Historically Underutilized Business Program

Sam Houston State University Office of Facilities Planning and Construction is committed to promoting the participation of minority, women-owned, and small businesses through the Historically Underutilized Business (HUB) Program for the procurement of goods and/or services. The procurement process utilized by the SHSU seeks to provide equal opportunity and equal access in the design and construction opportunities on projects managed by Facilities Planning and Construction.

General Information

The "Facility Design Guidelines" is intended as guidance for the project architect/engineer team and the contractor team during the design and construction process for The Sam Houston State University Capital Projects. The content covers specific design criteria, the design process and administrative procedures for permanent buildings on SHSU. Subsets of this document will pertain to renovation, civil, etc. type projects. Many but not all requirements for each Campus or Agency of SHSU are covered. The Project A/E, CMAR or D-B shall also refer to items covered in their Services Agreement and in the project's Program of Requirements (POR).

The "Facility Design Guidelines" shall be used along with the project specific Program of Requirements and the Services Agreement.

In the event of conflict between contractual document and specific project requirements the more stringent requirements shall apply. The A/E, CMAR or D-B shall contact the Project Manager with Facilities Planning & Construction for clarification.

The guidelines in this document are not intended to prohibit the use of alternative methods, systems, products or devices not covered in this document. All alternatives shall be documented by the A/E, CMAR and D-B and submitted to the Project Manager for approval by Facilities Planning & Construction prior to implementation.

Design Philosophy

Design Quality

Sam Houston State University Office of Facilities Planning & Construction is committed to excellence in the design and construction of buildings for the SHSU System. To accomplish this the Office of Facilities Planning and Construction (FPC) is committed to the highest quality of aesthetics in meeting the requirements of the Universities and Agencies while at the same time delivering a project that is cost effective to operate and maintain throughout its useful life.

All buildings shall be designed with flexibility in mind. Over the life of all major campus buildings the functions will change and the spaces will be reconfigured.

Campus Design Standards

The building design shall follow the guidelines established in the University or Agency Master Plan as well as the guidelines in this document. In the event of a conflict between standards established in a Master Plan and this document the Campus Master Plan shall govern. In lieu of master plan guidelines the design shall blend with campus standards and neighboring buildings. The design shall also conform to neighboring building setbacks, roof lines, etc.

University Landscaping

Utilize plant species indigenous (native or adapted) to project area. All plant species must be approved by SHSU Grounds during design. Landscaping shall be coordinated to prevent conflicts with all underground utilities.

Erosion control will not be allowed to be connected to construction fencing, it must be freestanding with continuous wire structural support.

Operating & Building Maintenance

Systems and materials incorporated into all buildings should be selected on the basis of long term operations and maintenance costs. The design should incorporate ease and efficiency of operation and allow for easy and cost effective maintenance and repair. Standardization of equipment, parts, and lamps is also the key to reducing maintenance costs and allows for stocking of common replacement parts. The Project A/E should obtain constant feedback from the Facilities Department during design. Detailed instructions from the Project A/E stating the design intent for all building systems and the operating/maintenance procedures are required during the design process. Adequate access and maintenance space shall be provided to and around all equipment and components that require maintenance.

Sustainability & Energy Performance

The design of all buildings shall incorporate established principles of sustainable design and energy efficiency. Design following these principles improves the buildings performance while enhancing the occupant's health, satisfaction and performance. Sustainable design is an integrated approach in which all phases of the building life cycle are considered. The energy performance of the building should exceed any requirements per codes. It is the intent of the University to design towards LEED standards but not to attain LEED certification.

Codes and Standards

Comply with all state and Federal laws applicable to construction. The Project A/E and the FPC Project Manager shall also cooperate with municipalities when tying into local utilities. Architect and Engineer shall design to the latest codes and standards adopted at start of design.

General Requirements

The Project A/E shall design SHSU projects to comply with the current editions of the following codes and standards and advise the Owner of code revisions having impact on the project design.

The State Fire Marshal is the code Authority Having Jurisdiction (AHJ) for all issues pertaining to NFPA 101 Life Safety Codes. FPC is responsible for facilitating resolution of conflicts and interpretations for these non-NFPA 101 codes after a thorough and joint discussion. Sam Houston State University shall designate an AHJ for all other codes and requirements.

The Project A/E shall prepare a written codes and standards analysis, "Building Code Analysis," for each project for review by FPC. This analysis shall provide a side-by-side comparison of the requirements of the listed codes and standards. The comparison shall include all code items and an indication of which code requirement is being applied to the project. In the absence of a careful and thorough discussion by the design team of a specific conflict between the codes, the default is to design to the more stringent or robust code. These code discussions are project-specific and on an item by item basis within the codes. The final approved Building Code Analysis shall be included in the construction documents for future reference.

In the event of the need for interpretation among the codes and standards, the Project A/E shall inform FPC of the need for an interpretation and FPC will establish the requirements for compliance.

Local municipal building codes are not applicable to construction on State of Texas properties, which includes all properties owned by Sam Houston State University.

However, if it is necessary for a local authority to review any aspect of the project, such review shall be arranged by the System Member representative.

FPC may also require the Project A/E to comply with certain provisions from the local fire department that provides fire protection services for the System Member. These provisions may include locations and dimensions for firefighting access, including fire lanes; locations and specifications for stand pipes, fire hose cabinets, fire control room, and fire hose connections; elevator requirements; and other similar matters.

The Project A/E shall be required to provide a statement that the project is designed in compliance with applicable codes and standards. The following statement shall be included on the general information page adjacent to the project building code summary.

"Life Safety Code Compliance: The Architect/Engineer of Record acknowledges that construction projects for Sam Houston State University must, at a minimum, be designed in accordance with the requirements of National Fire Protection Association (NFPA) 101, Life Safety Code, as currently adopted by the State Fire Marshal, Texas Government Code sec. 417.008(e). Therefore, the Architect/Engineer of Record affirms that, to the best of his/her professional judgment, knowledge, and belief, the design of this project satisfies the requirements of NFPA 101, Life Safety Code, as well as any other codes or standards made applicable to the project by the professional services agreement."

Design Basis

1. Current adopted version of NFPA 101
2. Current adopted version International Building Code.

Architectural Design

1. SHSU Exterior Signage Standards: SEE APPENDIX I
2. SHSU Interior Signage Standards: SEE APPENDIX II
3. SHSU Room Numbering Standards: SEE APPENDIX III

Civil/Structural Design

Mechanical and Plumbing Design

Electrical Design

Communications Design

1. TIA/EIA Standards

Energy and Water Conservation Design

Acoustic Design

Design in accordance with good practice to achieve conventional ambient noise levels qualified in Noise Criteria (NC) defined in current ASHRAE Applications Volume, Chapter 42 and ANSI S1.8 Reference Quantities for Acoustical Levels – ASA 84.

The ambient sound level of an occupied space is not to exceed the following NC listed for its respective typical occupancy unless specifically directed otherwise by the System Member representative or the project Program of Requirements. Spatial forms, materials, assemblies, systems and equipment selections are to be designed as required to achieve a standard quality of specified level of maximum background noise.

Typical Occupancy	Maximum Noise Criteria (NC)
Apartment/Dorms	
Individual rooms/suites	35
Meeting/Banquet rooms	35
Halls, corridors & lobbies	40
Service/support areas	45
Offices	
Executive	30
Conference Rooms	30
Private	35
Open plan areas	40
business machine areas	45
Public circulation	45
Research, Hospital and Clinics	
Private rooms	30
Wards	35
Operating rooms	25
Laboratories	
Research & general	35
Teaching	30
Corridors	35
Public Areas	40

Lecture & classrooms 30

These conventional standards of the level of ambient noise in a space are independent of and prior to the installation of any Owner-furnished equipment, furniture and furnishings unless specified otherwise.

Other resource material describing conventional ambient noise criteria is available in the current edition of Ramsey/Sleeper Architectural Graphic Standards.

Permits & Submissions

The Project A/E is required to submit sealed documents for an accessibility review. The required review should be accomplished by a Registered Accessibility Specialist located near the project site. The same Registered Accessible Specialist (RAS) will be utilized for the plan review and the post construction inspection.

The A/E will be required to secure permits from state and federal government agencies when necessary, such as Texas Department of Highways and Public Transportation, Health Department, etc. The cost of any permits will be borne by the Owner.

The Project A/E will complete and submit the Energy Conservation Design Standard Certification form for Nonresidential Buildings and compliance forms required by the current adopted version of ASHRAE 90.1 as part of the required Energy Report to the FPC Project Manager.

The project A/E will complete and submit the Energy Conservation Design Standard Certification form for Residential Buildings and compliance forms required by the current adopted version International Energy Conservation Code as part of the required energy report to the FPC Project Manager.

Environmental Practices

Sustainable Design

The design of all buildings shall incorporate established principles of sustainable design and energy efficiency. Design following these principles improves the buildings performance while enhancing the occupant's health, satisfaction and performance. Sustainable design is an integrated approach in which all phases of the building life cycle are considered. The energy performance of the building should exceed any requirements per codes.

All buildings shall be designed to maximize day-lighting, maximize human comfort and minimize energy use.

Day-lighting

In order to maintain a relationship between the building occupants and the outdoors, direct views of the outside must be provided for at least 75% of the regularly occupied areas unless the needs of the spaces dictate otherwise. The building design should strive to provide outside views for 100% of all offices in the building.

If day-lighting systems, beyond windows, are included in the design for day-light harvesting the project team must take special concern to ensure adequate day-light illumination, avoid common glare issues and fully integrate the lighting and mechanical systems with the interior architecture and day-lighting systems.

Building Materials

Wherever possible, products, and materials with recycled-content and no or low volatile organic compounds (VOC) shall be specified in the building design.

Material containing any measureable amount of asbestos shall not be allowed.

Indoor Air Quality

The design shall follow current adopted version of ASHRAE 62.1

Space Standards

Calculation of Building Areas

The method used to calculate the assignable square feet and gross square feet in a building is based on guidelines from The Texas Higher Education Coordinating Board (THECB). These guidelines are intended to establish common standards for building inventory for all state institutions of higher education. In large part these guidelines are also based on those from the U.S Department of Education, National Center for Education Statistics.

Area shall be derived from the BIMs. The A/E is responsible for maintaining the areas in the BIMs.

Building Core Elements

First Floor Elevation

The first floor elevation of all new buildings where possible shall be equivalent to the 500yr predicted flood elevations, plus 2ft. (FEMA flood level predictions are based on a statistical average, with standard deviation of +/-2ft).

Where new buildings cannot be located above the 500yr or 500yr+2ft flood levels, the first floor elevation shall at least 1 to 2 feet above the 100yr flood elevation, and high value equipment, ornate interior finishes and critical operations or research laboratories should be located on a level above the 500yr+2ft flood elevations. All switch gear and required motor control centers shall be located on a level above 500yr+2ft.

The storm-water management system shall use grading and drainage sufficient to route predicted rain-water for the 100-yr, 24-hr rainfall event. The system should primarily rely on grading to direct water

away from the building, with limited reliance on storm water drainage systems directly adjacent to building openings or outside equipment. Building designs with below-grade spaces such as basements, service tunnels, etc. are discouraged in areas subject to flooding. Should below-grade service areas or basements be required, they should not have openings located below the 500yr+2ft in areas subject to flooding, or below grade of the surrounding terrain in areas not subject to flooding.

Building Entrances

All Public entrances shall have at least one (1) door with a power-operated opener.

All building entrances must be designed to allow for University remote access control

All main entry points to a building must be provided with a vestibule that performs as an air lock and; have walk-off mats acceptable to the University FPO Department. Weather protection must also be provided for the exterior doors at a minimum this shall consist of door sweeps, weather seals at the door head and jambs, drips at the bottom of the door, and over head rain drips above the door that extend at least 8” beyond the jambs of the door.

Building Circulation

The building circulation system (corridors) should be clearly designed to lead building occupants from entrances to their destination. It is desirable to introduce as much natural light as possible into corridors, through windows, transoms or borrowed light. Utility systems should be routed in circulation pathways to provide access to utilities without disrupting occupied spaces.

Doors on opposite sides of corridors shall be offset to prevent direct viewing from one room to another. Classroom and laboratory room doors opening into corridors shall be recessed the width of the door to eliminate corridor obstructions.

Building corridors are to have sufficient above ceiling space to accommodate all of the required equipment and provide maintenance access and code required clearances to that equipment. The A/E shall establish and distribute for review the above ceiling stratification. The A/E shall also establish routing strategies for equipment that may run at the same elevation in the ceiling plenum on opposite sides of the corridor. The A/E shall model clearances required for all above ceiling equipment for coordination purposes.

Crawl Space Under Suspended Structural Foundations

Where plumbing access or future flexibility is required by the Member Facilities Department provide an accessible crawl space with 2 inch thick, 2500 psi unreinforced mud slab, properly sloped and drained. Crawl space must be provided with lighting, weather proof electrical outlets, and ventilation (minimum 2 air changes per hour) along with adequate access hatches and access ladders. Access to the crawl can be through floor hatched in the mechanical room or an area way on the perimeter of the building. Access shall not be through electrical rooms, telecommunications rooms, or custodial rooms. Switches for crawl space lighting shall be located near access hatches so that the lighting can be turned on prior to entry. The minimum clearance in crawl space shall be determined by Member Facilities Department and the crawl space shall maintain negative pressure relative to the first floor.

Egress Stairs

The location and design of egress stairs within buildings should encourage their use for everyday vertical circulation. Magnetic door hold open devices, interconnected to the building fire alarm system, are allowed to keep interior doors to egress stairs in an open position to encourage their use.

Stairwells shall have an outlet on every landing. (Not required in residence halls)

Area of Refuge

Area of Refuge shall be provided at each level without ground access in all buildings with elevators.

Access Panels

Access Panels shall be placed to easily access equipment and shall be sized allow for the removal of the largest component of equipment being accessed through the access panel.

Roof Access

Roof access shall meet OSHA standards and shall be provided to all roof levels. Fall protection shall be provided for all roof levels that do not meet OSHA standards.

Equipment Rooms

All mechanical and electrical equipment rooms must be designed with adequate aisle space and clearances around equipment to accommodate maintenance from the floor and replacement of items. There must be a defined pathway from all equipment rooms to the building exterior of adequate size to permit the replacement of equipment. Means of removal of equipment shall be by the most cost efficient path approved by the University FPO department. Plans and elevations for all equipment rooms, at a scale not less than ¼" = 1'-0", shall be prepared for each room to indicate that adequate circulation and maintenance areas are provided. The A/E shall model all required clearances and pulls required for maintenance and repair of equipment for coordination purposes. All equipment rooms must be designed to control noise transmission to adjacent spaces including corridors. Depress the floor of all mechanical rooms 1-1/2 inches and uniformly slope the entire floor to minimum 4 inch floor drains connected to the building sanitary sewer system. All mechanical rooms containing HVAC equipment shall be designed to current version of ASHRAE 15. Provide hose bib connection in all mechanical rooms.

Electrical Closets

Electrical closets must be designed so that three walls stack vertically and NO wall is centered on a structural beam that would interfere with vertical risers. Do not route building utility capable of

conveying liquids through or above electrical closets. The only exception allowed is the branch sprinkler line serving only the sprinkler head in an electrical closet. NFPA 13 allows the electrical closet to be un-sprinkled if a 2 hour wall and door are used. Access to electrical closets must be from within the building from the corridor system and not through any other space. Door should open out from space to maximize usable interior floor and wall area.

Main Switchgear room

The main electrical switchgear room for a building should be located on the ground floor except for when first floor elevation is below 500yr+2ft flood plain. It shall never be located below restrooms, custodial closets or at an elevation that requires sump pumps for drainage. The layout of the room shall comply with the National Electric Code requirements for minimum clearances.

Communication Closets

Communication room must be designed so that all four walls stack vertically and NO wall is centered on a structural beam that would interfere with vertical risers. Communication room must be provided on each floor and located such that no wiring run exceeds 270 feet. A single communication room can generally serve 10,000 square feet of floor space. Access to communication room must be from within the building from the corridor system and not through any other space. Door should open out from space to maximize usable interior floor and wall area. NFPA 13 allows the communication room to be un-sprinkled if a 2 hour wall and door are used. Do not route building utility capable of conveying liquids through or above communication room.

Air Handler Rooms

Air Handler rooms should be designed so that they stack vertically and NO wall is centered on a structural beam that would interfere with vertical risers. The spaces must be arranged and sized to provide maintenance staff with safe access to all pieces of equipment for routine maintenance. Access to air handler rooms must be from within the building from the corridor system and not through any other space. Door should open out from space to maximize usable interior floor and wall area. Provide a minimum of 2 feet clearance on two sides and one end of the air handlers. Provide clearance for removing coils and filters. These clearances shall be modeled for coordination purposes. Air handler rooms shall be insulated for sound. Depress the floor of all mechanical rooms 1-1/2 inches and uniformly slope the entire floor to minimum 4 inch floor drains connected to the building sanitary sewer system. All mechanical rooms containing HVAC equipment shall be designed to current version of ASHRAE 15.

Rest Rooms

Rest rooms should be designed to provide Airport style entrances if at all possible. If doors are utilized on rest room entrances they shall be equipped with automated door operators.

Rest rooms should be grouped with custodial closets for ease of maintenance and to reduce plumbing runs. Rest rooms should be sized to accommodate a minimum fixture count determined by the International Plumbing Code (IPC) and accessibility based on the Texas Accessibility Standards. Rest rooms serving assembly areas must accommodate short term, high volume traffic and will require higher fixture counts. Also, the number of fixtures for women's rest rooms shall be higher than minimum determined by the IPC. The increase will vary according to project and campus, up to a fixture ratio of 1/3

men to 2/3 women. Confirm this with the campus Facilities Department. Either the built in trash receptacle shall be located adjacent to the restroom door or there shall be floor space available next to the door for the placement of a large trash can.

Direct or reflected lines of sight into restrooms and dressing rooms from the corridor are prohibited.

In Buildings housing Public Events, such as Theaters, Concert Halls, or Sporting Events provide at least one accessible family friendly restroom containing one water closet, one lavatory and a diaper changing station. Location should be adjacent to building entrance or elevator lobby on first floor.

All commodes and urinals shall be wall hung.

Loading Dock

Provide a loading dock when possible. The loading dock and service yard shall be screened from major streets and views.

Trash Dumpsters/Trash Compactors

A dumpster area must be provided to facilitate front end loading sanitation vehicle refer to Division 32 Exterior Improvements.

Recycling Room

None required at this time.

Custodial Closets

Should consist of 80 sq. ft. minimum floor space, include shelf, mop sink and hand operated eye wash. The minimum clear width of a custodial closet is six feet. A closet of this size can serve a floor area up to 50,000 gross square feet (gsf). Building designs with floor areas larger than 50,000 gsf shall require more than one custodial closet per floor. Door should open out from closet to maximize usable interior floor and wall area. Custodial closets shall not have telephone, cable television, data, mechanical or electrical cables or equipment in it nor roof or under floor access through it. The custodial closet should be located near the restrooms on each floor. Closet access shall not be through any other room.

Smaller custodial closets approved by FPC Project Manager and Facilities Department may be utilized in outlying small buildings but they should have the basic items such as mop sink, shelving, mop and broom hangers, and room enough to store cart and floor buffer. These custodial closets should have an area of not less than fifty (50) square feet and a minimum clear width of five feet.

Custodial rooms shall be keyed to custodial master.

Custodial closet shall contain the following:

1. Standard 2'x2'x8" floor corner mounted mop sink located close to door.
2. Wall surface materials around the mop sink must be moisture resistant.

3. Floors shall be sealed concrete sloped to a minimum 4” floor drain.
4. Mop Rack – Bobrick B-224 X 30” mounted over service sink.
5. Provide 12” deep shelving on one side wall, at least four 12” shelves 16" to 18" apart with the bottom one being mounted approximately two feet above the floor. Top shelf shall be 18” below ceiling. Adjustable heavy duty shelving systems are acceptable.
6. Overhead fluorescent lighting controlled from switch just inside door.
7. One electrical duplex outlet. Use GFI outlets where required by code when placed near a water source.
8. Wall hung lavatory near door with hand held eye wash.
9. Hot and cold water faucets, 30” above bottom of service sink.

Attic Stock Rooms

Each building shall have a storage room sized appropriately for the attic stock that is required to be provided for the building.

Provide 18” deep heavy duty shelving on one side wall, at least four 12” shelves 16" to 18" apart with the bottom one being mounted approximately two feet above the floor. Top shelf shall be 18” below ceiling. Adjustable heavy duty shelving systems are acceptable.

These rooms shall be keyed to the Mechanical Master.