

University Facilities

MONTCLAIR
STATE UNIVERSITY

UNIVERSITY DESIGN STANDARDS

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Introduction

PURPOSE

These University Design Standards establish a comprehensive set of baseline standards and requirements that will guide the design, construction and maintenance of projects across the Montclair State University built environment. It is provided as a resource for design professionals, contractors, University personnel, and anyone else who is involved in the process of design, construction or renovation projects on campus.

The content in this document represents a holistic balance between affordable, up-front construction costs and long-term life-cycle costs. As the University typically owns, operates and utilizes our facilities for many years, durability, maintainability and operational efficiencies are essential as is the ability to adapt based on changing necessities and paradigms in the future. The University also operates in a competitive market and is largely responsible for funding its own capital development with limited resources allocated. To remain competitive, the University must ensure that its capital development costs are not unbalanced or exorbitant.

This document is not meant to replace detailed project specifications nor shall it take precedence over any existing codes, laws, or regulations. The University understands the need to maintain design flexibility based on each project's set of unique circumstances. Any deviations from these standards shall be coordinated with the Project Manager or office of Capital Planning and Project Management as early in the process as possible.

ORGANIZATION

Information is organized in conformance with the appropriate specification subgroups, divisions and section numbers from the industry-standard CSI (Construction Specifications Institute) MasterFormat, 2020 Edition. All items listed as a "Basis of Design" are assumed to include an approved equal unless otherwise specified.

UPDATES

The ongoing process of coordinating and maintaining these Design Standards is a multi-stakeholder effort led by the University Facilities Office of Capital Planning and Project Management. The revision process is an important component that is critically dependent upon the engagement of all interested stakeholders. Updates will be issued as necessary to ensure that this document remains dynamic and relevant in order to effectively meet the needs of the University.

Requests for updates to these standards may be submitted anytime via email to chiappam@montclair.edu.



ACKNOWLEDGEMENTS

The technical content in this document represents the culmination of input and consolidation of institutional knowledge from many individuals across several University departments. Recognition is given to all persons who participated in its original drafting and to those who continue working to keep it current and successful. This immense undertaking would not have been possible without the collective efforts of everyone involved.

Facility Construction Subgroup

DIVISION 02 – EXISTING CONDITIONS

Related Sections:

- a. DIVISION 09 – FINISHES

02 80 00 Facility Remediation

Facility Remediation – General Requirements

- a. *If existing asbestos or lead paint is suspected, the University shall be notified in order to conduct any necessary testing and remediation.*
- b. *All remediation work shall be coordinated with the Montclair State University Office of Environmental Health and Safety.*
- c. *Environmental Health and Safety shall be consulted as part of the project planning process prior to completion of the Design Development phase.*

Asbestos Remediation – General Requirements

- a. *The need for asbestos abatement shall be determined early in a project and appropriate steps shall be taken for its removal.*
- b. *The University Office of Environmental Health and Safety shall be consulted prior to beginning any project that involves the disturbance of suspect building materials and shall schedule asbestos abatement (removal) prior to the start of any renovation or repair work.*
- c. *Asbestos-containing material (ACM) that will not be disturbed during the course of a project does not require removal except if the material in the area requires repair, in which case the friable portions shall be abated or repaired.*
- d. *Any removed insulation shall be replaced with new insulation.*

Lead Remediation – General Requirements

- a. *Any structure or painted surface constructed prior to 1978 shall be assumed to contain lead based paint.*
- b. *The Montclair State University Office of Environmental Health and Safety shall be consulted prior to any activity that may release lead dust into the air.*
- c. *Lead abatement is generally limited to buildings that house children under the age of six and/or who are diagnosed with elevated blood lead levels.*

DIVISION 03 – CONCRETE

Related Sections:

- a. DIVISION 04 – MASONRY
- b. DIVISION 32 – EXTERIOR IMPROVEMENTS

Concrete – General Requirements

- a. *All concrete shall be NJDOT Class 'B' concrete with a minimum compressive strength of 4,000 psi.*
- b. *The design and specifications for concrete shall generally follow American Concrete Institute (ACI) and ASTM test recommendations.*

03 40 00 Precast Concrete

Precast Architectural Concrete – General Requirements

- a. *Sample panels shall be provided for concrete that is proposed for use as a finished surface or exposed to view.*
- b. *Panel construction shall match actual construction and finishes.*
- c. *Sample panels shall be reviewed by the University and approved prior to initiation of architectural precast concrete work.*

DIVISION 04 – MASONRYMasonry – General Requirements

- a. All masonry work shall comply with Brick Industry Association and International Masonry Association standards.

04 20 00 Unit MasonryBrick Masonry – General Requirements

- a. All exposed brick masonry shall be tested for efflorescence per ASTM C67.
b. Brick shall, at minimum, comply with ASTM C216, Grade FBX, SW.

Concrete Unit Masonry – General Requirements

- a. Concrete Masonry Units (CMU) shall comply with ASTM C90.
b. Exposed CMU surfaces shall be a uniformly dense, flat, fine grain texture with no cracks, chips, spalls or other defects to impair the finish.
c. All exterior wall reinforcing at minimum shall be hot dip galvanized conforming to ASTM A153.
d. All interior wall reinforcing at minimum shall receive mill galvanized finish conforming to ASTM A641, Class B-1.
e. No air entraining, anti-freeze compounds or calcium chloride admixtures shall be permitted.
f. Expansion joints shall be provided at a minimum in accordance with industry guidelines.
g. Space weeps shall be a minimum 16" O.C.
h. Exposed masonry at conclusion of work shall be cleaned with non-acidic cleaner approved for installed brick.

04 40 00 Stone AssembliesExterior Stone Cladding – Basis of Design

- Arriscraft Adair Limestone or Approved Equal (Wall Base)
Color: Light Tan, Grout to match stone. (CCIS, NURS)

04 70 00 Manufactured MasonryCast Stone Masonry – Basis of Design

- American Stone or Approved Equal (Building Base at Grade)
- Manufacturers – Subject to compliance with requirements, provide basis of design product or approved equal by one of the following::
 - Arban Associates, Inc.
 - Continental Cast Stone Manufacturing
 - Edwards Cast Stone Company
 - Plasticrete Architectural Concrete Products
 - Southside Precast Products
 - Sun Precast Co., Inc.

Calcium Silicate Manufactured Stone Masonry – Basis of Design

- Arriscraft International Renaissance Masonry Units or Approved Equal
Cap/Sill Color: Wheat (CCIS, CELS, NURS, SBUS)
Base Stone Color: Slate (CELS, SBUS)
SpecMix Mortar Color: SM100 Gray (CCIS)

DIVISION 05 – METALSRelated Sections:

- a. DIVISION 32 – EXTERIOR IMPROVEMENTS

05 50 00 Metal FabricationsMetal Fabrications – General Requirements

- a. All proposed items shall be reviewed and approved by the University Project Manager.
- b. All exposed welds shall be ground smooth and dressed to provide an indistinguishable to adjacent surfaces.
- c. Steel in exterior walls or exposed to weather shall be hot dip galvanized, complying with ASTM A153, minimum weight of 2 oz. per sq. ft. of surface.

Metal Stairs – General Requirements

- a. Stairs and handrails shall be constructed in accordance with all ADA guidelines and applicable building codes.
- b. Full abrasive nosing shall be provided at each stair tread.

Metal Railings – General Requirements

- a. Handrails shall be Schedule 40 galvanized steel pipe with black powder coat finish.
- b. Handrail posts shall be spaced no greater than 5'-0" on center.
- c. Handrails shall be positioned adjacent to building walls to allow minimum 2" clearance between existing roof drains and handrail.

05 70 00 Decorative MetalDecorative Metal – General Requirements

- a. The University maintains several exterior decorative metal styles on campus including traditional and transitional/contemporary railings design styles.
- b. Installation of new exterior metal handrails shall consider the immediate context and appropriately complement the surrounding architectural vernacular.
- c. Products and materials shall be carefully chosen with respect to the intended location, especially for buildings and public spaces of historical significance.
- d. The University shall provide design details from relevant precedent projects on an as-needed basis.

Decorative Metal Railings – Basis of Design

See below for each individual item type.

Traditional Style Exterior Stair Handrail:

- Manufactured by Julius Blum & Co. Inc. or Approved Equal

Ornamental Exterior Steel Handrail:

- Manufactured by King Supply Co. or Approved Equal

Transitional/Contemporary Style Exterior Black Railing:

- The University's standard Black Railing for Transitional/Contemporary applications is a custom design.

Transitional/Contemporary Style Exterior Red Herringbone Railing:

- The University's standard Red Herringbone Railing for Transitional/Contemporary applications is a custom steel design.

Glazed Decorative Metal Railings – Basis of Design

See below for each individual item type.

Custom Post-Supported Railings with Glass Panel Infill (Interior):

- Mirage Railing System with Glass Panel Infill by Livers Bronze Co. or Approved Equal

Glass-Supported Railings (Interior):

- Button Rail Railing System by Livers Bronze Co. or Approved Equal

Pre-Engineered, Component-Based Ornamental Railing System (Interior):

- Struct-U-Rail Railing System by Livers Bronze Co. or Approved Equal
- Manufacturers: Subject to compliance with requirements, provide products by one of the following or an approved equal:
 - C.R. Laurence Co., Inc.; CRH Americas, Inc.
 - Julius Blum & Co., Inc.

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITESRelated Sections:

- a. DIVISION 08 – OPENINGS
- b. DIVISION 09 – FINISHES

Wood, Plastics, and Composites – General Requirements

- a. *SUSTAINABILITY: Montclair State University is committed to promoting sustainable practices in the design, construction, and operation of buildings. Wherever possible, proposed materials shall meet or exceed the latest USGBC LEED rating system or as discussed with the University Project Manager.*

06 10 00 Rough CarpentryRough Carpentry – General Requirements

- a. *All exterior fasteners shall be Type 304 stainless steel at minimum.*

06 20 00 Finish CarpentryFinish Carpentry – General Requirements

- a. *Quality level shall meet or exceed Architectural Woodwork Institute (AWI) Premium Grade.*
- b. *Exterior wood trim shall be cedar, mahogany, Ipe, or approved engineered composite.*
- c. *Clear vertical grains shall be required; finger joints are not allowed.*
- d. *All exterior woodwork shall be back primed.*

06 40 00 Architectural WoodworkArchitectural Woodwork – General Requirements

- a. *Quality of materials and installation shall conform to Architectural Woodwork Institute (AWI) Premium Grade specification.*

DIVISION 07 – THERMAL AND MOISTURE PROTECTIONThermal and Moisture Protection – General Requirements

- a. Systems shall comply with all applicable federal, state and local code requirements.
- b. All exterior components shall be in compliance with NFPA 285.
- c. Exterior envelope assemblies shall comply with the latest ASHRAE 90.1 and Energy Code requirements.
- d. All roofing systems shall comply with Factory Mutual (FM) Global requirements.
- e. Construction and modification of all roofing and water protection systems shall comply with the latest NRCA Roofing and Waterproofing Manual.

07 10 00 Dampproofing and WaterproofingDampproofing and Waterproofing – General Requirements

- a. Below Grade waterproof membrane shall provide a minimum ten year labor and material warranty.
- b. Membrane manufacturer shall be on site for start of installation and report that materials were installed according to requirements.
- c. Below grade drainage panels shall vary from 1.6-1.8 lb./cu. ft. on a per-project basis.

07 20 00 Thermal ProtectionThermal Insulation – General Requirements

- a. EXTERIOR CAVITY WALL INSULATION: Mineral wool ASTM C612 and extruded polystyrene ASTM C578, minimum 25 psi.
- b. INTERIOR STUD WALL INSULATION: Batt insulation, faced and unfaced, complying with ASTM C665.

Roof and Deck Insulation – General Requirements

- a. Polyisocyanurate board/sheet type insulation shall be used with all roofing systems.
- b. Sheets shall be 4' x 4' maximum, installed with joints staggered and be minimum 2 layers deep. Joints shall be butted tight with a maximum 1/8" gap.
- c. A protection board shall be used between the insulation and the roofing membrane.
- d. Roof Insulation shall be 20 psi ASTM C1289 faced with proper facing to allow membrane to be adhered without delamination.
- e. Roof insulation shall have an LTTR R-Value of 6.0/inch at 7°F when tested in accordance with ASTM C1303.
- f. Roof insulation shall provide an average "U"-factor that meets or exceeds the energy code.

Exterior Insulation Finish Systems – General Requirements

- a. Use of EIFS and other imitation stucco systems shall generally be avoided for all new construction projects and its use shall be otherwise limited unless specified on a per-project basis and approved by the Project Manager. For renovation work involving EIFS repairing or replacement, existing building conditions shall either be matched or an improved alternative shall be proposed for use.
- b. All projects requiring the use of EIFS shall be in strict conformance to all University guidelines as directed by the Project Manager.
- c. Basis of Design – Class PB EIFS with Drainage:
 - Dryvit Systems, Inc. Outsulation Plus MD System or Approved Equal
Approved Color: #310 China White Dryvit Sandpebble
Provide Panzer Mesh Reinforcement at areas below 12'-0" AFF/AFG and areas where impact may be a concern (project-specific).
- d. Manufacturers – Provide basis of design product or approved equal by one of the following:
 - Senergy Wall Systems
 - SKW-MBT Construction Chemicals
 - Sto Corp

Vapor Retarders – General Requirements

- a. Consistent with the latest requirements of ASHRAE 90.1, a vapor retarder shall be provided on the interior side of insulated walls.
- b. As quality installation is critical to their performance, design documents addressing their installation shall be very detailed.

Air Barriers – General Requirements

- a. An air barrier (i.e. "building wrap") shall be installed in conjunction with each exterior wall.
- b. When insulation and a vapor barrier are installed, an air retarder shall be installed in addition to them.

07 30 00 Steep Slope RoofingSteep Slope Roofing – General Requirements

- a. All roof accessories shall be of non-corrodible materials. Durability of all roof accessories shall match or exceed the expected life of the roofing system.
- b. All roof blocking shall be pressure treated exterior grade.
- c. A minimum two year contractor warranty shall be required covering all materials (insulation, roof membrane, flashings, sheet metal, sealants, etc.), and workmanship to maintain the roofing system and flashings watertight and weathertight, effective from date of substantial completion.
- d. Manufacturer shall provide a ten year minimum watertight warranty and a separate, extended membrane weathering twenty year warranty.
- e. METAL ROOFING: All metal roofing systems must be warranted for leak-tightness for a minimum of twenty years to be considered for approval.
- f. UNDERLAYMENT: Install at minimum one layer of No. 30, non-perforated, asphalt saturated, organic felt conforming to ASTM-D-226, Type II.
- g. ICE DAM PROTECTION: Additional ice dam protection shall be installed per IBC NJ and shall extend up the roof from each lower edge to a point 24" inside the building exterior wall line at minimum. Ice dam membrane shall also be provided at eaves, rakes, hips, ridges, penetrations, etcetera.

Clay Roof Tiles – Basis of Design

- Legacy Collection Spanish Barrel Tile by Ludowici Roof Tile Inc. or Approved Equal
Color: Clay Red, Size (typ.): 13-1/4" or 18-3/8"

07 40 00 Roofing and Siding PanelsRoofing and Siding Panels – General Requirements

- a. ALUMINUM COMPOSITE: Fire Rated Core.
- b. CORRUGATED PANELS: Galvalume, Aluminum or Galvanized Steel.
- c. FINISH: Fluoropolymer, 70% resin complying with AAMA 2605.

Composite Roof Panels – Basis of Design

- Alucobond or Approved Equal (CCIS, NURS)

Metal Wall Panels – Basis of Design

- Econolap, 1/4" by CENTRIA or Approved Equal

07 50 00 Membrane RoofingMembrane Roofing – General Requirements

- a. A fully adhered, 60-mil, non-reinforced EPDM (ethylene propylene diene monomer) membrane system is the preferred flexible membrane system for use on new construction. A fully adhered 60-mil TPO (thermoplastic polyolefin) system shall also be acceptable if it is approved by the University Project Manager.
- b. A four-ply asphalt system is the University's preferred built-up bituminous roofing system. Modified-bitumen cap sheets are acceptable but are not preferred.
- c. These systems shall have a minimum twenty year warranty.
- d. PVC (polyvinyl chloride) type membranes shall be utilized only near mechanical equipment or grease exhaust where oil or grease may cause contamination.
- e. WIND UPLIFT PERFORMANCE: Roof system shall be designed to satisfy FM Global wind uplift requirements.
- f. FIRE RESISTANCE PERFORMANCE: Roof system shall achieve a UL Class A rating when tested in accordance with UL-790.
- g. DRAINAGE: Roof systems shall be provided with positive drainage where all standing water dissipates within 48 hours after precipitation ends.
- h. SLOPE: A minimum slope of 1/4" per foot is required on all flat or low-slope roofs. Sloping the deck is preferred to sloping the insulation.
- i. LAYOUT: Keep shape of roof areas as simple as possible. Use curbed roof relief and/or expansion joints to divide roof rectangularly.
- j. ROOF-MOUNTED EQUIPMENT: Each piece of roof-mounted equipment shall be installed on an approved box curb appropriately flashed into the roofing system or shall otherwise be supported so as to provide a minimum 3' of clear space between the roof surface and the bottom of the equipment support structure to facilitate roof maintenance and replacement. Equipment no longer in use shall be removed along with associated curbs, piping, and pipe supports.
- k. ROOFTOP EQUIPMENT CONSIDERATIONS: Visual screening for rooftop mechanical equipment and structures shall be compatible with the design of the building. Acoustic mitigation of equipment shall be considered to minimize impacts on pedestrians and neighbors. Aesthetic requirements for solar and cellular rooftop equipment shall be coordinated with the Project Manager. Structural components shall be considered for rooftop equipment and shelters.
- l. Environmental conditions (temperature, humidity, and ventilation) shall be maintained within manufacturer-recommended limits for optimum results. Products shall not be installed under environmental conditions that are outside of the manufacturer's absolute limits.
- m. Safety Data Sheets (SDS) shall be on location at all times during the transportation, storage and application of materials.

- n. *New roofing shall be complete and weathertight at the end of the work day.*
- a. *The roofing system manufacturer's technical personnel shall inspect the roofing installation upon its completion and submit a report to the Project Manager, who shall be notified 48 hours in advance of the date and time of inspection. All work done after the final inspection must be reinspected and certified.*
- p. **ROOF REPLACEMENT:** *When undertaking replacement of a roof, the load bearing capacity and structural integrity of the roof shall be reviewed. Structural repairs and/or upgrades shall be accomplished alongside roof replacement projects as appropriate. The same is true of roof drainage systems.*
- q. **Manufacturers – Subject to compliance with requirements, provide products by one of the following or an approved equal:**
 - Carlisle Syntec Systems
 - Firestone Building Products
 - The Garland Company
 - Versico Roofing Systems

Polyvinyl-Chloride Roofing – Basis of Design

- Sika Sarnafil or Approved Equal
Color: White

07 60 00 Flashing and Sheet Metal

Flashing and Sheet Metal – General Requirements

- a. *Sheet metal flashing and trim fabrication shall comply with the recommendations in SMACNA's "Architectural Sheet Metal Manual" for the design, dimensions, metal, and other item characteristics as well as in accordance with manufacturer recommendations.*
- b. *Flashing shall be designed and installed to assure that the flashing life is compatible with the masonry life.*
- c. *All materials shall be Type 316L stainless steel unless otherwise directed by the University Project Manager.*
- d. *Rigid metal flashings with exposed drip are preferred.*
- e. *Stainless steel is the preferred metal. Copper, galvanized steel, and pre-finished steel are acceptable if budget restraints preclude the use of stainless steel.*
- f. *Concealed through-wall flashings shall extend beyond and not be cut flush with masonry face until inspected and approved by the Project Manager.*
- g. *EPDM flashing may be used under metal parapet caps, providing it has continuous structural support. PVC flashings shall be prohibited.*
- h. *Pitch pockets shall be used only if other methods are not feasible. Mount all equipment, pipes, walkways, and appliances on flashed curbs or pipe pedestals.*

Sheet Metal Flashing and Trim – Basis of Design

- Englert Inc. or Approved Equal (Roof Flashings - Soffit, Trim, etc.)

Fabricated Copings – Basis of Design

- Mazmet Metal Products or Approved Equal

07 70 00 Roof and Wall Specialties and Accessories

Roof Specialties – General Requirements

- a. **COUNTERFLASHING SYSTEMS:** *A two-piece assembly shall be used to remove counterflashing flanges for removal and replacement of base flashing.*
- b. **GUTTERS AND DOWNSPOUTS:** *Where gutters are required, hung gutters are preferable to built-in. Design shall allow for thermal movement, safe overflow and ice protection. Provide cleanouts at the base of downspouts for drainage system maintenance. When relining existing built-in gutters, use lead coated copper soldered watertight with expansion provisions. For any gutter installation, the need for leaf guards shall be reviewed with the Project Manager.*
- c. **SCUPPERS:** *Overflow drains or scuppers shall be provided on roof areas containing drains and shall discharge to an appropriate exterior building location.*
- d. **ROOF WALKWAYS:** *Manufacturer-recommended walkway pads shall be provided from roof access points to and around rooftop mechanical equipment.*
- e. **SNOW GUARDS:** *For any snow guard installation, review needs with the University Project Manager. With the exception of asphalt shingles, guards or rails shall be installed on sloped roofs that could deposit snow and ice on walkways, entries, exits, and surface lots. For roofs with long slopes and heavy snow loads, consider two rows of snow fences or snow guards with a snow fence. Consult with a structural engineer for the design of snow guards and snow fences. Adequacy of decks and support structures shall be verified to properly resist snow loads. All snow fence loads shall carry back to structural elements. Decks shall not be relied upon to carry concentrated loads unless designed to do so. Color shall typically match sheet metal; finish shall vary depending on location.*

Snow Guards – Basis of Design

- Alpine PP235LS Aluminum Snow Guard for Ludowici Spanish Tile or Approved Equal

07 80 00 Fire and Smoke ProtectionApplied Fire Protection – General Requirements**a. Spray Fire Resistive Materials:**

- i. CONCEALED: *Minimum Density 15 pcf, Bond Strength 430 psf*
 - ii. EXPOSED: *Minimum Density 22 pcf, Bond Strength 425 psf*
- b. Manufacturers – *Subject to compliance with requirements, provide products by one of the following or an approved equal:*
- W. R. Grace and Company
 - Isolatek International
 - Carboline Co.

Firestopping and Smoke Seals – General Requirements

- i. TEST REQUIREMENTS: *ASTM E2307 Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus*
- ii. INSPECTION REQUIREMENTS: *ASTM E2174 Standard Practice for On-Site Inspection of Installed Firestop Systems*
- iii. THROUGH PENETRATIONS SYSTEMS RECOGNIZED TESTING AGENCIES: *UL Fire Resistance Directory, Volume II (current year), Warnock Hersey Certification Listings (current year), Omega Point Laboratories (current year).*

Penetration Firestopping – General Requirements

- a. *When floors, walls, etc. are penetrated, care must be taken not to compromise the integrity of the building structure.*
- b. *All penetrations of fire rated floors, walls, etc. shall be appropriately firestopped after construction is complete.*
- c. *This includes all penetrations made by new installations as well as any such existing penetrations that are exposed during the renovation work.*

Joint Firestopping – Basis of Design

- 3M FireStop Sealant 2000 or 3M Fire Barrier Sealant CP23WB by 3M Fire Protection Products or Approved Equal

07 90 00 Joint SealantsJoint Sealants – General Requirement

- a. APPLICATIONS: *Provide elastomeric joint sealants for exterior applications that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.*
- b. PRE-CONSTRUCTION FIELD ADHESION TESTING: *Before installing elastomeric sealants, field test their adhesion to project joint substrates according to the method in ASTM C 794 and C 1521 that is appropriate for the types of project joints.*
- c. VOC CONTENT: *Architectural sealants shall have a VOC content not exceeding 250 g/L. Sealants and sealant primers for nonporous substrates shall have a VOC content not exceeding 250 g/L. Sealants and sealant primers for porous substrates shall have a VOC content not exceeding 775 g/L.*
- d. COLORS OF EXPOSED JOINT SEALANTS: *Generally match adjacent material color or match darker color if adjacent materials are different colors.*
- e. ELASTOMERIC SEALANTS: *Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.*
- f. STAIN-TEST-RESPONSE CHARACTERISTICS: *Where elastomeric sealants are specified to be non-staining to porous substrates, products provided shall have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.*
- g. SUITABILITY FOR IMMERSION IN LIQUIDS: *Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, products provided shall have undergone testing according to ASTM C 1247 and shall qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.*
- h. EXTERIOR WALL SEALANT:
 - i. *One part Silicone compliant with ASTM C920, Type S, Grade NS, Class 50 standards*
 - ii. *Two part Polyurethane compliant with ASTM C920, Type M, Grade NS, Class 50 standards.*
- i. BACK UP MATERIALS: *Non-staining, non-absorbent, compatible with sealant and primer.*
- j. Basis of Design – *Subject to compliance with requirements, provide products by one of the following or an approved equal:*
 - Tremco or Approved Equal

DIVISION 08 – OPENINGS**08 10 00 Doors and Frames**Doors and Frames – General Requirements

- a. Exterior doors shall be of aluminum, fiberglass, stainless steel or insulated galvanized steel construction.
- b. Interior doors shall be hollow metal doors with steel frames or solid core wood doors with steel frames.
- c. All doors will be keyed into the University's keying system. Final keying and coordination shall be provided by the University.
- a. Construction cores shall be provided during the project and shall be removed by the Contractor upon project turnover.

Metal Doors and Frames – General Requirements

- a. Typical interior locations shall be 18-gauge door, 16-gauge frame.
- b. Mechanical rooms and exterior locations shall be 16-gauge door, 14-gauge frame.
- c. Exterior doors shall be insulated. Exterior frames shall be thermally broken.
- d. Finishes for exterior doors and frames shall be hot dipped galvanized conforming to ASTM A 924 and A 653, A-60 coating.
- e. Double-door openings shall include a keyed removable center mullion.

Hollow Metal Doors and Frames – General Requirements

- a. Use of hollow metal frames for interior doors, sidelights, and borrow lights shall generally be required throughout all building projects. Limited exceptions may be granted in cases where use of alternative systems is deemed appropriate or in renovation projects where it is desirable to match existing construction.
- b. **Frame Construction:**
 - i. All frames in new construction shall be full weld unit type fabrication. Joints shall be mitered and externally welded; contact edges shall be closed tight. Exposed surface welds shall be dressed smooth and flush. Knock down frame construction may be used in projects of existing remodels.
 - ii. Comply with the National Association of Architectural Metal Manufacturers (NAAMM) Standard HMMA-820.
- c. **Frame Installation:**
 - i. Loose glazing stops shall be 20 gauge minimum.
 - ii. Except on weatherstripped frames, drill stops shall receive three silencers on single door frame strike jambs and two on double-door frame heads.
 - iii. Provide three anchors minimum per jamb for doors up to 7'-6" high. Provide four anchors for doors 7'-6" high up to and including 8'-0" high. Provide one anchor per every two feet for doors over 8'-0" high.
- d. **Frame Profile:**
 - i. All hollow metal door or vision panel frames shall have a minimum 2" wide face dimension.
 - ii. The use of frames narrower than this have been shown to result in installation and maintenance problems over the long term.
- e. Basis of Design – Subject to compliance with requirements, provide one of the following products or an approved equal:
 - Acme; Ceco; Copco; Curries; Galaxy Metal Products; Steelcraft or Approved Equal

Wood Doors – General Requirements

- a. All wood doors shall be solid core construction and comply with Architectural Woodworking Institute (AWI) Premium Grade.
- b. All shall have solid blocking for all hardware including emergency exit devices.
- c. Exterior doors that swing into the weather shall be capped and have no finger joints.
- d. Stiles and rails of exterior doors shall be of laminated construction, not solid wood.
- e. Doors to be field painted shall have a MDO face.
- f. Veneer shall conform to AWI, AA grade veneer with 3" wide leaf.
- g. Minimum veneer thickness shall be not less than 1/50" after sanding.

08 30 00 Specialty Doors and FramesOverhead Coiling Doors – Basis of Design

- Clopay; Cookson; Cornell Iron Works; McKeon Rolling Steel Door Company; Overhead Door Company or Approved Equal

Side Coiling Grilles – Basis of Design

- Cookson; Dynamic Closures Corporation; Metro Door Econoguard; Overhead Door Company or Approved Equal

08 40 00 Entrances, Storefronts, and Curtain WallsEntrances, Storefronts, and Curtain Walls – Basis of Design

- Kawneer North America; EFCO Corp.; Raco; Verstrac; Vistawall; YKK AP America Inc. or Approved Equal

Aluminum-Framed Entrances and Storefronts – Basis of Design

- Kawneer Trifab VersaGlaze 451T Framing System or Approved Equal (*Exterior Windows*)
- Tubelite Inc. 14000 Series Storefront Framing or Approved Equal (*Exterior Entrances*)
- Manufacturers – *Provide basis of design product or approved equal by one of the following:*
 - EFCO Corp.
 - US Aluminum (CR Laurence)
 - Vistawall
 - YKK AP America Inc.

All-Glass Entrances and Storefronts – Basis of Design

- Metro-Wall VETRO Series or Approved Equal
- Manufacturers – *Provide basis of design product or approved equal by one of the following:*
 - Kawneer North America
 - Transwall

Aluminum-Framed Storefronts – Basis of Design

- Kawneer Trifab 400 Non-Thermal Framing System or Approved Equal (*Interior*)

Sliding Storefronts – Basis of Design

- Kawneer North America; Wausau Windows; YKK AP America Inc. or Approved Equal

Curtain Wall and Glazed Assemblies – General Requirements

- Glazed curtain walls shall be of true “curtain wall” construction or “storefront” construction.*
- All glazing systems shall have fully captured glass with pressure plates at all glass edges and snap on mullion covers.*
- No structural sealant glazed systems or exposed sealant joint systems shall be permitted.*
- Structural glazing systems, the design of which does not facilitate convenient pane replacement, shall not be permitted.*
- ALUMINUM FINISH:** *Fluoropolymer, 70% resin complying with AAMA 2605.*

Glazed Aluminum Curtain Walls – Basis of Design

- EFCO Corp.; Kawneer North America; Trulite; US Aluminum; Wausau Window & Door Systems or Approved Equal

08 50 00 WindowsWindows – General Requirements

- Windows shall be of the highest quality available with a proven balance mechanism.*
- Security screens or gratings may be considered for installation where additional security is necessary.*
- All windows shall be securable, preferably with locks, especially those located on ground/lower floors.*
- Classrooms:**
 - Classroom windows shall typically be placed in sidewalls or rear walls and be avoided along instructional walls.*
 - Windows shall not swing into classrooms.*

Aluminum Windows – Basis of Design

- EFCO Corp.; Graham; Traco; Wausau Window and Door Systems or Approved Equal

Metal Framed Skylights – Basis of Design

- Gammans Industries Inc.; Super Sky Products Inc. 450 Series; Wasco Products Inc. or Approved Equal

08 70 00 HardwareRelated Sections

- a. DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

Door Hardware – General Requirements

- a. ACCESS CONTROL VS. LOCKSMITH SERVICES: *Locksmith services include lock repairs and changes, security hardware repairs and maintenance, master and code key cutting, panic device installation and maintenance, ADA entrance and automatic door operator service, and emergency lockout services. Access Control services include physical and electronic access control system install and maintenance, electronic keypads and keyless entry, electronic keybox programming and maintenance, security alarm install and maintenance, security locks install and operations, access control system and electronic locking.*
- b. *All specified hardware shall comply with all applicable building codes, life safety codes, and ADA requirements.*
- c. *Hardwired card access systems shall be required at all primary building entries. All other doors shall be electronically monitored.*
- d. *All hardware finishes shall match existing hardware in the surrounding area and shall be determined in coordination with the Project Manager.*
- e. *Projects involving historically-significant elements may involve additional considerations and shall be reviewed by the Project Manager and Lock Services.*
- f. Basis of Design: *See below for each individual item type.*
- i. **Hinges:**
 - Bommer Industries or Hager Companies or McKinney Products
 - ii. **Door Push Plates and Pulls:**
 - Burns Manufacturing or Rockwood Manufacturing or Trimco
 - iii. **Flush Bolts and Surface Bolts:**
 - Burns Manufacturing or Rockwood Manufacturing or Trimco
 - iv. **Patented Cylinders:**
 - Medeco X4 Series 7 Pin (*No substitutions*)
 - v. **Mortise Locksets:**
 - Sargent Manufacturing 8200 Series or Best 45H Series (*No substitutions*)
 - vi. **Cylindrical Locksets:**
 - Sargent Manufacturing 11 Line or Best 9K Series (*No substitutions*)
 - vii. **Wireless Integrated Card Reader Mortise Locks (WiFi Application Only):**
 - ACADEMIC BUILDINGS: ASSA ABLOY ES100 Series (*No substitutions*)
 - RESIDENCE BUILDINGS: ASSA ABLOY IN120 Series with Keypad (*No substitutions*)
 - viii. **Wireless Integrated Card Reader Cylindrical Locks (WiFi Application Only):**
 - ACADEMIC BUILDINGS: ASSA ABLOY ES100 Series (*No substitutions*)
 - RESIDENCE BUILDINGS: ASSA ABLOY IN120 Series with Keypad (*No substitutions*)
 - ix. **Mortise Deadlocks, Small Case:**
 - Sargent Manufacturing 4870 Series (*No substitutions*)
 - x. **Push Rail Exit Devices (Heavy-Duty):**
 - Allegion Von Duprin 98/99 Series (*No substitutions*)
 - xi. **Tube Steel Removable Mullions:**
 - Sargent Manufacturing 980S Series (*No substitutions*)
 - xii. **Door Closers, Surface-Mounted (Heavy-Duty):**
 - EXTERNAL: LCN 4000 Series (*No substitutions*)
 - INTERNAL: Corbin Russwin DC6200 Series (*No substitutions*)

Automatic Door Operators – General Requirements

- a. *An ADA-compliant power-operated door with either arm-height (42") and foot-plate-height (6") push plate type actuator switches or continuous vertical push plate shall be provided at no less than one entrance (preferably the main entrance) for all campus buildings. Locations shall be approved by the University.*
- b. *All ADA door operator push buttons shall be located within 10 feet of the door and shall be located so as to not encroach the door opening.*

Non-Integrated Access Control Hardware – General Requirements

- a. *Buildings shall incorporate iCLASS credential readers configured to support Mobile Access, Bluetooth Low Energy, and NFC.*

08 80 00 GlazingGlass Glazing – General Requirements

- a. All windows within 18" of a walking surface shall be tempered glass as required by code.
- b. Glass in doors, if provided, shall be tempered glass unless otherwise required by code.
- c. Glazing in hazardous locations shall be of especially durable construction (laminated glass, tempered glass, wire glass, or polycarbonate) even if it is not required by code. Refer to the most recent International Building Code, New Jersey Edition Sections 2406.4, Marked identification as required per code.

Exterior Glass Glazing – General Requirements

- a. All glazing for exterior applications shall be of the insulated double pane type that incorporates metal framing separated by a thermal break that is locked into the extrusions, not merely a sealant. Triple glazed units may be used, provided the size is limited.
- b. The use of Low-E exterior glazing is encouraged for energy conservation and occupant comfort. Low-E coatings shall comply with energy code.
- c. Clear Insulated Low-E Coated Glass shall be used at all fixed exterior windows.
- d. Fully Tempered Clear 1" Thick Insulated Low-E-Coated Glass shall be used at all exterior doors and adjacent sidelites with glazing.
- e. Insulated glass shall be minimum 1" thick and in compliance with ASTM E774.
- f. Special exterior window or glazing construction shall be employed as appropriate in conjunction with a winter interior design through relative humidity above 35% and/or a summer interior design space temperature below 65°F.
- g. Opportunities to provide natural lighting shall be taken whenever possible while remaining in full compliance with the latest ASHRAE Standard 90.1.
- h. Large expanses of exterior glazing, particularly those located on building faces that are exposed to solar gain (i.e. west exposures), shall be planned and designed with careful consideration for potential summer heat gain, winter heat loss, glare and wind loading issues.

Interior Glass Glazing – General Requirements

- a. 3/8" Thick Tempered Polished Safety Glass shall be used at interior adjacent sidelites with glazing and at interior doors not at stairwells with glazing.
- b. 1/4" Thick Fire-Rated Glass shall be used at stairwell interior doors with glazing.
- c. 1" Insulated Tempered STC 35 Rated Glazing shall be used at fixed interior room and door glazing.
- d. 1" Insulated Tempered One-Way STC 35 Rated Glazing shall be used at fixed interior control room windows.

Plastic Glazing – Basis of Design

- CYRO Industries; General Electric Company; Sheffield Plastics, Inc. or Approved Equal

Fire-Rated Glass and Glazing Systems – Basis of Design

- Fireframes Aluminum Series by Technical Glass Products or Approved Equal

Fire-Rated Glazing – Basis of Design

- Pilkington Pyrostop by the Pilkington Group or Approved Equal

Security Glazing – Basis of Design

- TSS Acrylic, Level 2 ARA (Abrasion Resistant Acrylic) 1.375" by Total Security Solutions or Approved Equal
- Manufacturers – Provide basis of design product or approved equal by one of the following:
 - Transparent Ballistic Solutions, Inc.

DIVISION 09 – FINISHES

Related Sections

- a. DIVISION 02 – EXISTING CONDITIONS

Finishes – General Requirements

- a. Interior finishes shall be determined on a per-project basis and consider space use, aesthetics, durability, maintenance, safety, and sustainability.
- b. Interior finish selections for renovated or remodeled spaces shall match and blend with existing materials as best as possible when appropriate.
- c. All proposed project materials, colors, finishes, product specifications, applications and other details shall be reviewed by the Project Manager prior to completion of the Construction Documents phase.
- d. All interior finishes shall meet Class A Fire Rating as well as meet all applicable building codes and University use requirements for the area.
- e. LOW-EMITTING MATERIALS: Follow U.S. Green Building Council (USGBC) LEED v4 guidance on low-emitting materials.
- f. Contractors shall prepare a list of materials used on the project including manufacturer and catalog numbers of all finish materials and paint numbers.
- g. ATTIC STOCK: Contractors may be asked to provide the University with spare replacement material for future maintenance or repair purposes.
- h. REMEDIATION: If existing asbestos or lead paint is suspected, the University shall be notified to conduct any necessary testing and remediation in coordination with the Office of Environmental Health and Safety.

09 20 00 Plaster and Gypsum BoardGypsum Board Assemblies – General Requirements

- a. **Fixed Partition Walls:**
 - i. Metal stud and gypsum board is the preferred wall construction type.
 - ii. All gypsum shall be minimum 5/8" thick unless used in a multi-layer application.
 - iii. All partitions in new construction projects shall extend to the underside of the deck above to provide stability and sound isolation.
 - iv. Wood studs shall typically not be permitted. Wood studs, if used, must be fire-rated.
- b. **Corridors and Public Areas:**
 - i. Corridors and other general public area walls shall be of CMU or metal stud wall construction with high-impact abuse-resistant gypsum board having abuse-resistant corner guards. If a higher level of finish is desired, CMU may be plastered prior to painting.
 - ii. Corridor walls extend to the structural ceiling.
 - iii. Corner guards shall be installed as appropriate on wall corners that are exposed to traffic flow.
- c. **Service Rooms/Areas:**
 - i. Corridor partition wall requirements also apply to service spaces such as custodial rooms, recycling rooms, and receiving areas.
- d. **Restrooms, Showers, and Locker Rooms:**
 - i. All restroom, shower and locker room walls shall be of CMU or metal stud wall construction with moisture and mold-resistant gypsum board.
 - ii. Walls shall be finished with floor-matching ceramic tile to a height above all fixtures in order to facilitate cleaning.
 - iii. Base molding shall be ceramic cove to connect the floor and wall tile.
- e. **Equipment Rooms:**
 - i. Mechanical rooms subject to moisture shall be of CMU or poured concrete wall construction.
 - ii. Other mechanical rooms, electrical equipment room, elevator machine room and hoistway walls shall be of either CMU or poured concrete construction or metal stud wall with abuse-resistant gypsum board and sound batt insulation and shall extend to the structural ceiling.
- f. **Sound Transmission:**
 - i. Acoustical sound transmission shall be considered in the design of partition walls.
 - ii. All partition walls where sound transmission is a concern shall be extended to the structural ceiling above.
 - iii. Installing sound attenuating batts in stud type partition walls shall be considered with proper opening and perimeter sealing.
 - iv. Locations with stud partitions may provide gypsum board to the ceiling on only one partition side to support batts and assist with attenuation.
 - v. STC-RATED ASSEMBLIES: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.
- g. **Minimum Deflection Criteria:**
 - i. SHAFTWALL: 10 psf for maximum height of wall with deflection limited to L/240.
 - ii. DRYWALL: 5 psf for maximum height of wall with deflection limited to L/240 for standard partitions or L/360 for tile partitions.

Metal Furring – Basis of Design

- Clark Steel Framing Systems, Dietrich Industries, MarinoWare, National Gypsum Co., Unimast or Approved Equal

Gypsum Plastering – Basis of Design

- American Gypsum Co., G-P Gypsum Corp., National Gypsum Co., United States Gypsum Co. or Approved Equal

Cement Stucco – Basis of Design

- StoPowerwall Stucco by Sto Corp. or Approved Equal

Backing Boards and Underlayments – Basis of Design

- Georgia-Pacific Dens-Shield Tile Backer or Schluter System Kerdi-Board or Approved Equal

Gypsum Board – General Requirements

- Interior Gypsum Board shall be specified with consideration given to application as well as compliance with applicable code and testing requirements.*
- GENERAL GYPSUM BOARD: ASTM C 1396/C 1396M.
 - Install all interior finishes unless otherwise indicated. Provide sag-resistant type for ceiling surfaces.*
- ABUSE-RESISTANT GYPSUM BOARD: ASTM C 1396/C 1396M gypsum board, tested according to ASTM C 1629/C 1629M.
 - Install in corridors except at existing gypsum plaster, unsecured public areas, cafés, and trash rooms. Install requirement limited to 8' AFF.*
- MOLD-RESISTANT GYPSUM BOARD: ASTM C 1396/C 1396M, with moisture- and mold-resistant core and paper surfaces.
 - Install at Restrooms where tile backer board is not indicated, Laundry Rooms, Food Preparation Spaces, Utility Rooms and Janitor Closets.*
- WATER-RESISTANT GYPSUM TILE BACKING BOARD: ASTM C 1178, with manufacturer's standard edges.
 - Install behind tile installations where indicated (Restrooms, Shower Walls) with 1/4" gap where panels abut other construction or penetrations*
 - Where tile backing panels abut other types of panels in the same plane, shim surfaces to produce a uniform plane across panel surfaces.*
- RECYCLED CONTENT: *Post-consumer recycled content plus one-half of pre-consumer recycled content not less than 75 percent.*
- REGIONAL MATERIALS: *Specified products shall be manufactured within 500 miles of the project site.*
- SIZE: *Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.*

Gypsum Board Fire Protection – General Requirements

- FIRE-RESISTANCE-RATED ASSEMBLIES: *For fire-resistance-rated assemblies, the materials and construction provided shall be identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.*
- All fire rated walls and partitions shall be labeled with their rating, spaced so each element is clearly identified in each room.*
- All penetrations in fire-rated floors, walls, ceilings and partitions shall be protected per code with approved and listed assemblies; labels shall be placed adjacent to each penetration identifying the listed assembly used.*

09 50 00 CeilingsCeilings – General Requirements

- A suspended 24" x 24" acoustical ceiling system shall generally be installed as required and shall comply with all applicable codes*
- Ceiling designs shall take into consideration easy access for maintenance and other access needs including technology installations*
- A single type of ceiling tile shall generally be used throughout a building in order to minimize maintenance costs.*
- In non-standard areas using an exposed structural ceiling or suspended drywall or plaster ceiling, painting shall be coordinated on a per-project basis.*
- Ceiling finishes shall follow specifications set forth by the LEED v4 Indoor Environmental Quality prerequisite and credit for Acoustic Performance.*
- Acoustically-absorbent ceiling material shall be used along the sides and rear of large classrooms and lecture halls resulting in a reverberation time of less than 0.6 seconds when the space is unoccupied. Acoustical tiles shall have a Noise Reduction Coefficient (NRC) of 0.75 or better.*
- Classroom ceilings shall be a light color and have a minimum reflectance value of 80.*

Acoustical Ceiling Suspension Assemblies – Basis of Design

- Suspended Acoustical Lay-In Ceiling System by Armstrong World Industries or Approved Equal
Dune Tegular Tile, Optima Square Tegular Tile, or Ultima Beveled Tegular Tile
Finish/Color: White

09 60 00 FlooringFlooring – General Requirements

- a. Durability, maintainability and life-cycle cost analysis shall guide the selection of appropriate flooring materials.
- b. All flooring shall comply with applicable building codes and regulations and shall meet or exceed slip-resistant requirements, especially in wet areas.
- c. STRUCTURAL CONSIDERATIONS: Floors shall be designed for assembly floor loads, structural loads or code-required loads, whichever is higher.
- d. OCCUPATIONAL HEALTH: Installation shall comply with manufacturer instructions and Material Safety Data Sheets (MSDS).
- e. VOC CONTENT: Glues and finishes with low or no VOCs shall be used in all floorings.
- f. A single flooring material shall be used within a room or usable area of a building unless otherwise approved by the University.
- g. New and “unproven” floor systems shall be avoided.
- h. Walk-off carpet, resilient flooring with mats, or walk-off grates shall be installed in vestibules at a minimum 10' from the entry door into the space.
- i. Installation of carpet and wood flooring shall be avoided in food service areas, laboratories, medical treatment areas and restrooms.

Wood Flooring – General Requirements

- a. Use of wood flooring in spaces other than athletic areas and theatrical spaces shall be approved by the University.

Resilient Flooring – General Requirements

- a. Resilient flooring shall be commercial/institutional grade with slight color and pattern variations to conceal dirt and stains.
- b. **Resilient Base and Accessories:**
 - i. Standard base molding shall typically be rubber or vinyl construction (4" height).
 - ii. Restroom and Locker Room base molding shall be tile construction with integral or cove base to match floor and wall.
 - iii. Laboratory flooring shall have a 6" seamless cove.
 - iv. Terrazzo, marble, hardwood, and other specialty molding may be used to match other finishes and features.
- j. **Resilient Tile Flooring:**
 - i. All tile flooring products shall have a minimum dynamic coefficient of friction (DCOF) value in compliance with ANSI A326.3.
 - ii. Products proposed for use in level interior spaces intended to be walked upon when wet shall have a DCOF value of 0.42 or higher.
 - iii. Products proposed for use in outdoor spaces shall have a DCOF value of 0.55 or higher.

Carpeting – General Requirements

- a. Carpet tile shall be typically preferred over broadloom. Broadloom may be acceptable in certain applications (i.e. auditorium or stair installations).
- b. Carpet insets shall generally be avoided.
- c. Walk-off carpet shall be used at high-traffic building entrances.
- d. Carpet shall have a lifetime warranty against edge raveling and delamination. Carpet shall have a minimum ten year warranty against fading.
- e. Classroom carpet shall be commercial/institutional grade continuous-filament type 6,6 nylon, 100% solution dyed, tufted or fusion bonded level loop, anti-static, U.L. Class A. carpet tile with the exception of spaces with sloped or tiered floors.

09 70 00 Wall FinishesWall Finishes – General Requirements

- a. All wall finishes shall comply with all applicable building codes and regulations.
- b. Wall finishes shall follow specifications set forth by the LEED v4 Indoor Environmental Quality prerequisite and credit for Acoustic Performance.
- c. Selection of proposed wall finishes shall take into consideration appropriate space use and adjacent materials.
- d. New and “unproven” wall finishes should be avoided.
- e. Wall finishes shall generally be painted masonry block or drywall.
- f. Wall finishes in restrooms, locker rooms, and showers shall incorporate tile as required.
- g. Wall finishes in the balance of these room types as well as in laboratories, animal facilities, service facilities, etcetera that are exposed to high humidity and/or require water wash-down for cleaning shall be water-resistant (e.g. one that incorporates a two-part epoxy finish coat).
- h. CLASSROOM CHAIR RAILS: Classrooms with movable furniture shall include a simple profile chair rail to protect walls from contact with furniture. Chair rails shall typically be installed 25" to 33" above the finished floor (verify mounting height and width with specified furniture on a per-project basis). Chair rails shall not be required on teaching walls where it may conflict with dry erase marker board mounting height requirements.
- i. ACOUSTICAL WALL PANELS: Acoustical wall panels shall be provided where necessary and meet CAL 133 requirements.

09 90 00 Painting and Coating

Painting – General Requirements

- a. All proposed paint selections shall be reviewed by the Project Manager on a per-project basis.
- b. Selection of paints shall take into consideration aesthetics, appropriateness of application, contextual consistency, durability, and sustainability.
- c. Paint that is specified to match an existing paint already in place does not need to be reviewed.
- d. SCHEDULES FOR PAINTING AND COATING: See below for information regarding campus standard painting and coating finishes.
- e. Manufacturers – Unless otherwise specified, provide products from one of the following manufacturers or an approved equal:
 - Benjamin Moore (BM)
 - Sherwin-Williams (SW)

Exterior Painting – General Requirements

- a. All paints and coatings used in exterior applications shall be weather-resistant.
- f. The standard paint color for metal doors and frames, standing seam roofs, and sheet metal coping shall be Colonial Red.
- g. The standard bronze paint color for historic applications or certain exterior equipment shall be Sherwin Williams 2114-10 Bittersweet Chocolate.
- h. Certain exterior equipment such as air conditioner compressors, generators, or mechanical equipment that is situated directly near a building or within a prominent visual sightline may be painted to be a more contextually-appropriate color (typically a bronze or green finish) as directed by the University.

Interior Painting – General Requirements

- a. Benjamin Moore OC-149 Decorator’s White is the standard base color for new construction or for remodels where an entire area is being repainted.
- b. **Paint Sheens/Finishes:**
 - i. PUBLIC AREAS, CLASSROOMS, PRIVATE OFFICES, APARTMENT WALLS: Eggshell finish
 - ii. CORRIDORS, RESTROOMS, AND KITCHENS: Semi-gloss finish
 - iii. CEILING APPLICATIONS: Flat or eggshell finish
 - iv. METAL DOOR FRAMES AND TRIMS: Semi-gloss finish
 - v. Other specialty areas shall be reviewed on a per-project basis by the A/E and the University Project Manager.
- c. **Accent Colors:**
 - i. Typical areas of application for accent paint include private offices as well as common and public areas.
 - ii. Selections shall be modern and take into consideration the building style, materials, and lighting conditions.
 - iii. Buildings, suites or areas shall not exceed two to three accent paints per area.
 - iv. UNIVERSITY COLORS: The University brand color palette, developed by University Communications and Marketing, may be referenced when selecting accent colors. Colors shall be reviewed in the field prior to application to account for individual conditions and light variances.

<u>Description</u>	<u>Pantone Color</u>	<u>Paint Specification</u>
Primary Brand Color – Red	Pantone PMS 200	SW 6868 Real Red
Secondary Brand Color – Gray	Pantone Cool Gray 8	SW 6256 Serious Grey
Secondary Brand Color – Yellow	Pantone 7548	SW 6907 Forsythia SW 6677 Goldenrod (Alternate)
Secondary Brand Color – Orange	Pantone 1585	SW 6885 Knockout Orange
Secondary Brand Color – Green	Pantone 375	SW 6921 Electric Lime
Secondary Brand Color – Blue	Pantone 7460	SW 6796 Blue Plate
Secondary Brand Color – Navy	Pantone 289	SW 9177 Salty Dog

High-Performance Coatings – General Requirements

- a. High-performance coatings shall be used when appropriate.
- b. HIGH-TEMPERATURE-RESISTANT COATINGS: Tnemec is the preferred paint manufacturer for metals and high temperature applications.
- c. ELASTOMERIC COATINGS: Acrymax AF-135 is the preferred elastomeric coating for walls.

Special Coatings – General Requirements

- a. DRY ERASE COATINGS: Use of dry erase coatings as a wall finish shall not be permitted.

Description/Application	Color/Finish Specification
General/Field Neutral Wall Paint	BM OC-149 Decorator's White CC-20
EIFS (Exterior Insulation Finish Systems)	China White Dryvit Sandpebble <i>(SBUS-CELS-CCIS-SCOM)</i>
Portland Cement Plaster (Stucco)	Pure White, Fine Texture <i>(COLE)</i>
Metal Standing Seam Roofs, Sheet Metal Coping	Kynar 500 Colonial Red
Exterior Curtain Wall Storefront Frames	PermaColor 3500 Colonial Red
Metal Doors and Frames	Valspar 394F170 Colonial Red
Exterior Metal Railings – Red <i>(COLE RAMP ARCADE)</i>	BM AF-300 Dinner Party
Metal Door Frames – Bronze <i>(COLE)</i>	Pro Industrial I Semi-Gloss B66T01154, SW 7675 Sealskin
Exterior Equipment – Bronze	SW 2114-10 Bittersweet Chocolate
Wood Roof Fascia – Bronze <i>(COLE)</i>	SW 2114-10 Bittersweet Chocolate

DIVISION 10 – SPECIALTIES

10 10 00 Information Specialties

Visual Display Units – General Requirements

- a. *Writing surfaces shall be durable with a smooth, non-glare surface.*
- b. *Size specifications shall vary on a per-project basis.*

Markerboards – General Requirements

- a. *Markerboards shall have a LCS Porcelain Enamel Steel surface, White color finish, Anodized Aluminum frame, and Full-length marker tray.*
- b. *Spline joinery shall be specified in instances when multiple panels are to be joined together.*
- c. Basis of Design:
 - *AJW Architectural Products or Claridge or Approved Equal*

Tackboards – General Requirements

- a. SPECIFICATIONS: *Metal frame, Bulletin Board finish*
- b. Basis of Design:
 - *Claridge or Approved Equal*
Forbo Bulletin Board Cork

Directories – General Requirements

- a. *Directory messaging, installation, and maintenance shall be coordinated with the Office of Capital Planning and Project Management.*
- b. *Information shall be listed by floor and be in ascending order for each floor. Department names shall appear in their official and complete form.*
- c. *Analog directories are generally preferred over electronic or digital directories for use in buildings.*

Signage – General Requirements

- a. *All permanent campus signage shall be in compliance with applicable building code and barrier-free requirements.*
- b. *The design, fabrication, and installation of all new permanent campus signage shall follow current University signage standards.*
- c. *Signage for all new construction or renovation projects shall be coordinated by the Project Manager.*
- d. *Any proposed non-standard permanent signage shall be subject to review and approval by the Project Manager prior to installation.*
- e. **Donor Recognition Signage:**
 - i. *The design, fabrication, and install of all permanent donor recognition signage shall be jointly coordinated between the Offices of Capital Planning and Project Management (University Facilities) and Donor Relations (University Development).*
 - ii. *Refer to the latest University Donor Recognition Guidelines for complete design standards and administrative procedures.*

Exterior Signage – General Requirements

- a. *All exterior signage shall be consistent with the latest campus signage standards and shall be reviewed and approved prior to installation.*
- b. BUILDING IDENTIFICATION SIGNAGE: *Installation of ground-mounted (a.k.a. post and panel) building signage shall take into consideration its location so as to not place it within sightlines of pin-mounted Building Identification letters for the same building.*
- c. *Refer to the latest University Exterior Signage Standards as provided by Capital Planning and Project Management.*

Interior Signage – General Requirements

- f. *Purchasing and installation of interior project signage may be included as part of the general construction contract or may be handled under a separate contract as determined by the Project Manager.*
- g. *Room Identification sign messaging shall follow officially-assigned room numbers and/or names in line with University Room Numbering Standards.*
- h. *Refer to the latest University Interior Signage Standards Manual as provided by Capital Planning and Project Management.*

Dimensional Letter Signage – General Requirements

- i. *Exterior Building ID letters shall typically be included at all main building entries as well as any other public arrivals or key visual points.*
- j. *The complete building name may be written out in full at the main entrance while additional instances may simply display the abridged name.*

10 20 00 Interior SpecialtiesToilet Compartments – General Requirements**a. Mounting:**

- i. Toilet enclosure partitions shall be preferably ceiling-mounted.
- ii. Urinal screens partitions shall be preferably wall-mounted.

b. Basis of Design – Subject to compliance with requirements, provide one of the following products or an approved equal:

- Bobrick SierraSeries SCRC 1090 or Approved Equal (COLE)

Toilet Accessories – General Requirements

- a. Contractor shall provide installation for Owner-furnished products and materials as scheduled.
- b. Hand dryers shall be preferred for use over paper towel dispensers and hardwired automated fixtures shall be preferred for use over battery-operated ones.
- c. Locations shall be coordinated alongside other project work to prevent interference with clearance requirements for access by people with disabilities and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- d. All electrical components, devices, and toilet accessories for a project shall be listed and labeled as they are defined in NFPA 70 and be marked for their intended location and application.
- e. The following standards apply to most academic and administrative buildings on campus. Residence Halls and other types of auxiliary facilities may not adhere to these standards and shall require different standard accessories as appropriate.
- f. Basis of Design: See below for each individual item (** indicates owner-supplied item).

Mirror Unit:

- Bobrick B-290 Series or Approved Equal

Grab Bar:

- American Specialties Inc. 3800 Series, Type 1, Satin Finish

Automatic Liquid Soap Dispenser:**

- Purell ES8 Touch-Free Soap Dispenser, Graphite

Toilet Tissue Dispenser:**

- Tork 565828 3 Roll Bath Tissue Roll Dispenser for OptiCore, Black or Approved Equal

Toilet Tissue Holder:

- American Standard CR Series 8336.230 or Approved Equal

Paper Towel Dispenser:

- American Specialties Inc. Recessed Paper Towel Disposal 6459, Satin Finish or Approved Equal
- Tork 772728 Mechanical Hand Towel Roll Dispenser or Approved Equal

Sanitary Disposal Bag Dispenser:**

- Sensibles Combination Dispenser/Receptacles SDW, Classic White or Approved Equal

Seat Cover Dispenser:**

- Grainger Tough Guy 22LC68, Smoke

Sanitary Napkin Disposal Unit:**

- Hospesco EvoGen EVNT3-SS No-Touch Napkin Tampon Dispenser Free

Waste Receptacle:

- American Specialties Inc. Model 6459, Stainless Steel or Approved Equal

Coat Hook:

- Bobrick Model B-212 or Approved Equal

Hand Dryer:

- Dyson Airblade V HU02, Sprayed Nickel or Approved Equal
- Excel Xlerator Model XL-BW, 110/120V, 12.5A, 60Hz or Approved Equal

Diaper Changing Station – Basis of Design

- American Specialties Surface-Mounted Horizontal Baby Changing Station 9014 Standard Finish / 9013-9 High Level Finish
- Koala Kare Products KB200-05 White Granite or Approved Equal (COLE)

Hygiene and Custodial Accessories – General Requirements

- a. *Certified green cleaning products shall be supplied for use in all campus buildings. LEED buildings shall follow all University green cleaning policies.*
- b. Basis of Design: *See below for each individual item.*

Service Sink:

- Elkay-Fiat MSB3624 Service Sink or Approved Equal, 36" x 24" with fiberglass surround on walls.

Mop and Broom Holder:

- American Specialties Inc. 1308-3, Stainless Steel or Approved Equal, Minimum 6'6" AFF.

Miscellaneous/Other Accessories:

- Rubbermaid Brute Utility Container and Dolly, Gray

10 40 00 Safety SpecialtiesRelated Sections:

- b. DIVISION 21 – FIRE SUPPRESSION

Defibrillator Cabinets – General Requirements

- a. *Automated External Defibrillators (AEDs) shall be included in all main campus buildings and include appropriate signage.*
- b. *Cabinets shall typically be installed off of the main building lobby at a location that does not impede paths of egress.*
- c. *Purchase and installation shall be coordinated by Montclair State University Emergency Medical Services.*
- d. Basis of Design:
 - Standard Size Wall Mount AED Cabinet with Alarm and Strobe by Cardiac Science (Part Number 180-2021-101)
 - Projecting Sign - "AED", 3-Way S-21990 by Uline or Approved Equal

Emergency Key Cabinets – General Requirements

- a. *All buildings shall include a Knox Box to allow for rapid fire department entry in the event of an emergency.*
- b. *Key boxes shall typically be installed at or near the main building entrance adjacent to the fire alarm panel on the exterior side of the structure or in a designated and approved location as specified by the University Office of Fire Safety. The box shall be mounted at a height of 6'-6" above final grade.*
- c. *Purchase and installation shall be coordinated by the University Office of Fire Safety with the Project Manager.*
- d. Basis of Design:
 - Knox Box 4400 Series by Knox Company

Fire Protection Specialties – General Requirements

- a. *Fire extinguishers and either recessed or semi-recessed cabinets shall be installed in campus buildings as required by code.*
 - i. *Recessed cabinets shall be used at all locations with available mounting depth.*
 - ii. *Semi-recessed cabinets shall be used where available depth is not adequate for recessed installation.*
- b. *Fire Extinguishers shall be owner-supplied in coordination with the University Office of Fire Safety.*
- c. Basis of Design: *See below for each individual item.*

Fire Protection Cabinets:

- Potter Roemer Alta Model 7012, Steel or Approved Equal
- Larsen Model 2409-R4 *(NURS)*

Fire Extinguishers:

- Potter Roemer Model 3010 or Approved Equal

10 50 00 Storage SpecialtiesMetal Lockers – Basis of Design

- F70 Series by Perfix Inc. *(UNPD)*
- Standard Quiet Lockers by List Industries Inc.
- Standard Lockers by Lyon Workspace Products
- Guardian Lockers by Penco Products, Inc., Subsidiary of Vesper Corporation
- Single Point Lockers by Republic Storage Systems Company

DIVISION 11 – EQUIPMENT

Related Sections

- a. DIVISION 22 – PLUMBING

Equipment – General Requirements

- a. *EnergyStar rated or other energy-efficient models shall be preferred for all new or replacement equipment and appliances.*

11 40 00 Foodservice Equipment

Ice Machines – General Requirements

- a. *To reduce potable water consumption and annual potable water costs, all new or replacement ice machine units shall be air-cooled units unless otherwise directed by the Project Manager. Existing campus ice machines that use once-through cooling shall be candidates for replacement to new, air-cooled units.*
- b. Basis of Design:
 - Hoshizaki America, Inc. or Approved Equal

11 50 00 Educational and Scientific Equipment

Projection Screens – Basis of Design

- Tensioned Contour Electrol Wide Format by Da-Lite Screen Company or Approved Equal
- Manufacturers – *Subject to compliance with requirements, provide basis of design product or approved equal by one of the following:*
 - BEI Audio-Visual Products
 - Bretford, Inc.
 - Draper Inc.
 - Stewart Filmscreen Corporation

Laboratory Equipment – General Requirements

- a. *Laboratory equipment needs shall be determined on a per-project basis in consultation with building end users, the Project Manager, and the University Office of Environmental Health and Safety.*

Laboratory Fume Hoods – Basis of Design

- Hamilton SafeAire II Fume Hood
- Labconco (CELS)
- Mott Manufacturing

11 80 00 Facility Maintenance and Operation Equipment

Facility Fall Protection – General Requirements

- a. *All projects shall comply with the latest Occupational Safety and Health Administration (OSHA) standards for engineering controls of fall protection including guardrails and anchorage points or occupant use and maintenance work as required.*
- b. *A fall protection plan shall be submitted with a Safety Plan for any project where fall protection would be required by OSHA.*
- c. *All facility fall protection needs shall be reviewed in consultation with the University Office of Environmental Health and Safety.*

DIVISION 12 – FURNISHINGS**12 20 00 Window Treatments**Window Treatments – General Requirements

- a. All window treatments shall be compliant with all applicable building codes and regulations.

Window Blinds – General Requirements

- a. Blinds that are integral to multi-pane windows (i.e. located between glass panes) shall not be acceptable.

Black-Out Blinds – General Requirements

- b. Installation of black-out shades or other specialty window treatments shall be determined and approved on a per-project basis.
c. Black-out shades shall be installed for academic teaching
d. Installation shall include light-blocking channels or shall overlap the window opening to prevent light leakage.

Roller Window Shades – Basis of Design

- Draper, Inc. or Approved Equal
3% openness factor, Manual Operation

12 30 00 CaseworkLaboratory Casework – General Requirements

- a. All casework work surfaces in chemical laboratories shall be of acid resistant construction even if the use of acids is not immediately anticipated.
b. All casework shall incorporate sufficient utility space and provision for access to utilities to facilitate maintenance.
c. Casework located adjacent to exterior walls shall also incorporate adequate access to perimeter heating units and utilities.

Metal Laboratory Casework – Basis of Design

- Kewaunee Scientific Corp. or Approved Equal

Countertops – General Requirements

- a. Solid surface material (i.e. composite stone, stone, stainless steel) shall be used in wet areas.
b. High Pressure Laminate (HPL) shall be used in all other non-wet area applications.
c. Thermally Fused Laminate (TFL) shall not be allowed in any areas.
d. Countertops in laboratories shall be impervious, stain resistant, seamless, and chemical-resistant.
e. Phenolic resin may be used in laboratory applications.
f. All laminate substrates shall be plywood.
g. In wet areas, backsplash shall be 4" at minimum.

12 40 00 Furnishings and AccessoriesWaste Receptacles – General Requirements

- a. **Offices and Conference Rooms:**
- i. Provide one trash and one recycling receptacle for each office and conference room and for each open office area workstation.
 - ii. Basis of Design – Provide one of the following products or an approved equal:
 - TRASH CANS: Rubbermaid, Open Top, 7 Gallon, Black
 - RECYCLING CANS: Rubbermaid, Open Top, 7 Gallon, Blue with Recycling Logo
- b. **Classrooms, Copy and Mail Rooms:**
- i. Provide one trash and one recycling receptacle for each classroom, copy room, and mail room.
 - ii. Basis of Design – Provide one of the following products or an approved equal:
 - TRASH CANS: Rubbermaid Slim Jim, 23 Gallon, Black
 - RECYCLING CANS: Rubbermaid Slim Jim, 23 Gallon, Blue with Recycling Logo

12 50 00 FurnitureFurniture – General Requirements

- a. All interior furniture selections shall be reviewed by the University Project Manager.
- b. Standard finish selection criteria shall include availability and lead time, cost, durability, environmental performance, and maintainability.
- c. All upholstered furnishings shall meet CAL 133 rating and have a heavy-duty stain repellent (i.e. crypton or nanotex finish) fabric that meets or exceeds 50,000 double-rubs per the Wyzenbeck method.
- d. SURPLUS FURNITURE: University-owned furniture and ancillary assets such as workspace and instructional furniture, tables, seating, storage, architectural interior products, and other accessories that are no longer needed or useful in their current space but are still in usable condition shall be considered for diversion to the Surplus Furniture Program coordinated by University Facilities.

Classroom Furniture – General Requirements

- a. Typical types of classroom student seating shall include movable tablet-arm chairs, fixed seats with folding or fixed tablet arms, movable tables and chairs, fixed tables and chairs, and fixed auditorium seats with folding tablet arms.
- b. Seats at table assemblies shall have a minimum seat width of 19 inches.
- c. Tables shall be sturdy, 18-24 inch deep units with a HPL top and a flat PVC edge banding.
- d. The minimum table width for each student shall generally be 30 linear inches.
- e. Fixed tables shall be anchored solidly to the floor system.
- f. Accessible tables shall be designed to permit one-handed vertical height adjustment.

Lecterns – General Requirements

- a. Standardized lecterns shall be used across campus and shall be specified to match the level of technology planned for a specific classroom.
- b. The typical lectern shall serve as the instructor's desk and a locking cabinet for instructional technology components (only applies in some rooms).
- c. In certain multipurpose or flexible teaching rooms, the A/V shall be located in a separate credenza and not in the lectern.
- d. Basis of Design – Subject to compliance with requirements, provide one of the following products or an approved equal:
 - Exact Furniture PM-400 or Approved Equal

12 90 00 Other FurnishingsInterior Public Space Furnishings – General Requirements

- a. Containers shall be provided at various interior public and transitional spaces (i.e. atriums, lobbies, and lecture halls) as directed by the University.

Trash and Litter Receptacles – Basis of Design

- Aristata Series by Busch Systems or Approved Equal
- Grainger Tough Guy, 44 Gallon, Silver, Two Stream Recycling

DIVISION 13 – SPECIAL CONSTRUCTION

13 20 00 Special Purpose Rooms

Lactation Rooms – General Requirements

- a. **Background:**
 - i. *Lactation Rooms provide a private, comfortable, and welcoming space for new mothers to pump or nurse.*
 - ii. *Each lactation room shall be operated by the building manager of the building in which it is located.*
 - iii. *Any deviations or conflicts with these standards and existing field conditions shall be referred to Capital Planning and Project Management.*
- b. **Scope and Policy:**
 - i. *All new construction and major renovation projects shall have at least one lactation room provided for any building larger than 50,000 GSF. Smaller buildings may include a lactation room if none are provided in adjacent buildings.*
 - ii. *Buildings already well served by existing lactation rooms shall not be required to provide additional dedicated rooms per this standard.*
 - iii. *Projects that remove a lactation Room during construction shall replace it as part of renovation.*
 - iv. *Requests for a new permanent lactation room outside of a Capital Project shall be made by the Vice President or Dean responsible for the programs in the building and shall be accompanied by a funding source.*
 - v. *Determination shall be made in consultation with Capital Planning and Project Management, Human Resources, and the Women's Center.*
- c. **Compliance:**
 - i. *Comply with Section 4207 of the Patient Protection and Affordable Care Act as well as all applicable building codes.*
 - ii. *All accessories, equipment, furniture and casework shall be provided and installed in compliance with accessibility clearances and regulations.*
- d. **Design Standards:**
 - i. *Lactation rooms shall not be a restroom, toilet stall, storage room, or custodial closet.*
 - ii. **LOCATION:** *Lactation rooms shall be located on an accessible route/ floor and shall be easily accessible and easy to find.*
 - iii. **SIZE:** *For new construction and major renovations, the minimum size of all lactation rooms shall be 100 SF. The creation of a lactation room within existing buildings not undergoing renovations shall be determined by existing space availability but shall be no smaller than 60 SF.*
 - iv. **LAYOUT:** *Room layout shall allow for a 60" turning radius with a 24" deep counter on one wall.*
 - v. **VISUAL/SOUND PRIVACY:** *Rooms shall provide complete visual and acoustical privacy. Wall heights shall prevent visual intrusion and minimize sound transmission into adjacent spaces. Window treatments shall match the overall building standard.*
 - vi. **ACCESS PRIVACY:** *Rooms shall have privacy latch and/or locking door hardware that, when locked, display "occupied" on the exterior.*
 - vii. **SIGNAGE:** *Appropriate signage shall be displayed outside of the room and shall conform to existing campus signage standards.*
 - viii. **LIGHTING/HVAC:** *Rooms shall meet the standard requirements for office level illumination and ventilation. Task lighting may be provided over the sink and work area if overhead lighting is inadequate. Dimmable LED lighting may be provided to allow for personal adjustment.*
 - ix. **FURNISHINGS:** *Rooms shall contain a comfortable chair and small table or work surface. Additional furnishings may include a cabinet with drawers for storing pump equipment, countertop, bulletin board, changing table, coat hook or rack, clock, wall mirror and waste receptacle.*
 - x. **ELECTRICAL:** *Rooms shall include at minimum one duplex electrical outlet at a location near where the occupant will use the pump.*
 - xi. **EQUIPMENT:** *Lactation rooms shall preferably include a sink along with paper towel and soap dispensers or be adjacent to a restroom.*
 - xii. **FINISHES:** *Room finish selections shall be warm and comfortable.*

DIVISION 14 – CONVEYING EQUIPMENTRelated Sections

- a. DIVISION 27 – COMMUNICATIONS
- b. DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

Conveying Equipment – General Requirements

- a. *The design and construction of conveying systems shall comply with the latest edition of the Elevator Safety Code (ASME A17.1) and IBC NJ Code.*
- c. *All conveying systems shall be designed to comply with OSHA safety requirements, including but not limited to, safety railings above the elevator cab.*

14 20 00 ElevatorsElevators – General Requirements

- a. *Installation shall comply with ANSI Standard A17.1 for Elevators, State of New Jersey Elevator Inspector requirements, and University guidelines.*
- b. *ELEVATOR TYPES: Overhead Traction Elevators, In-Ground Hydraulic Elevators, and Hole-less Hydraulic Elevators are permitted elevator types for use. In certain instances, Cable Assisted Hydraulic Elevators may be used based on consultation with Facilities Maintenance and Engineering Electrical Services. All proposed project elevator types shall be reviewed and approved by the Project Manager prior to completion of the Design Development phase.*
- c. *The appropriate number, capacity and size of elevators shall be installed to serve each building as determined by industry standard calculations.*
- d. *QUANTITY: All new or renovated buildings shall contain at least two elevators that service all floors. Consideration shall be given to monthly elevator service requirements and maintaining continuity of building access in the event of an elevator failure or performance of routine maintenance.*
- e. *CAPACITY: All elevators shall have a minimum 2,500 lb. capacity. Buildings with more than one elevator shall have, at minimum, one Class C3 elevator. For buildings with only one elevator, that elevator shall be able to carry a minimum 1,500 lb. single piece load.*
- f. *SIZE: Elevator size shall be determined based on building needs and the intended use of the elevator. Elevator capacity, car size, opening size, and platform area shall adequately serve the equipment transportation needs of the building. Larger buildings housing large equipment will require larger elevators for transporting the equipment for repair or replacing. Buildings housing large departmental equipment items will require elevators of larger capacity and size. Determination shall also consider potential future uses of a building. See ASME A17.1 for different elevator loading design requirements.*
- g. *ACCESS: The highest and lowest interior areas in each building shall be accessible by elevator. If an elevator provides direct access to a basement mechanical area or penthouse without intervening corridors and doorways, a means for preventing unauthorized access to those spaces shall be provided via mechanical key switch or electronic card reader. Elevators that require floor access control shall be coordinated with Access Control.*
- h. *EMERGENCY COMMUNICATION: A ring-down telephone line shall be provided and an ADA-compliant hand-free emergency communication device shall be installed in each elevator cab. Devices shall be manufactured by Rath Microtech and shall be flush-mounted in the car operating panel.*
- i. *NON-PROPRIETARY EQUIPMENT: All proposed elevator control equipment shall be non-proprietary.*
- j. *ELEVATOR PIT REQUIREMENTS: Elevator pits shall be constructed in accordance with ASME-A17.1, Section 2.2.*
- k. *ACCESS DOORS AND LADDERS: Access doors shall be provided for inspection of elevator hoistway machinery space equipment as required. Doors shall be minimum 24" x 24" when full body entry is not required and minimum 29.5" x 29.5" when necessary, shall be self-closing and locking and keyed the same as the elevator machine room. A code-compliant access ladder shall be to the side of the door with a standard railing and platform below the overhead door.*
- l. *Basis of Design – Consultants shall work with the following vendor for coordination of University standards:*
 - Schindler Elevator Co.

14 40 00 LiftsWheelchair Lifts – General Requirements

- a. *Use of wheelchair lifts on campus shall be minimized and shall only be installed to serve existing facilities in cases where it is highly impractical to install a code-compliant elevator or ramp. Lifts shall never be installed as a means to satisfy accessibility requirements in new facilities.*

Inclined Wheelchair Lifts – Basis of Design

- Delta Inclined Platform Lift by Savaria, Garaventa Inc., Mobility Elevator & Lift Co. (RICH), or Approved Equal

Facility Services Subgroup

DIVISION 21 – FIRE SUPPRESSION

Related Sections:

- a. DIVISION 10 – SPECIALTIES (*10 40 00 Safety Specialties*)
- b. DIVISION 28 – ELECTRONIC SAFETY AND SECURITY (*28 40 00 Life Safety*)

Fire Suppression – General Requirements

a. **Codes and Standards:**

- i. *Systems shall comply with all applicable codes, standards, engineering best practices, and requirements of the authority having jurisdiction.*
- ii. *The design of building sprinkler systems shall be in compliance with NFPA 13 and all other NFPA standards for suppression systems.*

b. **Water Supply:**

- i. *The University shall provide hydrant flow data for the two fire hydrants closest to the site for determining if a fire pump is required.*
- ii. *A fire pump shall be provided if the analysis of the available water supply and the projected hydraulic demand indicate the need.*
- iii. *A fire department connection (FDC) shall be provided at the fire department response point.*

c. **Sprinkler and Standpipe System:**

- i. *A combined sprinkler/standpipe system shall be provided for the entire building and shall include a complete automatic wet-pipe sprinkler protection system with quick response sprinklers. No flexible piping is allowed in these systems.*
- ii. *The standpipe system shall include hose connections at intermediate stair landings, or as otherwise required by local regulations.*
- iii. *The combined system shall be supplied by the local campus water loop.*
- iv. *A pre-action sprinkler system shall be provided for elevator shafts if required and be released by the main building fire alarm control panel.*
- v. *All automatic sprinkler systems shall be monitored by the fire alarm system.*

Commissioning of Fire Suppression – General Requirements

- a. *Commissioning of all fire suppression systems shall be included in the project commissioning scope.*

21 10 00 Water-Based Fire-Suppression Systems

Fire-Department Connections – Basis of Design

- Knox Storz Lock, 4-inch by Knox Company

Dry-Pipe Sprinkler Systems – Basis of Design

- Victaulic Series 7C7 Air Maintenance/Compressor Assembly for Victaulic FireLock NXT Dry Valve Series 768

DIVISION 22 – PLUMBINGRelated Sections:

- a. DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

Plumbing – General Requirements

- a. *The A/E consultant shall coordinate all plumbing work with the fire sprinkler designer.*
- b. PIPE LAYOUT: *For plumbing piping layouts, A/E Consultant shall consider accessibility for troubleshooting and repairs*
- c. *Contractors shall coordinate work with requisite subcontractors at bid to ensure comprehensive working installation is provided in lump sum bid.*
- d. *New plumbing fixtures, appliances, and processes shall follow LEED v4 Water Efficiency Prerequisite Indoor Water Use Reduction specifications at minimum. Additional water-saving measures shall be considered where possible.*

22 10 00 Plumbing PipingFacility Water Distribution – Basis of Design

See below for each individual item type.

Domestic Hot Water Mixing Valves:

- Leonard Valve Company or Approved Equal

Hot Water Circulators:

- Bell & Gossett or Taco Comfort Solutions

22 30 00 Plumbing EquipmentDomestic Water Heat Exchangers – Basis of Design

- AERCO Model B+II Water Heater with Pneumatic Valve or Approved Equal
- Manufacturers – *Provide basis of design product or approved equal by one of the following:*
 - AERCO International, Inc.
 - Maxi-Therm Inc.
 - PVI Industries

22 40 00 Plumbing FixturesPlumbing Fixtures – General Requirements

- a. *Plumbing fixtures shall comply with all applicable ADA and building code regulations*
- b. *Use of plastic flush valve covers shall be avoided in favor of stainless steel models which provide greater levels of durability and maintainability.*
- c. NON-PERMITTED PRODUCTS: *Sloan EBV309A Flush Valve Cover (Recommended Replacement: Sloan EBV89AM)*
- d. *NIBCO pressed fittings shall not be permitted. Viega ProPress shall be approved for up to 2" diameter piping.*

Water Closets, Urinals, and Bidets – Basis of Design

- American Standard Washbrook FloWise Universal Urinal
- The Waterless Co. Kalahari #2003 or Sonora #2004 Waterless Urinals
- Manufacturers – *Provide basis of design product or approved equal by one of the following:*
 - American Standard Brands
 - Eljer Industries, Inc.
 - Gerber Plumbing Fixtures

Lavatories and Sinks – Basis of Design

- American Standard Lucerne Wall-Hung Sink
- American Standard Florwell or Akron Service Sink
- Manufacturers – *Provide basis of design product or approved equal by one of the following:*
 - American Standard Brands

Faucets – Basis of Design

- Delta Faucet MultiChoice Universal Shower Valve
- Delta T13420 Series Tub and Shower Faucet Trim
- Sloan SF-2350 Sensor Activated 4" Centerset Electronic Faucet
- Manufacturers – *Provide basis of design product or approved equal by one of the following:*
 - American Standard Brands
 - Sloan Valve Company

Flushometers – Basis of Design

- Sloan Royal Model Flushometer
- Sloan EBV500A Sensor Flushometer
- Sloan Solis Solar-Powered Flushometer 8186-1 or 8111-1.28
- Sloan 111 SMO, 1.6 GPF (*UNIV*)
- Manufacturers – *Provide basis of design product or approved equal by one of the following:*
 - Sloan Valve Company
 - Zurn Industries, LLC.

Drinking Fountains and Water Coolers – Basis of Design

- Elkay ezH2O EZS8WSLK Bottle Filling Station with Single ADA Cooler
- Elkay ezH2O LZWSM8K In-Wall Bottle Filling Station with Mounting Frame, Filtered Refrigerated Stainless

22 60 00 Gas and Vacuum Systems for Laboratory and Healthcare FacilitiesLaboratory Chemical-Waste and Vent Piping – Basis of Design

- Orion, Fuseal or Approved Equal

DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)Related Sections:

- a. DIVISION 07 – THERMAL AND MOISTURE PROTECTION
- b. DIVISION 22 – PLUMBING
- c. DIVISION 25 – INTEGRATED AUTOMATION

Heating, Ventilating, and Air Conditioning (HVAC) – General Requirements

- a. HVAC systems shall meet ASHRAE 90.1 and State Energy Codes.
- b. Access to mechanical components shall be located in public areas whenever possible for items including, but not limited to, the following:
 - i. Variable Air Volume (VAV) Boxes
 - ii. Shut Off Valves
 - iii. Control Valves
 - iv. Dampers
- c. PIPE LAYOUT: For HVAC piping layouts, the A/E Consultant shall take into consideration accessibility for troubleshooting and repairs.
- d. The sizing and laying out of HVAC or utility systems that serve a remodeled area shall take into consideration the potential future use needs of the area. These systems shall be sized and configured so as to maximize flexibility to facilitate future changes.
- e. All rooftop HVAC units shall be designed with a suitable means of preventing coil freeze-up in cold weather and/or loss of electrical power.
- f. All abandoned materials, equipment, piping, conduit, wiring, etcetera that is either located within or passing through a remodeled space shall be removed. This includes equipment and components that are remotely located such as in a mechanical equipment room.

Direct-Digital Control System for HVAC – General Requirements

- a. Coordinate with Facilities Maintenance and Engineering for the latest Building Automation System (BAS) Standards.
- b. Basis of Design: See below for each individual item type.

Steam Pressure Reducing Valves:

- Spirax Sarco, Leslie or Approved Equal

Water Flow Meter:

- Endress+Hauser Proline Promag L 400 Electromagnetic Flow Measuring System or Approved Equal

Gas, Steam and Liquids Meter:

- Endress+Hauser Proline Prowirl 72F, 72W, 73F, 73W Vortex Flow Measuring System or Approved Equal

3 20 00 HVAC Piping and PumpsSteam Condensate Pumps – Basis Of Design

See below for each individual item type.

Electric-Driven Steam Condensate Pumps:

- Duplex, Spirax Sarco, Hoffman or Approved Equal

Pressure-Powered Steam Condensate Pumps:

- Easter Machinery, Spirax Sarco or Approved Equal

23 50 00 Central Heating EquipmentHeat Exchangers for HVAC – Basis Of Design

- Bell & Gossett, Cemline, Armstrong, Mainstream or Approved Equal

23 70 00 Central HVAC EquipmentCentral-Station Air-Handling Units – Basis Of Design

- McQuay, York, Trane or Approved Equal

DIVISION 25 – INTEGRATED AUTOMATIONRelated Sections:

- a. DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)
- b. DIVISION 33 – UTILITIES

Integrated Automation – General Requirements

- a. *In all campus buildings, some level of the mechanical systems are managed by a computerized Building Automation System (BAS).*
- b. *All designs for mechanical and electrical systems, including Building Automation Systems (HVAC, utility and submetering, interior and exterior lighting), shall be reviewed and approved by the Project Manager in consultation with Facilities Maintenance and Engineering prior to issue for construction.*
- c. *The design of these systems shall take into consideration the ability to allow for future flexibility.*
- d. *Coordinate with University Facilities Maintenance and Engineering for the latest Building Automation System (BAS) Standards.*

25 50 00 Integrated Automation Facility ControlsIntegrated Automation Facility Controls – General Requirements

- a. *Standardization of controls ensure that building and energy management systems can communicate with each other without costly and complex integrations. An integrated BAS capable of remote monitoring and remote equipment diagnostics can improve operational efficiency and allow for load aggregation.*
- b. BUILDING AUTOMATION SYSTEM AND MAINTENANCE SERVICES: *Standardized equipment for all new construction, renovations and expansion of computerized Building Automation Systems (BAS) shall be provided and maintained by the following vendor:*
 - Automated Logic Corp.

DIVISION 26 – ELECTRICALRelated Sections:

- a. DIVISION 11 – EQUIPMENT
- b. DIVISION 33 – UTILITIES

Electrical – General Requirements

- a. *All new construction and renovation projects shall consider opportunities to provide additional power and data in public spaces whenever possible.*
- b. INSTRUMENTATION AND CONTROL FOR ELECTRICAL SYSTEMS: *Lighting control devices shall be included in all lighting installations. Lighting occupancy and/or daylight sensors shall be integrated into existing buildings whenever possible.*
- c. *Lighting and lighting controls shall be installed in accordance with ASHRAE 90.1 and State Energy Codes.*

Raceway and Boxes for Electrical Systems – Basis Of Design**Boxes for Electrical Systems:**

- FL-500P Floor Box by FSR Metal Products Group or Approved Equal

Surface Raceways for Electrical Systems:

- Wiremold Two-Piece Large Single and Dual-Channel Aluminum Raceway Systems by Legrand or Approved Equal

Electrical Power Monitoring – Basis of Design

- Eaton Power Xpert Meter 2000 or Approved Equal

Lighting Control Devices – Basis of Design

- Acuity Brands, Inc. or Approved Equal

26 20 00 Low-Voltage Electrical DistributionElectricity Metering – General Requirements**a. Equipment For Electricity Metering:**

- i. *Electric Meters shall be the Campus Standard “Veris” H84xxVB series meter with the Extended Data Set (EDS) with Modbus capability.*
- ii. *The controller shall continually monitor electric meters for electric consumption. These values shall be made available to the system at all times.*
- iii. *Alarm shall be generated when the sensor reading indicates a loss of pulse output from the electric meter (meter failure).*
- iv. PEAK DEMAND AND USAGE HISTORY: *The controller shall monitor and record electric meter readings so as to provide a history of the power consumption as well as monitor and record the peak (high and low) demand readings from electric meters. The readings shall be recorded on a daily, month-to-date, and year-to-date basis. The option to use Kw (Kwh) or Btu/hr (Btu) as the units for demand and consumption report shall be provided. Multiples of these units (MWH, kBtu, etc.) shall be used as appropriate.*

Wiring Devices – Basis of Design

- Manufacturers – *Provide products from one of the following manufacturers or an approved equal:*
 - Cooper Wiring Devices; Division of Cooper Industries, Inc.
 - FSR Inc.
 - Hubbell Incorporated; Wiring Device-Kellems
 - Leviton Mfg. Company Inc.
 - Pass & Seymour/Legrand

26 50 00 LightingLighting – General Requirements

- a. *LED or other energy-efficient lighting shall be used in all interior and exterior applications unless otherwise directed by the Project Manager.*
- b. *Proposed use of alternative lighting types shall be discussed with and shall require approval from the Project Manager.*
- c. *Lighting shall be DLC (Design Lights Consortium) or EnergyStar certified and conform to PSEG requirements for financial incentives when applicable.*
- d. *Domestic (local) lighting products are preferred.*

Interior Lighting – General Requirements

- a. *Luminaires from a single manufacturer shall be provided for each luminaire type.*

LED Interior Lighting – Basis Of Design

- HP-4 High Performance 4" Aperture LED Collection (HP-4 ID Indirect/Direct, HP-4 D Direct, HP-4 R Recessed) by Finelite
- HPR-LED High Performance Recessed LED 2x4 by Finelite
- GlowRing Pendant by OCL
- T Series 2TL 2x4 Recessed LED Lighting by Lithonia Lighting
- ZL2N Lensed LED Striplight by Lithonia Lighting
- EZPan Edgelit Flat Panel 2x2, 2x4 or 1x4 3500K by RAB Lighting

Safety Lighting – General Requirements

- a. *Egress lighting systems shall be designed with minimum possible maintenance requirements.*
- b. *No self-powered or tritium powered emergency devices shall be allowed. Units containing radioactive material shall not be used.*
- c. *When cost allows, provide emergency lighting system wired back to single point and only one backup system (generator or inverter).*
- d. *Battery backup fixtures shall be allowed if no other emergency source is available.*
- e. *All emergency lighting fixtures shall be equipped with identifying markers and provide illumination for at least 90 minutes however powered.*
- f. *Where emergency lighting fixture head is located remotely from battery pack, a printed label shall be provided indicating battery pack location.*
- g. *Provide generator transfer devices on individual fixtures locally controlled for user visual circumstances by manual or automatic switching (i.e. relay device for switching lighting load to generator fed emergency circuit in response to normal circuit power loss regardless of local switching control position or mode).*

Emergency and Exit Lighting – Basis Of Design

- Hexmodal HEX-X (Exit)
- Hexmodal HEX-W (Wallpack)
- Hexmodal HEX- C (Combo)

Exterior Lighting – General Requirements

- a. *Exterior lighting shall prioritize energy-efficiency and safety considerations.*
- b. **Lighting Poles and Standards:**
- i. *Base standards shall typically be 12 ft. for pedestrian walkways and 14 ft. for vehicular roadways.*
 - ii. *Typical pedestrian lighting spacing shall be 40 ft. to maintain a minimum 1 foot-candle of light intensity along pathways.*
 - iii. *Poles shall typically have a Black finish unless otherwise specified on a per-project basis by the Project Manager.*

LED Exterior Lighting – Basis Of Design

- Gullwing G13 Area Luminaries by Philips Gardco

Vehicular Pole Luminaire:

- Lumilock LED Series by Philips Hadco or Approved Equal
Model S8409B, 14' High Pole-Mounted Luminaire, Type V Optics
Model SP8409A, Cast Aluminum Pole

Pedestrian Acorn Light:

- Lumilock LED Series by Philips Hadco or Approved Equal
Model S8409H, 12' High Pole-Mounted Luminaire, Type III Optics
Model SP8409, 5"-3" Round Tapered Aluminum Pole, 1/8" Thick Wall, Cast Aluminum Base with Access Cover

DIVISION 27 – COMMUNICATIONS

Related Sections:

- a. DIVISION 11 – EQUIPMENT
- b. DIVISION 14 – CONVEYING EQUIPMENT

Communications – General Requirements

- a. *As needs will vary for each project, the Montclair State University Office of Information and Technology (OIT) shall be consulted early in the planning process in order to ensure that all communications distribution system requirements are addressed and met as appropriate.*
- b. MEETINGS: *An OIT representative shall be invited to the project kick-off meeting and all construction, scheduling, and progress meetings.*

Identification for Communications Systems – General Requirements

- a. CAT6A CABLE COLOR MATRIX: *Color specifications for station cabling shall be as follows:*

<u>Color</u>	<u>Category</u>
Blue	Audio-Visual/Media
Green	Data
Orange	IP Cameras
Purple	Console / Serial / LOM
Red	Fire / Life Safety / AOR Phones
Yellow	Wireless APs (WAPs)
White	Voice
Grey	Building Automation Data

27 10 00 Structured Cabling

Structured Cabling – General Requirements

- a. *Coordinate with OIT for the latest Material and Equipment Specifications and for the latest Telecommunication Specifications for Cabling Infrastructure.*

Communications Horizontal Cabling – Basis of Design

- Systimax Cat 6 Wire (Systimax 71e Gigaspeed XL cable)
- Systimax Cat 6 Data Jacks (Systimax Gigaspeed XL MGS400 jack)

27 40 00 Audio-Video Communications

Audio-Video Systems – Basis of Design

- a. *Standardized equipment for all new construction, renovation and expansion of Audio-Visual Control Systems shall be provided by the following vendor:*
 - Crestron Electronics

Integrated Audio-Video Systems and Equipment – Basis of Design

See below for each individual item type.

A/V Lectern Rack:

- Middle Atlantic Products CFR Series Cabinet Frame Rack 14-18

A/V Box:

- Legrand Chief In-Wall Storage Solutions – PAC525 or PAC526

27 50 00 Distributed Communications and Monitoring Systems

Emergency Communications Systems – General Requirements

- a. *All emergency communication hardware shall be in full compliance with accessibility requirements and all applicable building codes.*
- b. *A two-way communication system shall be installed at all Area of Refuge locations and contain appropriate signage consistent with campus standards.*

- c. LOCATION: *Command Centers shall be located at central control points. Area of Refuge Call Boxes shall be located on all building floors above and below the first floor, ideally next to a stairwell emergency exit and elevator landing on each floor or at egress exit locations where an at grade level is not present.*
- d. MOUNTING: *Command Centers shall be mounted on a flat wall surface. Call Boxes shall either be wall-mounted, surface-mounted or flush-mounted and shall be mounted no higher than 48" front reach or 54" side reach to the center of the button above ground level.*
- e. *Call boxes shall have a stainless steel finish. Protective covers shall be provided on the Call Boxes.*
- f. *System shall be in compliance with all state and local Electrical Codes. Monitoring of the system integrity shall be required per NFPA 72.*
- g. WARRANTY: *Command Centers and Call Boxes shall be warranted for a period of three years.*
- h. *Emergency telephones shall be required at designated areas on campus as determined by the University Police Department.*
- i. *The Office of Information Technology shall assist with installation of telephone and telephone line.*
- j. *CAT6A cabling and power shall be provided to each emergency telephone location. Cabling shall meet applicable requirements for pathway survivability.*
- k. *Contractors shall be responsible for construction and for installation of conduit and cabling.*
- l. *The Office of Information Technology shall coordinate installation of freestanding emergency telephones.*
- m. *Signage and other elements shall be furnished and installed as identified on construction documents in coordination with the Project Manager.*

Elevator Telephones – Basis of Design

- RATH 2400-805RS Line Powered Elevator Phone or Approved Equal

Ring-Down Emergency Telephones – Basis of Design

See below for each individual item.

Area Of Refuge/Elevator Landing Emergency Phones:

- RATH 2400-808NSS Interior Emergency Call Box or Approved Equal

Pedestal-Mounted Emergency Blue Light Phones:

- RATH 2100-P Series Emergency Pedestal Phone or Approved Equal
Height: 5'-8", Color: Equipment Blue

Wall-Mounted Outdoor Emergency Phones:

- Allen Tel Products or Approved Equal

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**28 10 00 Access Control**Related Sections:

- a. DIVISION 08 – OPENINGS
- b. DIVISION 14 – CONVEYING EQUIPMENT

Access Control – General Requirements

- a. *The distribution and assignment of keys and access cards is the responsibility of the Access Control and Systems Unit. Examples of areas requiring keys or access cards include buildings, offices, work areas, mechanical rooms, storage and utility closets, and electronic and manual key cabinets.*
- a. *The access control and monitoring system shall be an expansion of the University's existing campus-wide access control system. Work shall include adding system panels, card readers, wireless locks, and associated access control devices in locations identified on drawings.*
- b. *Provide all 120VAC power wiring and low-voltage work to the system and all necessary components.*
- c. *All system requirements shall be coordinated with the Montclair State University Project Manager in consultation with Access Control regarding the latest specifications and information.*
- d. *System communication with the Access Control System Server and panels shall be established via the Montclair State University LAN/WAN network.*
- e. *As-built documentation shall be provided for the system as installed.*
- f. **PRE-PROGRAMMING CONFERENCE:** *Prior to the programming of any new doors within the University's existing access control systems, a pre-programming conference/meeting shall be conducted at the Project Site and shall be attended by key university representatives as well as a security contractor and the Project Architect.*
- g. **PERMITS:** *All permits required for the specified performance and completion of the work shall be secured by the Contractor.*

Access Control Software and Database Management – Basis of Design**Equipment Software, Licensing, and Maintenance Vendor – Academic Buildings:**

- Open Systems Integrators, Inc.

Equipment Software, Licensing, and Maintenance Vendor – Residence Buildings:

- Transact, Inc.

Access Control System Hardware – Basis of Design**Access Control Panels – Academic Buildings:**

- Lenel OnGuard Controllers and Modules

Access Control Panels – Residence Buildings:

- Blackboard by Transact, Inc.

Integrated Access Control Hardware Devices – Basis of Design

- a. *All new construction, renovation and expansion of computerized one-card door interior access shall use standardized equipment by the following vendor:*
 - Blackboard, Inc.

Time Clock – Basis of Design

- ZKTeco Ultima200 (*Coordinate data requirements with the University.*)

Electronic Key Management System – Basis of Design

- Morse Watchmans Keywatcher Touch System (*Exact product specifications shall be determined by building requirements.*)

28 30 00 Security Detection, Alarm, and MonitoringIntrusion Detection – Basis of Design

- a. *The security contractor shall work with the University's existing intrusion detection security vendor for existing access control systems integration.*
- b. **Basis of Design:**
 - Honeywell Vista 128/250 Series (*No substitutions*)

28 40 00 Life SafetyRelated Sections:

- a. DIVISION 21 – FIRE SUPPRESSION

Fire Detection and Alarm – General Requirements

- a. *Refer to the most current New Fire Alarm System Design And Installation Standards in coordination with Montclair State University Fire Safety.*

Fire Alarm – General Requirements

- a. *The fire alarm system shall, at a minimum, comply with the following requirements:*
 - i. *NFPA 72 (National Fire Protection Association, latest edition)*
 - ii. *NFPA 70 (National Fire Protection Association, latest edition)*
 - iii. *IBC-NJ (International Building Code – New Jersey, latest edition)*
 - iv. *Requirements of the Authority Having Jurisdiction and as supplemented by this standard.*
- b. *The system and its components shall be Underwriters Laboratories, Inc. listed under the appropriate testing standard. Install shall comply with UL listing.*
- c. *The fire alarm system and its components shall have current approval from FM Global.*
- d. *Required interface relays, materials, and cabling shall be furnished and installed to the fire alarm control panel.*

Addressable Fire Alarm System – General Requirements

- a. *INSPECTION AND MAINTENANCE VENDOR: The addressable fire alarm system and its components shall be supplied and programmed by the University's contracted Fire Alarm Systems Inspection and Maintenance vendor secured by the installing electrical contractor.*
- b. *FIRE ALARM SYSTEM VENDOR: Montclair State University's contracted Fire Alarm Systems Inspection and Maintenance vendor is:*
 - Automatic Suppression & Alarm Systems, Inc.*
 - 67 Ramapo Valley Road, Suite 101*
 - Mahwah, NJ 07430*
 - Phone: 201-825-8855*
 - Fax: 201-236-1348*
 - Contact: Brian Ziembra*

Fire Detection and Alarm Emergency Control Function Interfaces – Basis of Design

- *Notifier Model NFS2-3030 equipped with Digital Voice Command (Notifier Model DVC-EM with DVC-KD User Interface)*

Site and Infrastructure Subgroup

DIVISION 32 – EXTERIOR IMPROVEMENTS

Exterior Improvements – General Requirements

- a. **Operation and Maintenance of Irrigation:**
 - i. *Irrigation systems shall be designed to incorporate smart scheduling technologies, weather sensors, and submeters.*
 - ii. *Irrigation systems shall be Hunter or Rainbird and require review and approval by Grounds Services and OIT for existing systems compatibility.*
- b. **Operation and Maintenance of Planting:**
 - i. *The University prefers use of native and drought-tolerant plants when appropriate throughout campus landscaping applications.*
 - ii. *Black dye mulch shall be specified for all planting beds at a minimum depth of 2 inches.*

32 10 00 Bases, Ballasts, and Paving

Related Sections

- a. DIVISION 03 – CONCRETE
- b. DIVISION 04 – MASONRY

Concrete Paving – General Requirements

- a. **Pathways:**
 - i. *Design of pathways shall take into consideration potential shared vehicular and pedestrian use and shall be reinforced accordingly.*
 - ii. *PATHWAY WIDTHS (typ.): 12-20 feet (Primary), 8-12 feet (Secondary), 6-8 feet (Tertiary)*
 - iii. *CONCRETE: Broom finish, Saw-cut joints*
 - iv. *PRIMARY PAVER BAND: Three row soldier course, concrete pavers, corner starburst detail.*
 - v. *INTERIOR PAVER BAND: Two course, concrete pavers.*
- b. *The University shall provide design details from relevant precedent projects on an as-needed basis.*

Decorative Concrete Paving – Basis of Design

- a. **Cast Stone Quatrefoil:**
 - i. *The University uses in-ground quatrefoils within concrete or paver areas to accentuate places of significance or at major pedestrian intersections. All joints shall be sealed with non-shrinking caulk to match cast stone color.*
 - ii. *The quatrefoil shall be cast in 8 total sections having 4 left sections and 4 right sections.*
 - iii. *Quatrefoil shall be set in 1" Thick mortar bed.*
 - iv. *Shop drawings, including dimensions, shall be submitted to the University for approval prior to fabrication.*
- b. **Basis of Design:**
 - *Sun Precast Company or Approved Equal (in-ground quatrefoils and benches)
Color: Mix #102 (White) or Mix #3481-14*

Unit Paving – General Requirements

- a. *A paver edge restraint system shall be installed where necessary and shall be approved by the University.*
- b. *The University's standard rigid edge restraint is 1.7" x 3.7" as manufactured by Pave Tech Inc. or an approved equal.*
- c. *Edge restraint shall be anchored with 3/8" D x 10" L steel spike at 12" O.C.*
- d. *Contractor shall calculate curved and straight portions. Curved portions shall have pave edge flexible installed. Sections shall be joined by connector pipes.*
- e. **Basis of Design:**
 - *Hanover Prest Brick Traditional Pavers by Hanover Architectural Products or Approved Equal
3 Color Random Blend (equal quantities of each): Matrix #B92079 Natural Finish, #B92079 Tudor Finish, Matrix #B92827 Tudor Finish
Size: 2-3/8" x 4" x 8", Design shall specify vehicular or pedestrian use with paver size and setting detail specified accordingly.*

Tactile Warning Surfacing – General Requirements

- a. *ADA-compliant cast iron detectable warning plates shall be provided where necessary.*

32 30 00 Site ImprovementsRelated Sections

- a. DIVISION 05 – METALS
- b. DIVISION 26 – ELECTRICAL

Decorative Metal Fences and Gates – Basis of Design

- Estate K Style Ornamental Picket Fence by Monumental Iron Works/Master Halco Inc. or Approved Equal, Height: 4'-0"
- Manufacturers: *Subject to compliance with requirements, provide products by one of the following or an approved equal:*
 - Ameristar Fence Products; an ASSA ABLOY company
 - Master Halco Inc.

Site Furnishings – General Requirements

- a. *All proposed site furnishing items shall be reviewed and approved by the Project Manager prior to installation.*
- b. *Selection of site furnishings shall take into consideration existing styles in adjacent areas and match architectural context when appropriate.*
- c. *As the University supports a multi-modal network of campus transportation options, bicycle racks shall be considered for inclusion in projects when appropriate. Bicycle racks shall be installed on paved surfaces and shall be in locations that are accessible by bicycle.*
- d. *Receptacles and other furnishings shall not include ash trays as Montclair State University is a fully smoke, tobacco and vapor product free campus.*
- e. *Benches shall be located in existing or potential outdoor gathering areas and shall aim to provide a comfortable seating experience.*

Site Bicycle Racks – Basis of Design

- Victor Stanley BRCS-105 / BRCS-107 / BRCS-109
Color: Black, Size varies based on anticipated demand and appropriateness of scale for each location.

Site Trash and Litter Receptors – General Requirements

- Victor Stanley SD-42 Side-Door Litter Receptacle
Color: Black, RL10 Recycle Lid Decal, RB10 Band Decal

Site Seating and Tables – Basis of Design

See below for each individual item.

Chairs – Traditional Style:

- Victor Stanley PRSCC-8 / PRSCA-8 or Approved Equal
Color: Black

Benches – Traditional Style:

- Victor Stanley RB-28 / NRB-6 (*for use on sloped areas to maintain a level seating space*) or Approved Equal
Color: Black, Length: 6', with armrests

Tables – Traditional Style:

- Victor Stanley PRSCT-36 or Approved Equal
Color: Black

Manufactured Metal Bollards – General Requirements

- a. *The University's standard metal bollard shall be 8-5/8" OD schedule 40 steel pipe, Black powder coated finish.*
- b. *Cavity shall be completely filled with concrete to increase structural integrity.*
- c. *Installation shall comply with manufacturer's recommendations.*
- d. *Basis of Design – Subject to compliance with requirements, provide one of the following products or an approved equal:*
 - Garden City 'C' Bollard by American Bollard
 - Architectural Iron Company, Inc.
 - CBR-6-3MBb-E-P-D by Creative Pipe, Inc.
 - Aegean Pipe Bollard by Ironsmith

DIVISION 33 – UTILITIESRelated Sections

- a. DIVISION 21 – FIRE SUPPRESSION
- b. DIVISION 22 – PLUMBING
- c. DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)
- d. DIVISION 25 – INTEGRATED AUTOMATION
- e. DIVISION 26 – ELECTRICAL

Utilities – General Requirements

- a. *There shall be no PVC piping for hot-cold water supplies domestic or heating.*
- b. **Manholes:**
 - i. *All steam manholes shall be vented via Goose Necks.*
 - ii. *Steam manholes in grass or sidewalks shall be of the Bilco Door type.*
- c. **Metering:**
 - i. *Energy and water metering shall be included in all new construction projects.*
 - ii. *Energy and water submeters shall be retrofitted into existing facilities greater than 10,000 GSF.*
 - iii. *Submetering shall be included in all new construction, major renovations, change of use renovations (i.e. dining spaces), and irrigation systems.*
 - iv. *All submeters shall be integrated with the existing Building Automation System.*
 - v. *All water and gas meters shall be able to interface with the existing ALC (Automated Logic Corporation) Building Automation System.*
 - vi. *Coordinate with University Facilities and our Energy Partners for utility meter requirements.*

Ductile-Iron Utility Pipe – Basis of Design

- Victaulic or Approved Equal (Grooved Joint Ductile Iron Fittings)

33 30 00 Sanitary SewerageSanitary Sewerage Equipment – General Requirements

- a. POTABLE LIFT STATION DESIGN: A/E consultant shall work with the following vendor on the University standards:
 - Rapid Pump & Meter Service Co., Inc.
- b. SEWAGE SANITARY LIFT STATION DESIGN: A/E consultant shall work with the following vendor on the University standards:
 - Rapid Pump & Meter Service Co., Inc.

Appendices

LIST OF ITEMS

- Appendix – Interior Signage Standards Manual**
- Appendix – Exterior Wayfinding Manual**
- Appendix – Donor Recognition Signage Guidelines**
- Appendix – Building Automation System Standards**
- Appendix – OIT Material and Equipment Specifications**
- Appendix – Interior Room Numbering Guidelines (*Under Development*)**
- Appendix – CAD Polyline Standards (*Under Development*)**

DESIGN DETAILS

Design Detail – Cast Stone Quatrefoil

Design Detail – Paver Details

Design Detail – Pathway Types

Design Detail – Sidewalk Details

- a. **Quatrefoil Pavement Detail**
- b. **Concrete Paver Soldier Course Detail**
- c. **Type 'A' Campus Walkway Detail - One Course Pavers**
- d. **Campus Driveway Details**
- e. **Vertical Concrete Curb Detail**
- f. **Pavement Section**
- g. **Herringbone Paver Section**
- h. **Concrete 6'- and 8'- Wide Sidewalk Detail**
- i. **Concrete Pad for Benches, Bicycle Racks and Trash/Recycling Receptacles**

Design Detail – Decorative Metal Railings

1. **Traditional Style Stair Handrail (*Julius Blum & Co.*)**
2. **Ornamental Steel Handrail (*King Supply Co.*)**
3. **Transitional/Contemporary Style Black Railing**
4. **Transitional/Contemporary Style Red Herringbone Railing**

Design Detail – Site Recycling Receptacle Decals

1. **RB10 Standard Band Decal**
2. **RL10 Standard Recycle Lid Decal**