DIVISION C
UNIVERSITY STANDARDS FOR MATERIALS AND PRODUCTS
INDEX

C.1 GENERAL...................................................................................................................................................  2
C.2 COLOR SELECTIONS ....................................................................................................................................  2
C.3 CONCRETE WALKWAYS..........................................................................................................................  5
C.4 BRICK & STONE MASONRY......................................................................................................................... 6
C.5 INTERIOR PARTITIONS (GYPSUM BOARD)..............................................................................................  7
C.6 ACCESS PANELS ..........................................................................................................................................  7
C.7 ROOFING SYSTEMS ....................................................................................................................................  7
C.8 MOISTURE PROTECTION ..........................................................................................................................  7
C.9 METAL DOORS AND FRAMES ..................................................................................................................  8
C.10 WOOD DOORS ..........................................................................................................................................  8
C.11 HARDWARE ................................................................................................................................................  8
C.12 KEYING .....................................................................................................................................................  8
C.13 COMBINATION LOCKS ............................................................................................................................ 11
C.14 TOILET ACCESSORIES ............................................................................................................................. 11
C.15 SECURITY SYSTEMS ................................................................................................................................ 14
C.16 SECURITY STANDARD .............................................................................................................................. 14
C.17 SUSPENDED ACOUSTIC TILE CEILING................................................................................................... 16
C.18 RESILIENT FLOOR TILE ........................................................................................................................... 16
C.19 FIRE PROTECTION FEATURES ................................................................................................................ 16
C.20 MOVEABLE PARTITIONS (LANDSCAPE) ................................................................................................ 18
C.21 CUSTODIAL FACILITIES ........................................................................................................................... 18
C.22 EXTERIOR METAL PANELS ....................................................................................................................... 18
C.23 DELIVERIES AND STORAGE .................................................................................................................... 19
C.24 TELECOMMUNICATIONS ........................................................................................................................ 19
C.25 ELECTRICAL -- GENERAL REQUIREMENTS ....................................................................................... 19
C.1 GENERAL

The Professional will review the following list of items and will incorporate those that apply to the project into the Contract Documents.

C.2 COLOR SELECTIONS

A. The color selections of materials for use on buildings' interior and exterior surfaces will be approved by the University. During the design stages of the project, the Professional will submit color boards or review and approval. These boards will be reused during construction as may be required. Material samples will be approved by the University before ordering or fabrication.

B. Guidelines:

1. Submissions:
   a. It is the Professional's responsibility to prepare and submit for University approval a Color Selection Board showing color, finish and texture of ALL specified interior finish materials to be used in the project, properly labeled for room location. The final Board must be submitted together with the Final Contract Documents and will be kept at the job site during construction. The Selection Board will have space to allow for the approval signature of the FM Project Manager, as well as the User.
   b. Colors and materials samples will be submitted to the Facilities Management Project Manager. The Professional will not submit colors or materials samples to the Users. It is the Facilities Management Project Manager's responsibility to submit the colors and materials samples to the Users, after they have been reviewed and approved by the University Architect or his/her appointed representative. The Professional is discouraged from submitting individual color samples for approval at different times during the design or construction process.
   c. The Professional is also required to submit catalog cuts, for items shown below, as well as any other items that are considered necessary by the Professional or the University Project Manager for a proper depiction of the project.

The following is a list of cuts and samples to be submitted:

- Carpet: Min. 12"x12" sample
- VCT: Min. 2"x2" sample
- Vinyl or rubber base: Sample
- Paint colors: Min. 2"x2" color chip
Ceiling tile and grid: Catalog cut and material sample
Toilet partitions: Catalog cut and sample
Ceramic tile: Sample of colors to be used, as well as drawing showing pattern.
Lighting fixtures: Catalog cut and color of fixtures, except University standard.
Diffusers, electrical boxes, etc.: Color chip, if other than white
Hardware Finish: Catalog cut and finish
Doors and frames: Paint chip and/or veneer finish sample
Blinds and drapes: Fabric sample 6”x6” min.
Countertops and counters: Color and material sample
Furniture: Catalog cuts, fabric and other materials samples (veneers, metal finishes, etc.)
Elevators: Walls, floors and ceiling finishes

d. Once bids are awarded, the Professional will obtain from the Contractor samples and/or catalog cuts of materials not specifically identified in the Contract Documents and will update the Color Selection Board for approval. The Contractor will not be instructed by the Professional to proceed ordering the interior materials until the University has approved all materials and color samples.

2. Brief Guide to Colors and Materials Selection:

a. General:

The following Guide has been developed in order to ensure that the colors and materials provided in University interiors are easy to maintain, promote energy conservation and do not become “obsolete” as Users of the spaces change.

1) Use of the University colors and seal: There is no requirement for the Designers to use the University colors (blue and gold) in the building interiors, unless specifically requested by the Users. If the University colors are to be applied in graphic form, the University standard colors must be used. If the University seal is used, modifications or omissions of part of the seal are not acceptable.
2) Wall paint: Wall paint colors will have a minimum reflectance rating of LRV 75, except for accent walls, for which this reflectance rate does not apply. Accent walls will be limited to a maximum of 25% of the total wall surface of the room.

3) Ceiling paint: Ceiling paint color will have a minimum reflectance rating of LRV 85. Use of dark colors on ceilings is not acceptable for energy conservation reasons.

4) Exposed utilities and building systems: The Professional will make a concerted effort to locate new pipes (including sprinkler piping), wires, raceways, outlets, ducts and miscellaneous utilities and systems in existing finished spaces, behind walls or above ceilings, so as not to detract from the architecture of the space. If this is not possible due to economics or building constraints, alternative exposed locations will be agreed upon with the Project Manager. Professional must specify that utilities/systems components that are to remain exposed will be painted the same color as the background wall/ceiling, so as to make them as inconspicuous as possible unless otherwise specified by applicable Codes. (Note -- At the present time, the Code does not require sprinkler piping in finished spaces to be painted red.)

5) Vinyl composition Tile and base: Vinyl tile will be variegated, in a medium to medium/dark range. Colors of tile and base will be in the neutral range (gray, beige, brown, cream, etc.)

6) Restrooms: Ceramic tile or mosaic will be specified for restroom floors and base. Floor tile color to be light, neutral color. The use of color accents is optional. Walls will be either tile or epoxy paint. Colors to be also light and neutral, with optional color accents. It is acceptable to use the same colors and materials in both male and female restrooms.

7) Elevators: Flooring will be Heuga carpet tiles or vinyl composite tile. Wall panels will be plastic laminate, cherry wood grain, or material to match existing elevator interiors. Ceiling will be modular louver type plastic diffuser, off-white color.

8) Door frames and doors: Paint color or veneer to match interior color scheme. Doors leading from the renovated area to a public corridor will be painted or finished to match existing corridor doors on the corridor side.

9) Public Corridors: The materials, style and colors to be used in public corridors, will be consistent with the architectural style of the building and also with the existing building colors.

10) Carpet: The Professional will specify the University’s standard carpet, in standard colors, unless otherwise authorized in writing by the FM Project Manager. If alternative carpet is specified, the quality (weight, yarn, etc.) will be at least equal to that of the
standard carpet. **Professionals are highly discouraged from using plush pile carpets, colors that are too dark or too light and also single color carpets, as they are extremely difficult to maintain.** The best performing carpets are those that have a loop weave in a combination of at least two (2) colors in a medium range.

11) **Hardware:** The Professional will match the existing building hardware, in type and finish. Keying will be reviewed with the FM Project Manager.

12) **Lighting Fixtures:** University standard lighting fixtures will be specified, unless otherwise specifically approved in writing by the Project Manager, for special conditions. When non-standard fixtures are used, the lighting fixtures will have the following characteristics:

   - Made in the USA
   - Commercial or institutional quality
   - Incandescent fixtures are not allowed
   - Energy-saving
   - Standard bulbs and other replacement parts such as glass shades will be readily available in the Pittsburgh market
   - Finishes will be maintenance-free

13) **Toilet partitions:** Will be floor-mounted type, solid plastic by Santana or equal. Colors to be selected from manufacturers' standards.

14) **Window blinds:** To match building standard. If the building does not have a standard, blinds will be horizontal slat mini-blinds, ½ inch aluminum slat, in light tone, neutral color (cream, gray, light beige, bone, etc.)

15) **Drapes:** Use of drapes is discouraged, except when the style of the interior absolutely requires it. If fabric window drapes are specified, the fabric must be inherently flame-resistant, or flame-resistant treated.

16) **Interior signage:** To be University standard interior signage, unless otherwise authorized by the FM Project Manager in writing.

17) **Code Compliance:** Interiors will meet applicable local, State and National Codes, including ADA standards. **Note:** When renovating existing restroom facilities, the Professional will check with the Project Manager whether that facility needs to comply with ADA. The decision to comply will be made by Facilities Management, based on the availability of other ADA compliant facilities in the building.

**C.3 CONCRETE WALKWAYS**

A. New walkways will have 2b crushed stone base. Sidewalks will be a minimum 4" thickness
with woven wire mesh reinforcing.

B. Concrete for exterior use will be minimum 4000 psi, and will have 5% to 6% air-entrained admixture. Depending on the amount of concrete to be provided, Professionals may be required to specify concrete testing.

C.4 BRICK & STONE MASONRY

A. Professional Note -- (The Professional will show on the contract documents, the locations of expansion and control joints, and their construction details.)

B. The University has standardized the exterior brick color in the Regional Campuses and in some areas of the Oakland Campus. It is of the utmost importance that the Professional reviews the brick selection for new buildings with the Project Manager in order to insure a proper match.

C. For DGS projects, the Professional will select and obtain University approval of three (3) comparable brick samples from different manufacturers, all of which will match the University brick standard for the particular location.

D. Professional Note -- (The Professional will specify efflorescence testing of all brick to be used in exterior locations.)

E. Brick masonry work will be in accordance with the Brick Institute of America and in compliance with ASTM Standards.

F. Masonry units will be provided by a single source supplier and be uniform in texture and color, or a uniform blend within the ranges accepted for these characteristics.

G. During project design, actual samples of the brick masonry units will be submitted to the University for approval and acceptance of the materials for appearance, color and characteristics.

H. For exposed masonry, samples will be submitted for mortar materials, including cement for each aggregate.

I. Prior to installation of masonry work, a 3’ wide x 4’ high mock-up wall will be erected to further verify selection made for color and textural characteristics with the selected samples of masonry and mortar, and to represent completed masonry work for quality and appearance, materials and construction. Masonry materials will not be ordered by Contractor until the mock-up panel has been approved by the University and the Professional.

J. Admixtures: Setting accelerators or antifreeze compounds will not be permitted.

K. Unless adequate protection against freezing is provided, no masonry work will be performed when the temperature is below 36ºF or predicted to be 36ºF degrees overnight.

L. Thru-wall flashings, weep holes, construction and control joints will be provided as may be required for the work, and properly detailed in the Contract Documents.

M. Johnstown Campus:

A large number of buildings at the Johnstown Campus have a quartzite stone exterior. Should
this material be selected for a new building, the stone must be obtained from Valley Forge Building Stone Company, Morgantown, Pennsylvania 19543. The University has a large amount of stone reserved in this quarry.

C.5 INTERIOR PARTITIONS (GYPSUM BOARD)

Interior partitions will be constructed of metal stud frame work with studding spaced at 16" o.c. as may be required by code. Gypsum board will be minimum thickness or 5/8". Provide "Noise Barrier Batts" in stud cavity at all sound and office walls for compliance with STC established ratings. Corridor walls will be extended to deck above as required by governing codes.

C.6 ACCESS PANELS

Access panels will be provided for accessibility to devices and controls requiring service by the University that will not be readily accessible after completion of the project.

C.7 ROOFING SYSTEMS

A. Professional Note – (The Professional will incorporate into the Specifications, the requirement for a roofing conference before roof work is to begin. This roofing conference will have all parties involved in attendance.)

B. Professional Note – (The Professional must devote particular attention to the design of plazas and other accessible roof areas. These are very expensive areas for the University to maintain, and they must be properly detailed and specified in order to insure a first quality installation.)

C. The University requires proper design, material selection, and rigid inspection for maximum performance of roofing systems. Roofing systems will be reviewed with the University on a project-by-project basis.

D. Roofing will be provided in strict accordance with the manufacturer's recommendations.

E. Provide proper access to roof levels by means of scuttles and ladders.

F. Provide walking pads leading to rooftop equipment, exit ways and penthouses.

G. Written warranties and guarantees will be provided for roofing installations at the completion of the work.

H. Roofing installations will be reviewed with the University's roofing consultant and Insurance Carrier during the design stages of the Project.

C.8 MOISTURE PROTECTION

Below-grade foundation walls and masonry work must be damp-proofed and/or waterproofed to meet the design requirements and site conditions. Provide for perimeter drainage of footings as required.

Provide waterproofing membrane under suspended interior slabs where restrooms, toilets, showers and similar wet-type facilities are located.
C.9 METAL DOORS AND FRAMES

Metal doors will comply with American National Standards Institute, “Nomenclature for Steel Doors and Steel Door Frames”. Doors will be in accordance with ANSI standards, latest edition, for handicap accessibility. Interior doors will be 18 gage and exterior doors will be 16 gage, properly prepared to receive specified hardware. Doors to be minimum 1-3/4” thickness.

C.10 WOOD DOORS

A. Professional Note – (The University will only accept staved core wood doors to be used in its buildings. Hollow core or mineral core wood doors are not acceptable. Doors requiring more than a 20 minute rating will be metal doors.)

B. In addition to complying with pertinent codes and regulations, doors will comply with the "Architectural Woodwork Quality Standards and Guide Specifications" published by the Architectural Woodwork Institute. Doors will be provided in accordance with ANSI standards for handicap accessibility.

C. In existing buildings, door finish will match existing. Do not specify pre-finished doors (unless existing) since it is difficult to match finishes already existing with factory finishes.

C.11 HARDWARE

A. New hardware being provided for University buildings will be Architectural grade in accordance with governing bodies and Code requirements. In existing buildings, hardware will match existing in quality, manufacture, finish and keying. Hardware on fire doors will be approved and listed for fire door service.

B. The University standard cylinder lock is "BEST". No substitution will be allowed, except in DGS projects in which only hardware that is compatible will be specified.

C. Before delivery of the hardware, the Contractor will discuss with the University and obtain approval of the keying system to be supplied.

D. Hardware suppliers will be required to have in their employ, a member of the AHC (American Hardware Consultants) during the course of construction at no cost to the University for consultation.

E. Hardware schedules and samples will be submitted to and approved by the University before the hardware is delivered to the job site and/or door manufacturer.

C.12 KEYING

A. The purpose of this Procedure is to ensure that the University Police and the Users are properly involved in each stage of the project since they have the responsibility, working together, for determining the keying of all spaces. The University Police also has the responsibility for the issuance of keys to the Users when they move into the completed project. The PM must ensure that the Users properly understand Facilities Management and the University Police’s division of responsibilities during design and construction of the project.
B. Procedure:

1. NEW BUILDINGS:
   a. Design:
      1) At the beginning of the Design Phase, the Project Manager (PM) will schedule a meeting with the Police Department Liaison (PDL) and the Users to inform them of the project scope, budget and schedule and to review security issues, including their responsibilities in this process.
      2) During the Preliminary Phase of the project, the PM must schedule meeting(s) with the PDL, the Professional and the Users, as required to review and resolve the overall security issues in the building, such as the need for a Security Desk, electric door locks and alarms, grilles to keep people from certain areas of the building, etc. The PM must make sure that the Professional incorporates these security issues into the Contract Documents.
      3) Early in the Final Design stage of the project, the PM will forward to the PDL the building floor plans and will notify them to set up meetings with the Users and the lock provider (Best), as required for them to establish the final keying of the building before the Construction Documents are finalized.
      4) The PM must ensure that the Professional includes the following paragraph in the Contract Specifications: "The Contractor will provide two (2) keys per core with appropriate sub-master and master keys. A key cabinet will be provided and installed in a location as directed by the University. The cabinet will be arranged and marked to accept all keys at the completion of the project". Also, the PM must ensure that the Professional specifies Best cores for hardware in the project.
   b. Construction:
      1) At the beginning of the Construction Phase, the PM must request from the Contractor that the Construction Schedule for the building specifically include dates for the installation of the cores.
      2) The PM must inform PDL when the project is ready to be permanently keyed, so that the PDL can schedule the installation of the permanent cores with the core provider. The contractor will install the cores while being accompanied by the University Police key administrator. This will ensure accuracy of the key control records and turnover the keys to the University Police.
3) The PM will inform the Users that they are required to request keys through the Police Department using Key Requests Form 0059 and mailing/carrying it to the University Police (faxing is not desirable due to verification of signature of requestor).

2. Renovated Spaces

   a. Projects built by outside Contractors:

      The keying procedure for renovation projects in which outside contractors are involved is similar to that described above for new buildings, except that the PM must give the Professional the manufacturer’s name for the building hardware and the keyway, so that the Professional can include this information into the project specifications.

   b. Projects built by the Facilities Management Trades:

      For projects to be built by our Trades, the Carpenters must provide the cores. The PM must send a Work Order request, for the Carpenters to re-key the cores per the University Police’s instructions. The PM will also inform the Users that they must request keys from the University Police Department.

C. Professional Note – (The Professional will be responsible for reviewing existing key way systems and coordinating how lock systems are to match in renovation and addition projects. The following indicate Keyway Systems. These need to be verified with the Project Manager.)

<table>
<thead>
<tr>
<th>BUILDING NAME</th>
<th>KEYWAY SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumni Hall (Masonic Temple)</td>
<td>Best “J”</td>
</tr>
<tr>
<td>Allegheny OBS</td>
<td>Best “A”</td>
</tr>
<tr>
<td>Allen Hall</td>
<td>Corbin Z4-59B2-7 Yale RB8</td>
</tr>
<tr>
<td>Athletic Fields</td>
<td>Beat “A”</td>
</tr>
<tr>
<td>Bellefield Hall</td>
<td>Yale RB8</td>
</tr>
<tr>
<td>Benedum Hall</td>
<td>Lockwood “L-M-N-P-Q-R-S-T”</td>
</tr>
<tr>
<td>Bio-Tech Center</td>
<td>Best “E”</td>
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<tr>
<td>Cathedral of Learning</td>
<td>Corbin X1276</td>
</tr>
<tr>
<td>Chevron Building</td>
<td>Best “A”</td>
</tr>
<tr>
<td>Clapp Hall</td>
<td>Corbin Z459A27</td>
</tr>
<tr>
<td>Charles Cost Center</td>
<td>Best “F”</td>
</tr>
<tr>
<td>Craig Hall</td>
<td>Sargent “RC”</td>
</tr>
<tr>
<td>Crawford Hall</td>
<td>Corbin Z459A27</td>
</tr>
<tr>
<td>Eberly Hall</td>
<td>Best “A”</td>
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<tr>
<td>Old Engineering Hall</td>
<td>Corbin 5918R</td>
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<tr>
<td>Eureka Building</td>
<td>Corbin Z1605</td>
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<tr>
<td>Falk School</td>
<td>Corbin Z1606</td>
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<tr>
<td>Field House</td>
<td>Best “A-G-L”</td>
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<td>Frick Fine Arts</td>
<td>Sargent “RB”</td>
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<tr>
<td>Gardner Steel Conference</td>
<td>Sargent “S”</td>
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<td>Graduate School of Public Health</td>
<td>Sargent “LF”</td>
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<tr>
<td>Heinz Chapel</td>
<td>Corbin X1276</td>
</tr>
</tbody>
</table>
C.13 COMBINATION LOCKS

A. Professional Note – (The Professional will be required to review the installation policies as established by the University regarding combination locks. Final approval for the use of combination locks for the project will meet with the approval of the Department of Public Safety.)

B. The University standard for combination locks is as manufactured by Simplex Security Systems, Inc., and is master keyed to “BEST” removable core cylinders, and to specific zones on the Oakland Campus. Only combination locks with key overrides may be specified. Simplex models 1000 and 100/200 series DL-M and NL-M are standards.

C.14 TOILET ACCESSORIES

A. Professional Note -- (The Professional will review with the Project Manager requirements for toilet accessories in existing and new buildings. Toilet accessories will comply with ADA Requirements. The University has established standards for type and style of products being used for new University buildings in toilet room facilities.)

B. Paper products for towels and tissue will be in the roll form. Soap dispensers will be of the liquid type. Napkin holders will be dual dispensing and be coin operated. Mirrors will be set in metal frames. Grab bars will have non-slip finish.

C. Standard Toilet Accessory Schedule

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Manufacture</th>
<th>Model</th>
</tr>
</thead>
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<tr>
<td></td>
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</tr>
<tr>
<td>TA-1</td>
<td>Surface-Mounted, Jumbo Single Toilet Roll</td>
<td>ASI</td>
<td>0042</td>
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<tr>
<td></td>
<td>Dispenser w/ Stainless Steel Body+</td>
<td>GAMCO</td>
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<td>Surface-Mounted, Single Toilet Roll Dispenser w/ Theft-Resistant, Cast Alum. Body</td>
<td>Bobrick</td>
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<td></td>
<td></td>
<td>Bradley</td>
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<td>ASI</td>
<td>0263-12</td>
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<td>Recessed-Mount, Single Toilet Roll Dispenser w/ Theft-Resistant Spindle, Stainless Steel Body</td>
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<td>7402</td>
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<td>TA-4</td>
<td>Surface-Mounted, Jumbo Single Toilet Roll w/ ABS Plastic Body++</td>
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<td>Georgia Pacific</td>
<td>GPC58050</td>
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<td>TA-5</td>
<td>Sanitary Napkin/Tampon Dispenser**</td>
<td>By Others (University Vendor)</td>
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<td>TA-6</td>
<td>Partition-Mounted, Sanitary Napkin Disposal Unit w/ Stainless Stl. Body (Two Toilet Compartments)</td>
<td>Bobrick</td>
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<td>Surface-Mounted, Sanitary Napkin Disposal Unit w/ Stainless Stl. Body</td>
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<td>TA-8</td>
<td>Surface-Mounted Liquid Soap Dispenser (Mtg. Plate)**</td>
<td>Corian</td>
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<td>9022-MG</td>
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<td>TA-9</td>
<td>Recessed-Mount, Roll Towel Dispenser/ Waste Receptacle; Stainless Steel***</td>
<td>Bobrick</td>
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<td>Semi-Recessed Mount, Roll Towel Dispenser/ Waste Receptacle; Stainless Steel</td>
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<td>Surface-Mounted, Roll Towel Dispenser; Stainless Steel Body</td>
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<td>TA</td>
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<td>ABS Plastic Body*</td>
<td>Bradley</td>
<td>2492</td>
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<td></td>
<td>Recessed-Mount, Warm Air Hand Dryer w/ Touchless Operation, 208 V*</td>
<td>Bobrick</td>
<td>B-750</td>
</tr>
<tr>
<td>TA-14</td>
<td>Over-Sink Mirror Unit w/ Stainless Steel Frame &amp; Integral Shelf; 24&quot;w x 36&quot;h</td>
<td>Bobrick</td>
<td>B-292 2436</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>TA-15</td>
<td>Full-Length Mirror Unit w/ Stainless Steel Frame &amp; Tempered Glass; 24&quot;w x 48&quot;h</td>
<td>Bobrick</td>
<td>B-290 2448</td>
</tr>
<tr>
<td>TA-16</td>
<td>Stainless Steel Shelf, Tamper-Proof; 8&quot; d x length</td>
<td>Bobrick</td>
<td>B-298 Series</td>
</tr>
<tr>
<td></td>
<td>Folding Stainless Steel Utility Shelf (ADA toilets only)*</td>
<td>Bobrick</td>
<td>B-287</td>
</tr>
<tr>
<td>TA-17</td>
<td>Reversible ADA-Compliant Shower Seat</td>
<td>Bobrick</td>
<td>B-5181</td>
</tr>
<tr>
<td>TA-18</td>
<td>Single Robe Hook</td>
<td>Bobrick</td>
<td>B-6717</td>
</tr>
<tr>
<td>TA-19</td>
<td>2-Prong Robe Hook</td>
<td>Bobrick</td>
<td>B-6727</td>
</tr>
<tr>
<td>TA-20</td>
<td>Shower Curtain Rod: 20 ga. Stainless Steel, 1&quot; Dia.</td>
<td>Bobrick</td>
<td>B-6107</td>
</tr>
<tr>
<td>TA-21</td>
<td>Broom Stow; 18 ga. Stainless Steel w/ Shelf; 3 Grips</td>
<td>Bobrick</td>
<td>B-239 x 34</td>
</tr>
<tr>
<td>TA-22</td>
<td>Grab Bars: 18 ga., 1.5&quot; Dia. Stainless Steel</td>
<td>Bobrick</td>
<td>B-6806</td>
</tr>
</tbody>
</table>
C.15 SECURITY SYSTEMS

A. Professional Note – (The Professional will review with the University, security standards presently in use on the Oakland Campus. The University will review with City officials the use of electric locking devices when required for the project, other security devices and systems will be compatible with those in place.)

B. Special locking arrangements on means of egress doors will be in accordance with Section 812.4.1.2 of the BOCA National Building Code. The University will apply for variances to these provisions on a project-by-project basis. The existing electric locking devices will be reviewed with the Project Manager.

C. The security standards are a guideline for any security system or device that is supplied, installed and/or modified that will be monitored by the University Security Office.

D. Locking devices for Regional Campuses projects will be compatible with present locking and monitoring systems, and will be in accordance with governing codes having jurisdiction. Alarms will be battery or hardwired as may be needed for the project.

E. Alarm locks will be capable of providing an audible or monitored signaling alarm 24 hours a day. Special devices and alarms will be provided only with the approval of the University.

C.16 SECURITY STANDARD

A. Intent: The intent of the University's security standard will be to provide a guideline for any security system or device that is designed, supplied, installed, or modified that will be monitored by the University Security office and/or maintained by the University. The security systems/devices covered in this standard must have the capability of being tied into the University-wide system. The University will be responsible for determining whether an existing security panel is available or if a new security panel is necessary. The University will be responsible for having/making final connections at the security panels and perform software and program modifications to the Tracer system to incorporate the new security devices/systems. Refer to Division K, Section K.42 for specific requirements of the Electric Lock System.

B. The Professional will discuss with the Project Manager the need to use any of the security devices.
C. General Requirements:

1. Documentation: During design, the Professional will require suppliers to pre-qualify their product and submit requested information to assure compatibility with present University system.

Submit three (3) sets of documentation which includes but is not limited to the following:

a. Operations manual: Detailed description of how the device or system operates, including how to make programming changes, if applicable, to the particular unit.

b. Installation drawings: Details showing exact wiring, wiring numbers, junction boxes etc. (if Contractor installs).

c. Installation manuals: Details describing how to install, listing materials and equipment needed for installation, and a description of any setup, testing or calibration necessary for operation (if Contractor or University installs).

d. Maintenance manuals: Listing of potential problems and solutions; wiring schematics (board level layouts if electronics are involved) description of preventative maintenance functions and recommended schedules; spare parts and replacement parts listings and prices. This manual will include the information necessary such that the University can maintain all systems and devices without having to rely on the manufacturer for service if the University so desires.

e. As-built drawings: Drawings used for installation purposes will be marked in red to show the as-built installation and submitted to the Professional for revising originals. (If by Contractor or University, they will provide the as-built). Only one (1) set of marked-up drawings need be submitted per job to the Project Manager.

2. Training: If necessary (at the University's discretion), provide in the specification a minimum of four (4) hours of operation training and four (4) hours of maintenance training by the Contractor installing the system. It is the University's intention to have the ability to do maintenance required in-house after the warranty period has expired.

3. Testing: Contractor will demonstrate acceptable system performance during actual operation prior to University acceptance of the system.

4. Service and Warranty: Contractor will maintain a local service organization. Service personnel will be factory-trained. Warranty period will be for twelve (12) months after acceptance. Warranty will include material and labor to repair or replace defective devices or systems. A 24-hour response to a service request is required.

5. Installation: Contractor will employ first-class workmen who will work in harmony with other trades and crafts at the site of the work or adjacent thereto.
If the installation is included, the Contractor will furnish and install cable, conduit, wire mold, junction boxes, etc. necessary for a complete system as required. The installation will meet applicable code requirements. The Contractor will also be responsible for obtaining applicable permits. Wiring will be in conduit or wire mold. Wiring will be a minimum of AWG #18 gauge. Wiring will be tagged describing what device is attached to the wiring.

If the installation is performed by the University, the Contractor will supply completed installation supervision by a factory-trained representative as required by the University.

6. Approvals: Before any system or device is purchased for the purpose of providing security, written approval must be obtained from the Project Manager. The Professional is hereby advised that, any department, person or contractor planning an installation, alteration, addition, or deletion to the security system, which affects the University of Pittsburgh, must receive a written approval from the University.

C.17 SUSPENDED ACOUSTIC TILE CEILING

Suspended ceiling tile systems should be the removable and accessible type. Lighting fixtures and devices will have additional support hangers added to the suspension system for proper reinforcement as required by code. Do not suspend ceiling from ductwork or existing piping above ceiling. Provide access areas to serviceable equipment located above ceilings without the need to remove major portions of the ceiling support system.

C.18 RESILIENT FLOOR TILE

Vinyl composition floor tiles and adhesives will be free of asbestos. Tile will be installed per manufacturer's recommendations. Substrate will be properly prepared prior to installation of materials, provide latex leveling for uneven surfaces and depressions. Provide accessories and trims at transitions of materials. Base will be topset rubber cove or vinyl. Installed surfaces will be protected during construction. At the completion of work, surfaces will be cleaned. Major projects will include waxing of flooring surfaces prior to turning over to the University.

C.19 FIRE PROTECTION FEATURES

A. Professional Note – (The Professional will submit the fire protection and life safety analysis outlined in Section A.1 of this manual to the Project Manager for preliminary approval of the Documents by the University and the University Insurance Carrier prior to issuance of contract documents. The Contractor will be required to submit three (3) sets of fire protection system shop drawings and calculations to the University for written approval prior to commencing installation. Any work installed by the Contractor that is not in compliance with the University standards will be removed and replaced at his/her expense if written approval was not given.)

B. Provide protection systems and/or devices that are required by Code and/or as required by the University Insurance carrier. The Professional will meet with the Insurance Carrier representative, the Project Manager and a representative of the Environmental Health and Safety Office during the design stage of the project to review the fire protection and life safety scope of work.

C. When necessary, the Professional will meet with the Project Manager and the local authority
having jurisdiction to resolve conflicts between various codes and standards. The Professional will support the University with technical documentation any time a variance or appeal to a code requirement is pursued.

D. Fire protection features will be in accordance with the applicable standards except as modified herein.

E. The provisions of the City of Pittsburgh BOCA National Building Code applicable to high-rise buildings will apply to buildings having floors for human occupancy located more than 75 feet above the lowest level of fire department vehicle access.

F. The fire protection systems section of the current edition of the BOCA National Building Code will be adopted by the University in lieu of the equivalent section adopted by the City of Pittsburgh.

G. New installations of automatic sprinkler systems will be hydraulically calculated. Systems will be installed in accordance with NFPA Standard 13 except as modified by the University Insurance Carrier. The University Insurance Carrier requirements are advisory in nature, therefore, the Design Professional will advise the Project Manager in writing of any exceptions taken to these requirements.

H. As a minimum, the following sprinkler design densities and areas of application will be observed:

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Density (gpm/sf)</th>
<th>Area (square feet)</th>
<th>Hose Stream (gpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Hazard</td>
<td>0.10</td>
<td>1,500</td>
<td>100</td>
</tr>
<tr>
<td>Ordinary Group 1</td>
<td>0.15</td>
<td>3,000</td>
<td>250</td>
</tr>
<tr>
<td>Ordinary Group 2</td>
<td>0.20</td>
<td>3,000</td>
<td>250</td>
</tr>
<tr>
<td>Extra Hazard Group 1</td>
<td>0.30</td>
<td>3,000</td>
<td>500</td>
</tr>
<tr>
<td>Extra Hazard Group 2</td>
<td>0.40</td>
<td>3,000</td>
<td>500</td>
</tr>
</tbody>
</table>

In high-rise buildings, the sprinkler control valve will be located inside the stairway and will be a floor control assembly including test valve, sight glass, and express drain.

I. Fire pumps will be electric driven unless the power supply to the facility is deemed unreliable as based on NFPA 20, Standard for Installation of Centrifugal Fire Pumps. Standby power supply will be provided to operate the fire pump on loss of power, if the power supply is deemed unreliable. New installations of sprinklers with a fire pump will be designed to avoid the use of pressure reducing valves in the system.

J. Standpipes will be provided with 100 feet of hose and fog-type nozzles unless fully sprinklered.

K. Commercial kitchen hood systems will be protected by dry-chemical extinguishing systems designed per NFPA 17A.

L. Fire alarm systems will be in accordance with the applicable codes and Section K.15, Fire Alarm Systems, of this manual.

M. Smoke control systems where required will be designed in accordance with NFPA 92A, Recommended Practices for Smoke Control Systems and NFPA 92B, Guide for Smoke
Management Systems in Malls, Atria, and Large Areas.

N. Halon will not be used as a suppression agent on any campus. Alternative gases may be used in critical areas subject to the approval of the Project Manager.

O. Fire extinguishers will be provided as part of the project, as may be required by the authorities having jurisdiction. Professionals will also specify required fire extinguisher cabinets. For general use, and unless otherwise required by codes, fire extinguishers will be 10 lb. ABC type extinguishers complete with mounting hardware.

P. Fire protection systems will transmit alarm and trouble signals to the University's approved central station system.

C.20 MOVEABLE PARTITIONS (LANDSCAPE)

The University has established standards for suppliers of landscape partitions and furnishings (Steelcase & Herman Miller). Verify with the Project Manager the availability of panel systems at the start of the project design, depending on the availability from warehouse stock, use of a certain manufacture may be required for project work as a cost-saving measure and compatibility of systems in the work area.

C.21 CUSTODIAL FACILITIES

A. New Buildings: Provisions will be made for custodial services areas in new buildings. Areas to be provided will consist of: a central receiving/storage area at the service entrance to the building, custodial office, custodial closets to be provided on each floor of the building with a floor level mop receptor - shelf - mop holder, and floor space for a cleaning cart and sweeper. Additional storage areas will be provided as may be required to accommodate servicing and cleaning equipment to be housed in the building. Provide for trash and recycling areas at each floor and at loading docks. (Verify with the Project Manager final requirements.)

B. Existing Buildings: Existing custodial areas will not be deleted unless other similar areas are provided as part of the project. Existing sinks will not be used by the contractors to dispose of materials or cleaning of tools and equipment used to perform the construction work, i.e.: plaster, paints, thinners, etc. Contractors will make other provisions for this cleanup since they will be held responsible for any costs as a result of damages to the facilities.

C.22 EXTERIOR METAL PANELS

A. Exterior metal panel systems will comply with applicable provisions of the "Metal Curtain Wall, Window, Store Front and Entrance Guide Specifications Manual" by AAMA.

B. Panel systems will be reviewed with the University's Facilities Management Office for compliance with design, appearance and intent of the work.

C. Color of the panels will be as selected by the Professional and the University.

D. Manufacturers of the panel system will submit to the owner two (2) 24" square samples of the panel system with the selected panel color for approval prior to manufacturing of the panels. During the course of manufacturing of the panels, two (2) additional 24" square samples will be provided to the University by the manufacturer, to assure the color of the panels are as approved for the project.
E. Shop drawings for the exterior metal panels system will be prepared and stamped by the panel manufacturer. The Contractor will provide the University with one (1) set of panels, shop drawings for review and approval prior to manufacturing of the panels. Panel manufacturer will submit written warranties in accordance with the Contract Documents requirements.

F. Panel installer will provide written warranty for two (2) years from the date of final completion and acceptance, guaranteeing materials and workmanship for water-tightness and weather-tightness. During the two-year period, the installer will repair all leaks at no cost to the University.

C.23 DELIVERIES AND STORAGE

A. Professional Note – (These paragraphs to be used for renovations of existing buildings only.)

B. Equipment and materials delivered to the work site will be stored at locations approved by the University.

C. The Contractor will coordinate with the University for use of the building loading dock for delivery of construction materials. The Contractor will keep the building loading dock unobstructed at all times.

C.24 TELECOMMUNICATIONS

Professional Note – (The following telephone/data wiring requirements will be provided for new and existing building modifications as may be required for the project’s requirements and needs. Verify final requirements with the Project Manager during the development of the Project Documents.)

C.25 ELECTRICAL - GENERAL REQUIREMENTS

A. Professional Note – (The following are Electrical Note statements that are to be considered in the final design. See DIVISION K for further Electrical requirements.)

B. Insofar as possible, use existing conduits for all wiring. However, do not reuse existing wiring.

C. Fully coordinate electrical switches, outlets, panels, etc. with the General Contractor so that electrical conduits etc. are concealed in walls and above finished ceilings.

D. Unless otherwise specifically approved by the Project Manager, new wiring in existing and new buildings will be concealed. Should surface mounting be approved, wiring will be encased in wire mold.

E. Contractor will coordinate telephone/data equipment locations with the University.

F. New outlets to be 18” A.F.F., switches mounted at 48” ADA unless otherwise noted, verify compliance with codes and handicap requirements.

G. Existing boxes to be used will receive new devices and cover plates except where grounded devices are already installed.

H. Except as noted, materials will be new and U.L. listed.

J. Wire will be run in rigid thin wall conduit except where noted. Minimum size 3/4". **Use of BX is prohibited.** Use compression fittings for E.M.T.

K. Wire will be type THHN insulated stranded copper. Minimum wire size will be #12 AWG.

L. Use of ENT (non-metallic) conduit will not be permitted without the expressed approval of the University Electrical Engineer.

M. Convenience receptacles will be Hubbell #5362, 20 amp, grounding type or equal, NEMA rated. Switches to be Hubbell #1221, 1223, and 1224.

N. Cover plates for switches, outlets, and receptacles will be stainless steel finish, unless otherwise approved by the University. Surfaces specified to receive wall covering, cover plates will be finished to match wall.

O. Electrical contractor will be responsible for the repair of damages to other contractors work and/or existing work area and to repair said damages to original condition to the satisfaction of the University.

P. New buildings will be equipped with electric meters with the ability to be read and monitored for status of feeds on the Campus Wide (Energy Management) System.

Q. Electrical wiring passing through an environmental air plenum space will be approved for such use or will be installed in metal conduit.

END OF DIVISION