8 Openings

NOTE: Significant revisions or additions to the previous standards are highlighted in italics.

GENERAL

Designers shall verify that all applicable portions of these standards are incorporated into the project’s design, drawings, specifications and final construction. Requests for variances from these standards shall be submitted in writing to the DCM Project Manager, using the KU Standards Variance Request Form found in Appendix A1.1, for review and written approval or rejection as indicated on the form.

RELATED DOCUMENTS & REQUIREMENTS

Refer to the following for requirements that also apply to work of this section.

- Division 1 - General Requirements
- KU Policy Library: "Key and Electronic Lock Policy", which can be viewed at: http://policy.ku.edu/provost/key-and-electronic-lock-policy. This policy affects electronic access control systems, such as CBORD systems, that are installed on exterior entrances and on selected interior doors where enhanced security is needed, such as research labs.
- KU Policy Library: "Policy on Implementation and Use of Video Technologies for Safety and Security Purposes", which can be viewed at: https://policy.ku.edu/provost/video-technologies. This policy affects closed-circuit TV (CCTV) systems that are often installed in conjunction with access control systems.

DOORS AND WINDOWS – DESIGN GUIDELINES

Windows: University buildings are typically provided with operable windows in each occupied private office, housing unit bedroom or housing living area. It is preferred that window types for multi-story buildings be selected to allow cleaning from the interior.

- Frames: All exterior windows shall have thermal-break frames, insulating glass units and a prefinished frame.
- Glazing: Exterior windows are recommended to be tinted bronze and have a low-E coating. Verify specific criteria for each project with DCM.
- Window Screens: Operable windows shall NOT receive window screens, due to problems the University has had retaining them in-place and in undamaged condition.
  - Exception: Projects for the Dept. of Student Housing typically include screens on operable windows. Verify with DSH for each project.
- Window Locking Devices: Provide more than one locking device on windows that are more than 3’ wide.
- Fire-Rated Locations: Designers shall verify and clearly indicate all window locations which are to be fire-rated, and shall schedule appropriate window frames and glazing systems.
**Doors and Frames:** Exterior building entry doors and frames shall be heavyweight, wide stile, pre-finished aluminum units, due to lower maintenance requirements than painted hollow metal frames or narrow stile doors.

- Power-assisted or automatic doors shall be provided at the primary building entrance(s), to assist disabled persons in overcoming the force of wind in opening exterior doors.
- In vestibules, provide door operators on both the interior and exterior door in the same path of travel, independently operable from each side and from within the vestibule.
- Exterior Service Entry Doors: Specify to be 18 gauge steel face materials, insulated core doors in 16 gauge steel frames.
- Magnetic Hold-Opens: High-traffic interior doors and doors on stairs or elevator door openings should be held open with magnetic hold-open devices.
- Kickplates: Provide on all doors into janitor closets, mechanical/electrical rooms, storage rooms, kitchens, loading dock doors and other spaces where equipment may be wheeled in and out through doors. Depending on equipment expected to move through and potentially damage doors, Designers shall consider the provision of taller armor plates to protect door surfaces.
- Pairs of Doors: The use of removable center mullions is discouraged, especially within corridors, at fire-rated door locations or other high-traffic areas.
- Hardware Schedule: At entrances with multiple doors ganged together, only one door shall be keyed from the exterior. Other doors in multiple gangs shall be pull only, with key-dogging on interior panic devices. Omit dogging on fire-rated doors.
- Humid Environments: Consultants shall carefully review environmental criteria for door and window units in humid environments, and select units capable of withstanding those conditions for long periods of times.
- Accordion Folding Fire Doors: Doors of this type are PROHIBITED, such as doors provided by Won-Doors and similar vendors. KU has had numerous problems with these types of doors in the past, so their use is not allowed by the University Fire Marshal.

**ACCESS DOORS – DESIGN GUIDELINES**

General: Bid documents shall show location and size of all wall or ceiling access doors that are required to access mechanical/electrical equipment, devices or plumbing lines for maintenance or initial balancing.

- Minimum Wall Size: 24" wide x 36" high, to facilitate entry into tight spaces by maintenance personnel.
- Minimum Ceiling Size: 24" wide x 24" deep.
- Other door sizes may be acceptable if existing conditions dictate otherwise, or if provided for hand access to valves and similar elements. Confirm with DCM and FS.
- Designers should note that KU typically prefers acoustical lay-in ceilings over drywall ceilings with access doors, for ceiling areas that require access to equipment above ceilings.
- Locking Mechanism: Keyed locks are preferred in spaces accessible to the public. Cam locks may be used in service or maintenance spaces.
Ceiling Access Doors: In lieu of traditional metal, piano hinge models, KU's preferred models are glass fiber reinforced gypsum (GFRG) panels similar to the "Stealth Access Panel", by Wind-lock.

FLUSH WOOD DOORS – 081416
General: In existing building partial remodels or additions, match species and finish of existing wood doors.
- Interior Doors: Solid core construction.
- Jamb edges of wood doors shall be hardwood to match the door’s face material species.

ALUMINUM ENTRANCES AND STOREFRONTS – 084113
Aluminum Frames: Provide in thermal-break construction. Colors & Finishes shall be as follows:
- New Construction or Total Renovations: Medium Bronze Anodized, unless otherwise approved or directed by DCM and University Architect.
- Additions or Partial Renovations: Match existing, unless otherwise approved or directed by DCM and University Architect.

Glazing: Refer to Section 088000 – Glazing requirements.

UNIT SKYLIGHTS – 086200
General: All skylights shall be required to have thermal-break frames and double glazing. Verify frame finish colors with DCM.

DOOR HARDWARE – 087100
Hardware Finishes:
- New Construction or Total Renovations: Satin Brass or Satin Chrome, as selected with DCM and University Architect. Note: Bright Brass or Polished Finishes are discouraged, due to University experience with poor long-term durability and high maintenance demands.
- Additions or Partial Renovations: Match existing, unless otherwise approved or directed by DCM and University Architect.

Lockset Manufacturers: Facilities Services stocks replacement parts for the following manufacturers and for maintenance reasons, the University will allow the provision of products by one of the following acceptable manufacturers only:
- Schlage
- Sargent
- Corbin
- Best - Dept. of Student Housing (DSH) projects only; not to be used on other campus buildings.

Replacement Locksets: New locksets replacing existing locksets shall be required to match the manufacturer, model, style and finish of the unit being replaced.
Locksets in Additions or Partial Renovations: The University prefers that locksets installed within each building be limited to only one manufacturer’s, for ease of maintenance and continuity of appearance. Specs shall require new locksets to match the manufacturer, model, style and finish of the units predominant in the areas adjacent to the area to be remodeled. Verify with DCM.

**Lockset Grade of Construction:** Heavy-duty; not less than the following.
- Bored: ANSI 156.2, Grade 1.
- Mortise: ANSI 156.13, Series 1000, Grade 1.

**Lockset Functions:** Review and verify operation of door locks with the University’s user group, DCM Project Manager & Architectural Support personnel, and FS Lock Shop representatives.

The following are typical functions to be used:
- *Mechanical Rooms, Janitor Closets and NTS Rooms:* Sargent #04 - Storeroom Function, or equal; with rigid outside lever handle.
- *Classrooms:* Sargent #37 - Classroom function, or equal.
- *Offices:* Sargent #05 - Office Function, or equal.

**Lockset Trim Styles:**
- Partial Renovations or Additions: Lockset handles, roses and finishes shall match those in existing buildings.
- New Construction or Total Renovation: Tapered lever handle with continuous curved return to door face, OR round wire lever handles with a radiused, perpendicular return to door.
  - Sargent Style LNP (curved) or LNJ (round)
  - Schlage Style #17 (curved) or #73 (round)
  - Others only as approved or requested by DCM and University Architect.
  - Straight lever handles that do not return to within ½” of door face are NOT acceptable, since they can more easily catch and damage clothing, backpacks, etc.

**Panic Devices:**
- **Manufacturers:** Due to maintenance requirements, the University will only allow the provision of products by one of the following: Von Duprin or Sargent.
- **Functions:**
  - Keyed Exterior Doors: Sargent function #04 or equal; key retracts latchbolt on exterior.
  - Non-Keyed Doors: Sargent function #10.
  - Do NOT use Sargent function #13, since building users may accidentally leave this unlocked after-hours.
  - *Motion detection panic devices are not allowed by the State Fire Marshal.*
  - *Locally-alarmed and/or delay egress panic devices are not allowed, unless specifically approved by the University Fire Marshal and the AHJ.*
- **Trim Style:** Pull devices with round, ¾” nominal diameter pulls and standard width plates are preferred.
Pairs of Doors: Where pairs of doors at exits or stairwells are required and individual doors within frames cannot be used, rim-type exit devices which are center-locking should be installed with a removable mullion.

- Astragals for pairs of fire doors that do not have a center mullion shall be fiber type, NOT a metal overlapping astragal with coordinators.
- Vertical rod latching systems shall be used only where doors are held open with magnetic hold-opens.

Vertical Rod Panic Devices: Vertical rod panic devices shall omit the bottom rod, per the ADA Accessibility Guidelines and due to KU maintenance problems.

Magnetic Hold-Open Devices: These are to be specified and provided as part of the fire alarm system work.

Project Designers shall provide magnetic hold-open devices on all fire-rated doors with closers into exit stairs and lobbies, in order to facilitate an open environment and easy pedestrian flow through the building.

Closers: LCN 4040 Series, Super Smoothee is preferred KU model, or approved equal. Provide with parallel arm, to greatest extent possible.

Hinges: Provide not less than 3 per door, heavy-duty type, mortised. Provide continuous "Roton"-type hinges in high-abuse or high-wind locations; confirm locations with DCM.

Continuous "Roton"-type hinges are typically required on exterior doors and on interior doors wider than a 3' opening.

Silencers: Provide 3 minimum per door, unless the door is to receive weatherstripping.

Door Stops: Provide one wall stop per door. If walls stop are infeasible, provide a floor stop unless it may be a hazard to walking. If a floor stop is infeasible, provide an overhead stop.

Keying:

- Cylinders: Lockset cylinders shall ONLY be provided by Medeco Security Locks, Inc., with a high-security keyway corresponding with the University of Kansas system.
  - Exception: The KU Dept. of Student Housing only uses Best cylinders.

- Construction Keying: Required on all University projects. The final lockset keys shall not be used during construction, and shall not be delivered to the jobsite, or stored in an unsecured manner.

- Delivery of Keys: Keys shall be delivered directly to the University Lockshop prior to Substantial Completion of the project, along with a typed schedule of keys. Keys shall be sent via certified mail or personal delivery, with a copy of the receipt that has been signed by the University Lockshop personnel given to the DCM Project Manager.

- Keying Conference: Within 30 days after execution of the contract, the Contractor shall initiate a keying conference between the Hardware Subcontractor, representatives of Facilities Services and DCM, and representatives of the building occupants.

- Hardware Delivery Confirmation: As soon as hardware is ordered, the Hardware Subcontractor shall send the factory order number and the factory shipping date to the University Lockshop.

- Refer to Division One for criteria regarding temporary keys for access to existing spaces.
Weatherstripping: Provide in complete sets, on all four sides of exterior door openings.

- Provide acoustical weatherstripping on all four sides of interior doors where required to acoustically isolate a room, including but not limited to staff or unisex/family/gender-neutral restrooms, music practice or performance rooms, and similar spaces.

Peepholes: When provided, such as in housing units, peepholes in doors shall be mounted at 60" AFF, to accommodate shorter persons. If provided in accessible units, mount a second peephole at an accessible height for wheelchair users.

Coat Hooks: Heavy-duty hooks for coats and hats shall be provided within each office or office area, in sufficient quantity to accommodate the anticipated number of occupants within each space.

- At least one coat hook shall be provided within each private office, typically located on the wall behind the office door in the open position.
- In lieu of coat hooks, a coat closet or free-standing coat rack may be preferable within office suites or open office areas. Review and confirm with DCM and building occupants.

AUTOMATIC DOOR OPERATORS – 087113

Acceptable Manufacturers/Models: Besam "Easy Swing" or equal.

Operation: Provide over-sized push pads, that display the universal symbol of accessibility on 4" +/-square or 6" diameter round pads, to actuate door operation.

- Mount a push pad on the interior and exterior side of each power-operated door at 36" AFF to actuate operation.

- Mount push pads on sidewalls or free-standing posts at the outer edge of power-operated doors when they are in the open position, being certain that disabled persons will not be within the door swing path when actuating the door operation.

- Specify operators to come with an automatic shut-off to disengage motor when door is activated but is locked in the closed position.

- Identify each door equipped with an operator by adhering decal to the exterior door face.

GLAZING – 088000

Exterior Locations:

- Construction: Double-pane insulating glass units.

- Color/Tint:

  - New Construction or Total Renovations: Bronze tint or high-performance clear glass, unless otherwise approved or directed by DCM and University Architect.

  - Additions or Partial Renovations: Match existing, unless otherwise approved or directed by DCM and University Architect.

- Low-E Coating: Include on all exterior insulating glass, on the #3 surface.