal.
 - a. Areas where locks are required may include digital lock options. Confirm requirements with User Representatives and UTSW PM.
 - 2. Employee areas could be metal or plastic laminate with metal in any wet areas.
 - a. Provide hasps for these locker areas.
- C. Locker Construction:
 - 1. All lockers must be wall anchored, positioned on a base, and provide a toe kick.
 - 2. Recessed and flush handles are acceptable if they comply with ADA and TAS
 - 3. Identification numbers shall be permanently affixed to the surface of the lockers. Standard numerical sequences are preferred.
 - a. If a project had central lockers on multiple floors, consider differentiating the numbers to include a floor number proceeding the locker number.
 - 4. Lockers shall have hangers inside each unit, including ADA accessible units, to meet TAS requirements.

XXVII. Section 11 00 00 Equipment

- A. Layout of equipment shall comply with the manufacturer's recommendations and best practices including all required clearances. Coordinate utility requirements with UTSW Medical Equipment Planning and manufacturer data.
- B. All equipment to be coordinated with millwork and circulation.
- C. Confirm requirements for emergency power as well as connection to the Central Data Acquisition System (CDAS) for critical equipment.
- D. Refer to Volume 2, Section 11 13 00 Loading Dock Equipment.

XXVIII. Section 11 70 00 Healthcare Equipment

- A. Specific compliance requirements shall be confirmed for all projects. UTSW Medical Equipment Planning shall be involved in all equipment discussions.
 - 1. Equipment shall be coordinated with millwork, utilities, and circulation pathways for proper operation. Locations shall not decrease code compliance.
 - 2. For any projects with healthcare equipment, including OFCI and CFCI, utilize UTSW Master Specification Section 11 70 00 Healthcare Equipment.
- B. Design Professional shall confirm the codes, regulations, and certifications required for each project.
 - 1. Sterile compounding spaces shall follow USP 800.
- C. Design Professional shall verify quantities of current and future Alcohol-Based Hand Rubs (ABHR) storage and dispensers with Facilities Owner and User Representative during Design Development.

1. Design Professional shall determine the fire protection design criteria based on planned quantities and dispenser locations.
 - a. Dispensers installed directly over carpet surfaces are only permitted in sprinklered smoke compartments.
 2. Design Professional shall ensure dispenser locations and types are coordinated on drawings and comply with ADA and TAS accessibility requirements.
- D. Equipment in Design Professional's scope:
1. Design Professional shall confirm equipment requiring emergency power and data connection to CDAS. Discuss requirements for dedicated circuits.
- E. For Pass-Through Cabinets, confirm requirements including but not limited to:
1. Type: Biological, Environmental, Clean Room,
 2. Qualities: Functions provided, dimensions required for operation, fire rated or non-fire rated, view windows or solid, finish requirements, decontamination requirements, seamless vs welded, self-closing hinges, ventilated or not ventilated, HEPA filter requirements, electromagnetic interlock or mechanical interlock, handle or paddle latch, etc.
 3. Confirm any requirements for emergency power.
 4. Confirm utilities access and document access panel location(s). and document.
- F. Countertop ice machines shall be installed with easy to access filters located within casework below. Copper drain lines shall connect the ice machine to the filter and drain with grommets located within the countertop for a clean installation.

XXIX. Section 12 05 13 Fabrics

- A. Use of fabric in patient areas shall be in approved areas only, such as therapeutic counseling rooms, by UTSW Design Team, Safety Teams, and Infection Prevention.
1. Upholstery shall withstand and be warrantied against specific cleaning solvents used by UTSW EVS teams. A list of cleaners can be provided by UTSW EVS.
 2. As part of closeout requirements, a cleaning manual shall be provided which includes information for each fabric.
 3. High-density foam is required.

XXX. Section 12 36 00 Countertops

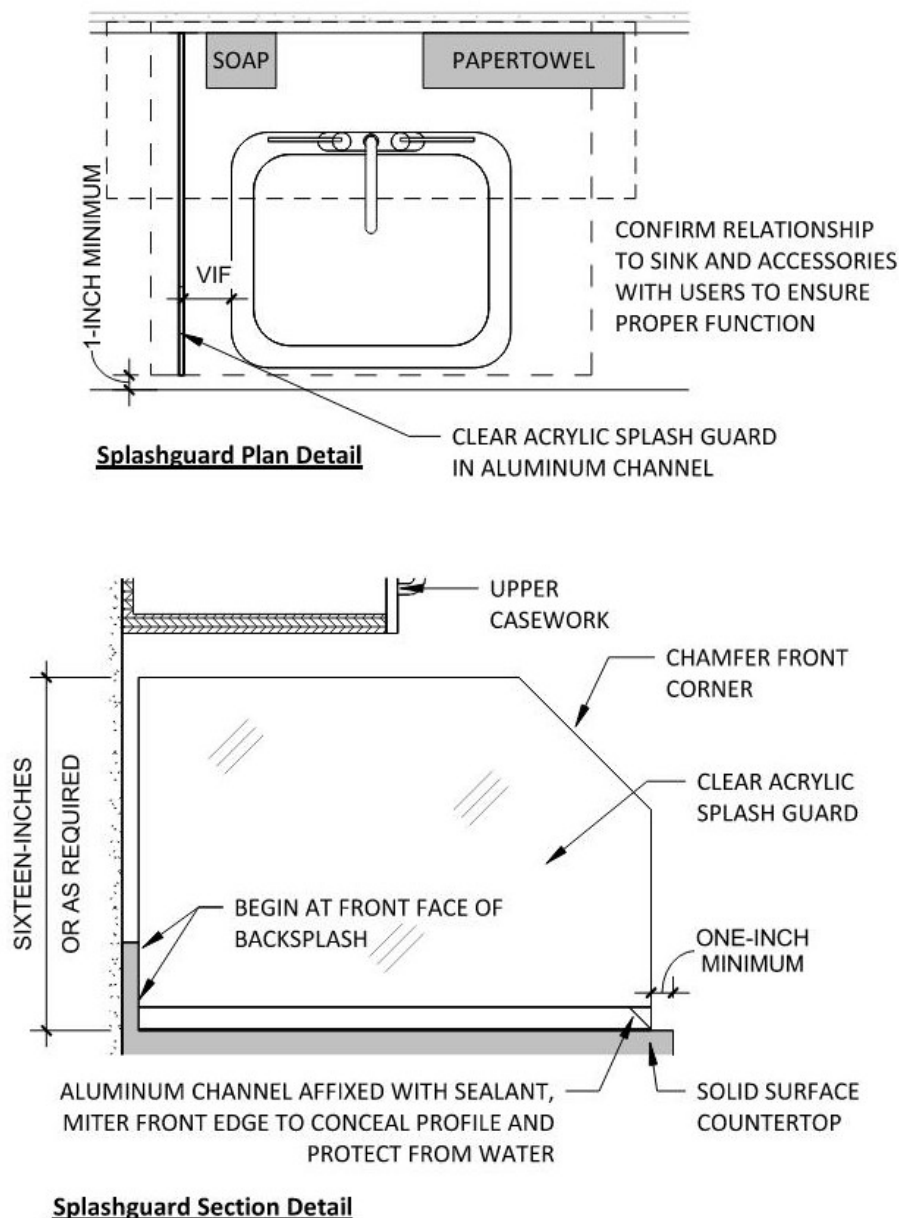
- A. Countertops shall be impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals.
- B. Stainless steel countertops are utilized in central sterile.
- C. Patient areas, including but not limited to check-in, receptions, exam rooms, procedure rooms, and utility rooms shall have countertops that allow for effective cleaning and decontamination.
1. Solid surface or manufactured products are preferred over natural products, which require regular sealant applications.
 2. Products shall not require specialty maintenance.
- D. Clear acrylic splash guards mounted in aluminum channels shall be provided at sink locations including point-of-care labs, phlebotomy spaces, medication dispensing, and as indicated by clinical staff.

1. See **Figure 12 36 00-01 – Splashguard Design** for a visual example.
2. Depth: Locate splash guard panel starting from the face of solid surface backsplash to the front edge of sink. End the splash guard a minimum of 1 inch away from the front edge of the countertop.
3. Height: The top edge of the splash guard panel shall be below the bottom of the upper cabinets or at a height of 16 inches.
4. Profile: Chamfer the front, upper corner of the splash guard to minimize obstruction around the sink.
5. Use an aluminum channel to hold the splash guard. This channel shall have a miter joint to conceal the front edge of the channel and protect from water and be sealed all along the length.
6. Location: Each location will be confirmed per sink to allow easy cleaning and use of accessories such as paper towel and soap dispensers.

Figure 12 36 00-01 – Splashguard Design – The drawing of a plan detail and section detail show the desired construction and location of a splash guard at a clinical sink.

The plan detail shows a clinical sink with typical locations for soap dispenser, paper towel dispenser, and overhead cabinets. The clear acrylic splash guard is shown adjacent to the sink with a dimension to verify in field between the guard and sink. The Design Professional is to confirm the relationship at the sink to accessories with users to ensure proper functionality. The splashguard will end a minimum of one inch back from the front edge of the counter.

The section detail shows the side view of the clear acrylic splashguard, as it sits in the aluminum channel on top of the countertop. The channel is affixed with sealant and the front edge is mitered to conceal the profile and protect the channel from water. The height is dimensioned as 16-inches or as required to fit underneath any upper casework. The front, top corner of the splashguard



- E. Flat or low-profile countertop brackets are required. Concealed brackets are preferred, and brackets shall have a minimum loading of 300 pounds per bracket.

XXXI. Section 13 21 66 Audiology Booths

- A. Refer to Volume 2, Division 13 and Space Design Guidelines for campus requirements.

XXXII. Section 13 49 00 Radiation Protection

- A. Refer to Volume 2, Section Division 13 for campus requirements.

XXXIII. Section 12 50 00 Furniture

- A. Furniture shall be easily cleaned and disinfected and meet UTSW standards.
- B. Furniture layouts shall be proposed by the UTSW furniture vendor for use in the Design Professional drawings.
 - 1. The furniture vendor will schedule Customer meetings for initial understanding and for presenting options.
 - 2. The furniture vendor will provide Design Professional with an initial layout in CAD with furniture specifications for the planned products.
 - 3. For construction documentation, the furniture vendor will provide final layout drawings with power requirements in CAD.

XXXIV. Section 14 00 00 Conveying Equipment

- A. Refer to Volume 2, Division 14 for campus elevator requirements.

XXXV. Section 21 00 00 Fire Suppression

- A. Refer to Volume 2, Division 21 for campus requirements.

XXXVI. Section 22 00 00 Plumbing

- A. Refer to Volume 2, Division 22 for campus requirements.

XXXVII. Section 22 40 00 Plumbing Fixtures

- A. Toilet Rooms:
 - 1. Lavatories located in public and staff washrooms shall be provided with electronic sensor activated faucets.
 - 2. All electronic flush valve sensors shall be provided with a manual override button.
 - 3. Design Professional shall confirm requirements for patients of size to ensure toilet models are correct for the need.

B. Specimen Collecting Toilet Rooms:

1. Lavatory faucets shall be provided with AC powered electronic sensors that are controlled by a wall switch located outside of the toilet room.
2. Flush valves shall not have manual override buttons and shall have AC powered electronic sensors that are controlled by a wall switch located outside of the toilet room.
3. Coordinate with Owner's staff for exact location of wall switches.

C. Patient Areas:

1. All lavatories and sinks within patient care areas shall be provided with a spout having an outlet a minimum of five inches above the flood level rim of the fixture.
2. Lavatories located in patient room toilets shall be provided with manually operated four-inch wrist blade handles and gooseneck spouts.
3. Gooseneck spout outlets shall terminate 5-inches minimum and 6-1/2-inches maximum above top of rim of lavatory sink. The horizontal dimension from spout inlet to spout outlet shall be a minimum of 5-1/2-inches.

D. Employee Areas:

1. Sinks and lavatories primarily used for hand washing in nurse stations, examination, and treatment rooms shall be provided with:
 - a. Electronic sensor activated faucets.
 - b. Grid strainer drain, drain stoppers or crumb-cup strainers will not be acceptable.
2. Sinks and lavatories used for procedural hand and arm scrubbing shall be trimmed with foot, knee, or electronic sensor controls. Coordinate specific types with project requirements.
3. Faucets used by medical and nursing staff for cleanup or general use shall be trimmed with valves that can be manually operated without the use of hands.
 - a. Wrist blade handles are acceptable for this purpose and shall be four inches in length.
 - b. Locations include nurse lounge, nourishment station, soiled utility, clean utility, film processing, etc.
4. Clinical sinks used for bedpan cleansing shall be provided with manually operated faucets having six-inch elbow blade handles and manually operated flush valves having integral bedpan washer.

- E. Emergency fixtures shall be provided per code and regulation requirements. Locations for emergency eye wash fixtures include medication dispensing, labs, sterilization, and others as required per project.

XXXVIII. Section 23 00 00 Heating, Ventilating, and Air Conditioning (HVAC)

- A. Refer to Volume 2, Section Division 23 for campus and renovation requirements.

XXXIX. Section 23 09 00 Instrumentation and Control for HVAC

- A. Safety: Additional monitoring may be required per project and shall be confirmed with Clinical Leadership and Safety teams. Monitoring may include CDAS or RTLS. Confirm requirements per location.

1. CDAS Equipment Monitoring:

- a. Central Data Acquisition System (CDAS) is a campus-wide, central monitoring station. This is physically located in the Facilities Management Office Building.
- b. Equipment monitored by CDAS includes refrigerators, freezers, blanket warmers (could require 1 or 2), medication dispensing units, and other equipment as indicated per project.
- c. Provide the following for each CDAS monitoring location:
 - i. In-wall box and faceplate shall be connected to conduit that is stubbed out above the ceiling.
 - ii. The cabling type shall be confirmed per project. Typical cables include multi-conductor twisted pair 22 or 18 AWG plenum rated or vendor proprietary types.
 - iii. The controls contractor will provide items identified for CDAS.

XL. Section 26 00 00 Electrical

- A. Refer to Volume 2, Section Division 26 for campus requirements.

XLI. Section 26 51 00 Lighting Fixtures

- A. Confirm lighting requirements with Users and UTSW PM to ensure both specialty spaces and standard spaces meet the needs of each project.
1. Discussions shall include dimming requirements, zones, coordination with curtain track(s), fixture types, patient comfort, and controls.
- B. Refer to Volume 2, **EXHIBIT 26.1 Recommended Commonly Used Light Schedule** for basis of design fixture types.
1. Where lease requirements identify light fixture types, discuss differences and preferences with UTSW.
- C. Preferences for Light Fixtures: Refer to **EXHIBIT 26.2 Lighting Control Matrix**.
- D. Lighting controls shall meet energy code requirements. Refer to Volume 2, Section 26 09 13 Networked Lighting Control System.

XLII. Section 27 00 00 Communications

- A. UTSW IR PMO shall be involved and direct communications solutions.
- B. Refer to Volume 2, Section Division 27 for campus requirements including Technology Room and IDF guidelines.

XLIII. Section 27 52 23 Nurse Call System

- A. Nurse call systems vary according to project and application type. Refer to UTSW Master Specifications for notes on existing hospital systems and clinical preferences.
- B. Nurse call system design and elements are determined by applicable regulations for each project and application. If no regulation entity exists, the Design Professional shall confirm UTSW preferences and requirements.

1. Nurse call system scope shall be identified in schematic design for pricing. Begin documentation of locations and elements in Design Development with finalization during Construction Documents.
- C. Ambulatory and Clinical
 1. Stakeholders shall include Clinical leadership, User representative, Nurse Call Committee (if applicable), and UTSW PM.
 2. Components will include nurse consoles (base station with annunciation), staff terminals (staff assistant button), emergency pull stations with annunciation, and dome lights at each location. Clinical installations will not have audio communication elements, code blue, or rapid response components.
 3. Standard locations include patient restrooms, procedure rooms including stress test rooms, EKG rooms, Echo rooms, and infusion rooms. Confirm additional locations per project.
- D. Additional nurse console locations, console types, and other elements shall be confirmed per project.
- E. Location of Nurse Master Station is typically at a nurse station but to be confirmed per project.

XLIV. Section 28 00 00 Electronic Safety and Security

- A. Design Professional shall confirm any additional safety or security requirements per project.
 1. Any areas with cryogen gases shall have oxygen sensors and provide the ability to increase room ventilation.
- B. Spaces with security requirements:
 1. Duress Buttons:
 2. Check-in and Check-Out, Guest and patient services.

XLV. Section 28 10 00 Access Control

- A. UTSW Access Control, User Group, Clinical Programming & Facility Development, and other UTSW teams shall be involved in access discussions.
- B. Additional controls and locations shall be determined per project requirements.
- C. Card Readers:
 1. Medication Rooms, soiled holding, clean utility, soiled utility, TR closet, patient waiting to patient care, employee entry and exit.
- D. Security Keypads:
 1. Mother's rooms.

XLVI. Section 28 20 00 Video Surveillance

- A. UTSW Access Control, User Group, Clinical Programming & Facility Development, and other UTSW teams shall be involved in surveillance discussions.
- B. Security Cameras are required in:
 1. Medication dispensing units, medication rooms, medicine disposal units, and spaces with controlled substances.
- C. Observation Cameras may be used. Refer to Psychology in "spaces" above.

SECTION A3 – LABORATORY DESIGN REQUIREMENTS

I. General Information

- A. Design of laboratories shall include representatives from the project user group, Safety teams, Facility Management, Utilities, and Design Team. Throughout design, additional UTSW teams will be included to address project scope and special requirements.
 - 1. Design of laboratory spaces shall follow the NIH Design Requirements Manual (most recent edition) from planning through construction practices.
- B. Design Professional shall provide solutions that meet standard best practices as well as specific project requirements. Confirm expected weights for wall mounted items, acoustic privacy desired, vibration considerations, and air pressures expected to provide partitions that meet design and regulatory requirements.
- C. UTSW Laboratories are typically negatively pressurized compared to corridors with tissue culture labs negatively pressurized to any adjoining lab. Confirm project and building requirements.
- D. On Renovation projects, the Design Professional shall document an understanding of the existing conditions including partitions, rated construction, utilities, and existing system constraints. Design solutions shall include all affected systems in the project scope, documenting existing capacities, known performance, known quality, known loads, and indicate alterations required to meet design requirements.

II. Laboratory Design: Codes and Safety

- A. The design and renovation of laboratory spaces shall comply with all UTSW Regulatory Requirements as indicated in the Master Specification Section 01 41 00 Regulatory Requirements and as indicated by Safety teams.
- B. Code considerations for laboratory design:
 - 1. Following NFPA 45 – The Standard of Fire Protection for Laboratories Using Chemicals requires a minimum of 1 hour fire rated walls for all renovations and new construction.
 - a. Design Professional shall document user's planned chemical types and amounts in project drawings.
 - b. Design Professional will identify Laboratory Unit Fire Hazard Classification for each project and document required ratings.
 - 2. Laboratories with more than 1,000 square feet shall have a minimum of two exits.
 - 3. Compressed gas cylinders, cryogenic containers, or explosion hazards must be at least 10-feet away from primary entrances and egress paths. Design Professional shall consult with the UTSW AHJ for review and approval.
- C. UTSW PM and Design Professional shall ensure compliance with appropriate Safety teams for each project. Refer to Volume 3, Section B, "Campus Protocols: OSBC" for descriptions of each team and the area of focus.

III. Laboratory Design: Biosafety Level

- A. Each laboratory space will be assigned a Biosafety Level (BSL) by Safety teams. Design Professionals shall use this to guide their design solutions. The descriptions below are from the “UT Southwestern Biosafety Manual” version Date: December 2023.
1. “Biosafety Level 1. BSL1 is suitable for work involving well-characterized agents (including animal work) not known to consistently cause disease in immunocompetent adult humans. BSL1 agents present minimal potential hazards to laboratory personnel and the environment. BSL1 laboratories are not necessarily separated from the general traffic patterns in the building. Work is typically conducted on open bench tops using standard accepted microbiological practices. Special containment equipment or facility design is not required but may be used as determined by appropriate risk assessment.”
 2. “Biosafety Level 2. BSL2 builds upon BSL1. BSL2 is suitable for work involving agents that pose moderate hazards to personnel and the environment. It differs from BSL1 in that: 1) laboratory personnel have specific training on containment, manipulation, cultivation, and disposal of pathogenic agents and are supervised by scientists competent in handling these agents; 2) access to the laboratory is restricted when work is being conducted and the door must remain closed at all times; and 3) all procedures in which aerosols or splashes may be created are conducted in BSCs or other physical containment equipment.”
 3. “Biosafety Level 3. BSL3 builds upon BSL1 and BSL2. BSL3 is applicable to clinical, diagnostic, teaching, research, animal research, or production facilities where work is performed with indigenous or exotic agents that may cause serious or potentially lethal disease following exposure. Laboratory personnel have specific training on containment, manipulation, cultivation, and disposal of high-risk pathogenic agents and must be supervised by scientists competent in handling these agents. All procedures involving manipulation of infectious materials must be conducted within BSCs, other physical containment devices, or by personnel wearing appropriate PPE. A BSL3 laboratory has special engineering and design features.”
 4. “Biosafety Level 4. BSL4 builds upon BSL1, BSL2, and BSL3. Currently, UT Southwestern does not have facilities that support BSL4 containment.”
- B. Creation or renovation of BSL3 spaces will result in additional requirements which will be identified by Safety teams. Biological and Chemical Safety teams will document design requirements and special testing requirements.

IV. Laboratory Design: Space Planning

- A. UTSW prefers laboratories to be flexible and adaptable spaces wherever possible.
1. Modular laboratories utilize UTSW standard casework and benching. Refer to **Figures A4.1 – Wet Laboratory Space Planning** and **A4.2 – Tissue Culture Space Planning** for reference and information.
 - a. Built-in casework, plumbing elements, and free-standing equipment can be in the perimeter zone and along partitions.
 - b. Free standing and adjustable benching can be located through the interior of the space, with minimum 5-foot-wide aisles in a flexible zone.

- i. Within the flexible zone, utilities for aisles will come from ceiling service panels mounted in the ceiling.

B. Lab Benching and Casework:

1. Existing built-in lab benching on campus is typically wood casework.
 - a. Renovation projects with existing wood casework to remain shall work with UTSW PM, User, and Safety to determine any condition issues, safety concerns, and remediation requirements.
2. The standard for new laboratory benching is free standing and adjustable metal products. Documentation is in Volume 2 and Master Specifications. Refer to Division 12 00 00, for Sections including Section 12 35 53 Laboratory Casework and Section 12 36 00 Countertops.
3. All wall-mounted laboratory casework or equipment shall be securely attached. Design Professional shall confirm expected loading on these components.
 - a. Confirm code requirements for these superimposed axial loads and design blocking and partitions to comply.
 - b. Refer to UTSW Specifications for Sections 05 40 00 Cold-Formed Metal Framing and 09 22 16 Non-Structural Metal Framing.

C. Typical lab requirements include:

1. Provide a minimum of one door into a lab with at least 42-inches clear width for the movement of equipment.
2. A minimum of one hand sink, emergency shower, and eyewash centrally located near the main traffic flow, as required by code and Chemical Safety.
3. Fume hoods and Biosafety Cabinets (BSCs) shall be located away from doors, traffic flow, HVAC supply, and other sources of air movement. Follow Biological and Chemical Safety placement requirements in renovation and new projects.
4. Flammable cabinets, flammable objects, cryogenic containers, and compressed gas cylinders shall be stored at least 10 feet from the lab primary entry and main egress path.
5. Existing laboratories may operate with work areas located inside the lab space. When renovation of these spaces is designed, the Design Professional shall propose built-in storage, adjacent to the entry door, within the corridor, these storage locations will be contingent on existing building constraints. Refer to **Figure A4.3 - Laboratory Entry Storage** for reference.
 - a. Where storage is installed in rated partitions, all materials shall comply with the currently adopted NFPA.
 - b. Storage shall be permanently affixed and not protrude into the required egress width.
 - c. Storage locations shall be coordinated with the required room and safety signage as well as, but not limited to, fire extinguishers, electrical panels, and ADA clear floor requirements.

Figure A4.1 Wet Laboratory Space Planning – The floorplan shows a typical layout for a wet laboratory and lab team work area.

The wet lab has a 42-inch-wide door and built-in shelving, located in the corridor, adjacent to the door. Within the wet lab, a recessed emergency shower and eye-wash unit is located centrally, to comply with code, along the front wall. The front and side walls are called the perimeter zone and are used for plumbing, built-in casework, large equipment including fume hoods, and tank holders.

The central area of the wet lab, the flexible zone, includes adjustable lab benches aligned as peninsulas with utilities provided from ceiling service panels. The layout shows a five-foot turning radius at the end of the bench aisle. The circulation zone is the remaining space in-between.

The lab team work area is a separate room adjacent to the wet lab, with a standard three-foot door between the two spaces and to the corridor. Along the side walls are small workstations with a five-foot turning radius at the end of the aisle

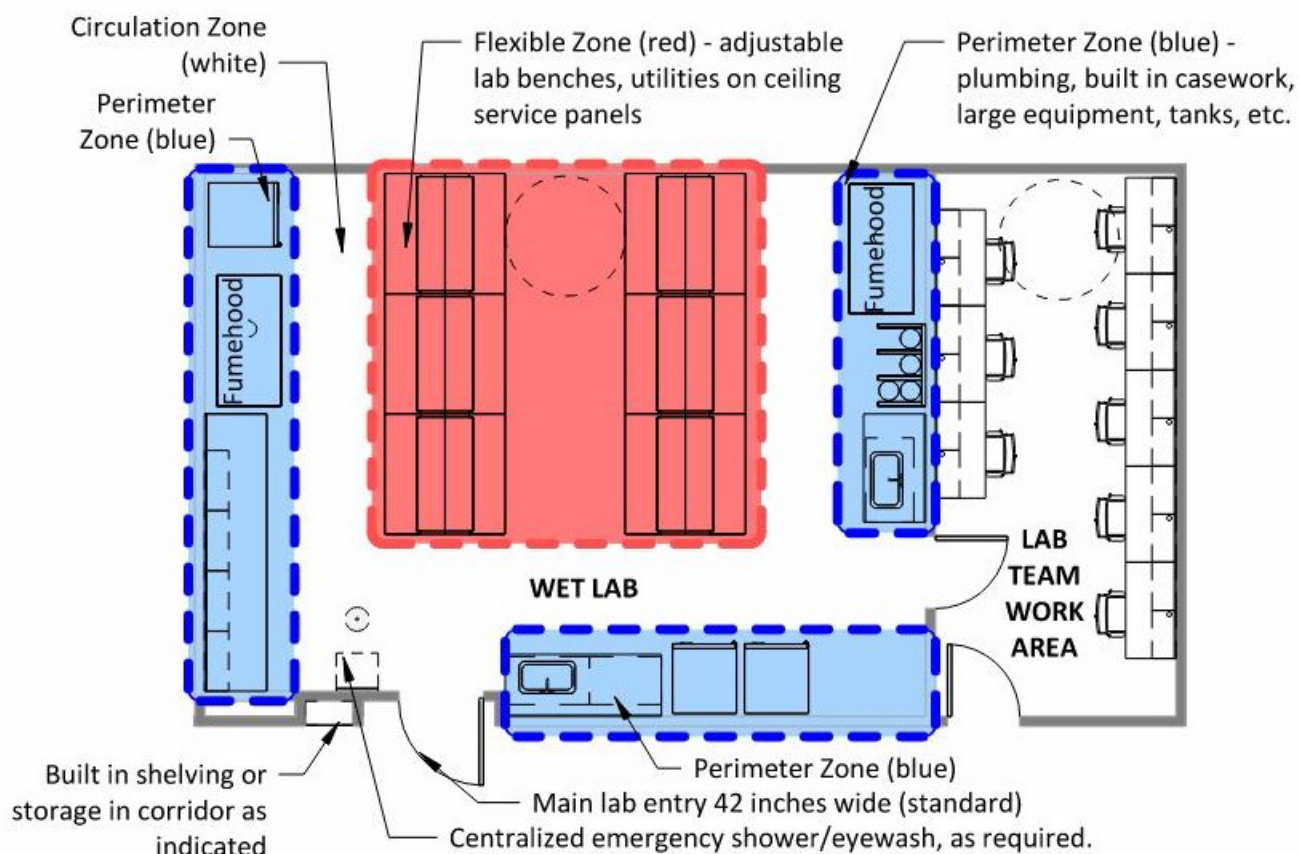


Figure A4.2 – Tissue Culture Space Planning –The floorplan shows a typical layout for a tissue culture room. The space has a minimum 42-inch-wide door and built-in shelving in the corridor, adjacent to the door.

Within the room, adjacent to the door, is built-in casework with sink and emergency eye wash unit, as required. The right and left walls, the perimeter zone, have plumbing, built-in casework, large equipment including Biosafety Cabinets (BSC), and tank locations. Flammable items, such as compressed tanks, shall be located away from the exit.

The layout shows a five-foot turning radius at the end of the aisle as well as work clearances at each BSC. The circulation zone is the remaining space in-between.

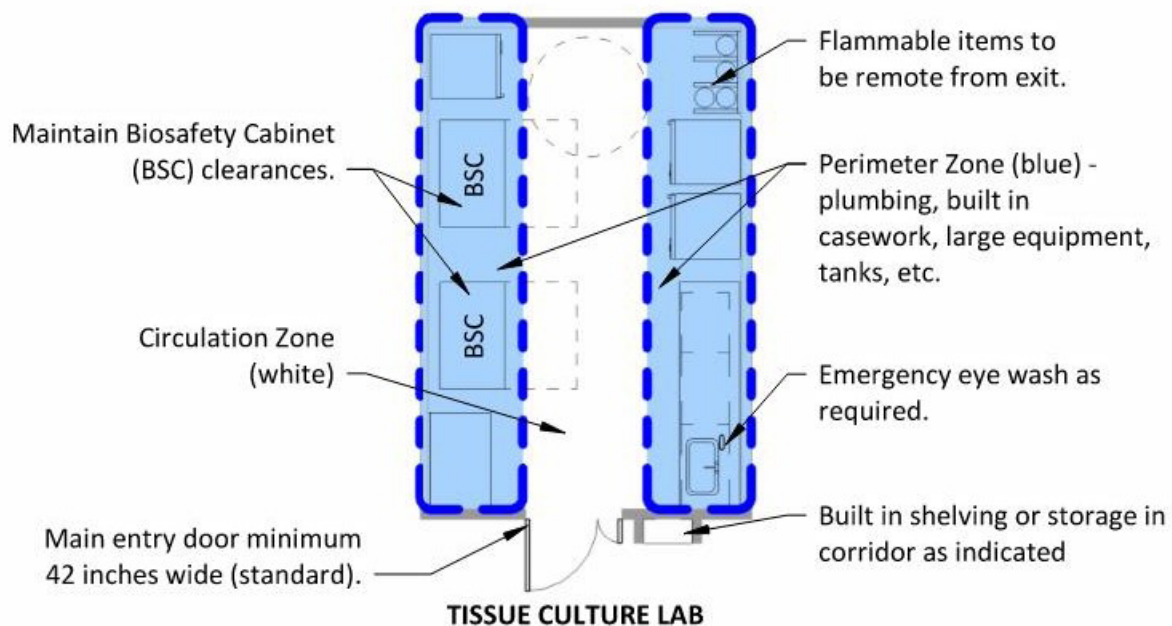
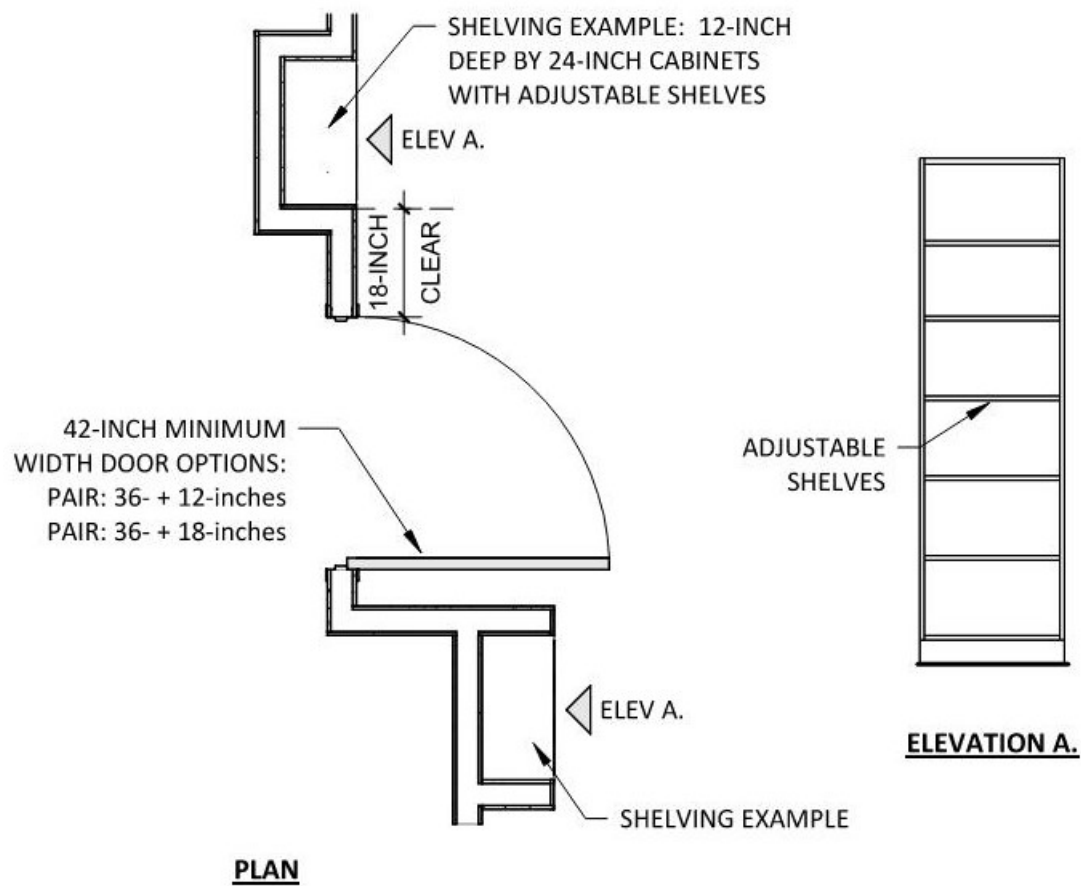


Figure A4.3 – Laboratory Entry Storage – The drawing includes a partial floorplan of a door into a laboratory with surrounding walls and an elevation of a built-in shelves. The door into the lab is sized to be a minimum of forty-two inches wide. The door could be made with a single panel or pair of panels to achieve the minimum opening width.

Two examples of built-in shelves are in the plan, both are noted as elevation A. On the hinge side of the door, an example of a twelve-inch deep by twenty-four-inch-wide unit facing the corridor. With this location, the door is inset deeper, away from the corridor.

On the latch side of the door, spaced a minimum of eighteen-inches away, is an example of a twelve-inch deep by twenty-four-inch-wide unit facing the corridor. With this location, the door and face of the shelving is aligned.

Elevation A shows the simple shelving unit with adjustable shelves and base above the floor.



V. Laboratory Design: Utilities

- A. Flexibility and adaptability shall be considered in utility overall designs so future growth and alterations can be accommodated.
 1. Confirm required future growth strategies for each project for each MEP discipline and provide oversized chases, units, panels, etc., as confirmed with department leadership.

2. Lab spaces utilize tremendous HVAC and exhaust for proper operation. System capacities can easily become limiting factors in the life of the laboratory. Discuss expansion requirements for systems above the needs of the design for day one.
- B. Confirm the utility types serving the project including the quality and quantity available for projects in existing buildings.
 1. The quantity and quality of building chilled water, process chilled water and compressed air shall be confirmed, compared to both manufacturer and lab requirements. The process chilled water piping loop should be equipped with plate frame heat exchanger to avoid circulation of campus chilled water through laboratory process equipment. Proposed design solutions shall be confirmed and validated with users.
 2. Presence and quantity of emergency power is variable throughout the campus and shall be confirmed.
- C. Communication is critical for utilities and services in laboratories.
 1. Clearly label pipes where all services come into the laboratory space.
 2. Label each power receptacle to indicate its circuit reference.
 3. Label data receptacles to match IR requirements.
- D. Gas service for equipment and processes may be implemented utilizing manifolds or tank switchers. Confirm preferences per project for any new service. Refer to Section 22 62 19 Medical Gas and Vacuum Systems for additional information.
- E. Ceiling service panels typical services may include vacuum, power, and data. Provide pre-punched spaces for future service.

VI. Laboratory Design: Finishes

- A. Unless noted otherwise, standard finishes include painted gypsum wallboard, and scrubbable finish acoustic ceiling tiles. All finishes shall comply with the applicable codes and regulations.
- B. Laboratory Flooring - Provide non-porous flooring with a minimum thickness of 3 mm.
 1. Typical wet-laboratory flooring shall be rubber sheet flooring and rubber base, refer to UTSW Master Specification Section 09 65 00 Resilient Flooring. Historically, VCT has been the standard flooring in these spaces. Design Professional to work with UTSW PM to confirm when existing flooring shall be replaced with new flooring in renovations.
 2. Laboratories with greater chemical or abuse resistance requirements, extreme temperatures, and pressurized sprays shall utilize seamless resinous flooring. Refer to Section 09 67 23 Resinous Flooring.
 3. For BSL-2 laboratories, floors shall be slip resistant, impervious to liquids, and resistant to chemicals.
 4. For BSL-3 and higher laboratories, flooring shall be seamless resinous flooring systems.
- C. Laboratory window coverings shall be horizontal metal blinds and follow the building standard. Where blackout solutions are required, work with UTSW Design Team for approved solutions.
- D. For standard finishes of casework, refer to Volume 2, Divisions 12 00 00 and UTSW Master Specifications for Section 12 35 53 Laboratory Casework and Section 12 36 00 Countertops.
- E. UTSW standards shall be followed for non-laboratory specific components. Follow typical UTSW requirements for offices, meeting rooms, etc. as noted in other areas of this document.

VII. Laboratory Space Types

- A. The following spaces are not exhaustive and do not document every special condition. Design Professional to document unique project conditions and requirements to provide indicated design solutions.
- B. Wet Bench Research:
 - 1. Standard equipment may include fume hoods, refrigerators, minus 20 freezers, microwaves, and BSLs.
 - 2. Standard utilities may include sinks, emergency eyewash and shower units, DI water, vacuum, power, and data.
- C. Tissue Culture Room:
 - 1. On UTSW campus, most tissue culture rooms are defined as BSL-2 spaces.
 - 2. Standard equipment may include Biological Safety Cabinets (BSC), incubators, microscopes, and gas tanks, when required.
 - 3. Standard utilities shall include sinks, emergency eye wash, emergency showers (where required by Chemical Safety), power, CO₂, and dimmable light fixtures.
- D. Microscope Rooms and Laser Rooms:
 - 1. To understand the risks around lasers, follow the requirements from Laser Safety and UTSW Laser Committee including ANSI Z136.1. For each project, document laser class and what precautions are required.
 - 2. Spaces where lasers may be used include, but are not limited to optics labs, microscopy labs, linear equipment labs, and electrophysiology.
 - 3. Use of lasers may require additional safety measures including interlocking doors, door locking strategies, higher level MEP filters, and safety signage.
 - 4. Special attention is required:
 - a. Mechanical supply and exhaust to laser spaces shall be carefully designed to ensure air movement does not restrict proper laser operation.
 - b. Design lighting fixtures and levels to be completely controlled and turned off. Refer to **EXHIBIT 26.2, Lighting Control Matrix**.
 - c. Finishes and materials utilized in laser spaces shall not create reflections and shall be approved by User, UTSW Design Team, and Safety teams.
- E. Cold Rooms:
 - 1. These purchased or prefabricated units are designed and installed within buildings. Where possible, a recessed slab is preferred to provide flat floor condition at doors. Where ramping is required, provide ADA compliant solutions.
 - 2. Finishes include stainless steel panels and easily cleanable floor finishes are preferred.
 - 3. Refrigeration units shall be reviewed with UTSW Refrigeration Shop to ensure systems, controls, and refrigerant type adhere to campus best practices.
- F. Freezer Galley and Equipment Galley:
 - 1. This space will typically house larger equipment which produces greater noise and exhaust amounts.
 - 2. Provide acoustic control at partitions and doors to reduce noise transmission.
 - 3. Standard utilities will include power through wall mounted raceways. Confirm requirements for back-up power and alerts to CDAS.
 - 4. Standard flooring will include resinous flooring and base. Refer to UTSW Specification Section 09 67 23 Resinous Flooring for preferred products.

G. Autoclaves:

1. This space will include high temperature autoclaves for sterilization. Special attention is required to address the steam created with high exhaust capacity and stainless-steel ceiling panels.
2. Finishes shall be high temperature rated such as resinous flooring.
3. Standard utilities will include stainless steel sink, water, steam, power, and compressed air.
4. Accessory Spaces: May include chemical storage, dry ice storage, gas storage, etc. For these spaces, discuss MEP and finish requirements with the Users, UTSW FM, and Safety Teams including Fire, Biological, and Chemical.
5. Work Areas – Typical workspaces may include offices, shared open office, meeting rooms, break rooms and other standard requirements. Follow UTSW guidelines for sizes, layout preferences, finishes, and required furnishings.

VIII. Section 08 00 00 Openings

- A. Refer to Volume 2, Section 08 10 00 Doors and Frames and Specification Sections 08 71 00 Door Hardware and 08 71 01 UTSW Master Door Hardware Sets for standard requirements.
- B. Laboratory doors layouts shall ensure the safety of occupants as well as the expected movement of larger equipment.
 1. Discuss additional preferences with users including utilizing piano hinges to maximize clear openings.
- C. Laboratory doors shall be self-closing while the laboratory space provides the as-designed air pressures and air changes per hour.
- D. Where greater safety requirements exist due to Biosafety Level, comply with applicable regulations to provide interlocks,
- E. Access control into laboratory spaces is predominately standard campus keyed locks or push button electronic locks. Badge access control is limited due to the high cost.
- F. Glazing:
 1. Use of glazing into laboratory spaces shall not impede required processes or procedures.
 2. Risk assessment must be included to determine if special glass types are required to comply with Building Codes or NFPA.

IX. Section 11 53 13 Laboratory Fume Hood

- A. Refer to Volume 2, Division 11 00 00 and UTSW Master Specification.

X. Section 11 53 19 Laboratory Specialty Equipment

- A. For all equipment indicated to meet the design requirements of a project, the Design Professional is responsible for coordinating utilities, clearances, and manufacturer requirements for proper operation.
- B. For primary containment equipment (fume hoods, BSCs, etc.), the Design Professional is responsible for verifying correct placement with respect to air devices, doors, and traffic patterns. This includes the requirements indicated in this guideline and Safety documents.

- C. Centrifuges – These require sturdy and stable surfaces due to their high weight. Provide clearance above to ensure the top fully opens. Requires dedicated power for each unit.
- D. DI Water – Depending on building services, DI water may be provided from a building system or from local system. DI Water is required in all labs.
- E. Reverse Osmosis (RO) Water – RO water may be provided from a building system or local system.
- F. Incubators – These require CO2 connections and power. Many are double stacked.
- G. Ice Machines - Floor drains with trap seals shall be located at large ice machine locations.
- H. Millipore – This system provides higher purity water than DI water. It is only located where required. This will be connected to the DI water system for source water. The valve will be located next to a central lab sink and may be shared between labs.
- I. Microwaves – Where located, they require a dedicated circuit.
- J. Refrigerators and Freezers – At a minimum, these require extra dedicated circuits with no more than two on a single circuit.
- K. Safety Showers and Eyewash – These are required where bulk hazardous chemicals are handled or as indicated by Chemical Safety. Refer to UTSW Specifications and Volume 2, Division 22, Section 22 40 00 Plumbing Fixtures.
- L. Tanks: All gas cylinders shall be secured with wall mounted tank restraints. Refer to UTSW Specification section 11 53 19 Laboratory Specialty Equipment for UTSW standard design.

XI. Section 11 53 53 Biological Safety Cabinets

- A. Refer to Volume 2, Division 11 and UTSW Master Specification.

XII. Section 12 35 53 Laboratory Casework

- A. Refer to Volume 2, Division 12 and UTSW Master Specification.

XIII. Section 11 53 43 Laboratory Service Fittings

- A. Refer to Volume 2, Division 11 and UTSW Master Specification.

XIV. Section 13 21 01 Controlled Environmental Rooms

- A. Refer to Volume 2, Division 13 and UTSW Master Specifications.

XV. Section 21 00 00 Fire Suppression

- A. Refer to Volume 2, Division 21 and UTSW Master Specification.

XVI. Section 22 00 00 Plumbing

- A. Refer to Volume 2, Division 22 and UTSW Master Specification.

XVII. Section 23 00 00 Heating, Ventilation, and Air-Conditioning

- A. Refer to Volume 2, Division 23 and UTSW Master Specification.
- B. Laboratory spaces shall be maintained at negative air pressure with respect to the surrounding spaces.
- C. In renovation projects, existing conditions shall be determined and documented as part of the design process to ensure final conditions satisfy design requirements.

XVIII. Section 26 00 00 Electrical

- A. Refer to Volume 2, Division 26 and UTSW Master Specification.
- B. In renovation projects, existing conditions shall be determined and documented as part of the design process to ensure final conditions satisfy design requirements.

XIX. Section 27 00 00 Communications

- A. Refer to Volume 2, Division 27 and UTSW Master Specification.
- B. In renovation projects, existing conditions shall be determined and documented as part of the design process to ensure final conditions satisfy design requirements.

FACILITIES MANAGEMENT DESIGN GUIDELINES – VOLUME 1 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 1:

Introduction, II. Historically Underutilized Business Program

Subsection deleted.

~~A. The University of Texas Southwestern Medical Center Facilities Management is committed to promoting the participation of minority, women owned, and small businesses through the Historically Underutilized Business (HUB) Program for the procurement of goods and services. The procurement process utilized by UTSW seeks to provide equal opportunity and equal access in the design and construction opportunities on projects managed by Facilities Management.~~

Section A, I. Design Philosophy

Revision

- B. All capital projects shall be designed with flexibility and adaptability as a core objective to allow for future reconfigurations and functional changes.
1. Project stakeholders will be determined per project but will include project customers or users, F.M. teams such as Utilities, Building Maintenance, and Design Team, and Safety teams.
 2. The Design Professional shall guide and educate project stakeholders on the design process, code requirements, and best practices to successfully support each project.
 3. The Design Professional shall work with the UTSW PM to schedule early involvement from project stakeholders to address the complexity of functions, buildings, and systems present in UTSW projects.
 4. Project stakeholders will be included in design reviews and approval processes.

Section A, II. Campus Design Standards

Addition

- A. Design of UTSW projects shall conform to the guidelines in this document, UTSW Master Specifications, and standards established by the University Institutional Design and Branding Committee (IDBC).
 - 1. **UTSW utilizes the University of Texas System (UTS) Group Purchasing Organizations (GPOs) to assist in financial management, including Vizient contracts. UTSW PM will provide the Design Professional with contract information to assist with the designation of products including finishes.**

Section A, III. Operating and Building Maintenance

Revision and relocation from previous version.

- A. **Design solutions for systems and materials shall incorporate easy and efficient operations with life cycle costs documented. They shall provide ease of repairs, safe solutions, cost efficiency of maintenance, and standardization.**
- B. **The Design Professional should obtain constant project stakeholder feedback.**
- C. **The Design Professional shall document the design intent for projects including each affected building system, showing understanding of the operating and maintenance procedures.**

Section A, IV. Codes and Standards

Revision and reorganization of section

- A. **Refer to the Volume 3 for Codes, Standards, and Deliverable Requirements.**
- B. Compliance with all state and federal laws applicable to construction is required.
- C. The Office of Safety and Business Continuity (OSBC) is the Authority Having Jurisdiction (AHJ) for NFPA for on-campus projects. OSBC will be referred to as "Safety" with individual teams being labeled.
- D. On UTSW property, the final determination of International Building Code (IBC) is the Vice President of Facilities Management.
- E. As authorized by the VP of F.M., Design and Renovations, the Design Professional and the UTSW PM shall coordinate with municipalities as necessary.
- F. **All documentation required by an outside entity must be reviewed and approved by UTSW and the Executive Vice President of Business Affairs before release.**
- G. Renovations located off UTSW property will follow the codes of the respective city while utilizing UTSW preferences. Requirements of Safety teams will be identified for incorporation into each renovation.

- H. **Design Professional shall utilize UTSW Master Specification Section 01 41 00 Regulatory Requirements and Section B – Codes and Standards for a complete list of UTSW applicable codes and standards with the approved editions.**
- I. **The Design Professional shall ensure that review and direction from Safety teams are documented and coordinated with all disciplines.**
- J. Projects shall meet the minimum requirements of OSHA.
- K. **Where additional safety requirements are required, the Design Professionals shall request a review with Safety teams.**

Section A, V. Regulation Requirements

Revision

- D. **Refer to B3 –Deliverables Requirements for Design Documents** for additional information.

Section A, VI. Environmental Practices: Sustainability and Energy Design

Section revision and information from previous “Texas State Energy Conservation Office” section.

- A. **Sustainable practices, materials, and goals should be considered for each project as appropriate.**

Section A, VII. Environmental Practices: Water Efficiency and Design

Section revision and information relocated from previous “Texas State Energy Conservation Office” and “Water Efficiency” sections.

- A. The Texas State Energy Conservation Office (S.E.C.O.) directs state agencies and institutions of higher education, for both new construction and major renovation projects, to reduce water usage.
 - 1. Where the project must comply with S.E.C.O., the Design Professional shall coordinate with UTSW PM for projects requirements, complete S.E.C.O. compliance forms, and submit forms to the UTSW PM and the Director of Facilities Planning, Design, and Construction.
 - 2. Comply with the most recent "Water Conservation Design Standards for State Buildings and Institutions of Higher Education Facilities" adopted by the Texas Legislature (34 Texas Administrative Code (T.A.C.)(§19.32) and The State Energy Conservation Office (S.E.C.O.).
 - a. Before beginning construction of a new state building or state-supported higher education facility, the Design Professional shall complete a water conservation compliance certification form for UTSW to submit to S.E.C.O.
 - b. Confirm which water reuse strategy (Rainwater Harvesting, treated graywater, condensate collection or cooling tower blowdown, or a combination of these

strategies) is to be employed on this project if the project exceeds a 10,000-square foot roof per S.E.C.O. requirements

- B. A goal of 20-percent indoor water use reduction beyond the Energy Policy Act (EPA) of 1992.
- C. 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, usage costs, maintenance costs, and end of life costs.
- D. Demonstrate compliance with the minimum 20-percent reduction by one of the following:
 - 1. Provide interior water use reduction calculator demonstrating 20-percent reduction.
 - 2. Ensure that all eligible fixtures carry the EPA's WaterSense label.
 - 3. All eligible products on site have flush and flow rates at or below these thresholds:
 - a. Water Closet - 1.28 gallons per flush
 - b. Urinal - 0.125 gallons per flush
 - c. Private Faucet - 1.75 gallons per minute
 - d. Public Faucet - 0.4 gallons per minute
 - e. Breakroom or Kitchen Faucet - 1.75 gallons per minute
 - f. Shower - 1.8 gallons per minute
 - g. If applicable, 30-percent exterior water use reduction.

Section A, XII. Safety and Design

New section created from previous "Environmental Safety Design" section. Content reorganized.

- A. UTSW Safety teams advise and direct in matters of safety for projects. Review Volume 3, Section B: Campus Protocols.
 - 1. Imaging, laboratory, and any projects with hazardous materials shall be reviewed in design development by each appropriate Safety team.
- B. Design Professional shall add project specific code requirements from Safety teams review to the project, refer to Volume 3 for required compliance documentation including code compliance confirmation review submissions.
- C. Refer to Section 10 14 00 Signs and Graphic Elements in Volume 2 and Master Specifications.
- D. Site Projects: Refer to Volume 2, Division 31 00 00 and EXHIBIT B3.5 Storm Water Pollution Prevention Plan for UTSW requirements.
- E. Special Spaces and Elements:
 - 1. Dry Ice Storage:
 - a. Refer to Volume 2, Section 23 09 00 Instrumentation and Control for HVAC for specific ventilation and monitoring requirements.
 - b. Fixed gas monitoring considerations should be given to both CO₂ and O₂ to ensure the ventilation levels are maintained.
 - c. Storage equipment provided for dry ice shall slow sublimation of dry ice while allowing for expansion. Tightly sealed devices for dry ice storage are not allowed.

- d. Areas with dry ice storage shall provide additional storage space for safety supplies including scoops, tongs, lab coats, safety glasses or goggles, thermally insulated gloves supplies and storage accommodation to ensure appropriate usage.
 - e. Signage: indicating the presence of positive pressure gases shall be posted on the exterior of the space, near the entrance. Confirm signage required with UTSW Signage Shop, Safety, and the UTSW Comprehensive Interior Signage Manual.
2. Natural Gas Piping – Within Education and Research Spaces:
- a. In newly constructed research labs, installation of natural gas piping is no longer allowed.
 - i. Any exceptions must be approved in writing by the Office of the Provost and Safety teams.
 - b. In existing facilities with existing natural gas piping, reconfiguration and extensions of the system may be permitted.
 - c. All natural gas piping shall be painted as required in UTSW Master Specification Section 22 05 53 Plumbing Identification.
3. Additional considerations may be required to safely store items including but not limited to inert gases, oxygen, nitrogen gas, and liquid nitrogen.

Section A, XXXV. Vending Standards

Revision.

- B. Finishes:
- 1. Carpet shall not be installed in rooms containing vending machines.
 - 2. In larger rooms, provide a hard, **non-waxed, low-maintenance** floor surface ~~such as Vinyl Composition Tile (VCT)~~ under the machines and extending out 6 feet from the vending machines.

Section A2, X. Special Function Doors

Addition.

- C. **Where these sliding systems are used along the patient path, the clear opening width shall be 39-inches.**