DIVISION 08 00 00 - OPENINGS

081100 METAL DOOR AND FRAMES

A. Manufacturers that are members of the Steel Door Institute (SDI) www.steeldoor.org/ are acceptable suppliers for University construction projects.

B. Follow the recommendations of the SDI for selection, preparation and installation of metal doors and frames. Specify reinforcement plates for hinges, door closers, locksets, and any special hardware in accordance with SDI recommendations.

C. Provide welded steel frames, constructed in accordance with SDI Classification for Level 3 Extra Heavy Duty.
   1. Provide welded corners at steel frames.
   2. Knockdown frames (KD) may be used if the corners are field welded or when approved by the UAO.
   4. Grouting of frames in masonry walls is not required unless for fire label.

D. Comply with SDI Classification of Level 3 and Physical Performance Level A, Extra heavy-duty, Model 2 – Seamless for flush doors. At the minimum, all doors shall be 1-3/4 inches thick and have welded, seamless edges and smooth faces.

E. Provide hot-dipped galvanized doors and frames for exterior openings, in high humidity areas, or wet locations. Provide foamed-in-place polyurethane cores for doors and integral weather stripping (gasketted frame) installed in a kerf in the frame. Fill exterior frames with non-expanding insulating foam like Hilti CF812.

F. Provide a permanently fastened metal label on fire doors and frames indicating the fire-resistive rating. Stick-on labels are not acceptable.

G. Glazing: The preferred glass size is 3 inches wide by 33 inches high, located at strike side of door. Use clear ceramic glass for all glazed openings complying with ANSI Z97.1 and CPSC 16CFR1201. Install glazing beads at interior (room side) of doors and frames.

H. See Section 083100 for roof access doors and Section 087100 for Hardware.

I. Provide a side hinged exit door 3’-4” wide at loading docks.
A. Acceptable manufacturers for supplying flush wood doors include:

- Algoma Hardwoods, Inc.   www.algomahardwoods.com
- Oshkosh Wood Door Company   www.oshkosdoor.com
- Chappell Door Co.   www.chappelldoor.net
- Eggers Industries   www.eggersindustries.com
- Graham Manufacturing   www.grahamdoors.com
- Marshfield Door Systems   www.marshfielddoors.com
- VT Industries   www.vtindustries.com
- Mohawk Flush Doors   www.mohawkdoors.com

B. Comply with Architectural Woodwork Institute (AWI) Quality Standards for Custom Grade (Section 1300) and with ANSI/WDMA Industry Standard I.S. 1-A-04, and Intertek/Warnock Hersey guidelines for positive pressure at labeled doors.

C. Specifiers need to be aware that “Premium Grade” doors have face veneer requirements that can significantly affect door costs. Refer to this comparison Chart: https://www.wdma.com/Portals/0/technical/bulletins/WDMA_Tech_Bulletin-QSI-WDMA-AWS_Comparison(rev3).pdf

D. University Architect must approve the following:
1. Doors over 7 feet high
2. Transoms
3. Stile and rail doors
4. Veneers other than standard (Red Oak)
5. Wood doors with opaque paint finishes
6. Exterior wood doors
7. Sliding or folding doors

E. Standard Door Construction:
1. 3'-0" wide x 7'-0" high x 1 ¾" thick, flush door with plain sliced, book matched Red Oak veneer with matching hardwood stiles and rails.
2. Provide 5-ply or 7-ply doors, with a face veneer, cross banding ply and a core, all securely bonded together utilizing type 1 (fully waterproof) adhesive.
3. Specify factory preparation for hardware and factory finishing.
4. Glazing: The preferred glass size is 3 inches wide by 33 inches high, located at strike side of door.
5. Use clear ceramic glass for all glazed openings complying with ANSI Z97.1 and
CPSC 16CFR1201.
6. Install glazing beads at interior (room side) of doors and frames.

F. Hardware (See also Section 087100):
1. Specify continuous hinges at high frequency swinging doors (entrances, corridors, main stairways).
2. Specify one lock block 5 inches by 12 inches for mortise locks and two such blocks for panic devices in a labeled door.
3. Use sex bolts for mounting closers.
4. Provide a coordinator at the top of the frame for doors with astragals. Use only metal astragals.
5. Do not specify mortised flush bolts or mortised rods in wood doors. Use surface mounted bolts or panic hardware on double doors.

H. Match wood frames and glazing stops with that of the door's face veneer.
083100 ACCESS DOORS AND PANELS

A. Roof Door Openings: Provide fiberglass reinforced flush panel doors with aluminum frames, threshold and continuous geared hinges for access to roof areas where exposed to weather. Hinge doors to swing out towards roof surface.
   1. Provide at mechanical rooms, penthouses, stairwells, etc.
   2. See Division 070500 for roof hatches.

B. Specify closer with hold open arm and mortise lockset with key cylinder on interior (room side) and exterior always operable.

C. Acceptable Manufacturers:
   1. Special-Lite, Inc.  www.special-lite.com
   2. Corrim Company  www.corrim.com
   3. Fib-R-Dor  www.fibrdor.com
   4. Simon Door  www.simondoor.com

D. Chase Access Doors: Provide ceiling or wall access panels with cylinder core. Verify with lock shop for type of key cylinder cores.
   1. Provide stainless steel finish at restrooms and custodian closets.
   2. Provide painted finish to match adjacent surfaces at other locations.
A. Acceptable Manufacturers:
   1. Storefront Framing & Doors:
      Kawneer  www.kawneer.com
      U.S. Aluminum  www.crl-arch.com
      Wausau Metals  www.wausauwindow.com
      EFCO  www.efcocorp.com
      Vistawall Architectural Products  www.vistawall.ae
      YKK AP America, Inc  www.ykkap.com
   2. Exterior Aluminum Plank Flush Doors (Damage-Resistant):
      Cross Aluminum Products  www.crossaluminum.com
      Special-Lite, Inc.  www.special-lite.com

B. Design Standards – Building Entrances:
   1. Provide minimum 3'-4" wide doors at all exterior doors and at interior doors of
      airlocks.
   2. Specify wide stile (5") framed entrance doors with a center rail for entrances.
      Locate center rail at the same centerline as the panic device mounting height.
   3. Provide thermally broken framing and non-thermal (1-3/4" thick) doors.
   4. Fill exterior frames with non-expanding insulating foam like Hilti CF812.
   5. Standard Finish: Clear anodized aluminum
   6. Glazing: Fully tempered insulated glass
   7. Side Lite Guards: Provide center rail at same height as door
   8. See Section 087100 for hardware requirements.

C. University Architect must approve the following:
   1. Doors over 7 feet high
   2. Painted finishes or other than standard clear anodized finish
   3. Doors with "balanced" hardware are prohibited
   4. Exterior wood doors
   5. All-glass doors
   6. Sliding or folding doors
085100   METAL WINDOWS

A. Window openings will require extensive review and approval by the University Architect. The "Collegiate Gothic" style of architecture requires special detailing to provide windows that replicate the old style steel windows with glazing putty and muntins.
   1. Replacement windows for existing buildings shall have similar sight lines for frames, sash and muntins.
   2. This standard provides guidelines for operable windows in new construction.

B. The following Manufacturers can supply aluminum windows for replication of historic windows.

   1. Wausau Window and Wall Systems  www.wausauwindow.com
   2. EFCO  www.efcocorp.com
   3. Kawneer (Traco Windows)  www.kawneer.com
   5. Peerless Products  www.peerlessproducts.com

C. Windows shall have the following features:

   1. Thermally broken sash and frames
   2. Beveled frame and muntins to replicate putty-glazed windows
   3. Muntins: Integral applied muntins on exterior, optional at interior
      a. Provide sight line of approximately 13/16 inch wide, with beveled frame
      b. Fasten muntins to sash to prevent twisting or movement.
      c. Muntins to “float” above the surface of the glass
   4. Hardware for out-swinging casement windows:
      a. Heavy-duty exposed hinges (no tri-bar hinges)
      b. Heavy-duty multi-point locking device (no cam locks)
      c. Single arm rotating crank operator with limit device
      d. Interior screens without wickets
   5. Hardware for single hung windows with balances:
      a. Cam locks at meeting rail
      b. Self-latching lifts at bottom sash
      c. Fixed upper sash (no double-hung windows)
      d. Sash stops to limit size of opening
      e. Exterior half-screens
   6. Hardware for projected windows:
      a. Heavy-duty 4--bar hinges
b. Heavy-duty multi-point locking device.
c. Single arm rotating crank operator with limit device
d. Interior screens without wickets.
7. Finish: 70% PVDF Coating (Kynar 500) complying with AAMA 2605
10. Warranty: 10-year, materials and labor for windows and glazing.

D. Window design considerations
1. Rounded or Arch-topped windows may eliminate some of the listed window manufacturers.
2. Muntin design should result in similar sized divided lites at all windows.
3. Maintain the same sight lines for fixed windows as for an operable window when viewed from the exterior.
4. Maintain the appearance of double hung windows for fixed windows by recessing the lower sash at the meeting rail of fixed windows.
5. Provide fully tempered glass at windows.
6. Review selection of Tinted or Low-E coated glass with University Architect
7. Specify interior removable stops for reglazing except when window openings will be blocked by equipment on the interior of the building.
8. Provide interior muntins with spacers at the insulated glass for VIP areas or rooms.
9. Limit operable windows to the minimum required for access to roof areas and for emergency ventilation of the building.
10. Detail window sill end dams and flashing on drawings and verify proper installation with sample or mock-up.
11. Fill exterior frames with non-expanding insulating foam like Hilti CF812.

E. Operation & Maintenance Manuals - Provide project specifics for glazing systems, including but not limited to: warranties, shop drawings, installation photographs, and installer’s contact information, for each of the following:
1. Glass curtain wall and skylight framing systems
2. Entrance and storefront systems
3. Glazing and glazing material specifications
4. Spandrel panel specifications
5. Sealants and flashing
087100 DOOR HARDWARE

A. Door hardware schedules for each opening are required as part of the Contract Documents.
   1. Retain the services of an Architectural Hardware Consultant as part of the design team for Capital Projects to prepare the schedules.
   2. Manufacturer’s Representatives of listed hardware are also familiar with these Standards and can provide advice to the specifier.

B. Key Cores and Keys:
   1. During the construction phase, it will be the responsibility of the Contractor to provide temporary construction lock cores for job site security.
   2. The university locksmith will coordinate with the lock core supplier on master keying of buildings.
   3. On all projects, the university's locksmith will install lock cores and cut the keys for distribution to building occupants. Specify a minimum of three blank keys for each key core.
   4. At no time is the Contractor to furnish or possess key cores, grand master, master, or door keys.
   5. Do not specify key cabinets for buildings.

C. A spreadsheet has been prepared to show the various types of locking hardware in use on the different campuses.
   1. The University Architect may approve variations from the standard hardware listed in consultation with the appropriate campus representative.
   2. Select hardware from the list of Acceptable Manufacturers; if only one manufacturer is listed, then specify products only from that manufacturer.

D. Acceptable Manufacturers:
   1. Hinges: Hagar, Ives, McKinney, Stanley
   2. Closers: LCN
   3. Door Holders/Stops: Sargent, Glynn-Johnson, Ives, Rockwood, Architectural Builders Hardware
   4. Weather-stripping & Thresholds: Reese, Zero, National Guard, Pemko
   5. Fire Door Hold-Open Devices: Glynn-Johnson Series 280 Sensaguard and LCN Sentronic.
   6. Automatic Flush Bolts: Glynn-Johnson, Rockwood
   7. Door Coordinators: Ives, Glynn-Johnson, Rockwood
   8. Door Silencers: Ives, Glynn-Johnson
   10. Lock Protector: Ives, Glynn-Johnson
11. Continuous Gear Hinges: Roton, Ives, Select Products, Markar, McKinney, Pemko, Hagar, Stanley

J. Provide overhead mounted, electro-mechanical, automatic door operators at door locations where approved by the UAO. Refer to the Appendix drawing for standard guardrail and activator control layouts for automatic door operators. **Show details on the Contract Drawings and modify as required for actual installation.**

1. Specify BEA’s DK-12 presence detector (www.beainc.com) at swing side of all automatic doors to prevent door from opening if an object or person is in the path of the door swing. Provide drip cover if detector is exposed to weather.

2. Specify WIKK Industries’ “Ingress’r” touch activated automatic door control (www.wikk.com) for activation of automatic doors. The WIKK door control can be wall mounted, placed on a pedestal or installed in a guardrail as required by job conditions.
   a. Interior devices may be radio frequency (RF); exterior devices shall be low-voltage wired to automatic door operator.

3. Automatic door operators can be interfaced with building security systems where required by project conditions. Review project specifications with UAO and designated user representatives during design development and contract document phases.