

**University of Wisconsin-Milwaukee
Construction Project Design Information**

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Construction Project Design Information

The information below is derived from past review commentary on campus projects. It is organized similar to the Construction Specifications Institute (CSI) 16 Division Master Format.

The State of Wisconsin Department of Administration's Division of State Facilities (DSF) administers all construction projects for the UW-Milwaukee campus. DSF maintains design standards for all State facilities. The following information is intended only to reflect UW-Milwaukee's preferences, this is not intended to override or conflict with DSF design standards. If there is any question about compatibility with DSF standards, please bring this to the attention of the UWM University Architects/Planning office project representative.

Contacts

The following are the key campus departments involved in construction projects:

Physical Plant Services

University Services Building, 115 E. Reindl Way, Glendale, WI 53212

Operation and maintenance of all campus buildings and utility services and small project (i.e., under \$100K) coordination. PPS also includes Buildings & Grounds and Mail Services.

Dave Danielson, Director

(414) 229-6368 danielso@uwm.edu

Andy Nelson, Associate Director/Energy Manager

(414) 229-4013 acnelson@uwm.edu

Ken Kleinhans, Operations Manager

(414) 229-2417 kenk@uwm.edu

Buildings & Grounds

Custodial cleaning of campus buildings (not inc. Sandburg Residence Halls and Student Union), campus groundskeeping, snow removal, moving services.

Steve Butzlaff, Superintendent

(414) 229-5102 butzlaff@uwm.edu

University Architects/Planning

Capital Budget, long range planning, funding requests, program statements, project coordination, WEPA compliance (environmental impact), Percent for Art coordination, past project drawing and specifications archives. UA/P also includes Space Management.

Claude R. Schuttey, Director

(414) 229-6764 schuttey@uwm.edu

Chris Gluesing, Associate Director

(414) 229-6090 gluesing@uwm.edu

Space Management

Campus space use, needs, and records, space AutoCAD plans, relocation planning and moving coordination, classroom furnishings.

Dennis Stecker, Administrative Program Manager
(414) 229-6091 dsz@uwm.edu

Transportation

Parking and transit services, coordination with municipal services.

Claude Schuttey, Director
(414) 229-6764 schuttey@uwm.edu

Bill Bergstrom, Supervisor
(414) 229-4050 wsb@uwm.edu

University Safety & Assurances

Health and safety, hazardous materials records, sampling, and abatement coordination.

John Krezoski, Ph.D. Director
(414) 229-5265 jrk@uwm.edu

See <http://www.uwm.edu/Dept/EHSRM/PROJECT/projectdesign.html> for
“Construction Project Design Considerations:

Information & Media Technologies

Computer network, telephone services, campus cable television, audio-visual equipment and classroom support services, distance learning technologies, creative, printing, and copying services.

David Stack, Director of IT Planning (I&MT coordinator for construction projects)
(414) 229-5371 david@uwm.edu

1 -General Requirements

- ◆ Accessibility: The UW-Milwaukee campus is dedicated to meeting or exceeding all applicable codes and standards for persons with disabilities. Construction projects that disrupt normal traffic patterns may have to make accommodations to promote accessibility for all persons; this should be evaluated and addressed before construction bidding.
- ◆ Asbestos, Hazardous Materials: UWM Environmental Health Safety & Risk Management maintains campus records including an inventory of known conditions at <http://www.safety.uwm.edu/ASB/inventory.pdf> and provides sampling and campus coordination for abatement projects.
- ◆ Campus Plan: Incorporate on the drawings' Title Sheet a campus plan and local area vicinity map to streets and freeways; AutoCAD files of these may be obtained from the University Architects/Planning office project representative.
- ◆ Dumpsters: Contractors must provide their own dumpster, they may not use campus dumpsters. To avoid problems, it is advisable that contractors provide a sign on their dumpsters and perhaps a tarpaulin to discourage unauthorized use.
- ◆ Emergency Contacts: The contractors should provide 24-hour contacts (names and phone numbers) to the DFD Construction Representative and to the campus. The UWM Police may be reached at 229-4627 or by any campus emergency "bluelight" phone.
- ◆ Fencing: Depending on the project site, well secured chain link fencing may be required to deter students from attempting to enter or cross construction project limits.
- ◆ Parking: To avoid misunderstandings and problems during construction, the following note should appear on the Title Sheet project site plan in the drawings: "Public parking is very limited on the UW-Milwaukee campus, outside the project limits all contractor construction, delivery vehicles must comply with UW-Milwaukee Transportation (414-229-5644) policies and procedures for construction projects". And, in the Special Site Conditions of the General Requirements: "Public parking is very limited on the UW-Milwaukee campus, outside the project limits all contractor construction, delivery vehicles must comply with UW-Milwaukee Parking & Transit policies and procedures for construction projects, see the following for detailed information."http://www3.uwm.edu/dept/trans/parking/permits/contractor_service.cfm
- ◆ Pre-Bid Tour: Tours are conducted by the A/E, coordination scheduling should be arranged with the Campus Facilities Planning representative.
- ◆ Restrooms: On major construction projects, contractors should provide their own toilet facilities.
- ◆ Staging: The project limits, construction staging and access must be defined on the contract documents prior to bidding, the University Architects/Planning office project representative will coordinate.

2 - Site Work

- ◆ Bike Racks: Madrax, Inc., www.madrax.com - Heavy Duty Winder Series, ribbon style, 2 3/8" O.D. (HW 238), surface flange mount (SF), TGIC polyester powder coat, black (P). Architect selects size/length based on design layout.
- ◆ Exterior seating: Landscape Forms, Kalamazoo, MI. On concrete sidewalk or plaza areas - three seat section surface-mount metal grip Plexus bench w/backs, color to be black unless another color is reviewed/approved by the University Architect. On non-concrete areas - 72" backed balustrade bench composed of polysite material, color to be gray unless another color is reviewed/approved by the University Architect.
- ◆ Outdoor tables: Round picnic table with four seats: Wabash Valley – Camino Series, mixed color, black frame with yellow seats and table, do not include umbrella. Rectangular picnic table with benches: Wabash Valley – Signature Series, black frame with yellow seats and table. Park Recreation Products, 6701 Seybold Rd., Madison, WI.
- ◆ Personal Safety: In addition to a well-lighted campus, UWM Police strongly discourage heavily planted areas that may provide hiding places for potential criminal activity, especially adjacent to pedestrian pathways.
- ◆ Plant Species: The architect must obtain the most current listing of approved species from the Chair of the campus Landscape Committee.
- ◆ Snow Removal: Adequate area must be considered in site plans for the accumulation of snow removal.
- ◆ Sidewalk Paving: Paving patterns should deter students from creating foot paths across sodded or planted areas. Avoid exposed aggregate and edge treatments that may be damaged by snow removal equipment. Color additives are not acceptable, and joint patterns should be simple and easily re-created should future maintenance or utility work require replacing individual panels.
- ◆ Striping: Pavement striping for vehicles must be coordinated with UWM Transportation. In some cases, Transportation may elect to have the striping done by their own contractor.

3 -Concrete

- ◆ Stairs: Minimum 4,500 psi. Consider epoxy coated rebar. For exterior stairs, avoid placement of rebar at nosing edges, to deter spalling place rebar more internally to the assembly, and avoid attached nosing products.
- ◆ Floor Drains: Slope 1/8" per 1' within 3' of floor drain locations.

4 - Masonry

5 - Metals

- ◆ Exterior Railings: Sleeves should be stainless steel.

6 - Wood and Plastics

- ◆ Counters: Long span counters in classrooms, offices, etc. require adequate support (anticipate that people will eventually sit or stand on the counter edges).

7 - Thermal and Moisture Protection

- ◆ Traffic Topping: 3M.

8 - Doors and Windows

- ◆ Accessible Door Operators: Power Access or LCN Auto Eq.
- ◆ Building Entrance Doors: All double doors entrances should have keyed removable mullions (Von Duprin, with MT54 Storage Mount where applicable), and all panic hardware should be rim mount (no vertical rods of any type). Heavy duty stile and rail: minimum 10" bottom rail, 4" stiles, 4" mid-rail. Continuous hinges and thru-bolts. Select HD or Roton HD brand preferred. Special-Lite door preferred.
- ◆ Closers: LCN - 10 million cycles. 4041 preferred.
- ◆ Cylinders: Corbin Russwin. Not Sargeant (campus has a history of problems). No removable cores. No construction master keying necessary. All temporary door and office partition systems with doors requiring locking systems must have locksets keyed to the master key system. Visual key control stamped on the back of each cylinder and stamped on each key (example: ABC1 ABCMK on key).

Architect must obtain the most updated version of UWM Physical Plant Services Policies and Procedures #72.08, the latest version received by UWM UA/P follows:

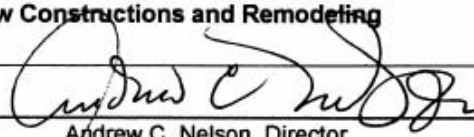
PHYSICAL PLANT SERVICES POLICIES AND PROCEDURES

PROCEDURE NO. 72.08
REVISION NO. 1
DATE: 12/8/2005

SECTION: MAINTENANCE & REPAIR STANDARD PROCEDURES:

TITLE: **Keying Systems for New Constructions and Remodeling**

APPROVAL: _____


Andrew C. Nelson, Director

If a new masterkey system is required due to new construction or remodeling, Physical Plant will assist the new occupants in designing the system. Physical Plant will provide a list to the hardware supplier showing how each room will be keyed. Physical Plant will also determine how large the system should be, with consideration given to future expansion and protection against lost masterkeys. Physical Plant will provide the hardware supplier with a letter authorizing them to purchase keys, cylinders and the bitting list. In this letter will be the name and address of the individual where the keys, keyblanks and bitting list shall be sent. These items should be sent registered mail.

The Architect will need to provide the University representative with 18" x 24" floor plans showing room numbers and door numbers only. The hardware supplier will need to supply the University representative with a hardware schedule. These documents must be provided at an early stage of the project.

The contractor should receive construction keyed cylinders from the supplier. The construction keying sequence should be determined by the contractor before the key order is sent to the factory.

Once the building is turned over to the University, the Physical Plant locksmith will cut keys authorized by the occupying departments. The construction key system will become void at this point.

- 72.08.1 All cylinders to be masterkeyed to one of the existing University Corbin, Russwin, or Sargent systems as directed by the University representative and Architect. The supplier will meet with the University representative to finalize keying requirements and obtain a keying schedule and written authorization to purchase restricted keying. **DO NOT** use removable core cylinders.
- 72.08.2 Provide three (3) change keys for each lock, three (3) Grandmasters, and three (3) of each master.
- 72.08.3 Provide a bitting list for the entire new masterkey system. Run the system to the furthest bitting. Bitting list is not required for the Corbin 62B2 system.
- 72.08.4 Entrance doors, mechanical and janitor closets to be Corbin 62B2. Entrances shall be keyed MA _____. Electrical & Mechanical rooms shall be keyed GGM2. Janitor closets shall be keyed GGM1.
- 72.08.5 Provide construction key system for all doors. Ten (10) interior doors as designated by the General Contractor to be keyed different. When building is turned over to the University, all construction keys shall become inoperative.
- 72.08.6 All grandmaster, master keys and bitting list shall be sent unopened from the manufacturer to the University representative via registered mail.
- 72.08.7 All key blanks and change keys shall be delivered directly to the University representative by the hardware supplier.
- 72.08.8 Provide visual key control - stamp keyset code on keys and cylinders. Keys to be stamped. Cylinders to be stamped on the back. **DO NOT** stamp the face of the cylinder.

Keying Systems for New Constructions and Remodeling
Continued

- 72.08.9 Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of the number of locks required for the project.
- 72.08.10 Provide ___ keyblanks.
- 72.08.11 Provide keys of nickel silver only.
- 72.08.12 Provide hinged-panel type cabinet, for wall mounting.

- ◆ Fire Doors: All doors closing off continuous corridors should have magnetic hold open devices with LCN closers tied into the fire alarm system, should be hung on continuous hinges, thru-bolted. If fire doors are held open, use magnetic hold-opens comparable to Edwards 1508.
- ◆ Hinges: Stanley, Hager, Roton, Select HD.
- ◆ Lockets: Full mortise. Prefer Corbin Russwin, avoid Yale and Sargeant (campus has a history of problems). Mechanical/HVAC equipment, generator, electrical, janitor closets, elevator equipment, and telecommunications rooms should be Storeroom type locksets like Corbin ML2000 series (current campus standard is ML2055 LWN Classroom function, ML2057 Storeroom function; architect may chose either one of LWN Escutcheon plate or LWA rose). Restrooms use ML2000 series, privacy locksets on unisex restrooms, for main restrooms use Accurate model H7804 deadlatch with model 7800 handle, this lockset features a deadlatch with a hold open feature, it will use a key cylinder outside and a turn handle inside. All office closets should be passage sets, no latchbolt, grips always free both sides. All other doors should be standard Classroom type ML2000 series, latchbolt by either side, unless grip outside is locked by key outside, inside grip is always free.
- ◆ Panic Hardware: Von Duprin, rim mount only.
- ◆ Record Drawings: After the A/E has finished using the contractors' field marked-up "as-built" drawings to finalize the Record Drawings, the contractors' as-builts should be transmitted to UWM Physical Plant Services.
- ◆ Restroom Doors: All restroom entry doors either need automatic openers on the or else ADA closers which need the restroom pressure to be equalized in such a manner that the 5 lb. closers will close them (door grilles may be needed to accomplish this). Do not use Precision hardware (campus has history of problems). Auto-openers should Power Access if space allows, or LCN Auto-Equalizer.
- ◆ Holders: Glynn-Johnson.
- ◆ Stops: Glynn-Johnson. Floor mounted door stops must be installed at a distance at least three-fourths of door leaf width away from the door hinge pivot point.

9 - Finishes

- ◆ Acoustical Ceiling: 2' x 2' only for long-term durability and sag resistance. Campus standard is Chicago Metallic Corporation (CMC) type grid, the 200 series with Celotex VAN 157 (2' x 2') ceiling tile or, when necessary, Celotex VAN 197 (2' x 4'). For wet areas, aluminum grid and moisture guard tiles.
- ◆ Base: Vinyl base in major corridors should be 6" to protect walls from cleaning equipment. Office areas may be 4". Brown, black, or tan preferred. Alternative colors may be proposed for review/approval by the University Architect.

- ◆ Ceramic tile: Preference for restrooms only. Floor area - 2" x 2" Alabaster No. C-11 Egypt Stone. Wall area - 4 1/4" x 4 1/4" Almond #X735. Base - Cove in Almond. Wall and floor borders: 2" x 2" D383 Royal Rose. Alternative colors may be proposed for review/approval by the University Architect.
- ◆ Custodial Closets: Ceramic tile floors and walls to at least four feet above the floor.
- ◆ Doors and Frames (exterior wood and metal): Paint finish to be Benjamin Moore DTM Bronzestone. Alternative colors may be proposed for review/approval by the University Architect.
- ◆ Flooring Preparation: In existing building remodeling projects, adequate provision should be planned for floor leveling especially when conditions cannot be assessed adequately until demolition has occurred.
- ◆ Floor Tile: Armstrong. Armstrong Shelter White #51836 is preferred on campus. Alternative colors may be proposed for review/approval by the University Architect. Do not call for the contractor to seal or wax new flooring, UWM Buildings & Grounds custodial staff will do this work to their standards at project occupancy. In high traffic areas including elevator cabs, an alternative product to resilient tile for consideration is Fritz tile.
- ◆ Laboratories: Sheet vinyl (full thickness) with heat welded seams and integral cove base.
- ◆ Lecture Halls: Resilient tile or sheet vinyl under the seating areas, carpeted aisles with contrasting color nosing for visual safety
- ◆ Light Poles: Paint finish to be Benjamin Moore DTM Gloss Black. Alternative colors may be proposed for review/approval by the University Architect.
- ◆ Operations/Maintenance Storage Room: Tall/exposed ceiling (for ladder storage), latex epoxy painted walls, sealed concrete floor.
- ◆ Paint: Hallman-Lindsay. In high use and moisture prone areas: high build epoxy.
- ◆ Railings (exterior): Paint finish to be Benjamin Moore DTM Gloss Black. Alternative colors may be proposed for review/approval by the University Architect.
- ◆ Recycling Room: Latex epoxy painted walls, exposed ceiling, sealed concrete floor.
- ◆ Restrooms: Ceramic tile floors and walls.
- ◆ Stair Treads: Regarding slip resistance, avoid striated or grooved pattern products which have proven to be difficult to keep clean. Prefer a product with a hammered finish, Nora brand has worked well.
- ◆ Telecommunications Rooms: Line walls with light color painted fire retardant plywood for mounting patch panels and other equipment.

- ◆ Wall Finishes: Painted drywall is appropriate for most classroom and office type spaces. High traffic corridors should have veneer plaster or impact-resistant drywall.
- ◆ Wall Protection: For drywall and plaster construction, provide InPro Corporation (IPC) corner guards in high traffic corridors and wall guard type chair rail in all classrooms, seminar and conference rooms with movable seating. IPC #1600 wall guards and IPC #150 corner guards have been used on campus, color “eggshell”. Alternative colors may be proposed for review/approval by the University Architect.

10 – Restrooms

- ◆ Floor: American Olean two inch by two inch Alabaster C-11 Egypt Stone set in thinset and using a medium gray or neutral grout material. Base is to be built-up cove using the same style and grout as floor. In addition there will be a 2x2 inch boarder using Daltile Royal Rose D383.
- ◆ Walls: DensShield Tile Backer, Daltile four and a quarter by four and a quarter X735 S441PH Almond set in mastic and using Antique white grout. In addition there will be perimeter stripping using Daltile 2x2 inch Royal Rose D383.
- ◆ Corian: Tops and shelves are Beach. Sinks are Bisque model # 813
- ◆ Partitions: Manufacturer is "Santana-Comtec-Capitol"
Color- Burgundy
Mounting type- Floor mounted overhead braced
Bracket- Plastic, continuous
Shoe- Plastic
Hinge- Integral on 2' doors, continuous on 3' doors
Hardware- Aluminum
Heat-Sinc- yes
- ◆ Mirrors: Stainless Steel Security (theft proof) frame
- ◆ Ceiling: Grid- CMC aluminum, 2'x2'
Tile- vinyl coated gypsum or suspended Plaster
- ◆ Faucets: Chicago - 802-317 CP, Kohler K7401 w/K16010-5 wrist blade handles, Sloan ETF 600 or EBF 650 with below deck mixing valve
- ◆ Lavatories: Kohler Greenwich
- ◆ Toilets: Kohler K4330 Kingston, American Standard #2257.103
- ◆ Seats: Kohler K4670-C seat
- ◆ Urinals: Kohler K4920-T stall urinal, Kohler K-4960-ET wall mount urinal, American Standard #6400.014 stall urinal, American Standard #6501.010 wall hung urinal
- ◆ Flush Valves: Sloan Royal w/ vandal resistant control stop

- ◆ Drinking Fountains: Elkay EZ58

11 - Specialties

- ◆ Custodial Closets: Stainless steel shelf for supplies. Mop strip above the low mop sink.
- ◆ Fire Extinguishers: Recessed cabinets in corridors. 10 pound ABC type for corridors and mechanical rooms. Recommend 10 pound CO2 type in telecommunications rooms.
- ◆ Signage, Interior: Typically a project allowance will be reserved for UWM to direct purchase interior room and wayfinding signs and building directories complying with established campus standards. The architect must assist in coordination so that adequate and appropriate space is provided for the installation of the signage.
- ◆ Toilet Room Accessories: (see #9 Finishes for further information) Surface mounted only, no recessed (for easier replacement should vandalism occur). Provide a custom designed and fabricated convenience shelf near entry for personal articles. solid surfacing material, two architectural grade hooks at about 18" O.C. on the underside for book bags, satchels, purses. For waste paper receptacles: Rubbermaid, color suggested by architect, provided and installed by UWM, located near entry, adequate space shown on architectural plan. Diaper changing station: Koala Baby Changing Stations, horizontal, located in one of both men's and women's restrooms on the main public floor. Hand towel dispenser: SCA (formerly Wisconsin Tissue), non-perforated Roll Towel Dispenser #84T. Electric hand dryer: World Dryer, Inc. Model A Series. Soap Dispenser: Carroll Clean-N-Fresh / Contour. Toilet Roll Holder: Fort Howard 9" Jumbo Roll Toilet Paper Holder. Women's rooms: Dual vendor type sanitary napkins and tampons dispenser set for 25 cents, a sanitary bag dispenser, and a sanitary napkin disposal unit. The sanitary napkin disposal bag dispenser: 4.25" wide, 10" tall, 1" deep, install one per restroom. Napkin disposal units should be installed in each stall. Of the above, UWM Buildings & Grounds will supply the contractor with the product, the contractor will install, all is coordinated and shown on the drawings by the A/E: soap dispensers, toilet roll holders only.
- ◆ Toilet Room Partitions: Poly resin preferred instead of metal. Bobrick or Santana, floor mounted. Continuous U-channel wall bracket mounting (not individual brackets).

12 - Equipment

- ◆ Parking Control: Federal APD.

13 - Furnishings

- ◆ Entrance matting: 3M Nomad Scraper Matting 6250. In addition to entrance matting, the campus will typically install an additional 15 lineal feet of surface walk-off matting on the path of travel from the entrance.
- ◆ Lecture Hall Seating: Typically a project allowance will be reserved for UWM to direct purchase fixed seating that complies with campus standards. The architect must develop and review the seating layout, materials and finishes, comply with applicable codes and

coordinate the work of all trades. Present standard is Krueger International (KI) Piretti Torsion seating with a standard "G" tablet arm, (verify with the UWM University Architects/Planning office project representative).

- ◆ Window Treatment: All windows in occupied rooms should be provided with a building standard interior mini-blind window treatment. This applies to both exterior and interior view glazing. Rooms with audiovisual presentation requirements need room darkening shades. If appropriate to the entire architectural design of the facility, consider dark colored window treatment: windows appear dark from the exterior, dark colored window treatment is not as noticeable from the exterior regardless of the position of the blind or shade.

14 - Special Construction

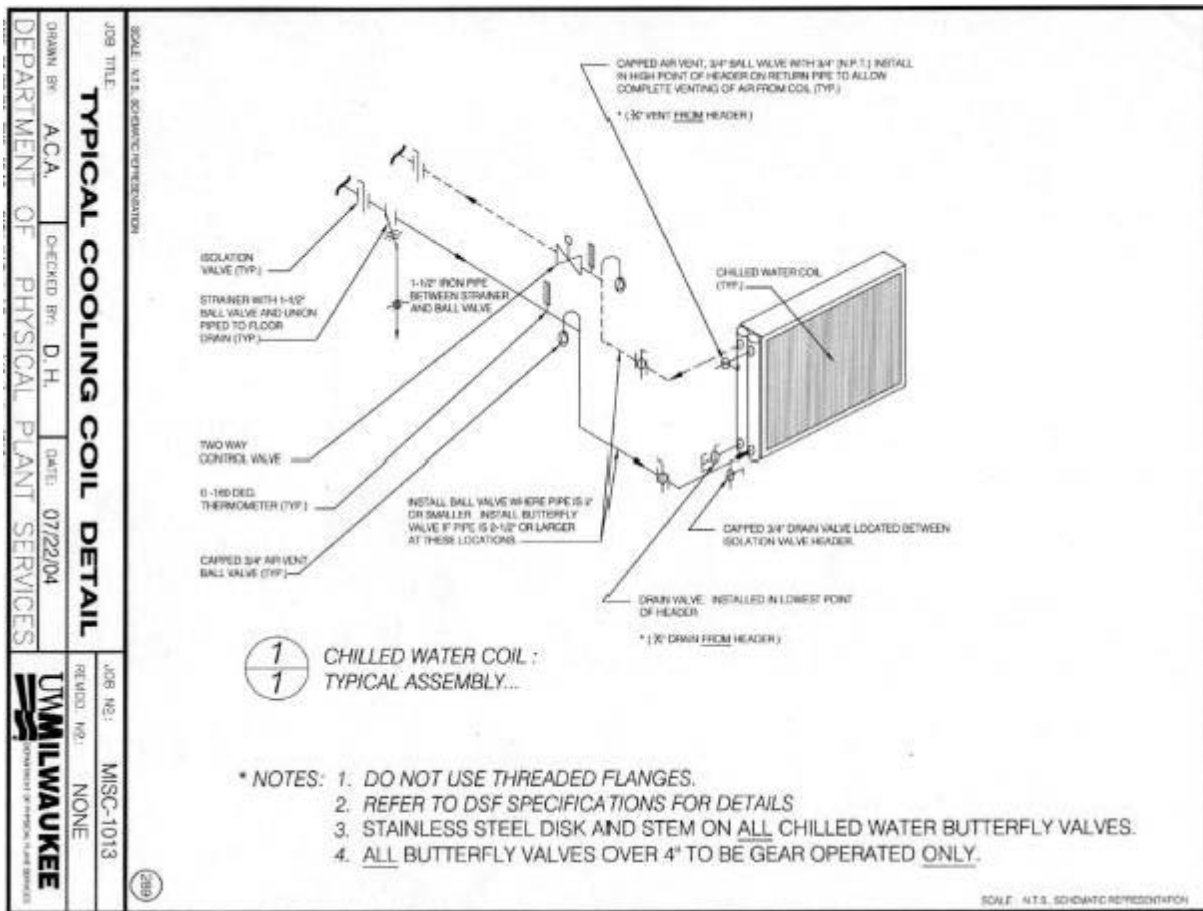
15 - Conveying Systems

- ◆ Elevators: Emergency phones required (see 16). Soft start controllers.
- ◆ Key Access: For elevator stops that serve mechanical equipment only areas, key switch access must be provided. In some cases, to address after hours safety/security concerns, individual floor stop key access to an occupied floor(s) may be required: review with the University Architects/Planning office project representative.

16 - Mechanical (Plumbing & HVAC)

3/4" drain and vent piping from headers on all CW coils.

- ◆ Chilled Water: Butterfly valves for chilled water service need to be rated at 200 psig. For chilled water cooling coils, provide strainer on CHWS line before branching to individual coil sections. Stainless steel disc and stem on all CW butterfly valves. Valves over 4" to be gear operated. See following detail:



- ◆ Circulating Pumps: Prefer Taco. B&G acceptable.
- ◆ Cleanouts: J. R. Smith, Josam, Zurn.
- ◆ Computer Room AC: Liebert.
- ◆ Custodial Closets: Mop sinks should be floor type. Mustee.
- ◆ Darkrooms: Integral exhaust slot within the sink unit for removal of fumes from the work area before they may reach a user. Dilution basin clearances including piping must be coordinated prior to bidding.
- ◆ Drains: J. R. Smith, Josam, Zurn.
- ◆ Drains, Floor: Provide floor drains in all multi-fixture restrooms, vending areas, eyewash and emergency shower stations.
- ◆ Drinking Fountains: Prefer Elkay.
- ◆ Emergency Eye Wash and Showers: Prefer Haws. Bradley acceptable. Emergency alarms. In addition to laboratory areas, an eye wash station may need to be provided in a Custodial Storage room if a battery charging system for custodial equipment is planned.
- ◆ Faucets: Chicago, Kohler, Sloan. Two handle ADA compliant.

- ◆ Filters: Pleated 35% filtration on all AHU's (replaceable).
- ◆ Fire Doors: See Division 8.
- ◆ Fixture Carriers: J. R. Smith, Josam, Zurn.
- ◆ Fixtures (toilets, lavatories, urinals): Kohler preferred. American Standard acceptable.
- ◆ Flush Valves: Sloan.
- ◆ Local Exhaust: For work areas with hazardous materials requiring exhaust, exhaust slot hood located as close to the work area as possible for removal of fumes before they reach a user, rolled edges at slot to avoid "whistling". Please reference "Industrial Ventilation - A Manual of Recommended Practice" by ACGIH for proper slot hood design.
- ◆ Mechanical Penthouses: Provide a floor mounted mop sink. Provide an emergency shower and eye wash.
- ◆ Piping Labeling: Labeled and stenciled every 30 feet with type and direction of flow.
- ◆ Piping Material: Cold, Hot, Hot Return - Type L copper only. Normal waste and vent - PVC or No-Hub. Acid waste and vent - Lab line only. Gas - SCH 40 steel pipe. Valves to be gate or ball type: Nibco, Full Flow. D.I. - Orion.
- ◆ Pressure Reducing Valves: Fisher, steel body.
- ◆ Reduced Backflow Valves RPBP: Watts only.
- ◆ Sewage Ejectors: Tramco preferred. Weil acceptable.
- ◆ Sewage Pumps: Small (1/3 to 1/2 HP) - Hydromatic, Goulds.
- ◆ Sump Pumps: Large - Tramco preferred. Weil acceptable. Small (1/3 to 1/2 HP) - Hydromatic, Goulds.
- ◆ Supply Diffusers: For classrooms with variable air volume (VAV) systems, slot diffusers do not perform well in mixing air through entire range of flows; instead four-way ceiling diffusers are required.
- ◆ Thermostats: Johnson Controls
- ◆ Traps: Barnes & Jones. Trane acceptable.
- ◆ Valves: Installed on all branches and extended mains with and including identifying tags. Avoid 3-way valves; prefer 2-way including in the chilled water system.
- ◆ Water Heaters: A. O. Smith, Bock, White, Bradford White.

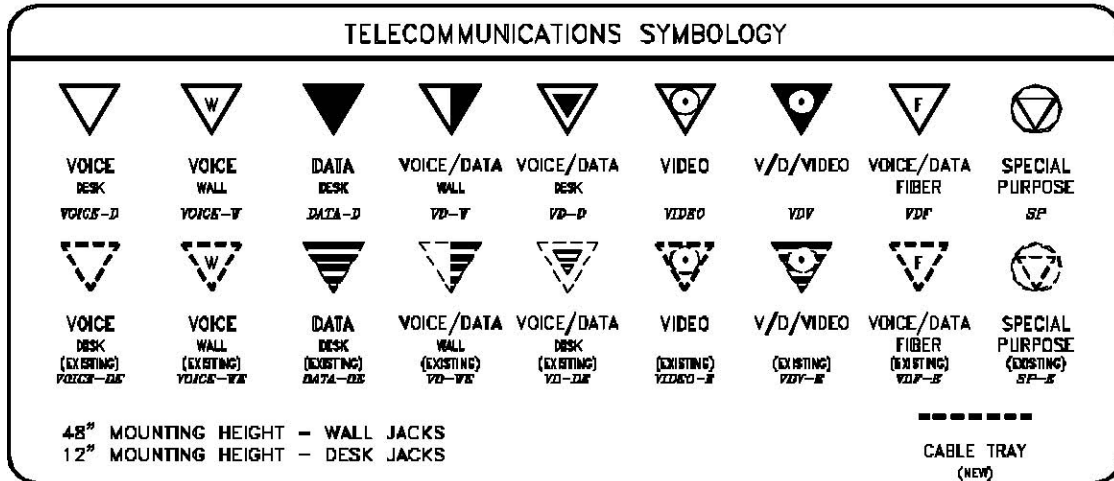
17 - Electrical

All concrete encased conduits should be P.V.C. schedule 80 plastic or P.V.C. coated rigid metal

conduit to withstand the effects of corrosion.

- ◆ Demolition: Remove abandoned electrical conduit and telecommunications wiring.
- ◆ CATV campus system trunk amplifier: Verify requirements with UWM Television Engineering 229-5471.
- ◆ Clocks: For campus system clocks, the majority of the existing campus is presently served by a Simplex, three-wire impulse type, 24VDC system, a new Primex GPS wireless system is being implemented for new and future work. Campus clocks should be located in major public corridors, assembly areas, classrooms, instructional and computer labs. In all other areas, occupants may provide and install their own battery-powered clocks.
- ◆ Custodial Storage: Appropriate ventilation if a battery charging station is planned.
- ◆ Data: see Voice/Data.
- ◆ Lighting, Site: Obtain the campus standard specifications for conventional shoebox-type pole lights from Physical Plant Services. Avoid the use of low bollard type fixtures, ground mounted fixtures, or fixtures installed into vertical walls below 3 feet above grade. These methods have proven to be easily damaged by vehicle traffic, snow removal, and the application of salt for ice control. Where light poles are likely to be near vehicle and snow removal paths, architectural concrete bases should be provided at least 30" above grade.
- ◆ Mechanical Penthouses and dedicated equipment rooms: Provide adequate emergency power outlets (label outlets). Provide welding outlets spaced 50' apart to match existing campus standard NEMA L15-30R. Provide two telephone voice outlets.
- ◆ Occupancy Sensor Lighting Control: If ceiling-mount sensors are selected, in addition provide a wall switch so that occupants may be able to turn off lights if desired.
- ◆ Panels: Should not be located in public areas, should be installed in an electrical closet. Panel directories should indicate the type of circuit and location (e.g., "Receptacles: rooms 212 - 214. Lights: rooms 110 115."
- ◆ Phones, Campus Convenience & Loading Dock/Receiving: Verify the most current campus standard equipment and placement requirements with UWM I&MT Telephone Services 229-5800. As of May 2001: Model #G05016 made by PBG (formerly Phillips & Brooks/Gladwin, Inc., www.PBGinc.com). If architecturally appropriate for a particular project, a custom fabricated phone enclosure and counter may be advisable, reinforced counter for persons who may sit, and reinforced sides to deter vandalism. Campus phones are typically located in a convenient, high public traffic corridor on the main floor and at the receiving/loading dock area of buildings. Ideally the contractor should purchase and install the UWM standard phone device; if for some reason UWM I&MT is asked to purchase and/or install, a project allowance should be reserved to reimburse these costs.

Voice, Data, and CATV jacks: Permanent offices are expected to have a minimum of two voice/data outlets to accommodate flexible placement of furnishings and equipment, and each flexible workstation should have a minimum of one voice/data outlet. Occupied non-classroom spaces should typically receive one voice/data per 100 ASF. Larger office areas may require more outlets for flexibility. Department chairpersons' offices receive a CATV outlet. All lecture halls, classrooms, and conference/seminar/meeting rooms should have a minimum of one voice/data plus one voice/data/CATV outlet. Lecture halls and classrooms that will have a teaching AV command console should additionally receive one pair of fiber optic UWM I&MT telecommunications symbology:



BLOCK NAMES INDICATED IN ITALICS

- ◆ Phones, Elevator: Verify the most current campus standard requirements with UWM I&MT Telephone Services 229-5800. All elevators must have UWM I&MT standard phone equipment, products are by Ramtel Corporation including a #RR833 phone (one button phone model OSI stainless steel panel with four mounting holes), a back box for #RR833 phone, and an adapter plate for existing back box pt. 500-1350. UWM elevator and lift phones should not have pre-recorded message content (a City of Milwaukee requirement that does not apply to the University).
- ◆ Phones, Emergency (“Bluelight”): Verify the most current campus standard requirements with UWM I&MT Network Services 229-5800. Emergency phone equipment by Ramtel Corporation is #RR833 phone in enclosure with a door (four hole mount, stainless steel panel one button model in 924D four hole enclosure w/door, door is silk screened safety yellow with two Braille plaques); blue lights are either wall mount light (aluminum pt. 800-1054 with metal guard) or pole top mount (aluminum for stanchion pt. 8001104 with metal guard); exterior pole is 10' steel stanchion (2' recessed, primed only, drilled for top mount light and enclosure). All campus site areas and parking garages must have “bluelight” emergency phones, locations to be confirmed with the UWM Police, coordination by the University Architects/Planning office project representative.
- ◆ Phones, Pay: Verify the most current campus standard requirements with UWM I&MT Telephone Services 229-5800. If a pay phone is required in a new construction or remodeling project, typically the contractor will provide the conduit, junction and box and cable, the campus’s pay phone company will provide the phone and enclosure. If architecturally appropriate for a particular project, a custom fabricated phone enclosure and counter may be advisable.

- ◆ Restroom Doors: See Division 8.
- ◆ Telecommunications cable and face plate labeling: incorporate UWM labeling standards as described at <http://www.uwm.edu/~lange/labeling-standard.html>
- ◆ Voice, Data, and CATV jacks: Permanent offices are expected to have a minimum of two voice/data outlets to accommodate flexible placement of furnishings and equipment, and each flexible workstation should have a minimum of one voice/data outlet. Occupied non-classroom spaces should typically receive one voice/data per 100 ASF. Larger office areas may require more outlets for flexibility. Department chairpersons' offices receive a CATV outlet. All lecture halls, classrooms, and conference/seminar/meeting rooms should have a minimum of one voice/data plus one voice/data/CATV outlet. Lecture halls and classrooms that with have a teaching AV command console should additionally receive one pair of fiber.
- ◆ Wire Management: For surface mounted raceway systems, architect selects color to coordinate with surrounding materials, either standard product or, if necessary, paint as directed by architect.

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