

SECTION 3 AD: ARCHITECTURAL DIVISION

Latest Update 7-14-11, See underlined text

PART II: SITE DESIGN

1. SCOPE:

- 1.1. This part outlines the minimum requirements for the design procedures for site development, for new buildings, and repair and alteration projects for existing buildings on the UM campus.

2. UM OVERVIEW:

- 2.1. **The UM Master Plan Goals:** The UM campus of approximately sixteen (16) city blocks adjoining Baltimore City's central business district is traversed by the city street grid which carries cross town traffic and contains most of the public service utilities which serve the campus. Most of the properties are owned by the State of Maryland to accommodate several independent institutions, each of which has a different involvement and interest in the overall physical environment of the neighborhood. Consequently, UM proposes to continue to transform the campus into a coherent, welcoming, and highly-imaged campus precinct.

- a. The goals of the UM Master Plan address the mandate for excellence in the University's programs, the growth of the University as a large-scale, stable employer and provider of community health and education services, and its location within the nationally recognized revitalization of Baltimore. The plan is based, in part, on an enhancement of the public rights-of-way as the primary organizing element. Work includes coordinated improvements in the public right-of-way, including upscale signature paving, wayfinding signage, sidewalk security lighting, and landscaping. In this, both the University and the University of Maryland Medical System (UMMS) have resolved to require that capital projects improve project site areas, as well as the adjacent sidewalks, in accordance with the University Center Manual which has been incorporated into the Design Guidelines in the Facilities Master Plan, as well as in these Design Standards.

- 2.2. Requirements for the design and construction of site work within the University campus precinct are based in three domains:

- a. **Domain 1:** Project site areas, including improvement of adjacent sidewalks;
- b. **Domain 2:** Baltimore City Public rights-of-way, including University-owned streets and alleys which are an overt continuation of the street grid;
- c. **Domain 3:** Utilities, including those owned by UM, the city, and private utility companies, and that infrastructure owned by the University or the

University of Maryland Medical System (UMMS) located in the public rights-of-way.

- 2.3. The University Office of Facilities Management (OFM) is responsible for coordination of all design and construction in these areas related to University projects, as is the University of Maryland Medical Center (UMMC) for UMMC related projects, each institution being responsible for coordination with the other and with the City of Baltimore and other jurisdictions having authority. The A/E consultant shall conduct the necessary coordination with Baltimore City and representatives of the surrounding properties and utilities as required for the successful completion of the contract documents, in cooperation with UM.

3. PROJECT SITE AREAS:

3.1. Campus Plan, Property and Topographical Surveys:

- a. The A/E contract for services will indicate the means by which a land survey of the site is to be provided. Unless otherwise directed, the A/E shall furnish a new land survey as a basis for design. All site information should be accurately transferred to the project site plan(s) as a base drawing, including bench marks or monuments, property lines with lot, block, plat, dimensions and bearings, adjacent buildings, natural features, existing contours, and all utilities with manhole invert elevations. Surveys shall indicate the date of the survey, the name, and the hand-signed seal of the registered land surveyor. The land survey shall be referenced in the contract documents as the basis of the site drawings.

- (1) A reproducible copy of the land survey indicating conditions prior to project work shall be provided to the UM OFM Project Manager for archive purposes.

- b. Projects requiring utility work in the Baltimore City rights-of-way shall survey the subsurface location of existing active and abandoned utilities, abandoned streetcar tracks, etc., as required to define the proposed work in accordance with the requirements for approval of the Baltimore City Department of Public Works.
- c. OFM will furnish the campus site and utility plan(s), as well as the general campus plan (UMSITE.dwg) for general information, via electronic transmittal. A CD-R disk may be prepared upon request. The A/E shall check this information against the project land survey, report all inconsistencies to the University, and correct the data as necessary. All new development shall be transferred to the UMSITE.dwg file. An accurate copy of the file shall be submitted on a CD-R disk to OFM at both the 100% complete-CD and Record Document phases in accordance with Section 4 of these Design Standards.

3.2. External Reviews and Environmental Requirements:

- a. **Hazardous Materials:** Unless otherwise indicated, the abatement of hazardous materials will be undertaken under a separate contract with

OFM, acting with the UM OFM Project Manager prior to design and construction work. Existing materials addressed by this method may include asbestos, PCB light ballasts, lead paint and subsurface contamination. Contractors and supervising industrial hygienists responsible for the work shall be certified by the Maryland Department of the Environment.

- b. Erosion and Sediment Control:** Erosion and sediment control devices and procedures shall be documented for review and approval by review agencies of Baltimore City and the Maryland Department of the Environment.
- c. Traffic Management:** As required by the project, the A/E shall prepare a traffic management plan, including location of barriers and design of temporary signage, for review and approval of the Baltimore City Department of Public Works.
- d. Historic Structures/Archeological Sites:** Work involving designated historical buildings and/or sites and buildings of historical interest require review and comment by the Maryland Historical Trust as directed by the UM OFM Project Manager. In most instances, this review will be completed as a separate contract prior to commencement of design and/or construction.
- e. Baltimore City Public Way Improvements:** Work within the public right-of-way on city streets shall be reviewed and approved by The Department of Public Works. A standing franchise agreement between UM and the city has defined the sidewalk finish materials, private lighting systems and street tree placement. The design of new sidewalk improvements utilizing established finish materials, private local lighting systems, street trees and furnishings shall be presented for review by the Baltimore City Site Plan Review Committee in coordination with UM. Additional review may be required by Baltimore City Urban Design Advisory Review Panel (UDARP) and State of Maryland Architectural Review Board (ARB), and should be performed under the auspices and within the presence of UM.

3.3. Subsurface Investigation:

- a.** Unless the A/E contract for services directs otherwise, the A/E shall determine the extent of subsurface investigation required for design and furnish an appropriate geotechnical survey, including a drawing which indicates the location of all borings and a scaled graphic representation of the boring logs, soil types and bearing capacities. Reports of surveys shall indicate the date(s) of the investigation, the name, and the hand-signed seal of the registered engineer responsible for the work
- b.** OFM shall review and approve the proposed plan for erosion and sediment control, location of borings and/or other excavations prior to commencement of the work. If available, OFM may provide copies of previous nearby subsurface surveys to assist in planning the survey, but such work shall not be substituted in lieu of a current investigation. The

A/E shall coordinate with UM requirements for scheduling, work restrictions, and access to the site.

- c. A limited number of sites on the campus have been identified as having potential archeological interest. UM will arrange for conducting required archeological investigations, attaining approval of the Maryland Historical Trust, and reporting such information to the A/E.

3.4. Interior Sites:

- a. Renovation projects will typically be located in part of an occupied building in which adjacent activities must remain operational. In all instances, the construction documents shall address specific project requirements such as phasing of the work, protection of existing materials to remain and/or remain operational, temporary emergency exit routes, restrictions on working conditions, mitigation of noise, smoke, and vibration, management of building materials and debris, etc. The design and construction documents must clearly indicate how each requirement is to be addressed by the builder.
- b. Similar to the requirements of exterior sites, an interior site may require an engineered survey, such as elevations, a structural analysis of condition and capacity, abatement of hazardous materials, materials and trash management, exterior chutes and grade level dumpsters, temporary project demising partitions, etc. Construction documents shall clearly define such related work rather than default to requirements of the University General Conditions and/or contract change orders.
- c. Proposed work within, buildings designated as historic shall be undertaken only upon the direction of UM which will be responsible for obtaining the approval of the Maryland Historic Trust and the State Clearing House.

3.5. Demolition:

- a. Demolition and/or other site preparation shall be documented as part of the scope of each project. Documentation of all demolition work shall indicate the extent, in both horizontal and vertical planes, required phasing, temporary construction, traffic control, limits of work and staging areas. Hazardous materials abatement shall be defined as a separate contract and contractors for this work shall be certified by the Maryland Department of the Environment.
- b. UM construction projects often require that site preparation and demolition work be completed as a separate phase prior to new construction. Also, such work may be required to support the survey of existing conditions. OFM shall determine the need for design and documentation for a separate demolition phase.
- c. Proposed demolition of buildings shall be undertaken only upon the direction of UM who will be responsible for obtaining the approval of the

Board of Regents and the Board of Public Works with comments from the Maryland Historic Trust and the State Clearing House.

3.6. Site Design and Improvements:

- a.** All project sites, exterior as well as interior, are an integral part of a complex urban and/or building fabric. In reaction to previous development; which addressed only the particulars of each project and has resulted in the lack of an effectively coordinated and readily identifiable campus image, UM Facilities Master Plan and Appendix, Design Guidelines, latest edition require that each new project respond to its physical context. Consequently, all project site design shall integrate new work into the existing physical setting as a means of enhancing the whole, including the upgrade of sidewalks within the public right-of-way and adjoining sites within the scope of the project budget.
 - (1)** State-funded capital projects preclude unrelated expenditures for off-site improvement except in the public right-of-way adjacent to project work.
- b.** Site usage and coverage shall conform to requirements of the UM Facilities Master Plan Design Guidelines, latest edition as well as the project program, which define requirements such as set-back and build-to easements, heights, entrance and service locations, etc. View corridors to landmarks or other scenic opportunities which will enhance the perception of an academic and research center of the first quality shall be analyzed and incorporated into the design. Unless specifically defined otherwise in the project program, any proposed variation from these requirements shall be formally requested in writing for UM approval.
- c.** Site improvement drawings shall indicate all finish contours and fine grading to meet adjoining elevations, and to positively drain surface storm runoff away from buildings and entrances to the Baltimore City storm water system. Surface water and roof drains from the site shall not be directed across the surface of a public sidewalk to the gutter. Paving types for driveways, pathways, parking lots, loading areas, and curbing shall be profiled for the proposed use in accordance with the standards of Baltimore City Department of Public Works, and comply with the University Master Plan Design Guidelines, latest edition. Special attention shall be given to the geometry and paving of loading areas, service of trash dumpsters and access for emergency response equipment.
- d.** Materials for site use shall be specified in the construction documents. The specifications for concrete paving, curbing, and unit paving materials shall be included in the specification section for Site Work.
- e.** The design of all entrances, railings, walks, etc. shall provide for the requirements of the ADA Guidelines and ANSI Code for barrier-free access.

3.7. Landscaping:

- a. All landscape materials, including soils, trees, shrubs, sod and perennials, shall be furnished and identified as #1 grade or better in accordance with the “American Standard for Nursery Stock (ANSI Z60.1) current edition”, and shall be installed in accordance with the current standards of the Associated Landscape Contractors of America.
- b. All plant material; shall be maintained from time of installation until acceptance by the University. From the date of acceptance, all material shall be maintained and warranted for not less than two full growing seasons defined as April 1st through October 31st. Maintenance shall be defined as those activities necessary to not only keep the installed items alive, but also a proactive approach to promoting vitality and growth. Maintenance and warranty activities shall include watering and irrigation, appropriate fertilization, weeding, pruning, and replacement of dead material.
- c. Replacement materials shall be like-in-kind plants that shall be warranted for an extended two years, as defined above as two growing seasons with care, from the date of installation.
- d. Landscape Subcontracts shall specifically require that first mulching be replaced either after one year or before expiration of the warranty.
- e. Unless otherwise directed by the University, plant materials shall conform to the recommendations of the UM Facilities Master Plan Design Guidelines, latest edition. Street trees shall be provided at approximately thirty (30) feet o.c., of a single species along each street, but in a variety of species among the several streets to control disease and add visual interest. All plant material shall be appropriate for an urban environment, indigenous to the local region and acclimatized or grown locally, and shall be as maintenance free as possible. Plant material shall be scheduled on the drawings, showing quantities and size, with details for preparation and planting. Calipers shall be specifically noted in the documents to be measured twenty four (24) inches above grade.
- f. All existing plant material disturbed or removed as part of the construction documents, must be replaced with a size/species of like and kind, including areas adjacent to a site or damaged by construction operations close to plant material. Removal or alteration of any existing turf area must be re-sodded in a manner which restores the disturbed areas to existing or better condition. Seeding shall not be permitted. Sod shall be installed in lawn areas.
- g. Ground cover plant material shall be reviewed by OFM. Generally, ivy, cottonaster, and other materials which catch and hold wind blown trash and harbor rodents shall not be used.
- h. **Special Areas:** Certain areas of the campus require special attention, care and review as directed by OFM. In these areas, design or construction work must be reviewed and approved by the Maryland

Historical Trust, and no work shall be undertaken in these areas without the consultation and/or supervision of an experienced nurseryman and/or landscape architect. These areas include:

- (1) The lawn of Davidge Hall has been identified by the Maryland Historical Trust as the only undisturbed site on campus. Consequently, it is mandated for archeological investigation if it is to be disturbed. Further, it is the site of a National Landmark which is reviewed by the National Parks Service.
 - (2) The Westminster Burying Ground, established in 1786, contains the graves of many early leaders of Baltimore as well as that of Edgar Allan Poe and family, and several early nineteenth century tombs of exceptional historical and architectural interest.
- i. **Irrigation System:** Consideration shall be given to utilizing an engineered irrigation system for automatic watering of lawn and planting beds adjacent to buildings, subject to approval by the University.
 - j. **Raised Concrete Planters:** Since street trees in urban environments such as UM can be exposed to damage from trucks, busses, and chemicals used to control ice and snow, the consultant, with approval from the university, may consider raised concrete planters as an alternate to street trees if the sidewalk is wide enough to support them without impeding the pedestrian traffic.
 - k. **Planting Beds:** When planting beds are designed as part of the buildings exterior façade and are located under a roof overhang where natural rain water will not irrigate the bedding or where planting beds are located in areas subjected to long periods of sun light, include in the design an automatic watering system with a programmable timer controls.

4. BALTIMORE CITY RIGHTS-OF-WAY AND UM-OWNED STREETS:

- 4.1. **General:** All design and construction work within the Baltimore City rights-of-way and/or within UM-owned streets, which continue the city street grid and may be used by general traffic or access by emergency response equipment, shall conform to the engineering requirements of the Baltimore City Department of Public Works Book of Standards (BPW Standards). The A/E, acting with OFM, shall be responsible for obtaining all reviews and the approval of Baltimore City in a timely manner. UM will pay the cost of such fees and permits from the project contingency fund.
- 4.2. UM and Baltimore City have a standing franchise agreement for the placement and maintenance of utilities in the public rights-of-way, but new work requires a right-of-entry agreement and inspection by the City. The A/E shall prepare and submit required documentation, including engineering design documents, a traffic management plan and construction schedule. UM shall review and approve all relevant contractual agreements.

- 4.3. Sidewalks:** Concrete sidewalks, both with-in the public rights-of-way or on State property, shall be built in accordance with Baltimore City BPW Standards. The elevation of most walks shall be depressed to receive a masonry finish in accordance with the University Design Guidelines.
- a. Demolition of concrete walks, no matter how small an area may be required, shall be shown to be removed to the nearest joint line. Thus, replacement concrete will fill an entire “panel” so that the appearance of patchwork is minimized. Specify to save concrete pavers and/or brick for reinstallation.
- 4.4. Alleys:** For reasons of security and maintenance, UM wishes to discourage the use of secondary streets and alleys for non-university related purposes. Consequently, the design of these roadways may be developed as semi-private access driveways consistent with the public needs for security, fire equipment access, and utility maintenance. Paving shall be included in the construction documents. Projects adjoining alleys shall provide general lighting to a minimum five (5) foot candle level, and ten (10) foot candles in service and emergency exit areas. Lighting fixtures shall be selected and placed so as to not produce a glare which veils passive surveillance of the area.
- 4.5. Roadways and Curbing:** Public streets, and campus driveways and parking lots shall be designed in accordance with the requirements of the Baltimore City Department of Public Works Book of Standards (BPW Standards), including reinforced concrete base and bituminous surface coats, as noted below:
- a. **Curbing:** All curbs shall be steel-formed poured-in-place concrete according to detail BC Type ‘A’, except at an existing condition which requires a curb with an integral gutter pan (BC Type ‘A-modified’). Extruded concrete curbing shall be installed only with specific approval of Baltimore City and OFM. Bituminous curbs, BC type ‘B’ shall be installed only in parking lots on University property or for temporary conditions in which replacement with concrete is part of the project scope.
- b. **Driveways, Garage Entrances, and Other Entrances From The Public Street:** Except as otherwise directed, entrances shall be designed as depressed curb concrete aprons in accordance with BPW Standards for BC Type ‘C’. Where an entrance crosses a walk finished in accordance with the UM Facilities Master Plan Design Guidelines, latest edition the apron shall be a minimum seven (7) inch thick reinforced concrete depressed to receive a finish of 12 inch x 12 inch x 2 1/2 inch precast concrete pavers manufactured and installed for low-speed, medium-weight traffic use and set according to the manufacturer’s written recommendations.
- c. **Storm Inlets:** New or rebuilt storm water inlets shall conform to the requirements of Baltimore City Department of Public Works. If located in the curb/sidewalk area, the top elevation of the structural concrete slab shall be depressed to receive finish paving materials of brick or precast concrete pavers.

5. UNIVERSITY CENTER ENVIRONMENTAL DESIGN MANUAL:

- 5.1. Paving of Sidewalks and Project Walkways:** Except as directed otherwise by the University, all street sidewalks and entrances shall be finished with a field of nominal 18 inches x 24 inches precast concrete pavers in running bond, set perpendicular to the curb or across the direction of pedestrian traffic. An edge band, approximately five (5) feet wide, of paving brick laid bed-face surface in a running bond perpendicular to the curb shall be placed between the concrete paver field and the street curb. The line between the brick and precast concrete paver finishes shall be straight and aligned from block-to-block to effect a long, straight line from one end of the street to the other. All signage, lighting, street tree pits, parking meters etc. shall be contained within the brick band; no obstructions shall be located in the precast concrete paver field.
- 5.2. Sidewalk Improvements:** The existing sidewalk improvements located at 620 W. Lexington Street along the south and west exterior of the Lexington Street Building shall be matched when UM projects, for non-historical buildings, include sidewalk improvements. The existing sidewalk improvements located at 620 W. Lombard Street along the south and east exterior of the Davidge Hall shall be matched when UM projects, for historical buildings, include sidewalk improvements.
- 5.3.** Specify for the contractor to provide a quantity of extra “attic stock” paving materials, usually 5% of both concrete pavers and brick, as directed by OFM as stock for repairs.
- 5.4. Concrete Pavers:** Concrete sub-slabs shall be finished with the University standard paver, currently provided by Hanover Architectural Products.
- 5.5. Brick Paving:** A curbside edge band between street tree pits intended to accommodate University private lighting system and all signage shall be set according to one of two methods, either on a mechanically compacted granular fill to provide water drainage and aeration for street tree roots, or on a latticrete mortar or asphaltic bed on concrete subslab the same as adjacent precast concrete pavers, both in accordance with the following:
- a. All Brick Fields:** Specify “Rosecroft Brick Pavers”, nominal 4 inches x 8 inches x 2 1/4 inches, as manufactured by the Glen-Gary Corporation, Wyomissing, PA 19610, set in running bond perpendicular to the curb line. The joint between brick and concrete pavers shall be straight and not undulate or otherwise respond to conditions of the adjacent building. The use of header or soldier courses as edge bands to modulate local conditions varies across campus and shall be recommended by the A/E.
 - b.** Exceptions to the brick material are in the 500 block of West Redwood Street where “Azalea” paving brick has been used to match nearby Baltimore City improvements, and in University Square where a dark brown paver predates these Design Standards. Repairs in each of these areas shall match the adjacent material.

- c. **Depressed Curb Ramps:** Specify “Cocoa Double four (4) inch brick pavers” as manufactured by the Glen-Gery Corporation, Wyomissing, PA 19610. Bricks shall be laid in a running bond across the ramp with the center score aligned with the end joint in adjacent courses so as to form a grid pattern similar to stacked bond to form drain channels. The campus contains a variety of finish materials on depressed curb ramps installed prior to a 1996 agreement with the Baltimore City Development Corporation on an acceptable substitute for the rescinded ADA recommendations.
- d. Provide staked steel edge bands where necessary to contain paving and to maintain a straight edge at planting areas. Steel angle edging should be used at the back of uneven existing granite curbs similar to those installed on the north side of the 500 Block Lombard Street.
- e. **Setting Beds:** Setting beds for curbside brick paving shall be set as either:
- (1) On concrete subslab, provide a minimum 3/4 inch thick latticrete grout using a latticrete slurry coat as bond applied both on the surface of the subslab and under the pavers. Latticrete grout must be sufficiently moist to hold together as a ball when hand compressed, and shall be hand-tamped and screeded in place; or as recommended by the contractor that will guarantee the work, and as approved by OFM; or a,
 - (2) Minimum 3/4 inch thick bituminous concrete setting bed with a tack coat applied immediately before placing pavers. Screed and hand tamped into place.
 - (3) Curbside brick may be set on a twelve (12) inch thick bed of granular fill to provide water drainage and aeration for street tree roots. The fill shall be set on a heavy separator cloth over graded subsoil, and mechanically compacted in four (4) inch lifts. Provide a layer of Geotex woven polyester soil reinforcement within the top four (4) inch layer.
 - (4) Specify that brick shall be set with tight butt joints and swept diagonally once a week for at least four (4) weeks (total of four times) with a finely-screened natural sand to ensure full joints.
- f. Locate depressed curb ramps only at street intersections to discourage mid-block crossing. Slopes and geometry shall comply with ADA guidelines, and provide a four (4) foot wide ramp, plus slope aprons as necessary to meet adjacent grades. Grade the gutter so as to avoid ponding at the foot of, and on to, the ramp.
- g. **Expansion Joints:** Specify that the contractor shall provide exterior expansion joints at less than thirty (30) feet o.c. between slabs, and at the curb and vertical surfaces. Joints shall be filled with 1/2 inch x 4 inch remolded 100% natural cork material manufactured for this purpose, and

shall be sealed with a polyurethane self-leveling sealant in a color to match adjacent material.

- 5.6. Tree pits shall be designed to be spaced approximately thirty (30) feet o.c. with the opening as wide as the brick paving strip along the curb, by approximately five (5) foot long, or as appropriate for the design. If the brick edge strip is set in compacted granular fill, pits shall be formed by a 6 inch wide x 18 inch deep poured-in-place concrete collar, depressed to receive a mortar-set paving brick edge flush with other brick paving. If the brick edge strip is set on a concrete subslab, the opening shall be formed by a turned down edge of the subslab.
- 5.7. In lieu of tree grates, all the tree pits shall be finished with a minimum six (6) inch thickness of finely shredded hardwood mulch. Tree grates may be used in paved "plaza" areas where crowded pedestrian traffic requires a durable walking surface. In this case, the grate shall be cast iron with knock-out growth rings as approved by OFM. The grate shall be attached to the concrete collar of the tree pit with tamper-proof flush screws or bolts. Fill the pit with top soil to the top surface of the grate, do not leave any recessed space between the grate and grade.
- 5.8. **Wayfinding Signage:** Directional signs, map boards and building name plaques shall be custom designed porcelain enamel finished steel sheet according to The University of Maryland Sign Master Plan, Chermayeff & Geismar, November, 2002. The A/E shall design concrete footings and/or other devices to receive the signs. Text for the signs shall be submitted for review by OFM.
- 5.9. **Street Furniture:** Projects which include exterior waste receptacles, benches, etc. shall be furnished in accordance with the UM Facilities Master Plan Design Guidelines, latest edition.
- 5.10. **Sidewalk Lighting:** Unless otherwise indicated in the project program, each project adjoining a street or other major walkway shall maintain the existing Baltimore City street lighting grid, consisting of thirty (30) foot high natural finish spun aluminum masts with 250w high-pressure sodium vapor "cobra head" lamps spaced approximately ninety (90) feet on-center (o.c.).
 - a. In addition, all projects shall provide a private lighting system to raise the foot candle (fc) level to a minimum of five (5) fc along the pedestrian path of travel for the perception of security as well as institutional identity. Each system is powered from the project, or the nearest convenient University building or secondary feeder through a University-owned conduit system. A lighting level analysis showing the fc level shall be submitted for approval as required in Section 3 ED of these Design Standards. OFM will assist the A/E in the review of each project by Baltimore City for a right-of-entry permit to place the system.
 - b. Conventionally, the University standard fixtures are located in the brick paved area thirty (30) inches behind the curb line along the city streets and spaced equidistant between street trees at approximately forty five (45) feet to sixty (60) feet o.c., but not aligned with a similar configuration on the opposite side of the street. Except as may be approved by the

University, the fixture type shall be the same within each block. 'Type 1' has been designated for curbside use and has been used for on-site open space. A previously accepted 'Type 2' has been used only in University Square and University Suites on Fayette Street, and is currently not recommended by these Design Standards.

c. The University Standard Fixture Is:

(1) Type 1: Fixture:

- a)** Louis Poulsen Model #SATT-MAX -170-150w hps 120v
- b)** Lamp/ballast 150watt hps -medium base, coated, 120 vac postline
- c) Mast:** Louis Poulsen #DRA-10 HB-natural aluminum (UM)
- d) Base:** Flush concrete pedestal with four (4) bolts, cast aluminum with tamper proof set screws
- e) Control:** The private sidewalk lighting system shall be powered from a nearby University building service. The lighting circuit shall be controlled by the University's central energy management system (EMS), as described in Section 3 ED of these Design Standards.
- f) Pedestal:** Each fixture shall be set on a poured-in-place air-entrained concrete base designed to resist wind and impact loading, and set with the top depressed to accommodate the brick finish paving. Anchor bolts shall be placed according to the template and bolts supplied with the fixture.

- d.** All projects shall furnish a minimum of one additional fixture to the University, for maintenance stock. Projects which install more than ten (10) fixtures shall furnish a minimum of two (2) additional fixtures (twelve (12) supplied with anchor bolts, lamps and ballasts; ten (10) installed). Projects that include existing fixtures shall change out the existing 100w hps lamp and ballast to meet the new specification for 150w hps. Louis Poulsen offers a change-out kit that will fit the existing poles and provide necessary heat rejection.

5.11. Campus Emergency Phones: Emergency phones are installed at strategic locations throughout the UM Campus to provide quick and easy access to communication links to the UM Campus Police Department.

- a.** The requirement for the type of phone, either wall mounted or pedestal type unit and the location(s) shall be coordinated with the UM Project Manager with the UM Campus Police Department during all design phases of the project.

- b. Depending on the project requirements, and unless otherwise directed by the UM Project Manager, the A/E shall include at least one of the following phone types in the design:

(1) Wall Mounted Emergency Phone:

- a) Ramtel Corp. Model # PLW-6 MD(Midnight Blue)/RR733 with a two (2) inch Button
- b) Provide one (1) inch EMT or Non-Metallic conduit (depending on site conditions) from phone to the Main Telecommunications Room with pull string for communications wiring.
- c) Provide one (1) inch EMT or Non-Metallic conduit (depending on site conditions) from phone location to nearest electrical closet for 120 volt power connection. Obtain 120 volt power source from emergency panel board.

(2) Pedestal Mounted Emergency Phone:

- a) Ramtel Corp. Model # PLC 8 (Coordinate the complete catalog number with the UM Project Manager)
- b) Provide one (1) inch EMT or Non-Metallic conduit (depending on site condition) from phone to the Main Telecommunications Room with pull string for communications wiring.
- c) Provide one (1) inch EMT or Non-Metallic conduit (depending on site condition) from phone location to nearest electrical closet for 120 volt power connection. Obtain 120 volt power source from emergency panel board.

- c. The design for the installation and location of the phones shall be coordinated with all disciplines.

6. UTILITY SYSTEMS:

6.1. Mechanical and Electrical: See Section 3 MD and Section 3 ED of these Design Standards for specific design requirements for utility service materials, configuration and installation.

6.2. University Infrastructure Master Plan: See Section I of these Design Standards for information related to the University Infrastructure Master Plan, which describes ownership and maintenance of the University's utility services. Successive installations over the past one-hundred years has resulted in many locations where subsurface space is "full" and the installation of new services,

particularly those which cross the public right-of-way, must be specifically designed to avoid and/or protect, or relocate, existing systems. Existing conditions shall be surveyed in the schematic design phase and an outline of the proposed work should be included in the design development documents for cost estimating. The construction documents shall be developed as required for review and approval of Baltimore City, including a traffic management plan, etc.

- 6.3. University-owned utilities are located both in the public right-of-way and on State property. These include, but are not limited to, a system of medium voltage (13.2kV) cable feeders extending from a central primary service substation to individual University buildings including metering and sub-metering systems, signal duct banks for voice and data, and chilled water piping.
- 6.4. Space in the telecommunications duct banks, both University and City owned, shall be utilized as assigned by UM. The contract documents shall indicate clearly which cell is to be used and require confirmation in the field at the time of design and construction.
- 6.5. Water service entry vaults shall be located in the public rights-of-way and built in accordance with requirements of Baltimore City Department of Public Works.
- 6.6. The top elevation of new manholes shall be set to receive concrete paving subslab and masonry sidewalk finish or asphalt roadway surface.
- 6.7. **Manhole Covers:** For new manholes constructed for Baltimore City or other utilities the manhole covers shall be the standard cast iron type with lettering as directed by the utility. For new manholes constructed for the UM ductbank systems, the manhole covers shall be the standard cast iron type with styles and lettering designed in accordance with the UM standard details.

END OF SECTION 3 AD - PART II