

For the Member Institutions of the



Texas Medical Center

Houston, Texas
www.tmc.edu



JANUARY 23, 2013

ARCHITECTURAL
STANDARDS

PLEASE NOTE

The newly revised Texas Medical Center (TMC) *Architectural Standards* are effective January 23, 2013 and are posted on TMC's Web site, www.texasmedicalcenter.org/conducting-business-with-texas-medical-center/.

Revisions made to the *Architectural Standards* from time to time may be viewed on TMC's Web site. For easy reference to the latest revisions, check the "Revision Table" on Page i-1 of the *Architectural Standards*. Significant revisions will also be communicated to TMC Planning and Construction Advisory Council members.

The *Architectural Standards* should be referred to often during the planning, approval, and construction phases of all architectural/construction projects on TMC Campuses.

REVISIONS DISCLAIMER

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ORGANIZATION OF ARCHITECTURAL STANDARDS



Texas Heart Institute — Denton A. Cooley Building



Architectural Standards

Organization of Architectural Standards

These *Architectural Standards* supersede and replace all previous existing *Architectural Standards*. The source for retrieval of the *Architectural Standards*, as most recently revised, is the Texas Medical Center Web site, www.texasmedicalcenter.org/conducting-business-with-texas-medical-center/. A history of revisions/new issues is located at the end of the *Architectural Standards* on Page i-1. Each section is identified with the TMC logo. Each section is identified with a consecutive lettering system. Pages are consecutively numbered within each lettered section. Where appropriate, each architectural standard makes reference to related graphics, such as drawings, illustrations, photographs, and/or maps. These graphics are included in Appendix A.



*New and expanded buildings
1994-2009*

INTRODUCTION AND PURPOSE



*Baylor College of Medicine Jewish Institute for
Medical Research (L) – Margaret M. Alkek
Building for Biomedical Research (R)*

Texas Medical Center (TMC) and Member Institutions desire that the campuses are accessible, attractive, and safe for all campus participants. Pursuit of managed growth through master planning and infrastructure coordination is the common goal. To this end, TMC has established and adopted *Architectural Standards* as provided for in the *Charter and Restrictions Governing Texas Medical Center, Houston, Texas*. In part these restrictions state:

When any part of the above described tract is conveyed to a grantee to be used for permitted purposes, such fact shall be so stated in the deed of conveyance, and the grantee in such deed shall, as part of the consideration for such conveyance, covenant and agree that it will:

- *commence the construction on said property within two years from the date of the conveyance and continue the construction to completion with due diligence of a suitable and proper building or buildings...;*
- *erect no building or other improvement, and make no alteration, extension or improvements to existing building or buildings upon premises that does not conform to the Architectural Standards established by Texas Medical Center, Inc., nor commence any building, improvement, alteration, or extension until the plans and specifications therefor shall have first been submitted to and approved by the Trustees of the Texas Medical Center, Inc., or by a suitable committee or authority designated by such Board of Trustees;*



In the 1930's, a businessman named Monroe Dunaway Anderson was thinking of good and beneficial ways to use his money to help mankind, thus The Texas Medical Center was born

Architectural Standards

Introduction and Purpose

The Board of Directors of TMC recognizes the need for standards governing the expansion of the TMC Campuses.

A formal review and approval process is in place for the Member Institutions and their consultants to present new building design and construction projects. The formal review process is outlined in Section C – Project Review and Approval Process.

These *Architectural Standards* are written directives intended to support our desires and goals for developing campuses that work for and benefit all.



Baylor College of Medicine, dedicated 1948 — first building in the new TMC

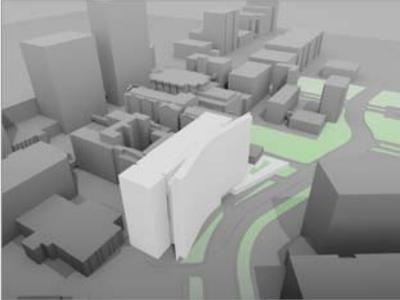
PROJECT REVIEW AND APPROVAL PROCESS



*M.D. Anderson Cancer Center Zayed Building for
Personalized Cancer Care*

Architectural Standards

Project Review and Approval Process



The Methodist Hospital Research Institute—conceptual design

All building projects proposed for construction on TMC covenant restricted land require approval. A building project is defined as all new buildings, garages, renovations, expansions, or significant improvements to existing structures or sites. Any planned demolition of an existing building requires TMC approval. The erection of temporary buildings requires approval, but is strongly discouraged.

Member Institutions contemplating a building project shall notify TMC of the proposed project. The President of TMC will review and determine whether the building project is of sufficient scope to require submission through the TMC Forward Planning and Building and Lands Committees. If submission is required, the President or designee will review the design documents in detail with the Member Institution and their consultant prior to each committee meeting to identify issues that should be resolved before proceeding through the formal committee approval process.

All parking constructed within the Texas Medical Center Campus shall be controlled and operated as part of the Texas Medical Center central parking system. Additionally, compliance with requirements of the City of Houston's South Main/Texas Medical Center Parking Management Area (PMA) ordinance shall be confirmed if the building site is located in the PMA. Thereafter, the Member Institution shall follow the Project Review and Approval Process as further described in this section. Initial notification and subsequent correspondence shall be sent to the Senior Vice President, Facilities Engineering.

Two major steps – The review and approval process:

1. **Conceptual design** – Presentation to the Forward Planning Committee and subsequent approval by TMC’s Board of Directors.
2. **Final design** – Presentation to the Building and Lands Committee and subsequent approval by TMC’s Board of Directors.

1. **Conceptual Design** – The following steps describe the conceptual design formal review process:

- 1.1 **Conceptual Design Review** – In order to obtain approval by TMC’s Board of Directors, the requesting Member Institution shall make a formal presentation to the Forward Planning Committee to provide a preliminary overview of the project. The conceptual design is the first phase of the design in which drawings are conceptual in nature. The Forward Planning Committee is responsible for advising the Board of Directors regarding strategic planning and program implications of such planning. The committee is scheduled to meet quarterly; however, special meetings may be called at the discretion of its chairman. The Forward Planning Committee shall review conceptual design plans in order to determine if the proposed project follows the guidelines of the campus master plans and is in compliance with all appropriate sections of the *Architectural Standards*.



Texas Children's Hospital Neurological Research Institute – conceptual design



Baylor College of Medicine – Michael E. DeBakey Library and Museum – conceptual design

- 1.2 **Conceptual Design Presentation** – In addition to the physical documents required for each review phase, an electronic presentation, such as Microsoft PowerPoint, shall be made to the Forward Planning Committee. The conceptual design presentation shall include, at a minimum, the following information:
- 1.2.1 A brief description of the future project including the function of the facility (patient care, research, and/or education) and whether this will be a new building, garage, expansion, renovation, significant improvement, repurposing or demolition.
 - 1.2.2 Site survey with location of existing buildings, utilities, trees, streets, parking, drainage and other significant elements affecting the new facility.
 - 1.2.3 Building footprint, preliminary design and site plan with relationship of the project to the campus in general and other neighboring buildings.
 - 1.2.4 Building gross square footage, which is defined as all **enclosed** areas (all functions) including mechanical/penthouse spaces, lobbies, stairways, vacant floors, etc., but excluding interstitial space and attached parking facilities. For parking garages, Member Institutions shall provide the total gross square footage of the entire building and the number of parking spaces. For buildings containing underground, adjacent or partial parking floors, the gross



*M.D. Anderson Cancer Center
Albert B. and Margaret M.
Alkek Hospital — conceptual
building expansion plan*

square footage should be broken out as parking and non-parking.

- 1.2.5 Project preliminary schedule for design and construction.
- 1.2.6 A description of anticipated future vertical or horizontal expansion, or phased development, if applicable.
- 1.2.7 Preliminary plans to comply with the South Main/Texas Medical Center Parking Management Area parking space requirements.
- 1.2.8 Design features to protect the building and the electric vault from flooding.
- 1.2.9 Plan for skywalk connections to adjoining existing or future buildings. Refer to Section H — Skywalk Circulation Network, for additional information.
- 1.2.10 Declaration of any variances from the *Architectural Standards*.

2. **Final Design** – The following steps describe the final design formal review process:

- 2.1 **Final Design Review** – In order to obtain approval by TMC’s Board of Directors, the requesting Member Institution shall make a formal presentation to the Building and Lands Committee to provide an overview of the final design. The final design is the specific design, developed after approval of the conceptual design, which has sufficient final detail to begin construction. The Building and Lands

Architectural Standards

Project Review and Approval Process

Committee is responsible to report to the Board of Directors for matters related to facilities construction, infrastructure development, land acquisition, land apportionment, construction coordination, and compliance with the *Architectural Standards*. The committee is scheduled to meet quarterly; however, special meetings may be called at the discretion of its chairman. The Building and Lands Committee shall review the final design plans in order to determine if the proposed project is in compliance with both the *Architectural Standards* and the City of Houston’s South Main/TMC Parking Management Area (PMA). If in compliance, the committee will recommend approval to the TMC Board of Directors.



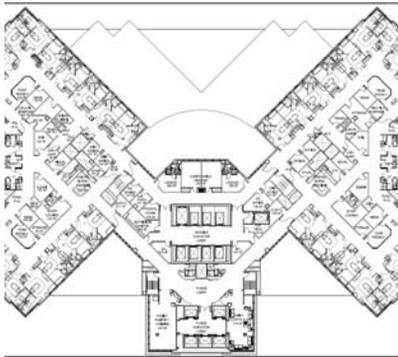
Texas Children’s Hospital Feigin Center expansion site plan with setbacks

2.2 Final Design Presentation – In addition to the physical documents required for each review phase, an electronic presentation, such as Microsoft PowerPoint, shall be made to the Building and Lands Committee. The final design presentation shall include, at a minimum, the following information:

2.2.1 An update to the key project features, previously presented to the Forward Planning Committee, including project description, schedule, future expansion, skywalk connections, flood protection, and any requested variances from the *Architectural Standards*.

Architectural Standards

Project Review and Approval Process



*M.D. Anderson Cancer Center
Albert B. and Margaret M. Alkek
Hospital expansion – typical
inpatient unit*

- 2.2.2 A perspective rendering (three dimensional preferred) and/or scale model of the proposed facility. If a rendering is used, provide an aerial view with a station point of sufficient height to indicate spatial relationships between the project and adjacent facilities such as other buildings and streets. Include plan and elevation renderings as appropriate to explain the design clearly.
- 2.2.3 A site plan at a scale that clearly indicates the relationship of the proposed building to the campus at large, related buildings, streets, drives, and adjacent utilities. Indicate the street rights-of-way and compliance with Section D – Building Setbacks as required by the *Architectural Standards*. The setback calculations must be submitted along with a graphical representation showing how the 25 foot minimum and 50 foot average setback requirements have been met.
- 2.2.4 A separate landscape plan indicating locations/species of significant trees to be lost by the project and locations/species of significant trees being planted as a part of the project. Indicate major landscape design features including hardscape. Demonstrate compliance with landscape standards as outlined in Section I – Landscape.

Architectural Standards

Project Review and Approval Process



Texas Children's Hospital Neurological Research Institute – final design

- 2.2.5 Floor plans of the project indicating number of floors and a description of all square footage associated with building and parking structures.
- 2.2.6 Definitive plan for meeting the South Main/TMC Parking Management Area requirements.
- 2.2.7 Estimated cost of construction.
- 2.2.8 Demonstration that the building's exterior signage complies with the City of Houston's Special Employment District signage requirements as explained in Section J – Wayfinding and Building Signage.
- 2.2.9 Results from a building exhaust test which shows that no environmental hazard will impact neighboring buildings.
- 2.2.10 Preliminary discussion and approval of site constructability strategies, including safety, traffic and pedestrian mobility plan with TMC.
- 2.2.11 The architect of record will submit a sealed letter stating that the design is in full compliance with all appropriate sections of the *Architectural Standards*.

- 3. **Temporary Buildings** – TMC discourages the use of temporary buildings. If a Member Institution determines that a temporary building

Architectural Standards

Project Review and Approval Process

is necessary, they shall request approval from TMC. If approved, a temporary building shall be used for a limited duration, with a specific agreed upon removal date.

4. **Approval Process** – The TMC Board of Directors shall approve all requests for new buildings, renovations, and demolitions. The approval process shall include the conceptual design and the final design.

- 4.1 **Conceptual Design** – The Forward Planning Committee will refer its recommendation to the Board of Directors for approval. After receiving a written approval from the Board of Directors, the Member Institution may proceed with the design to the extent necessary for presentation of the final design to the Building and Lands Committee.

- 4.2 **Final Design** – The Building and Lands Committee will refer its recommendation to the TMC Board of Directors. At the same time, any *Architectural Standards*' variance requests reviewed by the Building and Lands Committee will be forwarded to the Board of Directors with a recommendation. After review by the Board of Directors, TMC will provide written notice to the Member Institution indicating approval or disapproval. The letter will include any contingent requirements and strategies to meet the South Main/Texas Medical Center Parking Management Area. Construction on covenant restricted land cannot proceed without approval of the final design.



*Texas Children's Hospital Rise School
conceptual design*

Architectural Standards

Project Review and Approval Process

5. **Design Changes** – If the Member Institution makes significant design change(s) subsequent to the approved final design, a re-submittal of design changes shall be made to the Building and Lands Committee for approval. Examples of significant design changes include adjustments to the number of floors, parking strategies, size of footprint, flood protection, setbacks, etc.
6. **Project Constructability** – Before construction commences, the Member Institution and their general contractor shall meet with TMC to review and receive approval for construction site logistics, mobility plans, and pedestrian safety from TMC. Refer to Section L – General Construction, for guidance.



Memorial Hermann-Texas Medical Center – Heart and Vascular Institute – conceptual design

BUILDING SETBACKS



*Houston Academy of Medicine – Texas Medical Center
Library – Jesse H. Jones Library Building*

Building setback requirements on TMC covenant restricted land are intended to create a uniform, attractive appearance in front of institutional buildings and to accommodate green spaces which include sidewalks, street lighting, wayfinding signage, landscape, street furniture, and underground public and private utilities. Building setback requirements are mandatory to any building or complex of buildings having frontage on a TMC private street. The architect of record shall use these setback standards and through the Member Institution, provide to TMC calculations and graphical representations to demonstrate full compliance. The architect of record, through the Member Institutions, will provide a sealed drawing depicting the building in relationship to the street right-of-way. TMC will provide the current street right-of-way for all TMC streets adjacent to the proposed building. Buildings on TMC covenant restricted land having frontage on public streets shall meet the applicable city or state setback requirements.



John Freeman Research Building – street level setback requirement

Building Setback Requirements and Definitions:

1. **Face of Building** – The face of building is defined as any part of a building’s façade including ledges, shading devices, overhangs, and any other elements (excluding patient porte-cocheres) that are attached to the building. Setback measurements shall be made to the farthest projecting element on the proposed building.
2. **Building Setback Requirements** – Building setback is measured to the face of the building as shown in the drawing, Building Setback, in Appendix A, Page ii-1. Two rules apply for building setbacks:

- **25 foot Minimum Building Setback (MBS)**
- **50 foot Minimum Average Building Setback (MABS)**

The Minimum Building Setback (MBS) shall be 25 feet from the street right-of-way, measured horizontally from the street right-of-way and perpendicular to the face of building.

The Minimum Average Building Setback (MABS) shall be 50 feet or greater and is defined as the total area between any building line and the street right-of-way, measured horizontally, and perpendicular from the building face to the street right-of-way.

The MABS Compilation Formula is as follows:

- 2.1 Determine the Total Linear Feet (TLF) of building line parallel to the street right-of-way.
- 2.2 Determine each individual setback area (length of wall multiplied by setback dimension) and add all individual setback areas together for a Total Setback Area (TSA).
- 2.3 MABS is equal to TSA divided by TLF. If the Member Institution can demonstrate supplemental street level open spaces such as open plazas, courtyards, and side yard spaces not defined by 2.1 above, but serve the intent of the setback requirements, it may add these supplemental areas to the Total Setback Area in 2.2 above for consideration. However, adding the supplemental area to the Total Setback Area initially shall henceforth preclude its use for setback calculations and for future building additions. The supplemental street level open spaces shall be subject to approval in accordance with the Section C – Project Review and Approval Process.

Architectural Standards

Building Setbacks

Patient Entrance Weather Protection Structures:



The University of Texas M.D. Anderson Cancer Center



Harris Health System – Ben Taub General Hospital



St. Luke's Episcopal Hospital

3. **Building Structures Below Grade** – Below grade structures extending beyond their street level building shall be at least five feet below adjacent private street top-of-curb. All plans for below grade buildings extending beyond dimensions of the above grade building shall require approval. Below grade buildings shall not encroach on utility zones or the TMC Commons Area.
4. **Property Line Setback Requirements** – Member Institutions are encouraged to maximize the setback distance between structures on adjacent properties. Zero lot line development is not permitted. TMC shall review and approve these property line setbacks.
5. **Patient Entrance Weather Protection** – Any porte-cochere, canopy, or similar structure whose principal purpose is to provide weather protection at a primary patient entrance may extend into the 25 foot Minimum Building Setback, provided that:
 - 5.1 Any such extension into the setback area is minimal.
 - 5.2 The visual and functional impact of such structure on setback area is minimized.
 - 5.3 The design of such structure is approved in accordance with Section C – Project Review and Approval Process.
6. **Miscellaneous Structures** – Structures that impact building setbacks shall adhere to special design requirements. The miscellaneous structures include, but are not limited to the following:

Architectural Standards

Building Setbacks



Hardscape in the 25 foot setback requirement



TIRR Memorial Hermann – floodwall outside the 25 foot setback



Baylor College of Medicine – Cullen Building – flagpoles are allowed in 25 foot setback

- 6.1 **Walls and Fences** – Walls and fences along property lines perpendicular to streets shall not extend into the 25 foot setback. Walls and fences parallel to streets shall not be located within the 25 foot setback unless they form a part of the hardscape as described in 6.2 below.
- 6.2 **Hardscape** – Hardscape elements used as retaining or decorative walls to support landscaping plant materials and/or paving may be allowed within the 25 foot setback provided that the design of the structures and landscaping is approved in accordance with Section C – Project Review and Approval Process.
- 6.3 **Floodwalls** – Floodwalls and other passive flood protection structures, as described in Section G – Flood Protection, shall not be constructed within the 25 foot setback.
- 6.4 **Transportation, Security and Parking Structures** – Surface parking lots, security booths, bus shelters, valet stations, and other similar functions may be approved within the 25 foot setback area.
- 6.5 **Light Fixtures, Signage and Flagpoles** – Landscape light fixtures, bollards, institutional identifier signage and flagpoles shall be approved within the 25 foot setback.
- 6.6 **Mechanical and Electrical Equipment** – Mechanical and electrical equipment such as cooling towers, condensing units, storage tanks, transformers, electrical panels, generators and similar equipment are not permitted within the 25 foot setback or the minimum average 50 foot setback.



Street furniture such as bicycle racks are permitted in the setback area



Skywalks are allowed within the setback areas

- 6.7 **Street Furniture** – Street furniture such as benches, litter receptacles, bicycle racks, etc. as defined in Section E – TMC Commons, will be approved within the 25 foot setback.
7. **Skywalks** – Skywalks, including their air rights foundations, support structures, vestibules, transition spaces, stairs, etc. are allowed within the setback areas. However, no visible part of the skywalk structure at grade shall be constructed within the setback area until the entire skywalk system is under construction. Refer to Section H – Skywalk Circulation Network, for additional information.

TMC COMMONS



M.D. Anderson Boulevard

The Texas Medical Center (TMC) Commons is defined as that area comprised of the TMC private streets, medians, sidewalks, and curb strips. The TMC Commons is illustrated in the drawing, Typical Street Section, in Appendix A, Page ii-2. Refer to Section D – Building Setbacks, and Section I – Landscape for additional information. For the benefit of all Member Institutions, infrastructure in the TMC Commons (with the exception of public utilities, privately owned fiber/data cables, and the thermal and chilled water utility distribution lines of the Thermal Energy Corporation) is privately owned and maintained by TMC. Work performed in the TMC Commons is restricted to TMC personnel and/or under the direction of TMC contractors, the City of Houston Public Works Department and CenterPoint Energy. Member Institutions and their contractors shall not work in the TMC Commons without prior written approval. Where permission is granted by TMC to a Member Institution to perform work in the TMC Commons, the following criteria shall be utilized:



Commons curb strip example

1. **Commons Curb Strip** – This term refers to that area of the Commons between the back of the street curb and the street side of sidewalks. Infrastructure within the curb strip and adjacent sidewalks that is removed, altered, or relocated in the TMC Commons shall be replaced with materials complying with TMC Commons Standards as explained in Appendix A, Page ii-3, when work is complete. Photographs and/or drawings of existing conditions and an inventory of elements expected to be disturbed shall be provided to TMC before any work in the TMC Commons curb strip begins. All replacement of trees and irrigation systems in the TMC Commons curb strip shall comply with Section I – Landscape.

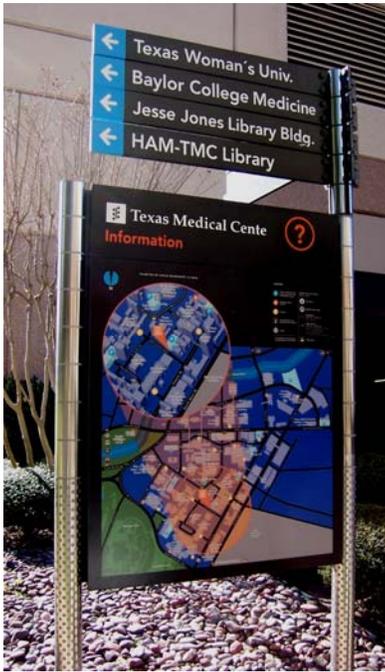
2. **Utilities** – Utility distribution and connections required by Member Institutions within the TMC Commons shall not be done without review and written approval of TMC. Construction methods, such as boring under streets may be approved provided no damage occurs to TMC Commons infrastructure or existing public and other utilities.
3. **Street and Pedestrian Lights** – The street and pedestrian light fixtures, their placement, and the underground electrical work to install them shall comply with TMC Commons Standards. The final location is subject to TMC approval.
4. **Street Furnishings and Wayfinding Signage** – All street furnishings and signage in the TMC Commons are the property of TMC except for the Metropolitan Transit Authority (METRO) bus shelters, which are clearly identified. Street furniture includes bicycle racks, litter receptacles, benches, and emergency phones. No substitutions to TMC specified street furnishings and wayfinding signage are permitted.
5. **Testing** – TMC reserves the right to require Member Institutions to hire an independent testing agency to inspect and test materials and methods of construction performed in the TMC Commons by Member Institutions and their contractors. The cost of such testing shall be borne by the Member Institution.



Emergency phone

Architectural Standards

TMC Commons



Pedestrian directory

6. **Repair of Damage** – If damage occurs in the TMC Commons caused by Member Institutions or their contractors, the Member Institutions shall report such damage to TMC.

PARKING MANAGEMENT AREA



*John P. McGovern Texas Medical Center
Commons Building*

Architectural Standards

Parking Management Area



TMC Smith Lands Parking Lot



METRO Transit Center



TMC Garage No. 2



TMC Garage No. 4

In 1989, the City of Houston established Parking Management Areas (PMAs) for high density urban development areas, bounded by major thoroughfares, and near permanent transit facilities in order to ensure adequate parking and eliminate spillover neighborhood parking. The ordinance required a minimum of 1.2 parking spaces per 1,000 gross square feet (GSF) of enclosed floor area built.

Subsequently, the City of Houston commissioned Texas Medical Center as the administrator of the South Main/Texas Medical Center Parking Management Area (SM/TMC PMA). As such, Texas Medical Center has an ongoing responsibility to monitor construction plans of its Member Institutions within the boundaries of the SM/TMC PMA to ensure that adequate parking spaces are built to satisfy the current requirements of the PMA, report the status to the City of Houston on an annual basis, and to represent the Member Institutions if they wish to add additional properties to the boundaries of the SM/TMC PMA. Current boundaries of the SM/TMC PMA are shown on the Parking Management Area (PMA) Map in Appendix A, Page ii-4.

Compliance with the SM/TMC PMA is achieved as follows:

- **Newly Constructed Buildings** – The parking plans for all new or expanded buildings in the SM/TMC PMA must be submitted and approved for compliance by the TMC PMA Administrator, the Texas Medical Center Building and Lands Committee, and the Texas Medical Center Executive Committee before commencing construction. TMC will work closely with each Member

Architectural Standards

Parking Management Area



TMC Garage No. 7

Institution planning a new building or building expansion to develop a parking solution that meets the needs of the Member Institution’s patients, employees and visitors while preserving TMC’s scarce land resources.



TMC Garage No. 10

These strategies will be addressed on a project-by-project basis in order to satisfy Texas Medical Center’s overall compliance with the SM/TMC PMA while ensuring long-range mobility access and transit considerations.



TMC Garage No. 17



TMC Garage No. 19

FLOOD PROTECTION



Tunnel Flood Door

All new building construction projects and major renovations proposed for construction on covenant restricted land provided by TMC are required to implement Flood Protection Measures. Flood Protection Measures implemented by Member Institutions shall protect their own facilities in a manner that does not negatively impact their neighbors. Protection from flooding may be accomplished in two major ways:

- **Permanent Passive Flood Protection Systems**
- **Active Flood Protection Systems**

Permanent Passive Flood Protection Systems involve fixed barriers and/or floodwater activated barriers, such as floodwalls, predetermined safe elevations, and other non personnel activated measures to protect a facility from flooding. **Active Flood Protection Systems** are partially or fully preinstalled systems which require personnel activation prior to a high water event. Active flood protection is used where access is normally required for regular flow of pedestrian or vehicular traffic. The following minimum criteria should be considered:



Passive flood protection

1. **Building Codes** – All buildings shall meet federal, state, county, city, and other applicable codes and regulations for flood protection/hazard mitigation.
2. **Critical Facilities** – For TMC hospitals and other critical facilities, the building ground floor elevation shall be protected to a minimum of the applicable 500-year floodplain elevation.

Architectural Standards

Flood Protection

Examples of Active Flood Protection Devices:



3. **Interconnected Member Institutions** – Each Member Institution shall provide an effective flood barrier, including floodgates and flood doors, between their facilities at all vulnerable connection points to their neighbors' building.
4. **Electrical Vaults** – Electrical vaults housing utility equipment from commercial providers are considered critical facilities and shall be located at the 500-year floodplain elevation plus one foot.

SKYWALK CIRCULATION NETWORK



Texas Children's Hospital Skywalk

Member Institutions are interconnected by a network of streets, walkways, and plazas at grade level. This network is conveniently and safely integrated with public transit, campus shuttle services, and parking facilities.

For all new buildings and major renovations under design, the design shall incorporate above-grade skywalk passageways and accessible connections.

1. **Skywalk Network** – The typical skywalk shall connect one building to adjacent buildings. The campus skywalk circulation network shall be integrated with clear design of easily accessible public lobbies, which will connect horizontally as well as vertically, and internal corridors within buildings. The TMC Pedestrian Circulation Master Plans of December 2002 and August 2005 outline the plans and the concepts for skywalks as shown in the drawing, Recommended Future Skywalks, in Appendix A, Page ii-5. In addition to pedestrian circulation, the skywalk campus network will allow opportunities for above-grade utility integration and distribution with easy access for maintenance. Skywalks will be designed with the ability to transport people and materials/supplies by rubber tired vehicles. Designs for future skywalk connections are subject to TMC review and approval as explained in Section C – Project Review and Approval Process.

M. D. Anderson Cancer Center Skywalks:



2. **Design of Skywalks** – The following criteria shall be used in the design of skywalks and associated utilities:



*St. Luke's Episcopal Hospital –
Fannin Street skywalk*



*St. Luke's Episcopal Hospital –
Garage No. 2 – skywalk*



Skywalk with utilities

- 2.1 **Skywalks** – Skywalks shall consist of an enclosed bridge structure containing a space for pedestrian circulation and, if advantageous, a separate, contiguous space for utility distribution. For both security and architectural reasons, skywalks shall maximize transparency with the use of clear glass on sides and glass roofs or skylights where feasible. Skywalk widths and architectural features are subject to review and approval as set forth in Section C – Project Review and Approval Process. The minimum pedestrian ceiling clear height shall be ten feet, and a minimum clearance height over highest roadway point of 16 ½ feet.
- 2.2 **Skywalk Utilities** – The skywalk design offers opportunities for distribution of utilities to be located contiguous to and typically below the pedestrian circulation. Typical utility distribution includes chilled water, steam, and other miscellaneous pipes, fiber optic and data. Utility connections shall be below grade or contained within the skywalk and not exposed to view.

LANDSCAPE



Median Landscaping – John Freeman Boulevard

The Landscape Standards establish a consistent design within the TMC Commons for trees and other plant species. The consistent design throughout the Texas Medical Center enhances the character of TMC and promotes a shaded environment of visual order. In order to clarify the design intentions of the Landscape Standard, the following definitions are provided and are illustrated in the drawing, Typical Street Section, in Appendix A, Page ii-2.

1. Landscaping Areas –

- 1.1 **TMC Commons** – TMC Commons is defined as that area composed of the TMC streets, medians, sidewalks and curb strip.
- 1.2 **TMC Medians** – The dividing area, either paved or landscaped between opposing lanes of traffic.
- 1.3 **Curb Strip** – The landscape area between the curb and the sidewalk.
- 1.4 **TMC Institution Building Frontage** – The landscape area between the TMC Commons and building setback line is where Member Institutions have the opportunity to express their unique landscape identity. Refer to Section D – Building Setbacks for additional information.



John Freeman Boulevard – median landscaping

2. **Maintenance Responsibility** – In areas identified as the TMC Commons, TMC shall maintain all hardscape, trees, shrubs and irrigation systems. Member Institutions shall similarly maintain the landscape area identified as the building frontage.



Representative curb strip with paved crosswalk

3. **Sidewalks in the Commons** – Sidewalks adjacent to curb strips shall be concrete with a minimum width of five feet and a maximum width of eight feet. Sidewalks shall follow the curve of the road, but may be gently curvilinear where the street is linear. Sidewalks are recommended to be six feet from back-of-curb. Where the sidewalks are curved, the setback from the back-of-curb may vary, but must maintain a minimum of four feet. See Section E – TMC Commons for additional information.



Example of tree spacing

4. **Placement of Plants and Trees** – The strip between the curb and sidewalk is recommended to be six feet wide. Curb strip plantings shall be turf, Asian Jasmine, or one of the Lily family ground covers, such as Liriope. No shrub or ornamental flowering plants shall be permitted in the curb strip. Curb strip trees shall be planted in a consistent manner and with a spacing of 30 feet as shown on the drawing, Sidewalk and Tree Layout, in Appendix A, Page ii-6. The tree planting plan shall match as a mirror image on both sides of the street for the length of the block. In a similar manner, trees in the building frontage, between the sidewalk and the building setback line shall also be planted as shown on the drawing, Sidewalk and Tree Layout, in Appendix A, Page ii-6.

Trees in single rows shall be spaced at 30 feet on center. Except where there are conflicts with existing underground utilities, or where space is

available, trees shall be planted in diagonally spaced, staggered double rows.



Example of tree protection

4.1 **Tree Relocation and Removal** – Where new construction projects of Member Institutions impact existing trees, the following criteria shall apply:

4.1.1 Trees that can be relocated in good condition shall be replanted.

4.1.2 Trees that cannot be relocated in good condition shall be replaced with trees approved by TMC. All diameters shall be measured four feet above planted grade.

4.1.3 Relocated and replacement trees shall be planted in locations within Member Institution building frontage or within the TMC Commons landscape areas in approved locations.

4.1.4 Trees near areas of construction work that may be subject to damage shall be protected.

4.2 **Tree Species** – The species of street trees planted between the curb and sidewalk shall be recommended by a registered Landscape Architect or Arborist and approved by TMC. The minimum tree size should be four inches in diameter as measured four foot above planted grade.

5. **Irrigation** – All trees and plants in the TMC Commons will be watered by a TMC approved irrigation system.

WAYFINDING AND BUILDING SIGNAGE



Wayfinding Signage at the Texas Medical Center

Architectural Standards

Wayfinding and Building Signage



Institutional identifier



Numbered entrance marker



TMC honorary marker

The Texas Medical Center (TMC) Wayfinding System and Building Exterior Signage Guidelines are designed to assist patients and visitors to quickly locate their destination. TMC Member Institutions shall follow the signage requirements which include:

1. **Wayfinding Signage** – The Texas Medical Center Wayfinding System, developed by the TMC Wayfinding and Signage Advisory Council, includes large numbered campus entrance, vehicular and pedestrian directional, street identification and institutional identification signs. This standardized assemblage of signs was approved for inclusion into the *Architectural Standards* on August 10, 2006 by the TMC Policy Council. Member Institutions needing either institutional identification or directional signage shall use these design standards. Texas Medical Center will facilitate the request and assist the Member Institution in determining the appropriate signage type, layout, location, and other planning aspects.
2. **Building Exterior Signage** – The City of Houston has designated the Texas Medical Center to be a Special Employment District. The district encompasses the Main Campus, certain areas within the Main Street Corridor, and the Mid, South and Leland Anderson Campuses. Within this Special Employment District, all building exterior signage requires the approval of the Administrator (President of Texas Medical Center). Requests for assistance and approval for building exterior signage shall be sent to the Senior Vice President, Facilities Engineering.

DROP-OFF DRIVEWAYS



M.D. Anderson Cancer Center – Albert B. and Margaret M. Alkek Hospital

All new buildings on TMC covenant restricted property shall have covered access driveways to facilitate patient, visitor, and service delivery drop-off and pick-up. The access driveways shall be designed to prevent queuing vehicles from extending into streets and blocking traffic. Access driveways may be located within the property setback area as defined in Section D – Building Setbacks, provided:

1. The visual and functional impact of the access drive on the setback is minimized.
2. The design of the access drive is approved in accordance with Section C – Project Review and Approval Process.



Texas Children's Hospital drop-off driveway



St. Luke's Episcopal Hospital drop-off driveway

GENERAL CONSTRUCTION



The Methodist Hospital Research Institute

Construction project "owners" shall manage their projects in a collaborative and respectful manner. Good neighbors minimize the risk and impact upon patients, researchers, students and visitors to the environs of Texas Medical Center. Owners are responsible for maintaining a clean, safe, quiet and accessible environment in the vicinity of the construction site. Construction projects at TMC shall meet all federal, state, and city codes and the regulations related to safety and environmental protection both on the construction site as well as within the TMC Commons. The following specific standards have been established to guide the Owner throughout all construction projects at TMC:

*M. D. Anderson Cancer Center
Albert B. and Margaret M. Alkek
Hospital Vertical Expansion:*



1. **Personnel Directory** – At the beginning of all construction projects within TMC, the Owner shall provide a directory containing:

- Name and physical address of the project.
- The start date of the project.
- Project owner and general contractor key personnel with emergency contact telephone numbers and e-mail addresses.

The directory shall be kept current throughout the construction project and copies shall be sent to the Senior Vice President, Facilities Engineering.

2. **Clean-up** – Owners shall require their contractors to maintain the construction site and adjacent properties, sidewalks, and streets free of trash. Within the construction site, contractors shall provide a vehicle tire wash area or equivalent to clean vehicles prior to their exiting the construction site. Contractors shall continually clean mud and remove debris that is tracked or has fallen onto adjacent



The Institute of Religion demolition



*Texas Woman's University
Dormitory demolition*

streets and sidewalks to maintain these areas in a clean, serviceable, and safe condition. Contractors shall prevent all runoff and debris from entering the storm sewer system.

3. **Noise, Vibration, Odors, Fire Hazards, and Dust Control** –

Contractors shall employ every possible means to minimize noise, vibration, odors, fire hazards, and dust emanating from their construction site. The normal operations of the healthcare, education, and research institutions shall not be negatively affected by construction activities.

4. **Demolition of Buildings** –

The owner shall provide detailed information on the proposed demolition project including the decision process used to select a methodology. The owner will be responsible to include all neighboring institutions in the early planning phases to seek their approval and ensure the safety of all personnel and property. All demolition projects will be reviewed and approved by TMC as explained in Section C – Project Review and Approval Process.

5. **Barriers** –

Owners shall require their contractors to construct a suitable safety perimeter barrier at all construction sites. There are two major types of barriers that contractors shall install: construction security fencing and covered pedestrian walkway protection. Each type of barrier shall be installed as follows:

- 5.1 **Construction Security Fencing** – Construction security fencing shall be a chain link fence system, a minimum of six feet high. The chain link fencing system shall be designed in accordance with City of Houston



Perimeter fencing in accordance with TMC specifications

requirements for wind resistance and approved by TMC. An approved woven polyethylene open-mesh privacy screen shall cover the chain link fence. The privacy screen shall be maintained for the duration of the construction. The privacy screen may be omitted for safety reasons in limited areas with TMC approval.

5.2 **Covered Pedestrian Walkway Protection** – Owners shall require their contractors to provide and maintain appropriate covered pedestrian walkways in areas adjacent to or affected by overhead construction activity. Covered walkways, including all structural elements, shall be designed to withstand wind loads as required by federal, state and local codes/regulations. An approved paint shall be used to paint the structure. Walkways shall be adequately lighted inside and out. The lighting plan shall be approved by TMC.

6. **Construction Cranes** – Owners shall require that tower and mobile cranes are designed to withstand wind forces and safety precautions as required by federal, state and local codes/regulations. Lifting of loads by construction crews shall be contained within the construction site. TMC will require approved



Pedestrian covered walkways – Main Campus



Cranes should be designed to withstand wind forces as required by federal, state and local codes and regulations



Night cranes on TMC Campus

air rights for cranes extending over TMC property and the TMC Commons Area. Where applicable, the Owner will work with TMC to provide indemnification for use of air rights over the TMC Commons Area.

- Streets** – Contractors shall not use, for construction purposes, the Texas Medical Center private streets or sidewalks without receiving approval from TMC. Contractors shall not cut or remove concrete or pavers within the TMC right-of-way without previous approval from TMC. Repair methods for all TMC streets will be approved by TMC. The highest priority use for surrounding City streets and streets on the TMC Campuses is to provide access for the ambulances, patients, students, visitors and employees arriving to Member Institution buildings. Texas Medical Center will assist construction contractors to accomplish their important mission on campus; however, blocking access on the streets and sidewalks shall be the last option considered. Requests for street or sidewalk closures shall focus on workweek non-peak hours and/or on weekends. A traffic plan, prepared by a professional traffic engineer, is required to receive approval and to assure TMC that vehicular access to Member Institutions is not blocked and that pedestrian mobility is not impaired. The traffic plan shall include a drawing showing general vehicular traffic flow within, to and from the construction site; detours, if necessary; vehicular and pedestrian directional signage locations, size and description of text; and any other pertinent information affecting traffic. Contractors shall also provide sufficient police officers, certified flagmen, beacons, barricades, and intuitive traffic control signage to assure a safe and orderly flow of traffic.

Architectural Standards

General Construction



Sidewalks shall not be closed to accommodate construction projects



TMC Campuses are non-smoking



As-built drawing

8. **Sidewalk Access** – Sidewalks within the TMC Commons are essential for pedestrian mobility and as such shall not be closed to accommodate construction projects. Owners and contractors shall provide a safe and accessible passageway for all pedestrians proximal to their construction site. Owners and contractors will provide a Pedestrian Mobility Plan for review and approval by TMC. The plan shall include safety considerations for crossing sidewalks with construction vehicles and compliance with the American with Disabilities Act Accessibility Guidelines.
9. **Emergency Vehicle Access** – Owners and their construction contractors shall at all times maintain full access to all buildings adjacent to the construction site for emergency vehicles, which includes firefighting equipment. Contractors shall, at no time, block or close roadways or fire lanes without alternate roadways and means of entrance approved by the City of Houston.
10. **Non-Smoking** – All TMC Campuses are designated as non-smoking areas, including construction sites.
11. **As-built Drawings** – Owners undertaking a construction project shall submit to TMC as-built drawings of their completed projects including all easements, sealed survey exhibits and metes and bounds. TMC will compile the as-built information into a Geographic Information System (GIS) and database for future campus planning. As-built drawings shall consist of civil site plans (surveys) and architectural plans (building elevations). Owners shall provide as-built drawings to TMC CAD and GIS Services in AutoCAD electronic soft copy (.dwg) and Adobe (.pdf) formats.

CONSTRUCTION - TROPICAL STORM/ HURRICANE PREPAREDNESS



Hurricane Ike – 2008

Architectural Standards

Construction — Tropical Storm/Hurricane Preparedness

In the event that a tropical storm or hurricane occurs in the Gulf of Mexico with predicted landfall affecting the greater Houston area, Member Institutions shall require their general contractor(s) to clear and secure jobsites to prevent flying debris from causing serious bodily injury and property damage throughout TMC. Preparations shall be completed at least 24 hours before tropical storm force winds are expected.

Framing and Scaffolding need to be Removed or Secured:



Essential Construction Site Preparation – At a minimum, the following jobsite preparations and actions shall be taken:

1. **Manpower** – Sufficient personnel shall be retained to properly clean and secure the sites.
2. **Scaffolding** – Horizontal boards shall be removed from scaffolding. Scaffolding framework shall be temporarily dismantled and properly stored or adequately secured to the building.
3. **Cranes** – The booms for jib cranes and mobile cranes shall be lowered and secured. No incidental equipment shall be secured at the jobsite by suspension from the crane hook. Tower crane booms shall be left free to swing with the wind.
4. **Concrete Formwork** – Formwork filled with concrete for at least one-half bay width, and placed to a temporary construction joint may be left in place. Bays of formwork not filled with concrete or filled to less than one-half bay width shall be temporarily removed and secured elsewhere on the site or moved offsite. Formwork shoring or reshoring supports left in place shall be secured at both the top and bottom with a positive attachment to the floor slab or formwork by lacing together.

Architectural Standards

Construction — Tropical Storm/Hurricane Preparedness



Dumpsters shall be emptied and secured



Building materials need to be removed or secured

5. **Waste Material Dumpsters** – Dumpsters shall be emptied of waste material prior to a storm event and secured using one of the following methods:
 - 5.1 Anchor at each corner with concrete blocks or footings with weight equal to a wind uplift load of 30 pounds per square foot applied over boundary area of the dumpster minus the empty weight of the dumpster.
 - 5.2 Place a woven polyethylene mesh or steel wire mesh covering over contents capable of resisting tension force of 200 pounds per foot of width.
 - 5.3 Place a steel plate or concrete slab weighing a minimum of 30 pounds per square foot over the entire top of the dumpster.
6. **Chain Link Fences** – Remove the privacy screen from chain-link fence systems.
7. **Loose Building Materials/Tools** – Contractors shall limit onsite storage of materials to immediate project needs. Secure or remove piles of gravel. Remove or tie/bind together and anchor down all loose building materials such as plywood, lumber, drywall, metal framing and other potential hazards. Equipment and tools shall be removed from the job site or adequately secured.
8. **Temporary Signage** – Temporary signage not required for safety reasons shall be removed. Remaining temporary signage shall be securely anchored.
9. **Storm Drains** – Storm drains around the site shall be cleaned and protected from construction site runoff.

10. **Portable Toilets** – Portable toilets not absolutely required for use shall be removed and remaining toilets will be emptied and properly secured.
11. **Covered Walkways** – Covered walkways and other erected structures shall be disassembled and properly secured if they do not meet the City of Houston wind resistant code.

REVISION HISTORY



Ronald McDonald House of Houston

Architectural Standards

Revision History

	Section	Date	Page	Explanation of Revision
A	Organization of <i>Architectural Standards</i>			
B	Introduction and Purpose			
C	Project Review and Approval Process			
D	Building Setbacks			
E	TMC Commons			
F	Parking Management Area			
G	Flood Protection			
H	Skywalk Circulation Network			
I	Landscape			
J	Wayfinding and Building Signage			
K	Drop-off Driveways			
L	General Construction			
M	Construction – Tropical Storm/Hurricane Preparedness			

APPENDIX A

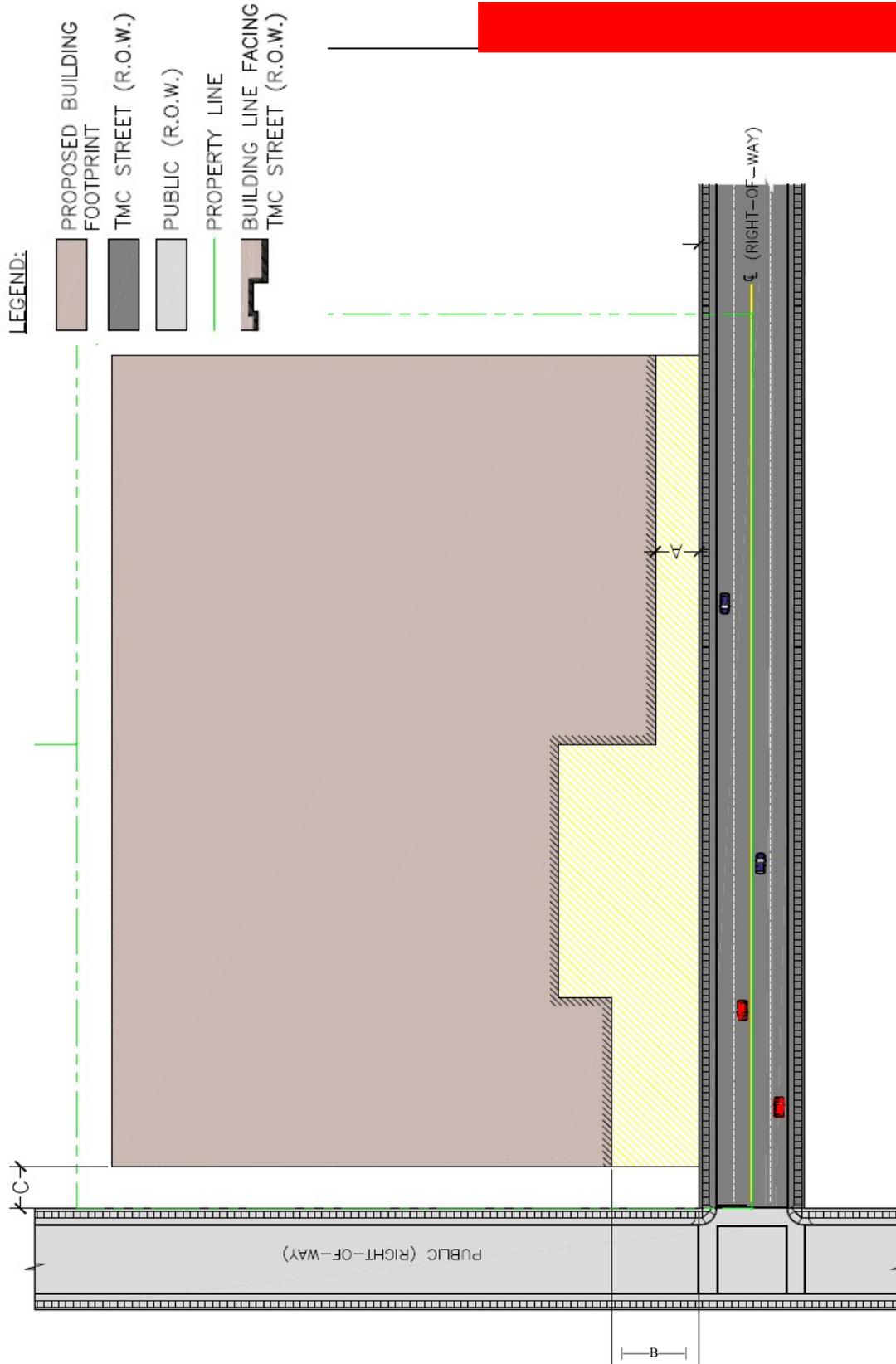


The Methodist Hospital Research Institute

Architectural Standards

Appendix A

Building Setback



- NOTES:**
- A. 25' MINIMUM BUILDING SETBACK (M.B.S.) – NO PORTION OF THE PROPOSED BUILDING CAN ENCROACH INTO AREA 25' FROM TMC STREET RIGHT-OF-WAY (R.O.W.)
 - B. 50' MINIMUM AVERAGE BUILDING SETBACK (M.A.B.S.)
 - C. SETBACK PER CITY OF HOUSTON REQUIREMENTS.
1. ALL CALCULATIONS MUST BE DETERMINED BY USING SURVEY QUALITY CAD FILES, WHICH ALSO NEED TO BE SUBMITTED TO TMC TO CONFIRM CALCULATIONS.
 2. BUILDING SETBACKS APPLY TO ALL SIDES TMC R.O.W.

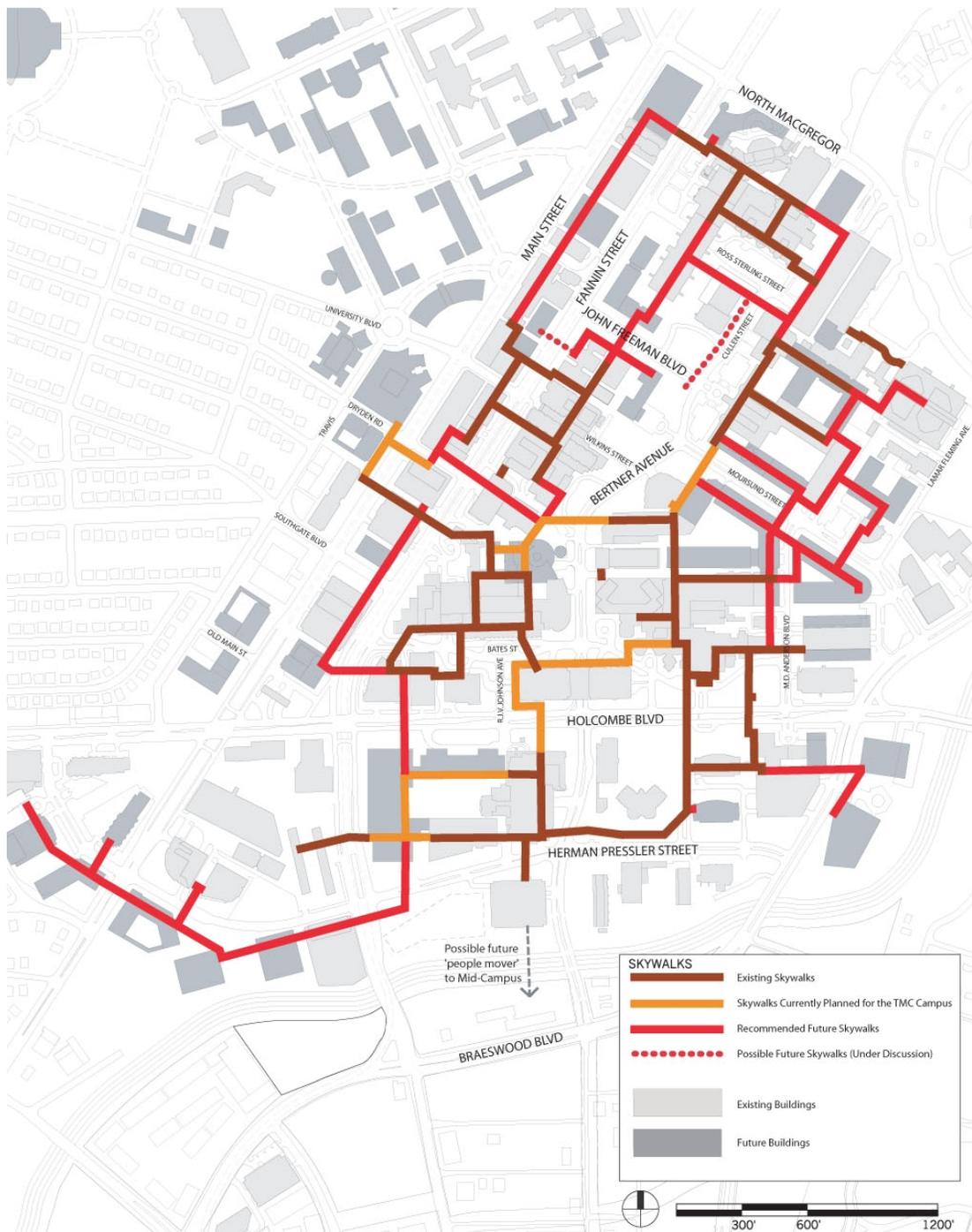
TMC Commons Standards

The TMC Commons Standards provide required specifications for consistent, high quality and functional architectural products which maintain and promote the beauty of the TMC Campus.

In order to obtain the most current TMC details and specifications, please contact:

Manager
Technical Information Systems
713-791-6427

Recommended Future Skywalks



Sidewalk and Tree Layout

