THE UNIVERSITY OF TENNESSEE KNOXVILLE

FACILITIES SERVICES

2023 DESIGN GUIDELINES and Preferences

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List of Acronyms

AC	Alternating Current
A/C	Air Conditioning
ACT	Acoustical Ceiling Tile
ADA	Americans with Disability Act
AHU	Air Handling Unit
AFF	Above Finished Floor
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials
BIM	Building Information Model
BMP	Best Management Practices
CD	Construction Documents
CFM	Cubic Feet per Minute
CPTED	Crime Prevention Through Environmental Design
CMU	Concrete Masonry Unit
CTI	Cooling Technology Institute
CW	Cold Water
DD	Design and Development Phase
DI	Deionized Water
DDC	Direct Digital Control
GFCI	Ground Fault Circuit Interrupter
GPF	Gallons per flush
EHS	Environmental Health & Safety
EIFS	Exterior Insulation Finishing System
FDB	Fahrenheit Dry Bulb
FEMA	Federal Emergency Management Agency
FERPA	Family Education Rights and Privacy Act
FWB	Fahrenheit Wet Bulb
HDPE	High Density Poly Ethylene
HEPA	High Efficiency Particulate Air
HP	Horsepower
HVAC	Heating Ventilation/Air Conditioning
HW	Hot Water
IFC	International Fire Code
KUB	Knoxville Utilities Board
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design
LVT	Luxury Vinyl Tile
MEP	Mechanical, Electrical, Plumbing
MRL	Machine room less
NC	Noise Criteria
NFPA	National Fire Protection Association
OIT	Office of Information Technology
OSHA	Occupational Safety and Health Administration
PRV	Pressure Reducing Valve
PVC	Poly Vinyl Chloride
RH	Relative Humidity
SBC	State Building Commission
THEC	Tennessee Higher Education Commission

UTFS	University of Tennessee Facilities Services
UTK	University of Tennessee Knoxville
USGBC	United States Green Building Council
UTPD	UT Police Department
VAV	Variable Air Volume
VCT	Vinyl Composite Tile
VOC	Volatile Organic Compound
USB	Universal Series Bus

1. INTRODUCTION

The "basis of design" standards and design preferences listed herein are for new capital construction on the main University of Tennessee Knoxville (UTK) Campus. Additions, renovations, off campus and auxiliary structures will be evaluated individually. Both the Department of Capital Projects Project Manager and the University of Tennessee Facilities Services Project Manager should be consulted on all design decisions. Preferred manufacturers, where listed, are based on campus performance and service experiences. Additional manufacturers, considered as an acceptable substitute, will be evaluated individually.

All UTK Facilities Services (UTFS) "Design & Construction Guidelines" are located at: https://fs.utk.edu/

2. BUILDING EXTERIORS

2.1. PREFACE

In accordance with the Campus Master Plan, UTK buildings are designed in a collegiate gothic style consisting primarily of brick and stone exterior façades of which to represent a feeling of stability and permanence. Other prominent characteristics include the use of arches, punched openings, accentuated entrances and steep sloped roofs. The use of gargoyles and grotesques is considered appropriate and acceptable in approved locations.

2.2 DESIGN STANDARDS

a) Face Brick – "Campus Blend" manufactured by General Shale Brick, Inc.
- Size: Modular
- Joints: Concave
- Bond: Running bond (see Flemish Bond preference below)

b) Mortar
- Color: Seashell/General Shale (GS)-CB1

c) Horizontal Construction/Expansion Joints
- Type: Sealant
- Color: Match mortar color (Sika "Tan")

d) Vertical Construction/Expansion Joints
- Type: Sealant
- Color: Match brick color (Sika "Red #2CNS 75762")

e) Natural Quarried Stone – Limestone, supplied by INDIANA LIMESTONE Fabricators, Inc.
- Color: Eureka Buff
- Finish: Smooth (Other finish options considered on a building case-by-case basis)
- Mortar/Grout Color to match stone color to be determined.
- Sealant: Match stone color (Sika "Pearl Ash")
- Pattern: Coursed or random ashlar
- Sandstone option (Considered on a building case-by-case basis)

- See preferences below

f) Architectural Cast Stone – ROCKCAST, manufactured by Reading Rock, Inc.
- Color: UTR 19 (former Baxter Cast Stone color)
- Finish: Standard Acid Etched (Other finish options considered on a building case-by-case basis)
- Mortar and Grout Color: Match cast stone color
- Sealant: Match stone color (Sika "Pearl Ash")
- Coursed or random ashlar pattern
- Approved Manufacturers: ROCKCAST & ARRISCRAFT *(Others, considered on a building case-by-case basis)*

g) Precast Concrete:
- Used at parking garages and similar structures
- Typically, not to be used in exposed exterior applications

h) Windows and Door Frames – Aluminum Framed Systems
- Window type: Fixed (operable evaluated on a case by case basis)
- Finish: High performance fluoropolymer factory finish
- Color: Powder coated color to match stone, where provided. Clear anodized elsewhere Shale (Considered on a case-by-case basis)

i) Glazing – Insulating-Glass
- Overall Thickness: 1 inch
- Replacement from inside
- Low-E Coating: PPG Solarban 60
- Tint: PPG Solargray
- Curtain-walls: (Evaluated on a case-by-case basis)
- Limit or shade glazing from direct sun exposure

j) Building Envelope– Air and Water Barrier (above grade)
- Energy efficient construction to control the leakage of air and water through walls
- Breathable to allow walls and interiors to dry out
- Self-sealing
- Mold resistant
- Applied to exterior face of sheathing or CMU/concrete backup walls
- See preferences below

k) Below Grade
- Add protection board to sheet waterproofing
- Protect foundation drains
- Indicate slope and discharge locations of foundation drainage in construction documents

l) Concrete Slabs/Floors/Sidewalks
- Prevent excessive moisture vapor emission and alkalinity from damaging concrete
- Topically applied sealant to seal, harden and density

- Crack control
- See preferences below

m) Roofs:

- Steep Slope:
  - Terra Cotta Clay Tile, manufactured by Ludowici Roof Tile
  - Type: Interlocking Classic 16”
  - Color: Impressionist Blend #9, 40% terra cotta and 60% dark terra cotta
  - Alternate roofing material evaluated on a case-by-case basis
- Low Slope:
  - SBS Modified Bitumen Roof Membrane
  - ¼” per foot slope min.
  - 3-ply system
  - Cold-applied adhesive
  - Granular Cap Sheet: Light reflecting energy efficient color
  - Access by stair or elevator
  - Alternate roofing material: (Evaluated on a case-by-case basis)
    - PVC KEE 80-mil System
    - PMMA: Liquid applied systems
  - Fall protection at roof-top equipment, within 10 feet of roof edge

- Green Roofs:
  - Reserved for highly visible low slope roofs
  - Public access evaluated on a case-by-case basis
  - Irrigated system
  - Exposed roof drains
  - 3-year min. service and system warranty
  - Incorporate electronic leak detection system

- Roof Access:
  - Provide maintenance roof access at all roof levels
  - Prevent public roof access

n) Exterior Entrances:

- See paragraph 4.2.a Hardware for exterior access control standards.
- Video security surveillance system. Reference Safety and Security Standard
- Key Box (Knox Box): Provide where required per UL 1037 and current fire code (IFC) standards a rapid access device for use by emergency personnel. Coordinate type, location and contents with EHS, the local Fire Department, UTPD and UTFS Located highly visible on exterior of building adjacent entrance with adequate lighting and camera coverage, containing keys to gain necessary access and accessible by a special master key in the possession of the local fire department.
- Key box provided and installed by contractor, with contents provided by owner
- Reference THEC Best Practices for Higher Education Facility Design (BPSD) page 7, sect 2, para E and sect 3, page 11, para E.i. Request access to this document through the project manager.

o) Vestibules

- Provide at all public entries (exceptions to be determined on a case-by-case basis)
- Walk-off flooring

p) Lightning Protection: (To be evaluated by project engineer)
- Provide protection from lightning strikes in buildings 3 stories or higher or as deemed necessary.

q) Exterior Lighting:
- Illumination of steps, parking, entrances and accessible routes
- Building accent lighting (Evaluated on a building case-by-case basis)
- Provide energy efficient fixtures except where security and safety is a primary concern
- Utilize dark sky compliant lighting
- Reference Campus Landscape Vision and Site Standards and BPSD page 4 sect 2, para B.

r) Screening:
- Screen mechanical, electrical equipment, trash and recycling storage containers and other equipment or objects, as required
- Provide UTK standard fencing enclosure. Reference Campus Landscape Vision and Site Standards for enclosure types. (Alternate screening to be evaluated on a building case-by-case basis)
- Lockable

s) Signage & Plaques:
- Naming of building: evaluated on a building case-by-case basis
- Building Identification Site Signage (Building name and 911 street address), plainly legible and visible by emergency responders from the street or road fronting the property, including backs of buildings that face alleys or roads.
- Building Plaque: Required at new buildings named in honor of person or persons, per the State Building Commission (SBC) prescribed format and provided information.
- Coordinate with campus signage standards and approvals

t) Energy Conservation and Sustainability
- Per State of TN Sustainability and Energy Guidelines
- TN High Performance Building Requirements
- USGBC LEED certification (Determined on a case-by-case basis)

u) Site:
- Reference Campus Landscape Vision and Site Standards
- Stormwater retention, detention, re-use and drainage as required per campus stormwater standards. Reference Stormwater BMP manual
- Accessible parking
- Accessible route from accessible parking/passenger loading zones/public streets/public sidewalks/public transportation to accessible building entrance

v) Loading Dock (if provided)
- Fenced or concealed area
- Dock Height: 4ft. with leveler and ramp access. Ramp & stair if space allows.
- Equipment: Trash compactor and leveling equipment (Evaluated on case-by-case basis)
- Storage area for trash and recycle containers *(*See Recycling Standards*)*
- On-grade corrugated cardboard container *(*See Recycling Standards*)*
- Proximity & accessibility to maintenance areas, freight elevator, etc.
- Maintenance and service vehicle parking

2.2. DESIGN PREFERENCES

a) Exterior Insulation Finishing System (EIFS) is normally prohibited (exceptions evaluated on a case-by-case basis)
   - Drainable system, if used.

b) Aluminum Storefront
   - Preferred Manufacturer: YKK AP America Inc.

c) Insulated Glass
   - Preferred Manufacturer: PPG Industries
   - Butt joints glazing is not recommended. To be used only in limited applications where approved

d) Green Roofs
   - 3-year, min. vender maintenance contract
   - Preferred plant material: Sedums and grasses

e) Low Slope Roofs
   - Preferred Manufactures: Siplast/Firestone/John Manville/Soprema
   - 42" high parapets at low slope roof perimeters
   - Consider restoring roofs instead of replacing where applicable
   - Limit access by roof hatch, stair or elevator access preferred
   - Liquid applied flashings preferred

f) Face Brick Bonding:
   - Buildings: Running bond with Flemish bond every sixth course
   - Site walls: Alternate running bond and Flemish bond courses

g) Accent Brick:
   - Contrasting color to mimic stone (considered as cost saving alternative to stone)
   - No campus standard established (evaluated on a building case by case basis, and approved by Campus Architect)

h) Vehicle barriers:
   - Design elements like planters, seats or use of terrain/landscaping are preferred over bollards where appropriate.

i) Waterproofing Preference (above grade)
   - Seamless elastomeric membrane for exterior sheathing, CMU & concrete, etc.
   - Single component, roller applied silane functional polymer
   - Preferred manufacturer/product: Prosoco, R-Guard Cat 5

j) Concrete Moisture Vapor Control:
   - OBEX Creteseal CS2000

k) Stone
   - Cast stone preferred over natural stone due to superior resistance to staining

3. SAFETY and SECURITY

3.1. PREFACE

Safety and security concerns should be considered in all aspects of site and building design. All buildings and sites are different with conditions and equipment constantly evolving. Designers should coordinate a threat building specific threat assessment with the entire stakeholder team as early as possible in the project programming in accordance with THEC Best Practices for Higher Education Facility Design page 1, A through F. All concerns and questions should be referred to the Facilities Services Project Manager. Key elements in the protection of people and property include:

- Physical barriers to protect building and exterior public areas from vehicle intrusion, pedestrian protection and CPTED recommendations
- Door access control
- Security video surveillance and monitoring
- Emergency communication messaging and alarm notification
- Emergency responders radio communications: 700-800MH Bi-Directional Amplifiers/Distributed Antenna System equipment for emergency responders and 400MH for maintenance radio communications. (OIT and UTFS shall determine individual building needs and requirements. Fire Marshal issuance of Building Certificate of Occupancy is dependent on Fire Department's approval of emergency radio communications within the building)
- Cellular phone service BDA amplifiers and WI-FI
- Emergency management procedures (Consult with the Office of Emergency Management)
- Areas of severe weather shelter
- Active shooter precautions
- Suicide/Fall Prevention measures at parking garages, bridges, balconies, roofs and other locations as deemed appropriate
- Lab Safety – see paragraph 8.2.l
- Refer to THEC Best Practices for Higher Education Facility Safety, Security, and Preparedness Design (BPSD). Request access to this document through the project manager.

3.2. DESIGN STANDARDS

a) Site
    - Fire truck access per current IFC and local fire department requirements
    - Water supply capable of supplying the required flow for fire protection
    - Fire hydrant flow tests provide by Knoxville Utilities Board (KUB)
    - Fire hydrant locations and hose lay limitations per current IFC and local fire department requirements
    - Unobstructed exterior access to Fire Department Connections and fire protection system valves
    - Landscaping:
        - Designs will be reviewed by UTPD for inclusion of CPTED as a deterrent to crime BPSD page 2 sect 1.
        - Recommendations include the planting of trees and shrubs, the elimination of escape routes, the correct use of lighting, and the encouragement of pedestrian and bicycle traffic in streets.
    - Vehicle Barriers:
        - Provide at areas with high pedestrian traffic, gathering areas or walkways must have separation preventing unauthorized or

unintentional vehicle ingress. BPSD page 8 sect 2 para E.viii
- Create distance between vehicles and the building where practical. BPSD page 14 sect 5 para B

b) Access and Intrusion Detection Control System. See Hardware paragraph 4.

c) Video Surveillance:
- Provide interior cameras at building entrances and exits. Provide other interior or exterior camera locations deemed necessary by UTPD and administration. (Campus administrative approvals are required for other than building entrance and exit locations).
- Coordinate camera type and locations with UTPD and OIT.
- Coordinate cabling and installation with OIT.

d) Emergency Messaging: Provide emergency messaging capabilities to exterior and interior building occupants from the campus emergency alert system over phone lines by way of:
- Interior building speakers integrated through the Fire Alarm System with capabilities to receive and broadcast live messages from the UTPD campus emergency alert system.
- Exterior building speakers with the capability to broadcast messages from the campus emergency alert system to be heard in adjacent exterior spaces like courtyards, amphitheaters, parking lots etc.
- Coordinate Fire Alarm messaging requirements with UTPD, OIT and UTFS Electrical Services
- Electronic messaging systems (monitors) will networked to receive messaging from the emergency messaging system.
- Reference BPDS page 11 Sect 3, para E.i

e) Fire Alarm Systems:
- Provide Visual/Audible and Speaker (voice) fire alarm system
- Communications shall consist of a network connection to UTFS, Central Alarm and the building security panel.
- Redundant communications for life safety equipment, emergency management and notifications
- Capabilities to transmit messaging via text or email. (Example: Text message to designated persons as to location of detector that has detected smoke, etc.)
- Capability to receive and transmit live messages over telephone lines.
- Coordinate Fire Alarm system requirements with UTFS Electrical Services and system vendor.

f) Active Shooter Mitigation Specific Design Elements
- Room layouts should be designed with “hard corners” to provide occupants with a space where they are not visible from hallways and windows. This includes classrooms, instructional laboratories, assembly spaces, open office suites, conference and meeting rooms or other public gathering rooms.
- Reference BPSD page 9, sect 3

g) Environmental Containment Precautions: (*Safeguards to prohibit the spread of contaminants)*
- Locate outside air intakes above ground level where possible to minimize risks of contaminated outside air entry into the building.
- Provide outside air intake with HVAC emergency shut-off controls.

- Coordinate HVAC requirements with UTFS and emergency responders.
- Provide spill containment at hazardous material storage areas as required by code.
- Coordinate hazardous material requirements with Environmental Health and Safety (EHS).

h) Severe Weather Shelter Areas:

- Description: Designated space, within the building, for occupants to shelter in the event of a tornado or outside hazardous materials release.
- Location: This should be accomplished by designing ***existing space*** such as public access interior rooms, hallways, bathrooms and stairwells to provide protection to the building occupants. Since the tornado threat is a low probability event, we use the best available shelter standard, not the design standards associated with a FEMA safe room.
- Considerations: For tornado, any accessible area without exterior window or with protected (3m film application) exterior windows and below the top floor. For outdoor chemical release, any interior space above ground level with the ability to reduce air movement through doors and windows.
- Capacity: The combined size of the shelter areas per building shall be sufficient to shelter approximately 75% of the expected occupant load of the building.
- Signage: Identify major shelter areas with permanent signage.

i) Emergency Power:

- Provide emergency backup power provisions for life safety equipment (emergency lighting, exit signage, elevators, fire alarm systems, communication systems, etc.) as required by code.
- Provide emergency backup power for safety/security (cameras, access control, emergency notifications, etc.) and any other equipment deemed necessary. (Provisions also required for other; i.e. “key research” equipment or systems)
- Provide emergency power to all exterior lighting and speakers powered from building.

j) Other Requirements Evaluations: (Based on building type, use and environmental conditions)

- Fire suppression and fire alarm system requirements, type and coverage.
- Emergency responder 700-800 MHz and campus 400 MHz radio signaling Distributed Antenna System.
- Wi-Fi and cellular phone service Distributed Antenna System.
- Coordinate all systems with UTFS, OIT, UTPD and emergency responders.

k) Fall Protection:

- Determine if additional fall or suicide prevention measures are deemed prudent at edges of parking structures, bridges, roofs, atriums and other potentially dangerous areas. (Evaluate on a case-by-case basis).
- Guardrail design shall be of such that climbing is difficult
- Coordinate additional precautions with UTFS, UTPD and UTK administration.

3.3. DESIGN PREFERENCES

The following specifications are provided should an alteration in the above design standards necessitate inclusion of additional design elements to mitigate the residual risk.

a) Impact Resistant Construction:
   - Where practical, provide hard wall, impact resistant construction of corridor walls and other walls adjacent classrooms, instructional laboratories, assembly spaces, open office suites, conference and meeting rooms or other public gathering rooms. (Consideration on a case-by-case basis). BPSD page 8 sect 3 para A.iv

b) Security Film:
   - Provide security film at glass in doors and windows below 8' above floor (Consideration on a case-by-case basis).
   - Preferred glass security film: 3M Ultra 600 security film.

c) Reception Areas/Building Entries:
   - Where possible, shield or enclose reception areas and gathering areas in open lobbies/atriums to provide some level of protection and/or limiting of visibility from intruder(s).
   - Evaluate escape routes in case of emergencies.

d) Increased Height Guardrails:
   - Consider increased height guardrails (48" min.) with vertical intermediate rails at atriums and other openings in public area circulation spaces where extra guardrail height would add a layer of fall protection. *(Evaluated on a case-by-case basis)*.

e) Valuable Equipment:
   - Where practical, locate rooms containing high value electronics or equipment on floors other than floors with ground level entrances/exits.

f) Security cameras and other OIT provided devices connections by OIT.

4. HARDWARE

4.1. PREFACE

Durability, maintainability, uniformity, availability and the ability to be easily maintained by UTFS are key factors in campus preferences. Variances from these standards may require extensive vetting and campus approval.

UTK campus Lock and Key division of UTFS is responsible for keying of locks. Any deviations from Lock and Key standards requires prior approval. Coordinate lock selections with Lock and Key.

4.2. DESIGN STANDARDS

a. Exterior Doors:
   - Provide door position switch sensors at all exterior doors – including those associated with terraces and roof access points.
   - Provide electronic door locks and proximity readers at all at-grade exterior doors with entrance hardware. If an entrance is composed of multiple doors or sets of doors, only one door or one set of doors needs to respond to a proximity reader.
   - All main entry exterior doors should have access control. There will be a limited number of entry points. All exit only doors will be monitored with door position switches. Cameras should be utilized for all exterior entrances and all exit and emergency exit doors.

- Consider security film on exterior glass doors on a case by case basis.

b. Interior Doors:
   - Provide electronic door locks and proximity readers at Fire Control Rooms, OIT Communication and Network Rooms, and other secure locations deemed necessary by UTPD, UTFS, administration and associated academic departments. Administrative approvals required for other than building entrance locations.
   - Incorporate requirements for single action locking from the inside of classrooms, instructional laboratories, assembly spaces, open office suites, conference and meeting rooms or other public gathering rooms.
   - Mechanical lockdown capability by room occupants: Provide office or dormitory function door lockset controlled by key in the outside cylinder and thumb turn on the inside to provide room occupant locking capability. Maintain exiting code requirements to include automatic release of thumb turn lock with one motion.

c. General Access and Intrusion Detection Control System:
   - Provide network systems with continuous uninterrupted power operation
   - Provide remote monitoring and reporting capabilities of fire alarm, access control and other critical systems by UTPD Central Alarm.
   - Provide compatible software with existing Central Alarm systems. Coordinate system requirements with applicable access control vendor.
   - Coordinate access control system with UTFS, OIT and UTPD.
   - All general area door forced alarms should be programmed for afterhours monitoring. Door forced alarms should be verified for correct notification where programmed.
   - All general area door held alarms should be programmed for afterhours monitoring. Door held alarms should be programmed to 180 seconds unless otherwise specified by specialty areas.
   - All devices will be tested with the Central Alarm Manager or designee upon completion.

d. Access Control design details
   - Provide Von Duprin 99 or 33 exit devices for all exterior entrances or exits.
   - Electronic access control prox. readers at entrances.
   - “Fail-secure” operation, position indicators with control and monitoring capabilities.
   - Auto door openers at public entrances
   - Electrified panic hardware, electric strikes or electrified locksets are preferred over maglocks
   - The use of magnetic locks is prohibited unless approvals from Physical Security Office and A.H.J (Authority Having Jurisdiction) are granted. All approved magnetic locks shall be installed in accordance with all life safety regulations and NFPA codes. General philosophy is a maglock will release when the fire system is active. The problem with mag locks is they allow ingress for any person while the fire system is active. All other access control will secure, but always allow emergency egress.
   - Evaluate electronic locking capabilities in lieu of mechanical locking at classroom and assembly space doors. *(Campus administrative approvals required)* Network electric strikes and door position switch sensors to UTPD Electronic Security for monitoring and control. Coordinate electronic security with UTPD.
   - All classrooms and labs get access control. Conference rooms, assembly areas, similar spaces with an occupancy of 20 or greater get access control.
   - Data rooms and server rooms should be placed on card access as well. There should be contractor cards issued or checked out/in for those areas to be accessed. Access control for these spaces should be permitted by OIT as applicable and should not be permitted by building occupants.

- Biometric access technology will be approved by physical security or designee.
- A minimum of one door per exterior set to have a manual key lock.

e. Hinges and Butts – Manufactured by Hager Hinge Co., full mortise standard weight ball bearing hinge with flat pins
   - BB1191 – Exterior openings
   - BB1279 – Interior openings
   - Finish: ANSI 626 or US26D (Satin chrome plated)
   - Acceptable substitutes: Stanley, Ives

f. Locksets:
   - Mortise – Manufactured by Best Security Solutions. To be used in high use areas, exterior openings and where security is an issue, such as public corridors, public spaces, storerooms, utility rooms, etc. See "Design Preferences" section below for interior thumb turn lockdown capabilities at classrooms and other gathering areas.
     - 45H Series
     - Core Housing: 7 pin to accept Best cores
     - Rose Style: D-3 ½" convex
     - Finish: ANSI 626 or US26D (Satin chrome plated)
     - Lever Style: 14H lever design, ADA compliant
     - Acceptable substitutes: None

   - Cylindrical – Manufactured by Best Security Solutions. Shall be used at interior openings within areas protected by mortise locksets such as offices within a suite, etc.
     - 93K Series
     - Core Housing: 7 pin to accept Best cores
     - Rose Style: D-3 ½" convex
     - Finish: ANSI 626 or US26D (Satin chrome plated)
     - Lever Style: 14H lever design, ADA compliant
     - Acceptable substitutes: None

g. Interchangeable Cores and Rim Cylinders – Manufactured by Best Security Solutions. Cores and Cylinders will be provided to UTFS Lock & Key for keying & installation.
   - 1E Series
   - Finish: ANSI 626 or US26D (Satin chrome plated)
   - Acceptable substitutes: None

h. Exit Devices Wood & Metal Doors – Manufactured by Von Duprin, Inc.
   - Type: Rim or mortise *(*vertical rods to be avoided. See "Design Preferences" section below).
   - 99 Series Panic Device Push Bar
   - 996L outside trim with 17 Breakaway Lever design
   - Finish: ANSI 626 or US26D (Satin chrome plated)
   - Acceptable substitutes: None

i. Exit Devices Aluminum Doors – Manufactured by Von Duprin, Inc.
   - Type: Rim (vertical rods to be avoided. See "Design Preferences" section below)
   - 33A Series Panic Device Push Bar
   - Night Latch / Dummy Trim
   - Finish: ANSI 626 or US26D (Satin chrome plated)

- Acceptable substitutes: None

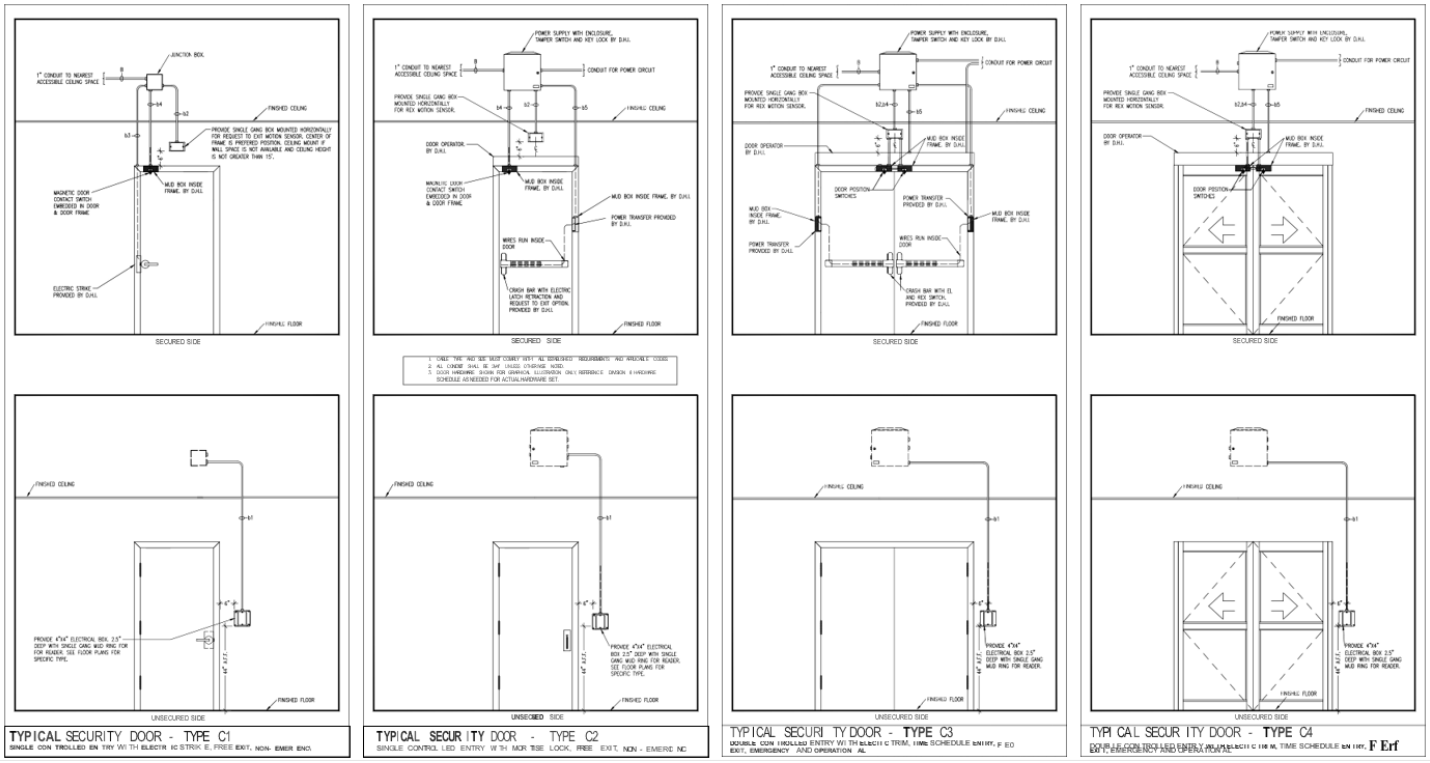
j. Automatic Door Operators and Controls – Manufactured by Quad Systems LLC: Provide at all public exterior entrances. See Automatic Door Openers "Design Preferences" section below.
    - Quad 28k Series
    - EZ-7000 operator and associated ES500 control
    - Wireless connection between push button and automatic door operator
    - Low voltage connections from power supply cabinet to operator and beyond to electric strike, request to exit, card reader and door position switch, as required
    - Installed and adjusted in accordance with: ANSI A156.19, Low Energy Operation
    - Finish: ANSI 689 or Aluminum paint
    - Requires coordination with access control & fire alarm systems.
    - Push button location to be accessible when door(s) are in open position.
    - Capability to prevent transmission of opening signal from push button to operator during building closures and lockdown.

k. Overhead Door Closers – Manufactured by LCN Closers
    - 4111 Series at exterior openings
    - 4011 Series at interior openings
    - Finish: ANSI 689 or Aluminum paint
    - ADA compliant opening force

l. Push/Pull/Protective Plates – Manufactured by Hager Hinge Co._
    - 30S – Push plates
    - H33G – Pull plates
    - 193S Series – Protective plates: Beveled 3 edges, 8-inch high
    - Finish: ANSI 630 or US32D (Satin stainless steel)
    - Acceptable substitutes: Ives, Rockwood

m. Door Stops – Manufactured by Hager Hinge Co. (Wall mounted are preferred over floor mounted).
    - 236W: Wall mounted, wrought/concave
    - 241F: Floor mounted, cast
    - Finish: ANSI 626 or US26D (Satin chrome plated)
    - Acceptable substitutes: Ives, Rockwood

n. Electric Strikes – Manufactured by HES, Inc. (Electric strikes are determined on a project by project basis. UTFS and UTPD should be consulted on their preferences).
    - 1006 Series: Used with mortise & cylinder locks
    - 9500/9600 Series: Used with rim exit devices
    - Finish: ANSI 630 or US32D
    - Acceptable Substitutes: Von Duprin, Inc. Programmed and monitored by UTPD Central Alarm Division
    - Allow egress in locked position
    - Rated for continuous duty
    - Compatible with UTK Security and Access Control system



4.3. DESIGN PREFERENCES

a) Door Height: 7'-0" preferred, taller doors considered on a case-by-case basis

b) Maglocks: Electrified panic hardware, electric strikes or electrified locksets are preferred over maglocks

c) Mullions: A center removable mullion is preferred at double doors to eliminate latching and vertical rod maintenance issues.

d) Solid-core wood door construction with narrow lite glass view panels provided.

e) Multiple Single Doors and/or 3'-6" Wide Doors – Preferred over double doors to eliminate the need for a center mullion.

f) Automatic Door Operators and Controls: Provide auto openers at all ADA accessible public entrances. UTFS Zone Maintenance prefers to furnish and install automatic door operators and push buttons.
   - Requires construction documentation coordination and delineation of responsibilities.
   - Requires hard wiring of operator and connections by contractor.
   - Devices furnished and installed by owner.
   - Controller power supply cabinet, electric Strikes, request-to-exit, card readers and door position switches, etc.: Contractor furnished, contractor installed

g) Keying of Doors with Access Control: Type of key to be determined to limit overriding of the electronic access control and resulting false alarms

h) Security Lockdown Switch: Need and use to be determined

i) Card Readers at Entrances: Programmed with ADA access to open automatic door operators

j) Double Door Panic Devise - Rim style panic devices are preferred over vertical rods.

k) Lockdown Capability for Classrooms, Meeting Rooms, Conference/Seminar Rooms, Labs, Auditoriums or other gathering rooms: Thumb turn dead bolt at the interior side, co-acting with exit device or lockset to unlatch with one operation.
   - 99L-2SI-XB11-979 Von Duprin Security Indicator at rim style panic device hardware for single and double doors with mullion.
   - 45H7AB Best Mortise Office deadbolt lockset with inside thumb-turn
   - 93KAB Best Cylindrical Entrance function lockset with inside thumb-turn

l) Pulls at Public Toilets – Hygienic door handle pull manufactured by SanitGrasp
   - SG-101
   - Finish: ANSI 630 or US32D (Satin stainless steel)

m) Mechanical/Electrical/Plumbing Rooms - High security equipment rooms to remain locked at all times
   - 45H Mortise Lockset with a Storeroom function.
   - Master keyed separately by UTFS Lock and Key for UTFS/OIT use only.
   - No electronic access control allowed.

n) Janitor's Closet/Custodial and Maintenance Supply Rooms - To remain locked at all times. Assembly occupancy lockset function is determined on a project by project basis. On projects under Athletic facilities, frequent and immediate access during games or events should be considered when selecting lock function.
   - 93K Cylinder Lockset with Storeroom function
   - Master keyed by UTFS Lock and Key for UTFS Building Service/Maintenance use only

o) Roofs: Key access only
   - F80 Communicating function
   - Fire Marshall approval required
   - Master keyed by UTFS Lock and Key for UTFS use only

p) Public Toilets: Key locking ability on outside, always unlocked on inside
   - Classroom function
   - Master keyed by UTFS Lock and Key for UTFS use only
   - Ability to hold open door for cleaning with a kick stop or automatic holder if required by code

q) Department Offices, Break Rooms, Conference Rooms, and Supply Rooms: This includes interior department controlled spaces where locking control is desired at both sides.
   - 9K Best Cylinder lockset with an Office "AB" function
   - Keyed by UT Lock and Key as requested by department

r) Magnetic Hold Open – Manufactured by Rixson-Firemark: Used to ease access to different parts of a building where closed doors are not preferred.
   - FM 998
   - Finish 689

- Activation of Fire Alarm or Sprinkler System will automatically release doors in egress path

s) Access Control: Electronic Security System
   - Used at public entrances and where electronic access is required for security, safety, department preference and/or scheduling of registrar controlled classrooms and for the reduction of issuance of keys.
   - Receive UTK administration and department approvals prior to providing at location other than building entrances/exits. Alternative locations to be evaluated on a case-by-case basis.
   - System manufacturer: Galleger/Cardax except CBORD @ Residence Halls & Dining. CBORD access system must coordinate with Cardax controllers to provide interface with Fire Alarm and Central Alarm Systems.
   - Readers: proximity/swipe card reader: Schlage Multi-Technology series, Model MTMS15, compatible with use by cell phones and preloaded with campus unique security code. No substitutes.
   - System shall fail in locked position. Activation of Fire Alarm or Sprinkler System will automatically unlock doors.
   - Provide position indicators. Monitored and controlled by UTPD Central Alarm.
   - Compatible with Fire Alarm System (SimplexGrinnell or approved others).
   - Post Installation: Provide approved names/times of operation to UTPD Central Alarm Division (by UTK departments).

t) Continuous Hinges: Provide at oversized doors

u) Thresholds: Heavy duty at high traffic doors

v) Door Stiles: 5" wide vertical stiles at entrance doors. ADA complying 10" high bottom stile where required.

5. INTERIORS

5.1. PREFACE

Durability, maintainability and function are key factors in Interiors construction and may take priority over other considerations. Alternatives to campus standards will be considered on a case-by-case basis.

5.2. DESIGN GUIDELINES

a) Entrances:
   - Vestibules with entrance matting/walk-off flooring system
   - Ceilings and walls: (Evaluated on a case-by-case basis)
   - Automatic door openers at public entrances and vestibules
   - Access control
   - ADA accessible at public entrances

b) Lobbies/Atriums:
   - Open, 2-story (minimum) spaces with natural light (Evaluated on case-by-case basis)
   - Enclosed or semi-enclosed reception area, if reception is required. Refer to Safety

and Security Standards for safety precautions
- Hard surface, slip resistant floors
- Adjacent to vertical circulation
- Seating as required
- Electrical outlets for powered custodial equipment, as required
- USB power charging facilities, as determined
- Building and wayfinding signage
- Recycle/trash receptacles
- Wi-Fi coverage
- Branding and theming, as determined
- Maintenance and custodial accessibility to all fixtures/appliances/horizontal and vertical surfaces/windows/rails requiring regular maintenance or cleaning
- Fire protection and smoke control as required
- Ceilings and walls: Evaluated on a case-by-case basis

c) Vertical Circulation
- Passenger Elevators:
  - Reference Elevator Standards
  - Adjacent Lobby/Atrium
  - ADA accessible
  - Type: Machine room-less (MRL), where applicable
  - Clear Cab Dimensions (min): 6'-6" wide by 5' deep by 8' high
  - Opening dimension: 3'-6" wide by 7' high
  - Flooring: Elevator floor matting – vinyl/rubber
- Freight Elevator:
  - Reference Elevator Standards
  - Adjacent or on grade connection to service entrance/dock
  - ADA accessible
  - Service to all levels including basements, penthouses & utility tunnels
  - Controlled access to non-public floors
  - Clear Cab Dimensions (min): 8' wide by 10' deep by 10'-6" high
  - Opening Dimensions (min): 6' wide by 8' high
  - Flooring: Elevator floor matting – rubber/wood
- Monumental Stairs:
  - Adjacent lobby/atrium. Provided to encourage use of stairs
  - Material: Hard surface, precast terrazzo preferred (other options to be evaluated on case-by-case basis)
  - Tread nosing protection, as required
  - Adjacent power outlets for powered cleaning equipment
  - Adequate clearances to adjacent wall surfaces for maintenance and custodial access.
- Fire Rated Stairs:
  - Walls: Painted gypsum board, CMU, concrete or other smooth surface
  - Electrical outlets, as required, for powered custodial equipment
  - Ceiling: Acoustical Ceiling Tile (ACT) at top level
  - Floors: Exposed concrete with penetrating sealer and polyurethane coating
  - Stair tread nosing protection, as required
  - Egress and Fire Department roof access signage
  - Areas of refuge as required
  - Emergency Communications as required

d) Restrooms:

- Reference Restroom Standards
- Adjacent lobby/atrium at each public level
- ADA accessible
- Layout to prevent line-of-sight views into fixture areas
- Wall hung toilet fixtures
- Electric hand dryers with microbial wall protection
- Electrical power outlets for custodial equipment
- Occupancy sensor lighting controls
- Floors: Water resistant, durable and slip resistant with minimal joints
- Integral sanitary floor to wall/base transition
- Tamper proof hose connection
- Toilet accessories
- Floor drain(s), as required
- Walls: Ceramic tile at fixture wall, epoxy painted gypsum board elsewhere
- Ceilings: Epoxy painted gypsum board (Evaluated on a case-by-case basis)
- Doors: Solid core wood with no vision panel.
- Door hardware: Refer to Hardware Standards for sanitary hardware

e) All Gender Toilet:
- Provide a minimum of one "All Gender" restroom per building at main level or central location, as determined
- ADA Accessible – Exceed minimum ADA clearances by 17" in each direction to accommodate electric mobility scooters.
- Single occupant capacity
- Baby changing station
- Solid core wood door with no vision panel and privacy lockset
- "All Gender" room identification signage
- Sound attenuated walls
- Reference Restroom Standards

f) Drinking Fountains:
- Adjacent restrooms, breakrooms and elsewhere as required
- Locate in niche, recess or out of pedestrian traffic pathways
- Bottle filler/cooler combo type
- Reference Mechanical Standards for fixture types

g) Corridors
- Flooring: High traffic rated material
  - Cleanable without harsh chemicals or special equipment
  - Scuff and stain resistant
  - Color/Pattern: Medium to darker tones with dirt/stain disguising pattern
- Walls:
  - Prefinished block, painted gypsum board or other approved material (Evaluated on a case-by-case basis)
  - Corner guards, wall protection, marker boards, tack boards, displays, signage, poster rails, etc. as required (Determined on a case-by-case basis)
  - Glazing: Limited use. Refer to Safety and Security Standards for security concerns and applications.
  - Doors: Solid core wood or hollow metal as applicable
- Ceilings:
  - 2'x2' ACT or exposed structure (Evaluated on a case-by-case basis)
  - Gypsum board soffits or other approved material (Evaluated on a case-by-

case basis)
- Furniture:
  - Student seating (benches) outside classrooms with build-in or adjacent wall power outlets
  - Seating capacity: 20% of classroom occupancy
- Recycle/Trash:
  - Reference Recycling Standards
  - Provide disposal stations as required
  - Locate in niche or recessed area out of egress path

h) Custodial Closets:
- Located off public corridors, near restrooms, without entry through adjacent rooms
- Provide a minimum of one Custodial Closet per floor with a 50 sq. ft. minimum net floor area
- 3'-6" wide solid core wood or hollow metal out-swinging door with no vision panel and keyed separately for "Housekeeping" use only.
- Walls: Epoxy painted concrete, CMU or gypsum board
- Floors: Sealed and coated concrete or VCT.
- Fixtures: Floor sink and floor drain
- Ceilings: Exposed structure
- Reference Custodial Rooms Standards for furnishings, additional information, etc.

i) Custodial Equipment Room and Custodial Supply Room/Office:
- Provide two separate areas; one for storage and charging of equipment and one for storage of custodial supplies and office use.
- Located on the ground floor adjacent dock/service area with ADA access to freight elevator and all building levels
- Provide a minimum of one 120 square foot minimum custodial equipment room and one 180 square foot minimum custodial storage room/office per building.
- CMU, concrete or gypsum board epoxy painted walls.
- Heavy duty shelving and furnishing as required for supplies and office use.
- Double hollow metal out-swinging doors with no mullion or vision panel or single 3'-6" wide door keyed separately for "Housekeeping" access only.
- Reference Custodial Rooms Standards for furnishings, additional information, etc.

j) Recycling/Trash Storage Room:
- Adjacent dock/service area
- Ground floor location or covered exterior location
- 120 square feet, min.
- Level or ramped connection to freight elevator and exterior street elevation
- Concrete floor with hose connection and floor drain for wash downs
- CMU, gypsum board or concrete epoxy painted walls at interior applications, fenced if exterior location. Reference Campus Landscape Vision and Site Standards for enclosure type and requirements
- Exposed structure ceilings, non-painted.
- Cart/bin storage area as required for six 95 gal. carts, dollies and other equipment with maneuvering room
- Double hollow metal out-swinging doors with no mullion or vision panel and keyed separately for "Recycling" access only at interior locations. Swinging gate

at exterior locations.
- Exterior on-grade cardboard collection dumpster or compactor, to be determined
- Reference Recycling Standards for additional requirements.

k) Classrooms
- General Classroom Requirements for all classroom types:
  - Assume flexible teaching environment (to be confirmed)
  - Solid core wood doors with narrow glazed viewing panel and capability to lock door from inside room. Reference Hardware Standards for lock type
  - Capacity: Comply with THEC regulations for room sizes
  - ADA accessible
  - Acoustical sound attenuation walls and 2'x2' acoustical tile ceilings
  - Built-in recycle/trash station or designated floor area, for UTK provided bins located near classroom exits.
  - Audio/Visual equipment, as required (consult with OIT on their standards)
  - Marker and tack boards, as required.
  - Chair-rail wall protection, as required.
  - Lighting capabilities for dimming and banking control.
  - Electronic access control, as determined
  - Interior door locking capabilities
  - USB power charging outlets.
  - Power in floors, as required.
  - Wi-Fi coverage.
  - Window treatment, as required.
  - Student backpack storage casework, as determined.
  - Wall mounted centrally networked clock, type to be determined, mounted on teaching wall.
- Small Classroom:
  - Less than 50 occupants
  - Movable seating: tables/chairs (determined on a case-by-case basis)
  - Carpet/vinyl floors, painted gypsum board walls, acoustical tile ceilings
  - Instructor station, as determined
- Large Classroom:
  - Over 50 occupants
  - Movable or fixed furniture (determined on a case-by-case basis)
  - Podium
  - Tiered or not tiered floor (determined on a case-by-case basis)
  - Two exits, minimum with panic crash-bar hardware
  - Door swing in direction of egress travel
  - Finishes: determined on a case-by-case basis
- Specialty Classroom:
  - Computer, studio and other type classrooms (determined on a case-by-case basis)

l) Labs:
- Teaching Labs/Class Labs: See "General Classroom Requirements" above for additional requirements
  - Capacity: Comply with THEC regulations for room sizes
  - Water and chemical resistant flooring
  - Movable and adjustable height tables and chairs
  - Chemical resistant countertops and table surfaces
  - Lab case work, lab sinks and lab equipment as required
  - Teaching station

    - Utilities, air, water, gas service as required
    - Audio visual and data, as required
    - Eye wash/safety shower, as required with floor drain, as determined

- Preparation Labs: (Teaching Lab storage and work area adjacent Teaching Labs)
    - Lab casework, lab sink and storage as required
    - Hazardous storage as required
    - Safety equipment as required
    - Access controlled area
- Research Labs:
    - Water and chemical resistant flooring
    - Lab tables, casework, lab sink and equipment as required
    - Lab stools as required
    - HVAC isolation, supply air and exhaust as required
    - Utilities, air, DI water and gas requirements, as required
    - Cylinder and equipment storage, as required
    - Access controlled area
    - Safety shower, eye wash and other safety measures as required
    - Emergency power as required to protect research
- Chemical Stock/Storage Rooms:
    - Water and chemical resistant flooring
    - Shelving, cabinets, casework and equipment as required
    - Lab stools and work station as required
    - HVAC isolation, supply air and exhaust as required
    - Utilities, air, water and gas requirements, as required
    - Hazardous storage, as required
    - Safety equipment, cabinets and spill containment, as required
    - Access controlled area
    - Emergency power, as required
    - Fire rated enclosures, as required
    - Logistical controls and staging areas for dispensing and transportation of chemicals

m) Student Collaboration Rooms/Areas:
- Definition: Informal study area, open or semi enclosed, adjacent public corridors, lobbies, etc.
- Furniture and furnishings, as determined
- Marker and tack boards, as required
- USB power charging capabilities
- Branding and theming, as determined

n) Offices:
- Types: to be determined
    - Suites
    - Individual offices
    - Open office area
- Area (net square feet) allowed per THEC:
    - Dean: 180
    - Associate Dean/Department Chair: 150
    - Faculty, Professor, Associate/Assistant Professor: 150
    - Faculty, other: 100
    - Professional Staff: 130
    - Staff Technician: 100
    - Graduate Teaching Assistant: 60

    - Graduate Assistant: 40
    - Undergraduate Student Worker: 10
- Finishes, Furnishings and Furniture:
    - Carpeted floors, painted gypsum board walls, acoustical tile ceilings
    - Desk, cabinets, shelving, chair, visitor chair(s), side table as appropriate
    - Marker and tack boards as required
- Doors and Windows:

    - Solid core wood door with narrow glazed viewing panel with locking capabilities from inside room. Reference Hardware Standards for lock type
    - Window treatment as required
- Information Technology:
    - Wi-Fi coverage
    - Data and Power as required
    - Family Educational Rights and Privacy act (FERPA) compliant, where required

o) Conference/Meeting Rooms:
- Carpeted floors, painted gypsum board walls, acoustical tile ceilings
- Audio/Visual equipment, as required (consult with OIT on their standards)
- Marker and tack boards, as required
- Chair-rail wall protection, as required
- Light fixture dimming capabilities
- USB power charging outlets
- Solid core wood door with narrow glazed viewing panel with locking capabilities from inside. Reference Hardware Standards for lock type
- Window treatment, as required
- Table, chairs and other furniture and furnishings, as required

p) Break Rooms:
- Casework, as required
- Solid surface countertops
- Water resistant flooring
- Equipment/Appliances furnished and installed by contractor, as determined
- Power and plumbing, as required
- Furniture, as determined
- Clear floor space for trash, recycling and composting containers, as determined

q) Copy/Supply/File/Mail/Work Rooms:
- Casework, shelving and storage requirements, as determined
- Equipment: *furnished by owner*, as determined
- Power, networking and space requirements, as determined
- Clear floor space for paper recycling container
- Size, as determined
- ACT ceilings
- Flooring, as determined

r) Storage Rooms:
- Concrete or VCT flooring as determined appropriate
- Solid core wood or hollow metal 3'-6" minimum wide out-swinging door as determined appropriate without view panels. 3'-0" wide doors at storage closets
- Shelving/cabinets, as required
- ACT ceilings
- Size, as determined

s) Attic Stock Storage:

- Location, as determined
- HVAC conditioned and secured space
- 400 square feet preferred minimum, to be determined on a building case-by-case basis
- Level or ramped connection to freight elevator and dock area

t) Utility (MEP) Rooms:
- Sealed concrete floor with floor drain(s) where appropriate. Other finishes to be evaluated where appropriate
- CMU or concrete painted walls
- Exposed structure ceilings
- Fire rated walls where required
- Sound and vibration attenuation where required
- Outside access and/or corridor access as required without passing through an adjacent room
- Solid core wood, hollow metal or overhead door as determined appropriate
- without view panels and always secure lockset. Reference Hardware Standards. Provide door sound seals where deemed necessary
- Keyed separately for maintenance access only
- Doors sized appropriately sized for equipment installation, removal or replacement. 3'-6" minimum wide out-swinging single door or door pair without mullion or overhead door as determined appropriate.
- Circulation space around equipment for maintenance, filter removal, emergency egress, etc.

u) Fire Command Center: (where required for high rise structures and buildings with assembly seating)
- Readily accessible from building exterior for fire department operations.
- Separated from the remainder of the building by fire barriers and horizontal assemblies
- 200 square feet area minimum with work space for emergency responders. Room to contain schematic as-built building plans and a work table
- NFPA 72 required features necessary to control and monitor fire protection and smoke control systems and building system controls

v) Fire Pump Room:
- Separated from the remainder of the building by fire barriers and horizontal assemblies
- Heated and ventilated area
- Secured area

w) Communication Satellite and Main Equipment Distribution Rooms: (See OIT Standards)
- Located as required for total building service with min of one main equipment room per building and one satellite equipment room per floor
- Size main equipment room as required and satellite rooms at 120 square feet minimum each
- Vertically stacked rooms in multi-floor applications
- Concrete or VCT flooring

- HVAC conditioned area
- Emergency power as required for equipment
- Coordinate location of communication equipment and overhead sprinkler piping to avoid equipment damage
- Keyed separately for “Communications” access only

x) Maintenance Office/Stock Room:
- Provide one office/storage areas per building for on-site maintenance personnel and supplies.
- 180 square feet minimum
- Adjacent dock/service area
- Furnished office and storage complete with desk(s), chair(s), table, file cabinet and shelving as determined.
- Power and data, as required
- Level or ramped connection to freight elevator and dock area
- Finishes, as determined

y) Vending Area:
- Open or enclosed area, off public main circulation area
- Provide a minimum of one vending area per building, as determined
- Water resistant flooring
- Size openings as appropriate for vending machine access, 3’-6” minimum
- Provide for a minimum of four vending machines. Evaluated on a case-by-case basis, depending on building size
- Power and networking capabilities, as required

z) Lactation Room:
- Provide a minimum of one per building at central location for employee use, as determined
- ADA Accessible
- Secure area with privacy lockset
- Solid core wood door with no vision panel and with 3 coat hooks on inside door face
- Sound attenuated wall insulation
- Water resistant flooring
- Dimmable lighting controls
- Countertop with utility sink and gooseneck faucet with minimum of 4’ clear work surface
- Toilet accessories as appropriate
- Lockable base cabinet and drawer
- Vinyl upholstered lounge chair
- Power and UBS charging above countertop and adjacent chair
- Wall mounted clock
- Waste container with lid
- Wi-Fi access

aa) Specialty Rooms/Area:
- Evaluated on a case-by-case basis

5.3. DESIGN PREFERENCES

a) Paint Colors:
- Paint Color Selection: (Campus approval required)
- Primary walls: Light reflecting non-white
- Accent walls: UT Pantone 151 orange or other accent colors, as approved

b) Paint Type:
- Water based acrylic latex, low odor/VOC
- Epoxy at wet areas (restrooms, janitor's closets, wet labs, food prep, breakrooms, etc.)

c) Paint Finishes:
- Walls: Satin
- Ceilings: Eggshell
- Trim: Semi-gloss

d) Wall Protection:
- Chair rail: Provide in rooms with movable furniture/chairs. Low profile vinyl preferred
- Corner guards: Provide in corridors/rooms where equipment, carts, etc. where furniture is frequently moved (locations determined on case-by-case basis)

e) Wall base:
- 4" high rubber/vinyl (other material considered on case-by-case basis)
- Color: Coordinate with flooring (Campus approval required)

f) Sound Transmission: (Provide sound attenuation in walls at offices, classrooms, conference and meeting rooms, equipment rooms, and other locations as required)
- STC rating: 50 minimum

g) Ceilings: (Provide maintenance access as required at all above ceiling controls, valves, filters, etc.)
- Painted gypsum board: Limited applications (Reviewed on case-by-case basis)
- Acoustical tile: 2' x 2', regular edged (Preferred ceiling material)
- Grid: ¾" wide, prefinished, suspended grid. Centered in room
- Exposed Structure: Painted, unless noted otherwise (Color to be determined)
- Acoustical clouds or other ceiling systems (Evaluated on case-by-case basis)

h) Floors:
- Preference for hard, easily cleanable floor finishes, where appropriate
- Provide cleaning instructions for all floor finishes

i) Floor Types
- Carpet:
  - Type: Tile, except where not recommended at stairs, ramps, etc.
  - Yarn: Type 6.6

    - Anti-Microbial
    - Stain resistant
- Tile:
    - Luxury Vinyl Tile (LVT): 20 mil wear layer, minimum.
    - Sheet, vinyl/rubber:
    - Vinyl Composite Tile (VCT):
    - Porcelain ceramic
- Concrete Finishes:
    - Polished
    - Sealed and coated

j) Door Vision Panels:
- Provide fire glass instead of wire glass where practical
- Bottom of glass at 43" max above floor level

k) Marker Boards:
- Dry Erase Porcelain
- Magnetic
- Framed
- Porcelain Color: Light Gray
- Accessories: Marker Tray

l) Tack Boards:
- Fabric, to be determined

m) Bulletin Boards:
- Framed, lockable
- Fabric, to be determined

n) Countertops:
- Type: Solid Surface
- Color: Non-white as determined

o) Cabinets:
- Type: to be determined

p) Furniture:
- Classroom and multi-purpose rooms: Movable and stackable where applicable
- Offices: Non-white surfaces
- Type: to be determined
- Limit use of solid colors
- No visible manufacturers tags

q) Furnishings:
- Poster railsCorner guards
- Other, as determined

r) Miscellaneous preferences

- Vertically stacked restrooms, mechanical, electrical and communication rooms in multi-floor applications, where possible
- Glass stairs and rails are not recommended due to maintenance and cleaning issues. Use of glass will require special approval.
- Smaller offices preferred with minimal shelving and filing cabinets to discourage storage of paper supplies/materials
- Larger flexible classrooms preferred for various teaching pedagogies and strategies

6. ELEVATORS

6.1. PREFACE

Where new equipment is provided for renovations or modernizations, the applicable standards will apply. Where it is required to retain existing equipment, said equipment shall be brought up to code and placed in like-new condition.

Vertical transportation systems and their respective performance criteria will vary by building type. In all new multi-elevator buildings an elevator analysis must be performed with target group identified and individual car criteria specified.

6.2. DESIGN GUIDELINES

Elevator core locations shall be coordinated with the horizontal traffic flow and with the means of ingress and egress. Passenger elevators must be located on a 'major path of travel' as required by the ADA.

Elevator lobbies should be designed to accommodate the movement of pedestrian traffic to other parts of the building. Should elevators face one another, the minimum width between entrances shall be 10 feet. Elements which create queues, such as exhibits, directories, etc., shall not be placed in elevator lobbies. Provide enclosed, fire rated elevator lobby where required by code.

Unless approved, wheelchair lifts shall not be used in new construction.

Types of elevators:

1. MRL
2. Geared traction
3. Gearless traction
4. Hydraulic elevators

Selection of elevator types shall be determined by an elevator analysis, based on the building layout, needs and number of floors, etc. as well as estimated equipment costs. The elevator capacity and quantity of cabs shall be determined via an elevator analysis study. At a minimum, platform sizes shall meet ADA access requirements and provide the capability of carrying a medical stretcher 24 inches wide and 78 inches long.

Elevator pits, if required shall be equipped with a sump pit. The sump pit shall have a metal grate level with the pit floor. Any drain or pump shall be piped to drain according to code.

a) Passenger Elevators:

- Adjacent Lobby/Atrium
- ADA accessible
- Type: MRL, where applicable
- Clear Cab Dimensions (minimum): 6'-6" wide by 5' deep by 8' high
- Opening dimension: 3'-6" wide by 7' high
- Flooring: Elevator floor matting
- Provide protection mats for rear and side walls during construction and new mats upon completion.

b) Freight Elevator:

- Adjacent or on grade connection to service entrance/dock
- Service to all levels including basements and penthouses (with keyed switch access only)
- Clear Cab Dimensions (min): 8' wide by 10' deep by 10'-6" high
- Opening Dimensions (min): 6' wide by 8' high
- Flooring: Elevator floor matting

c) Provide protection mats for rear and side walls during construction and new mats upon completion.

d) Passenger Elevators

The following table provides minimum acceptable elevator criteria to be used as a basis for design in the various types of campus structures:

MINIMUM CRITERIA FOR ELEVATORING NEW CAMPUS STRUCTURES				
Building Type	**Peak Period**	**Traffic Flow**	**Average Interval (Seconds)**	**Minimum Handling Capacity (%)**
Administrative Offices	AM up-peak	One-way	25-30	12-13
Professorial Offices	AM up-peak	Two-way	30-35	8-10
Classroom Building	Hourly	Two-way	35-40	6-8
Housing	PM (dinner)	Two-way	35-40	6-8
Parking Structure	AM up-peak	Two-way	40-45	8-10

* Average Interval is the average-time increment between elevator departures from the terminal floor during a heavy-traffic period.

* Minimum Handling Capacity is the number of persons or percentage of building population that can be transported by vertical systems during this same period of heavy traffic.

e) Elevator Signage, Signals & Control Stations:
- Text sizes, Braille requirements, pictographs, etc. shall comply with ADA standards.

f) Hoist-way Signs:
- Floor Designations: Provide on both jambs in both 2" high tactile characters and braille. A tactile star to be provided at the main entry level.
- Car Designations: Provide on both jambs immediately below the floor designation in both 2" high tactile characters and braille.

g) Signals:
- Hall Lanterns: Provide at each entrance to indicate travel direction of arriving car. Illuminate up or down LED lights and sound tone prior to car arrival at floor. Car direction lenses shall protrude so that they can be seen from a distance.
- Hall Position Indicator: Alpha-numeric digital indicator containing floor designations and direction arrows to indicate floor served and direction of car travel. Mount integral with hall lanterns at all floors.
- Car Position Indicator: Alpha-numeric digital indicator containing floor designations and direction arrows to indicate floor served and direction of car travel. Locate fixture in car operating panel. When a car leaves or passes a floor, illuminate indication representing position of car in hoist-way. Illuminate proper direction arrow to indicate direction of travel.

h) Hall Control Stations:
- Pushbuttons: Buttons shall be vandal-resistant. Include pushbuttons for each direction of travel which illuminate to indicate call registration. Include approved engraved message and pictorial representation prohibiting use of elevator during fire or other emergency situation as part of faceplate. All code required and specified engraving shall be provided. Photo-etching or stick-on signage will not be accepted. Pushbutton design shall match car operating panel pushbuttons. Provide with LED illumination in flush mounted faceplates.

i) Car Operating Panel:
- Provide car operating panel with faceplate, consisting of a metal box containing vandal resistant operating fixtures, mounted behind the car stationary front return panel. Faceplate shall be hinged and constructed of stainless steel, satin finish.
- Suitably identify floor buttons, alarm button, door open button, door close button and emergency push-to-call button with rear mounted cast tactile symbols. Configure plates per local building code accessibility standards including Braille. Locate operating controls no higher than 48" above the car floor; no lower than 35" for emergency push-to-call button and alarm button.
- Provide minimum 3/4" diameter raised floor pushbuttons which illuminate to indicate call registration.
- Provide alarm button to ring bell located on car. Illuminate button when actuated.

- Provide keyed stop switch at bottom of car operating panel in locked car service compartment. Mark device to indicate “run” and “stop” positions.
- Provide a keyed switch for penthouse level access.
- Provide “door open” button to stop and reopen doors or hold doors in open position.
- Provide “door close” button to activate door close cycle. Cycle shall not begin until normal door dwell time for a car or hall call has expired, except firefighters’ operation.
- Provide firefighters' locked box as required by code.
- Provide firefighters’ Phase II key switch with engraved instructions filled red. Include light jewel, audible signal, and call cancel button.
- Provide lockable service compartment with recessed flush door. Door material and finish shall match car return panel or car operating panel faceplate.
- Include the following controls in lockable service cabinet with function and operating positions identified by permanent signage or engraved legend:
    a. Inspection switch.
    b. Light switch.
    c. Two-position exhaust blower switch. Three-position exhaust blower switch.
    d. Independent service switch.
    e. Constant pressure test button for battery pack emergency lighting.
    f. 120-volt, AC, GFCI protected electrical convenience outlet.
    g. Stop switch.
    h. Switch to select either floor voice annunciation, floor passing tone, or chime.
    i. Card reader override switch.
- Communication System: Provide two-way communication between car, control room and Central Alarm. “Push to Call,” two-way communication instrument in car with automatic dialing, tracking, and recall features with shielded wiring to car controller in control room. Provide dialer with automatic rollover capability with minimum two numbers.
    a. “Push to Call” button or adjacent light jewel shall illuminate and flash when call is acknowledged. Button shall match car operating panel pushbutton design. Provide uppercase “PUSH TO CALL,” “HELP ON THE WAY” engraved signage adjacent to button.
    b. Provide “Push to Call” button tactile symbol, engraved signage, and Braille adjacent to button mounted integral with car front return panel.

j) Maintenance and Call Backs:

- Provide service for a period of 12 months after the date of substantial completion

6.3. DESIGN PREFERENCES

a) MRL elevators, where applicable

7. RESTROOMS

7.1. PREFACE

Durability, clean-ability, maintainability, accessibility and convenient locations are the key elements to good restroom design.

7.2. DESIGN GUIDELINES

Reference Interiors Standards for restroom finishes and other requirements

a) Fixtures:
- Reference Mechanical Standards
- Toilets shall be 1.28 gallon per flush (GPF), wall mounted
- Urinals shall be 0.125 GPF, wall mounted
- Lavatory (sinks): Integral counter or under-hung type at public restrooms, as determined
- Hose connection with tamper proof controls
  - Others, as required

b) Accessories:
- Soap Dispensers: (provided by UTFS and installed by contractor) shall be placed over the counter and between sinks.
- Hand dryers shall be electric, except at single occupancy restrooms, labs and other approved locations
- Hand Towel Dispensers, where approved: (Provided by UTFS and installed by contractor) shall only be placed in single stall restrooms with space for a waste receptacle under the towel dispenser location. Other locations evaluated on a case-by-case basis
- Electric Hand Dryers: Provide a minimum of two low-profile electric hand dryers with wall guards and HEPA filters in each restroom. Evaluated on a case-by-case basis. See model preference below.
- Shelving: An appropriate number of shelves with integral coat hooks shall be placed on a non-fixture wall for user item storage during restroom use. See preferences below.
- Toilet Tissue Dispensers: Provided by UTFS and installed by contractor
- Sanitary Napkin Disposal Containers: (Provided by UTFS and installed by contractor) Install at women's and All Gender restrooms
- Grab Bars, as required
- Trash & Recycle containers: Provided by UTFS
- Baby Changing Station, as needed

c) Accessory Locations:

- No accessories (e.g., hand dryers, towel dispensers, toilet paper dispensers, waste receptacles, etc.) shall be recessed or built-into the walls or countertops.
- Dual electric hand dryers shall be located side by side near the restroom entrance end of the sink run with one mounted at the required ADA height
- Where hand towel dispensers are used, the dispenser shall be located near the far end of the sink run.
    - Provide clear floor space for trash/recycle containers near restroom exit for disposal on the way out of room

d) Flooring:
- Flooring shall be water resistant with minimal joints or grout lines, where possible (e.g. poured floors: terrazzo or polished concrete)
- Floors shall drain to sanitary piped floor drains

e) Toilet Partitions:
- Graffiti resistant.
- Provide coat hook(s) at interior face of toilet stall doors. Where two hooks are provided, align vertically with lower hook at the required ADA height and the other above @ 5'0" AFF.
- Provide wall stop(s), if required at partition opening onto adjacent walls or surfaces to prevent wall damage by protruding coat hooks.
- See toilet partition type preference below in "Preferences"

f) Door Hardware:
- Reference Hardware Standards
- Provide hygienic door pulls at public multi-fixture restrooms
- Provide a door kick stop or automatic door holder to prop door open for cleaning

g) Countertops:
- Solid surface material
- Texture and color to minimize the showing of dirt and stains
    - Back and side splashes, as required

h) Baby Changing Station:
- Unibody construction
- 200 lbs. weight capacity
- Antimicrobial surfacing
- Child fall protection straps
- No wall-hung plastic units allowed

7.3. PROVIDED BY UTFS, INSTALLED BY CONTRACTOR

a) Paper Towel Dispensers, type dependent on current vendor contract
b) Soap Dispensers, type dependent on current vendor contract
c) Toilet Tissue Dispensers, type dependent on current vendor contract
d) Sanitary Napkin Disposal Containers, type dependent on current vendor contractor.

7.4. PROVIDED BY UTFS, INSTALLED BY UTFS

a) Waste containers
   - Reference Recycling Standards

7.5. DESIGN PREFERENCES

a) Public restrooms, other than single fixture restrooms, shall be provided with electric hand dryers instead of hand towel dispensers
   - Thin Air (TA-ABS) electric hand dryer with HEPA filter and antimicrobial wall guard

b) Provide Custodial Closets within close proximity of restrooms or access through restroom.

c) Provision for adequate electrical power outlets for powered custodial equipment use

d) Shelving Preference:
   - 24" Bobrick stainless steel shelves with coat hooks

e) Ceiling hung toilet partition preferred for ease of floor cleaning

f) No white countertop surfaces

8. RECYCLING and WASTE STATIONS

8.1. PREFACE

Providing conveniently located and adequate number of recycling and trash stations, central storage room for recycling containers and outdoor cardboard collection areas are essential sustainability components for recycling and waste management.

UTK campus is a leader in Recycling and Sustainability with plans to implement a zero-waste-policy by 2030.

8.2. DESIGN STANDARDS

UT Recycling collects four main recyclable materials from campus buildings:

1. Paper
2. Cans/Plastic
3. Corrugated Cardboard
4. Food Waste *(Compost)*
5. Bottle collection, not provided at this time

a) Paper:
   - Offices: Collected in 7-gallon blue containers (Furnished by UTFS)

- Classrooms/Lobbies/etc: Collected in 23-gallon blue Rubbermaid "Slim Jim" containers with slotted lid. These containers can be located in a cabinet or not as preferred by the designer, but at least one set must be included in each classroom, and if multiple entrances exist, preference is for one set per entrance. Cabinets should have 3 sections (Containers furnished by UTFS)
- Consolidated into blue 95-gallon rolling carts and stored in a central "Recycling" room or space outside the building that is designated for these bins to stay all the time (Furnished by UTFS)
- If consolidation bins are located inside the building, they are relocated, as scheduled, to exterior street level storage area/enclosure for UTK Recycling truck pickup and off-site disposal

b) Cans/Plastic:
- Offices: For offices with My Tiny Trash, Paper and Cans/Plastic collected together in 7-gal blue containers (Furnished by UTFS)
- Classrooms/Lobbies/etc.: Same as Paper above, but container is green with 2 round holes (Furnished by UTFS)
- Consolidated same as paper but container is green
- Relocated, if required, same as paper above.

c) Cardboard:
- Not collected in containers inside buildings unless a central recycling room is inside the building. If so, collection cart inside the indoor recycling room is a 1-yd tilt truck.
- Taken by building occupants or custodial staff to outdoor collection area/enclosure for UTK Recycling truck pickup and off-site disposal by custodial staff and relocated to outdoor collection area/enclosure for UT Recycling truck pickup and off-site disposal

d) Compost (Food, Organic, and Compostable Waste):
- Collected in a variety of containers, depending on volume, in areas where food is prepared or consumed such as coffee shops, kitchens, break rooms, residence hall trash/recycling rooms, concessions areas and food service areas. Also collected where plant materials and soil are generated such as greenhouses. Containers can range from a small bucket to a 35-gal rolling bin (Furnished by UTFS)
- Collected by kitchen staff and/or custodial staff and relocated to outdoor collection area/enclosure for UTK Recycling truck pickup and off-site disposal

e) Recycling/Waste Stations In Public Areas:
- Provide in lobbies, corridors, public exists, dining areas, breakrooms, kitchenettes, collaboration areas and other locations as required.
- Built-in or pre-manufactured cabinet recessed or offset from egress path. Cabinets are optional- containers may stand alone in the recess or offset without a cabinet
- If cabinets are used, a four-section cabinet containing four 23-gallon Rubbermaid Slim Jim containers, approximately 22" deep by 11" wide by 30" tall. Orientation of these containers can be changed depending on building design. Top of cabinet must be sloped to aid in visibility and prevent people from placing items on top of the cabinet (Containers furnished by UTFS)
- Hand-hold clearances required for placement and removal of containers

- If containers are in a built-in cabinet, the containers inside cannot be placed on carpet. Either the carpet should be eliminated underneath the cabinet, or the cabinet should have a smooth bottom surface for the container to sit on for ease in cleaning up spills.
- If cabinets are used, openings must be, left to right, for 23-gal sized containers: Paper recycling: 2.5-inch by 18-inch slot; Cans/Plastic recycling: 6-inch round; Landfill waste: 12-inch by 8-inch rectangle depending on orientation of the cabinet; Compost: 12-inch by 8-inch rectangle depending on the orientation of the cabinet. The Compost section must have a hinged lid on top with a handle or lip for opening it, and must be able to be locked from inside the cabinet so as to prevent usage if compost is not a current option in that building. This section could be open for an extra landfill container or left closed and used to store extra containers or cleaning supplies. Composting will be coming to all buildings in the very near future.
- Labeling for cabinets should be on a vertical surface, either on the front of the container or on the wall above them. Additional labels may also be placed in front of the holes on the slope of the container. Labels should read: “Paper Only”, “Cans/Plastic”, “Landfill” or “Compost.”

f) Recycling/Waste Stations In Rooms:

- Provide in classrooms, meetings, copy rooms and other locations as required.
- One station per entrance located inside room adjacent to exit door
- Built-in or pre-manufactured cabinet recessed or offset from egress path. Cabinets are optional- containers may stand alone in the recess or offset without a cabinet.
- Top of cabinet must be sloped to aid in visibility and prevent people from placing items on top of the cabinet (Containers furnished by UTFS)
- Openings and labeling: Same as Lobby/Corridor stations except eliminate the “Compost” section.

g) Recycling Storage Room: (See “Interiors Standard”)

- Use: Consolidation and storage for min. of six 95-gallon, approximately 30-inch by 32-inch by 48-inch high, 1 cubic yard tilt trucks, dollies and other equipment, as required. UTFS may opt to have a Recycling Storage Room inside or at loading dock. If UTFS choose to opt, the Trash Dumpster, Cardboard Recycling Area outside the building must accommodate these containers. The size and use of the building will determine the number of containers needed. The UTFS Recycling Supervisor must provide input on quantities needed.
- Hot and cold hose wash-down capability with sanitary sewer drain
- See “Interiors Standards” for room size and amenities

h) Compactors, Dumpsters, Cardboard Recycling and Exterior Consolidation Area:

- Self-contained compactors are the preferred method of collection for all waste and recycling materials and are ideally located outside the building.
- Unless otherwise specified, the standard size for a compactor is 30 yards.
- Compactor areas do not need to be covered, but if they are, a minimum of 18’ height clearance needed, unless compactor sits on top of the loading dock, then 14’ height clearance needed. If inside, ventilation and other needs as determined. Compactors normally sit on ground level and do not require being adjacent to a loading dock, but can be as needed.
- Minimum of 60’ in front of the compactor required for truck access and hauling
- Compactors may be used for landfill waste, cardboard recycling, mixed recycling, or compost, as determined by the use of the facility and the UTFS Recycling Supervisor.

- Compactors require a sanitary sewer drain that captures any potential leakage so footprint of compactor is sloped so all liquid makes it to the drain(s). Compactor areas also require hot and cold-water washout capabilities, and 3-phase power but voltage can be accommodating to what is available in the building.
- If compactors are not used for all waste and recycling materials, dumpsters (2, 4, or 8-yard sizes) will be needed for some or all of the materials, and 95-gal carts will be needed for the remainder with adequate space to keep all of them in the area at all times. 95-gal carts can be stored on loading dock if desired. Hot and cold-water washout and sanitary sewer drain required in or near this area.
- Size and type of dumpsters and containers determined by facility and UTFS Recycling Supervisor
- Enclosure, clearances, trash truck access and paving requirements per Campus Landscape Vision and Site Standards.
- Ramped or level access from building
- Enclosure size, as determined
- Cardboard recycling collection may use front-load or rear-load dumpsters if not collected in a compactor, and may be on wheels so whole area must be level with no lips or bumps that impede movement of dumpster.

8.3. DESIGN PREFERENCES

a) Sloped top recycle station cabinet to prevent placement of items on tops
b) Preferred vendor for compactors, front-load dumpsters, and rear-load dumpsters is Baker Waste Equipment.

8.4. PROVIDED BY UTFS, INSTALLED BY UTFS

a) Recycle and trash containers

9. INTERIOR SIGNAGE

9.1. PREFACE

Interior signage shall comply with current Federal Department of Justice ADA Standards for Accessible Designs in State and Local Government Facilities.

9.2. DESIGN GUIDELINES

General interior signage requirements:

Permanent rooms and space signs, directional and informational signs, means of egress identification including signs at exit doors to fire separated exit passageways, if provided, exit stairways and areas of refuge, if required, shall comply to the following requirements.

a) Characters:

- Tactile (raised) lettering
- Lettering duplicated in braille
- Tactile characters shall be raised 1/32" minimum above background
- Raised characters shall be upper case
- Characters shall be san serif style fonts (fonts that do not have extending features called "serifs" at the end of strokes) and may not be in italic, script or decorative form
- Character height shall be 5/8" minimum to 2" maximum
- Character proportions, thickness, spacing and line spacing shall be per "ADA Standards"

b) Braille:
   - Braille type: "Grade 2" (with contractions)
   - Braille dimensions, capitalization and position shall be per "ADA Standards"

c) Installation height and location of signs for permanent rooms or areas:
   - Mounting height for multiple character line signs: 48" minimum above finished floor from bottom of lowest *(bottom line)* tactile character and 60" maximum from the bottom of highest *(top line)* tactile character
   - Mounting height for single character line signs: 48" minimum above finished floor from bottom of tactile character
   - Location of signs at single doors shall be located on wall alongside door at the door latch side
   - Location of signs at double doors with two active leafs shall be located on wall alongside right side door at the door latch side
   - Location of signs at single and double doors with no wall space shall be located on the door if door(s) are without hold-open devices. Locate signs on nearest adjacent wall for doors with hold-open devices
   - Locate signs beside doors centered in an 18" minimum x 18" minimum area measured from the door edge

d) Visual characters:
   - Non-glare finish
   - Lettering color contrast shall be as great as possible with background
   - Campus Standard: Either orange on gray background or white on orange background
     - No UTK name or logo, except for Department identification signage or an entity's unit logo shortcut.
     - The Power T icon block should never be used alone. This is considered to be the Athletics mark, and is strictly off limits.

e) Fonts, Colors and Symbols: Reference Communications Branding Guidelines

   - The university's brand fond is Gotham. This is the only font approved for use on interior signage.
   - Gotham Condensed or Narrow should not be used.
   - The university's three primary brand colors – Tennessee Orange/PMS 151, Smokey Gray, and White, are the only colors to be used on university signage.

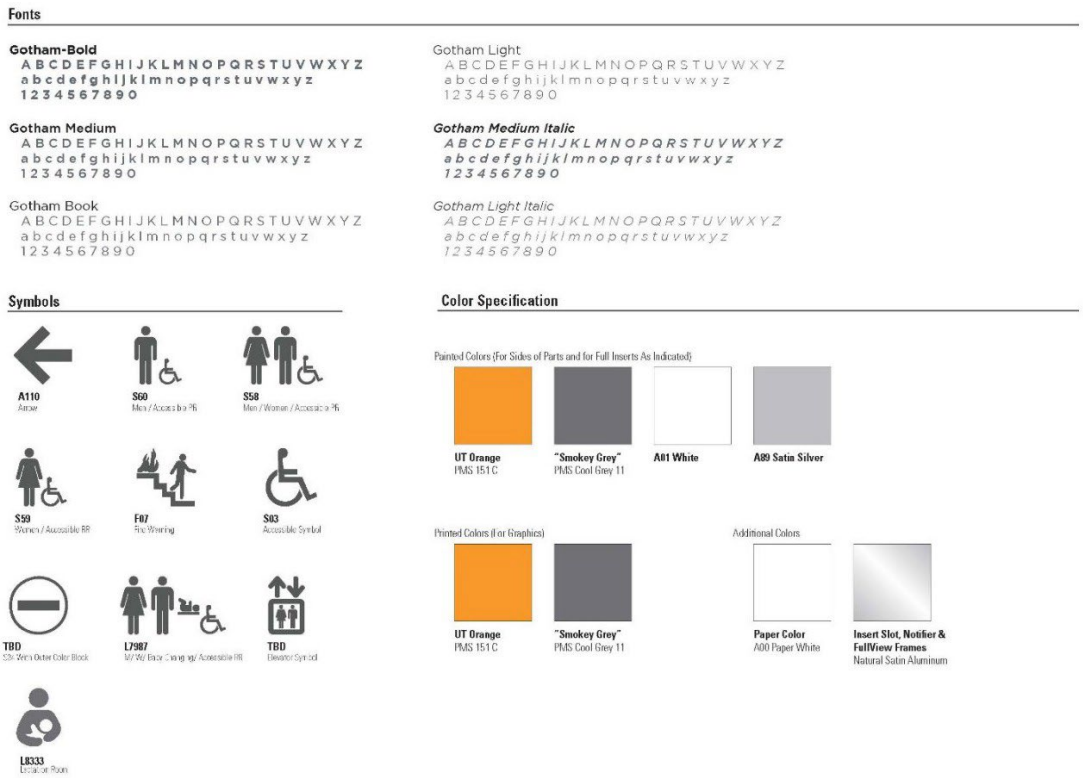


Figure 1. Fonts, Symbols and Colors

f) Sign types and locations:

- Exterior Building Identification:
  - Reference Campus Landscape Vision & Site Standards
  - Provide building name and (911 emergency responder) street address plainly visible from street or road fronting the property.
  - Locate the building sign adjacent the main entrance used by emergency responders. Provide secondary signs to identify rear or side entrances located on public streets and roads

g) Building Public Entrances:

- At buildings where, not all public entrances are accessible, provide "International Symbol of Accessibility" signage at complying entrances.

h) ADA Directional Signage: (Route to nearest accessible element)

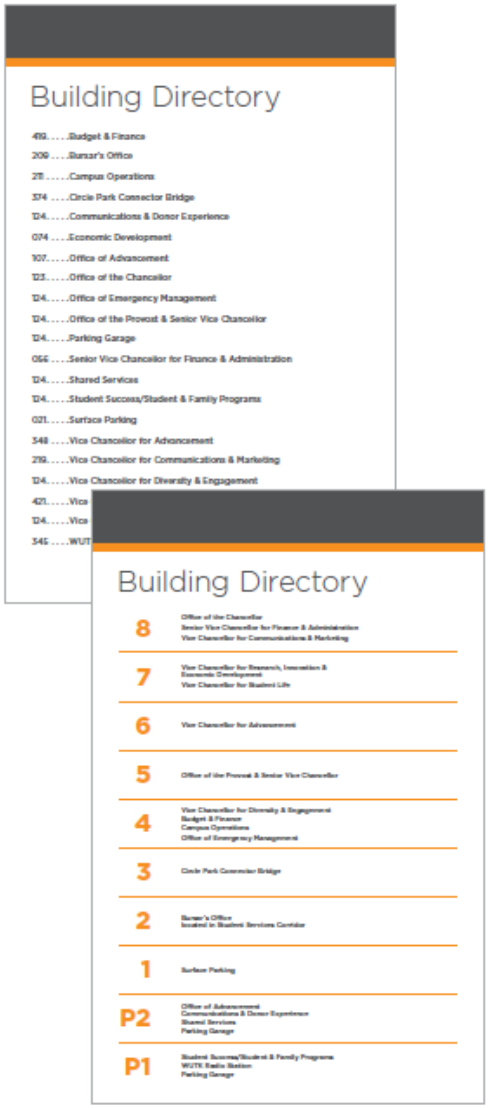
- All directional signage to include the "International Symbol of Accessibility"
- Provide directional signage to accessible entrances, restrooms, elevators, and exits at inaccessible building entrances, inaccessible public toilets, elevators not serving an accessible route and exits that do not have approved accessible means of egress.

i) Building Directories: (A guide identifying buildings areas and spaces)

- Provide directories, as required
- Exempt from ADA Standards

- Locations: Building entrance lobbies & elevator lobbies. Other locations as deemed necessary
- Most common sizes for directories are 11”x17” and 24”x36”.
- Content: Interchangeable, by department and/or building users. Content to vary depending on the location. General floor level identification of major spaces located at building entrances with specific room identification located at upper/lower elevator lobbies.
- Digital or printed content, to be determined
- Do not center text.
- Logos of any kind are not used on directory signage.
- Names of individuals should not be displayed on directories. Only use entity name only for wayfinding.
- The building representative is responsible for updating the paper directories. Facilities will update other types of directories by request.

#1: Directory Holder/Basic Sign Family



#2: Directory Holder/Odd Size/No Color Bars

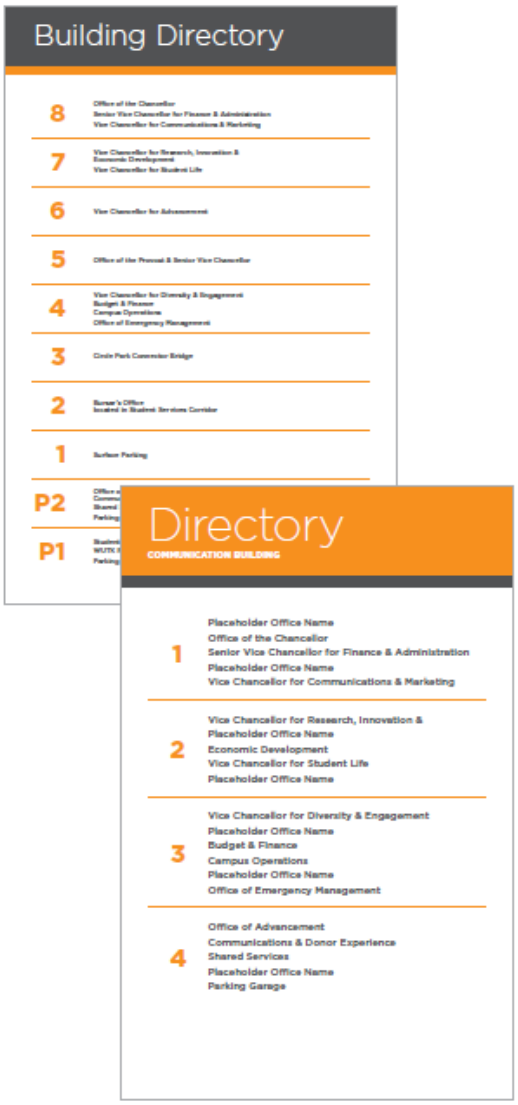


Figure 2. Building Directory Signage

j) Wayfinding: (Signs providing direction to rooms or spaces)
- ADA compliant
- Located in lobbies, at top of monumental stairs, at elevator lobbies and in corridors at diverging paths.

k) Department Identification Signs:
- Exempt from ADA Standards
- Locations: Department lobby/reception areas
- Clear or frosted acrylic and silver metal panels that stand off from the wall.
- Smokey vinyl is used for the department name, and TN Orange and white comprise the Power T icon block.
- Unit shortcut logo is the only logo used on department entry signs. The full unit logo is not allowed.
- Fabricated by the Facilities Sign Shop. They will also install these signs after approval is granted through FS and OCM.
- Signs are not required; the entity name maybe simply displayed in all caps Gotham on an entry wall.

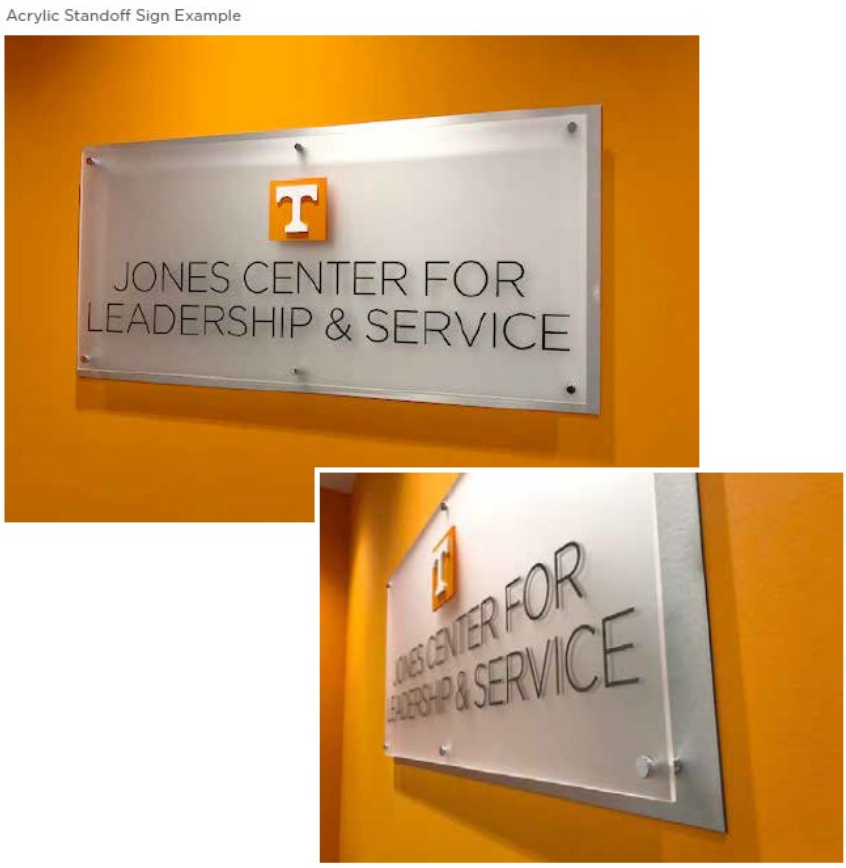


Figure 3. Department Entry Sign

l) Interior Exit Stairs: (Signage at each exit stair landing level)

- ADA compliant
- Provide geographical naming of exit stairs in addition to stair number (i.e. “Stair 1 - Southwest)

- Floor level & story of exit discharge identification
- Roof access identification, if applicable
- Located inside stair at 5ft. above floor and readily visible with open or closed door

m) Exit Signs: Illuminated signage marking direction of exit travel
- See electrical specifications.

n) Room Signs:
- ADA compliant
- Individual room identification name, as needed and number
- Type as appropriate for building function

o) Room Occupant Load Sign (Required at Assembly Occupancies)
- Maximum number of occupants allowed by order of the State Fire Marshal
- Posted inside room in a conspicuous place near the main exit door

p) Donor Recognition Signage
- All donor recognition signage must be approved by the Advancement Office of Stewardship and Donor Relations in conjunction with OCMCC and FSD.
- Each Donor sign may vary in format and size, depending on approvals from Advancement, OCMCC, and FSD.
- Most donor signage is constructed similarly to the department entry sign type:
  - Acrylic stand-off panel and metal base.
  - Reference section 9.2 subsection k.

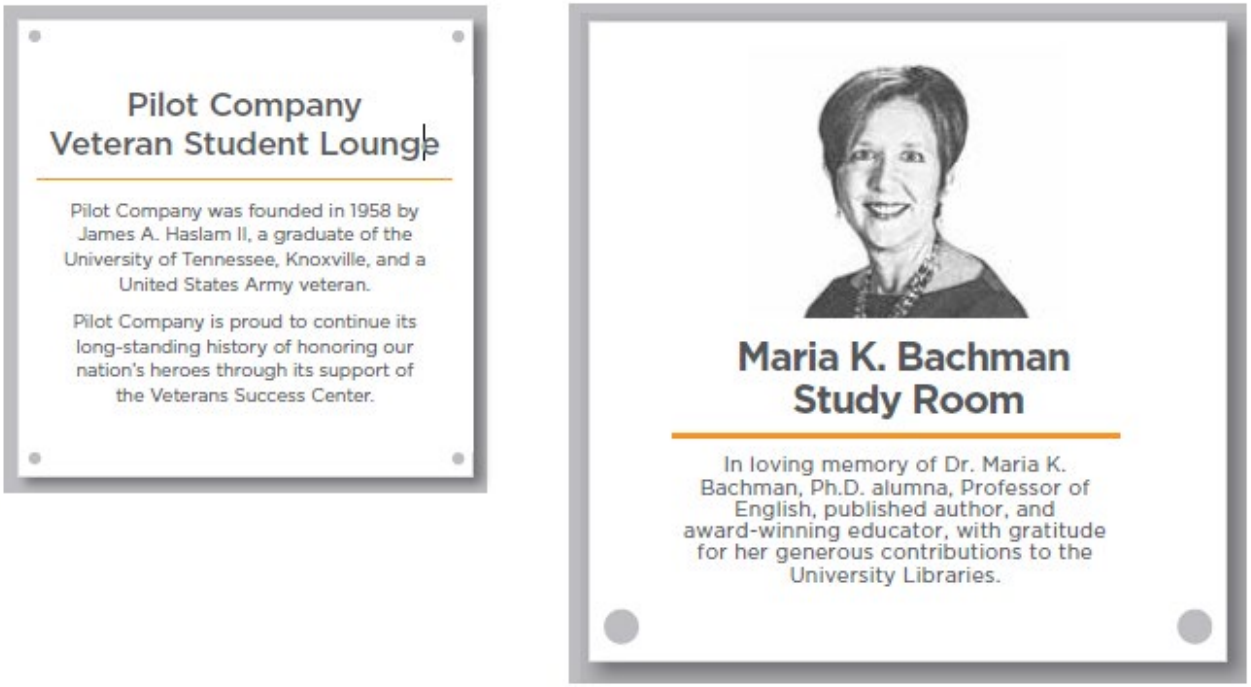


Figure 4. Examples of Donor Recognition Signage

q) Other signs: (as required by the code authority)
- Area of Refuge, if required
- Hazard Identification, if applicable
- Electrical rooms with control panels
- Fire department connections (FDC) on building exterior
- Control rooms for A/C systems, sprinkler risers & valves, fire detection, etc.

9.3. DESIGN OPTIONS

There are three signage families to choose from for building directories, door identification signs, and nameplates—Basic, Framed, and Elevated Planes. Facilities reviews each signage request with the client and select the most appropriate option, taking into consideration both budget requirements and current building signage. All sign families are ADA Compliant.

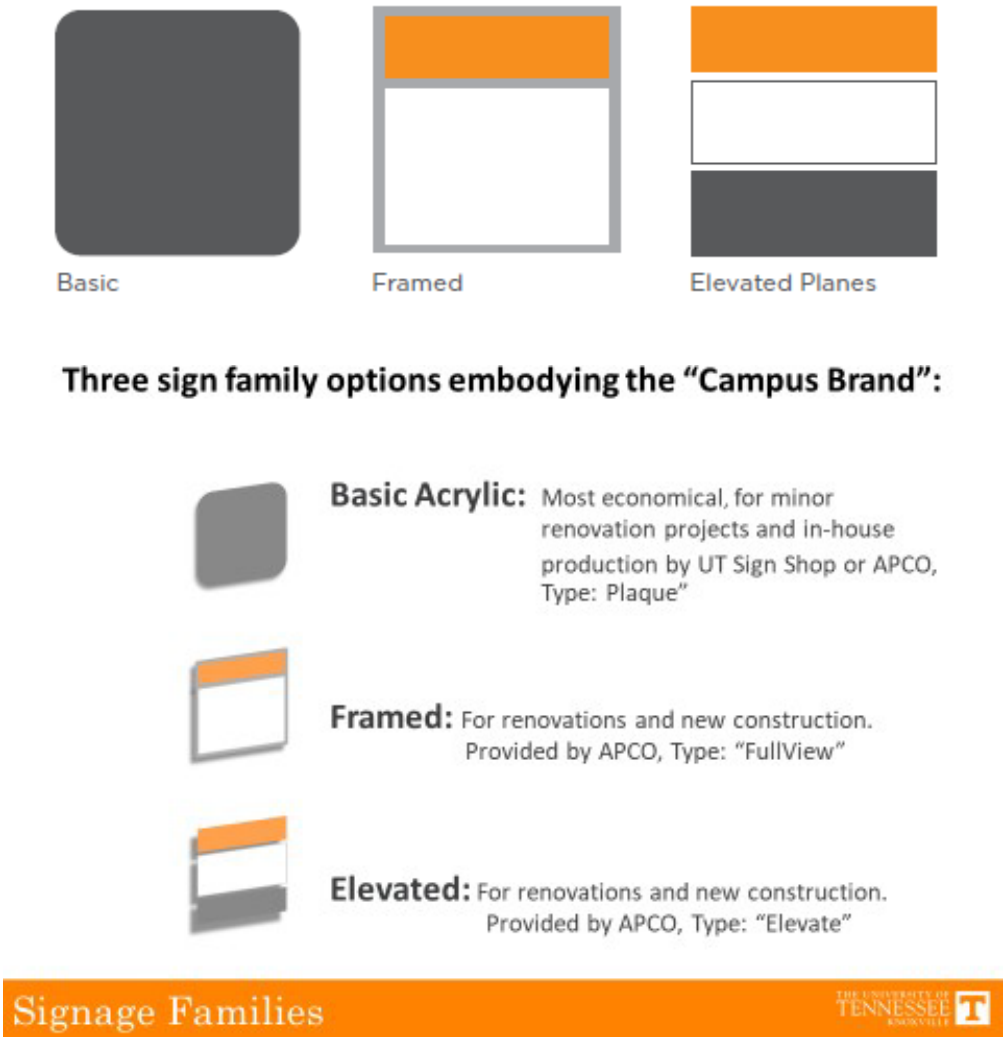


Figure 5. Basic Acrylic Signage Families

a) Basic Sign Family
- 10”x10” size is appropriate for the entry into a suite of rooms or a room with larger occupancy.
- 8”x8” size is used for rooms opening onto a corridor.
- 6”x6” size is used for rooms within a suite.
- The smallest size, 4”x2”, is used for service and utility spaces.

Figure 6. Basic Sign Family Sizes

b) Framed Sign Family
- Flexible and nimble. Use paper to update inserts easily.
- This family has multiple directory options and is provided by a contracted vendor.
- Installation time is longer than the time it takes to install Basic Sign Family.

Figure 7. Framed Sign Family Options

c) Elevated Planes Sign Family
- Modern aesthetic and more visually prominent.
- Multiple directory options.
- Uses printable paper inserts for easy change, and is provided by a contracted vendor.
- Installation time is longer than the time it takes to install Basic Sign Family.

Figure 8. Elevated Planes Sign Family

10. ROOM NUMBERING and FLOOR/LEVEL CONVENTIONS

10.1. PREFACE

A unique room number, along with a building number is the major key to access all facilities room data records.

UTK is responsible for assigning the appropriate unique building number for each building. The building number is not needed or used by the designer. It is for internal use only.

The architect will provide room number assignments and assign building levels for new buildings and or major renovations during the Design Development (DD) phase. A maximum of seven digits are allowed for room numbering. These assignments will be reviewed and approved by UTFS's Project Manager and the Space Coordinator.

10.2. BUILDING LEVELS

The naming of each level is project specific and should be discussed during DD between the architect and UTFS's Project Manager. The following general guidelines should be considered when determining the naming convention.

- **Determining the building's main entrance**

Although there will be several entrances to any building, there is one that by design is considered the main entrance. The main entrance should correspond with the building address as identified per 911 listing. The floor level with the assigned main outside entry should be the building's First Floor Level. Levels above will be numbered consecutively as Second Level, Third Level, etc.

- **Determining floors and levels**

Any building level below the First Level is considered a Basement Level and should be numbered starting as B1, B2, B3, etc. Ground Level nomenclature shall not to be used.

Some buildings may have a Mezzanine level in between two main floor levels. A Mezzanine level is named with the prefix 'M' followed by the level number underneath the Mezzanine.

An attic area is defined as a floor level below the roof, not accessible to the public with limited head height and primarily housing exposed roof structure. Attics were common in older buildings. Newer buildings with upper level mechanical Penthouses do not have attics. Attics, if used, shall be named using the prefix 'AT.'

A level or levels above the public levels used for utility purposes is considered a Penthouse level and shall be numbered according to the level they are on as 'PH1', 'PH2', 'PH3', etc.

Parking Levels in a building that is not exclusively a garage (i.e. Administrative Parking Garage at Andy Holt Tower) should be numbered starting top down as P1, P2, P3, etc. Parking Garages should follow the same numbering as any other building.

The figure below shows examples of floor level naming conventions:

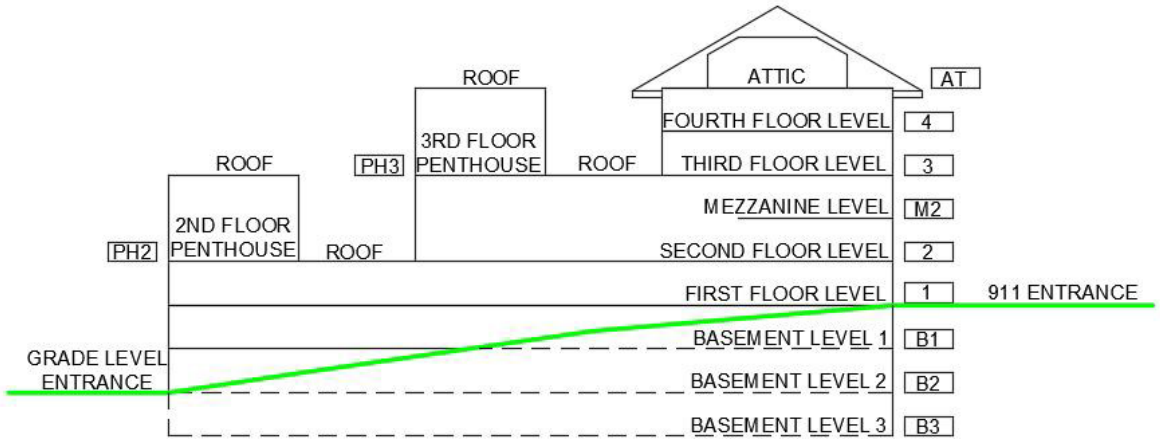


Figure 8. Floor Level Naming Convention

10.3. ROOM NUMBERING

Room numbering should be discussed during the DD Phase and finalized during the CD phase. Coordinate final room names and numbering with fire/smoke detection and prevention systems, access systems, and with HVAC controls.

- **Clockwise Numbering pattern and direction**

After the building main entrance has been established and the level numbering is identified, immediately begin counting rooms, spaces or areas in a clockwise direction. On the first level, start counting with the number 101; second level 201; third level 301; etc. Whole hundred numbers – 100; 200; 300; etc. shall not be used and are reserved for future use. The room, space and area numbering should continue in a clockwise direction around the level. Moving around the level clockwise, odd and even numbers shall be kept consistent with respect to right side/left side of corridor whenever possible. This is the preferred directional pattern numbering method.

Rooms in special floors such as basements will start their numbering with a prefix followed by the level, and then the room number starting with 01. For example, room B101 is room 01 at the B1 level.

- **Up/Down Numbering Pattern and Direction**

An alternate directional pattern numbering method is that of an up/down main corridor(s) scheme. This can be utilized in building renovations that have existing room, space and area numbering to remain in which new numbering needs to adapt to current conditions. It also may become necessary to use in buildings which the preferred clockwise directional method is just not possible because of a single corridor building or “non-racetrack” corridor and room layout. Immediately begin counting rooms, spaces and areas nearest the main entrance with the number 101; second level 201; third level 301; etc.

Whole hundred numbers – 100; 200; 300; etc. shall not be used and are reserved for future use.

Along the main building corridor, count room, space and area numbering down to the end of the corridor. If there is another main or secondary corridor, again work your way down, or back up (pending the layout) while continuing with numbering where it was left off from the main corridor. While numbering up/down corridors keep in mind, odd numbers shall be kept consistent with respect to right side/left side of corridor whenever possible. This alternate directional pattern numbering method should be consulted with UTFS Project Manager prior to use.

- **Stacked numbering pattern and direction**

Levels above and below the first level shall follow the same numbering pattern established on the first level. It is important to note that the above methods are without regard to general circulation spaces such as vestibules, corridors, stairs, lobbies, elevators and escalators. Those general circulation spaces are numbered independently as described later in this document. The numbering start point for each level must vertically correspond to the start point on the first level. Likewise, each respective level shall also vertically follow the previous level numbering pattern as close as possible in order to "stack" like numbers of rooms, spaces and areas from level to level as close as possible.

- **Suites and sub-rooms**

A sub-room is a single room inside a primary room. A group of rooms inside a primary room whose door opens into a public corridor is considered a "Suite." Suites and sub-rooms within suites are numbered using the same process as rooms previously described, but with an alphanumeric suffix added to rooms within a suite.

For example, sub-rooms whose door opens from suite 305 should be numbered 305A, 305B, 305C, etc. A sub-room within 305A, should have a numeric digit added to the suffix, for example 305A1, etc.

Rooms within suites should be numbered clockwise using the same rules as when numbering primary rooms. For example, the first room from the main entrance to suite 305 would be 305A, second room would be 305B, etc.

- **Elevators, Stairs and General Circulation**

After the primary entrance has been established, immediately begin counting general circulation and/or elevators and stairs in a clockwise direction.

Stairwells shall be numbered starting with their level number, followed by '99S', ending with a number suffix. These shall be numbered to be stacked on each floor. Numbering shall proceed clockwise, where possible. (For signage purposes only, the University opts to add other designations like geographical location such as "South West Fire Stair" to assist in way finding and emergency evacuation assistance. These should show on the architect's drawings in addition to the '99S' numbering.)

For example, a stairwell on the first three floors would have numbers 199S1, 299S1, and 399S1. A second stairwell would be numbered 199S2, 299S2, and 399S2.

Corridors and hallways shall receive numbering starting with their level number, followed by the '99' numbering representing circulation space, and ending by a suffix letter. Numbering will follow the same natural flow and pattern as the rooms. Numbering shall proceed clockwise from the main entrance, where possible. The first enclosed circulation area will be given the suffix 'A.' UTFS' standards requires only one room number for a corridor even if the corridor turns and flows in another direction on plan, unless separated by a door. Then the corridors will be considered two separate rooms and be numbered accordingly with the next suffix letter. For example, on the first floor, the corridors shall be numbered 199A, 199B, etc. Corridors on the second floor would be 299A, 299B, etc.

Hallways and corridors inside a "suite" area shall receive normal room numbering (i.e. not x99).

Elevators shall receive numbering starting with the level number followed by the '97' number, ending with a letter suffix. These shall be numbered to be stacked on each floor. For example, an elevator shaft on the first three floors would have numbers 197A, 297A, and 397A. A second elevator would be 197B, 297B, and 397B. Numbering shall proceed clockwise, where possible.

- **Skipping Numbers**

A certain quantity of numbers per level may be skipped as appropriate in order to reserve numbers for future subdivision or remodeling. Windows, columns and other structural features may provide clues to possible future partitioning. Care must be taken in regards to the quantity of numbers to be skipped. In most cases, no more than 96 rooms, spaces or areas per level can be labeled without having to change the entire nomenclature of the whole building. Meaning skipped numbers shall be considered pending the total current room count. As an example if a floor has 85 rooms proposed for said project then it is only possible to skip 11 numbers for said floor as the total room count should not exceed 96 whenever possible.

10.4. ADDITIONAL CONSIDERATIONS

Room, space and area numbers should be assigned prior to the beginning of door numbering. Room, space and area numbers should never include decimal places. Decimals are only used to designate doors.

Letters "I" and "O" should not be used to number any room as they may be confused with numbers.

Restrooms, Storage, Mechanical, Electrical, Elevator Machine Rooms, Custodial Closets,

Maintenance and Telecomm/Data rooms shall be treated as any room, space or area and receive the same standard numbering nomenclature as previously described herein.

ADAPTING NEW AND EXISTING

In cases of building renovations or additions there will be rooms, spaces and areas that do not follow the current numbering standard or simply do not flow with the new renovation. Project stakeholders should determine if and how the renovation will adapt existing numbering to the new standard numbering in order for the building/level numbers to flow correctly.

UTFS' preference is that medium to large renovation projects that encompass [40%-60%] of the total existing level area shall also include renumbering the portion of the level that is not under renovation in the overall project scope.

Smaller projects that incorporate minor renovation such as adding a wall or door, would not require the individual room, space, area or suite to be renumbered. Renumbering of minor renovations would be determined on a case by case basis.

In either of these circumstances, care must be taken in order to best provide the new numbering standards within the renovation as well as alter existing numbering to flow and follow the numbering standards implemented and around the renovated areas.

11. CUSTODIAL ROOMS

11.1. PREFACE

Providing conveniently located and an adequate number and size of custodial rooms are critical to the maintainability of a facility. Rooms for equipment storage/battery charging and central supply rooms with office area are to be provided in addition to custodial closets throughout the building.

11.2. CUSTODIAL AREA DESIGN GUIDELINES

There are three different types of custodial rooms required in each building:

1. Custodial Closets, minimum one per floor
2. Custodial Equipment Storage Room, minimum one per building
3. Custodial Supply Room and Office, minimum one per building

a) Custodial Closets:
- Reference Mechanical Standards for plumbing fixture types
- Size: 6’ x 8’ min with lockable 3’-6” wide out-swinging door
- Location: One per floor min (Evaluated on a case-by-case basis)
- Equipped with a corner floor sink for bucket filling/disposal
- Hot and cold water supply, spout with hose tread outlet and pail hook, hose and hose bracket, Mop hanger, rim guard and stainless steel wall guards.
- Broom/mop hangers located above the sink.
- Chemical proportion dispenser system mounted on wall above the floor sink (furnished and installed by owner)
- Open floor space for min of two 32 gal. containers or bins
- Min of four electrical outlets
- Heavy duty free standing steel shelving
- Occupant sensor light switch
- Door kick stop or automatic door holder to prop door open, as allowed
- Reference Interiors Standard for additional room requirements and finishes

b) Custodial Equipment Storage and Charging Room:
- Size: 10 ’x 12’ min with lockable 3’-6” wide out-swinging door (Complex or disjointed buildings may require additional equipment rooms)
- Usage: Central building custodial equipment storage and charging of floor scrubbers, sweepers, and other equipment
- Battery storage
- Floor sink and hanging system for mops and brooms. (Same requirements as Custodial Closets above)
- Electrical outlets as required for equipment charging; four electrical outlets min.
- Heavy duty free standing steel shelving, as required
- Door kick stop or automatic door holder to prop door open, as allowed
- Reference Interiors Standard for additional room requirements and finishes

c) Custodial (Central) Supply and Office:
- Size: 12 'x 15' min (Complex or disjointed buildings may require additional rooms)
- Openings shall be out-swinging double doors without a center mullion
- Usage: Storage of building supplies and custodial office area
- Floor sink and hanging system for mops and brooms (Same requirements as Custodial Closets above)
- Electrical outlets and phone/data connections as required
- Heavy duty free standing steel shelving, as required
- Furniture: Desk & chair, visitor chair(s), file cabinet and book shelf, as determined
- Door kick stop or automatic door holder to prop door open, as allowed
- Reference Interiors Standard for additional room requirements and finishes

11.3. PROVIDED BY UTFS, INSTALLED BY UTFS

Items provided and installed by owner:

- Waste containers
- Cleaning solution chemical proportion dispenser system

12. PROJECT CLOSEOUT SUBMITTALS

12.1. PREFACE

Closeout submittals are vital to campus operations and to the maintenance of up-to-date construction records and plans. Proper submittal formatting facilitates storage, retrieval and use in future and current projects.

12.2. STANDARDS

Provide the following to UTFS during the timeframe between Substantial Completion and Final Completion:

a) The following should be submitted in electronic PDF format only, except for scaled paper set of record drawings:
- Operation and Maintenance manuals and product data including:
  - Product or Systems supplier/installer contact information
  - Manufacturer and model numbers
  - Cut sheets
  - Service schedules and maintenance procedures
  - Control diagrams
  - Equipment diagrams and parts list
  - Color coded piping and wiring diagrams
  - Panel board circuit directories
  - Other, as applicable

- Cleaning instructions for floors, surfaces, finishes, etc.

- Paint and finish color selections

- Reports:
  - Geotechnical
  - Environmental
  - Structural

- Other, as applicable

- Stormwater:
  - Operation and Maintenance Plan, if applicable
  - Notice of Termination (NOT) for the Pollutant Discharge Elimination System (NPDES) Stormwater permit

- BIM Execution Plan, if applicable

- Certificates:
  - Contractor Certificate of Substantial Completion
  - Fire Marshall Certificate of Occupancy (CO)
  - Elevator permit
  - Other, as applicable

- Warranties:
  - Vendors
  - Manufacturers
  - Subcontractors

- Maintenance Agreements

- Shop Drawings

b) Construction Record Documents:
- As-Built Record Drawings and Specifications in electronic PDF format
- As-Built Record Drawings and Specifications in paper format (full size, scaled drawings)
- As-Built CAD files (see preferences below)
- Record BIM Drawings, if applicable (see BIM guidelines)

c) Training:
- Systems and components classroom training sessions. Provide power-point of training material for reference (Coordinate with UTFS)
- On-site demonstrations
- Log of training sessions and attendees

12.3. DESIGN PREFERENCES

If utilized, provide As-built BIM format drawing files (300 level min.).

Paper sets shall reside within the buildings Maintenance Office. Archiving of electronic sets by UTFS archive division

Formalized training coordinated with UTFS Training Coordinator.