

These guidelines are updated periodically. Users of the guidelines are encouraged to check this site as needed to be sure of having the most current edition. Comments and suggestions concerning improvements to this section of the guidelines may be submitted to the following:
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08100. DOORS

Updated: January 25, 2022

Early in the Design Development phase, the Designer will initiate the scheduling of a meeting with the University Locksmith, end user group and FDC Project Manager to review and discuss the hardware needs of the project including automatic doors, access controls, card readers, etc. Additional meetings may be necessary during or after the DD and CD review periods. The Designer will keep and produce all meeting minutes and will provide copies to all meeting attendees.

1. GENERAL INFORMATION

- 1.1. Public usage doors shall have a minimum width of 3'0".
- 1.2. Exterior doors shall be preferably aluminum or steel. Wood is acceptable if plastic faced, paint grade.
- 1.3. **Narrow-stile doors will not be accepted;** stile width shall be 3-1/2" minimum. Stile width may be greater than 3-1/2" to accommodate specified hardware.
- 1.4. Specifications shall clearly call for proper inserts to receive hardware (both wood and metal doors), provide for adequate reinforcing, and indicate gauge of door skin, inserts and reinforcing.
- 1.5. Inserts for steel doors shall be 3/16" minimum thickness. For aluminum doors, inserts shall be 1/4" minimum thickness.
- 1.6. Inserts shall be securely anchored in place and tapped to receive hardware. No loose inaccessible nuts will be permitted.
- 1.7. Where through-bolts are used to attach hardware to metal doors, spacer sleeves in doors shall be provided to prevent collapse of the door.
- 1.8. Doors shall have a minimum height of 6'-8".
- 1.9. Steel doors and frames shall be minimum 16-gauge thickness provided with a 3/16" reinforcing channel welded into place behind the hinge straps. Tap all mounting screws through the reinforcing channel.

- 1.10. Provide 1/8" steel reinforcing for all other mortised and surface mounted hardware.
- 1.11. All doors shall be certified to have asbestos free cores.
- 1.12. Designer shall consult with the FDC Project Manager, UNCG Lock Shop, and Architectural Hardware Consultant (AHC) to determine the appropriate level of weather protection for all exterior openings, including but not limited to door sweeps and weather stripping.
- 1.13. Provide **ADA** accessible automatic door operators (**electronically operated**) on at least one main entrance to each major University building **to allow disabled people** greater access beyond that required by building codes.
- 1.14. There shall also be at least one set of automatic door operators (**electronically operated**) or an "airport entry" (no doors) on a set of toilets (men/women) on the main or most used accessible floor of the building. All other interior doors are to be set to operate at or below a 5 pound push/pull pressure.
- 1.15. Provide electronic security controls on main entrance to each major University building for allowing authorized access to buildings after hours.

Hardware for steel and aluminum entrance doors shall be specified in detail, and this hardware shall be included in regular finish hardware schedule as material to be furnished by the finish hardware supplier and not by the door manufacturer. Hardware attached to metal doors shall be attached with through-bolts having spacer sleeves to be backed up by inserts of sufficient weight and thickness to insure permanent fastening with conventional screws.

Heavy duty mortise locksets with dead latches **are required**. Minimum throw of latch shall be 3/4". Inside trim shall include a turn knob to permit egress when door is locked. **Additional** dead bolts are not acceptable except in special cases such as stores, snack bars, etc.

Where panic devices are required, outside trim shall be pull and cylinder (no movable knob or handle) with cylinder dogging inside. Rim type panic devices are required. **Vertical rod hardware is not acceptable.**

Closing of entrance doors shall be by a closer of adequate size and not exposed to the weather. Closer shall be mounted in a **standard arm** position or in a parallel arm position. Surface mounted overhead closers are preferred. The use of floor closers is prohibited. Closer shall have a back check feature.

Butt mounting is preferred. Where pivots are required, intermediate pivots shall be provided.

Pulls on exterior doors shall be of a design that will not create a lever action at the point of attachment to door.

2. STAIR DOORS

2.1 Stair doors to the outside shall have panic devices.

2.2 Stair doors to the inside of the building shall have closers, latches and stops. Latches shall be activated by panic devices equipped with rim type panic devices.

2.3 Stair doors opening onto roofs or into mechanical penthouses shall be equipped with a self locking lockset having free knob on the roof or mechanical area side with access by key only. Doors shall be equipped with closers. In the case of doors opening onto roofs, closer shall be mounted out of the weather.

3. ROOF ACCESS DOORS

Roof access doors from areas other than stairs shall be equipped in the same manner as those from stairs.

4. DOORS TO MECHANICAL, CUSTODIAN, TRANSFORMER AND ELEVATOR MACHINE ROOMS

Doors to these rooms shall have self-locking locks with **lever handles** on the inside with access by key only. Elevator machine room and transformer vault doors shall be equipped with door closers. Exterior mechanical room doors shall have closers. **Unless required by code door closers shall not be installed at Custodian rooms.** Refer to Section 17 of this guideline which pertains to hardware on doors to hazardous areas.

5. ELECTRICAL ROOMS

All electrical rooms with equipment rated 1200 amperes or more that contain overcurrent devices, switching devices or control devices shall have minimum 36" x 80" doors at each end of the working space. Each door shall open in the direction of egress and be equipped with panic devices.

6. TELECOMMUNICATION ROOMS

All telecommunication rooms shall be equipped with **Transact electronic access**, electronic locks with proximity card readers. Refer to Guideline Section 16722, Electronic Door Access & Monitoring, for additional related information.

7. CORRIDOR DOORS

Corridor doors which are required to be fire doors or smoke doors **must** be equipped with

magnetic hold-open devices. It is preferred that doors be so equipped when doors will be frequently used and subject to the abuse of heavy traffic.

8. DOUBLE DOORS

Double doors to individual rooms shall have keyed, removable mullions, manual flush bolts on the inactive side, mortise lock on the active side and shall be paired LH and RH.

9. DOOR SIGNS

Door signs and numbers shall be provided by the appropriate construction contract. Signs and numbers shall not be attached to the door. All signage to be ADA compliant.

10. DOOR NUMBERS

Door numbers shall be assigned in the door schedule and shall be coordinated with the floor level and room numbers to which they open. Include doors to all spaces: service closets, electrical and mechanical spaces, bathrooms, etc.

11. FRAMES

Interior door frames shall be hollow metal shop primed and field painted. Knock-down frames are acceptable only on renovations provided all joints are mitered, welded and ground smooth.

Exterior frames shall be hollow metal, shop primed and field painted, or storefront aluminum.

Door frames shall be reinforced with a 3/16" welded channel behind the hinge straps to receive hardware.

Dry storage shall be provided for doors and frames. If frames are open on the job site, they shall be raised above the ground, wrapped in a weather tight plastic film and covered with canvas. Covering shall be tied down to prevent its being blown off. Steel doors shall not be delivered until they can be placed in a dry area.

12. PAINTING

Updated: December 23, 2014

1. Before finish paint is applied to doors and frames, all abraded areas shall be thoroughly sanded and re-primed.
2. Paints and coatings used on the interior of the building shall not exceed the VOC content limits established in the South Coast Air Quality Management District Rule 1113.

08300. DOOR HARDWARE

Updated: January 25, 2022

1. GENERAL

The architect shall furnish with his final working drawings and specifications when submitting for review, a folio containing manufacturer's cut sheets and other descriptive data describing in detail all hardware items specified to be furnished. This package will be reviewed by the University locksmith.

During construction when receiving shop drawings the architect shall obtain from the Contractor and furnish with the hardware submittal, a second folio containing cut sheets and other descriptive data describing in detail all hardware items which the Contractor proposes to furnish. **All drawings, submittals, cut sheets, etc. shall be reviewed and approved by the University locksmith prior to approval.**

In summary, all submittals regarding hardware items shall be accompanied by manufacturer's cut sheets, descriptive data, etc.

The Contractor shall provide competent craftsmen skilled in the installation of hardware. Each workman shall demonstrate his proficiency by installing hardware on one door. This door will be inspected and approved by the architect and the University locksmith before further hardware installation continues.

Specifications shall require that the hardware supplier have available locally a qualified hardware consultant who shall be available to the Contractor and the architect so that consultation and installation problems can be promptly handled. Minimum job site visitation by the hardware consultant shall include one visit during installation and one visit after hardware is installed. The requirement is not intended to shift the responsibility of inspection of the work away from the architect or to relieve the Contractor of the responsibility of providing competent craftsmen and making proper installation of the hardware.

2. RENOVATIONS TO EXISTING ENTRANCE AND HIGH TRAFFIC DOORS

- 2.1. Provide complete new hardware set including ball bearing hinges.
- 2.2. Replace door and frame if it does not provide sound mounting for new hardware.
- 2.3. All exterior doors will be capped and finished to match the door finish.

3. SPARE HARDWARE

Provide spare hardware items (locksets, cylinders, exit alarms and devices) with the job. Items and quantities for each job shall be determined by consultation with the University locksmith and according to the hardware schedule. **A Minimum of two of each hardware items shall be provided or five percent whichever is greater, and they shall also be listed in the hardware schedule.**

4. LOCKSETS, TRIM

Heavy duty builder's hardware mortise locksets will be acceptable. All locksets shall be Corbin Russwin to match the University standard. Mortising for locksets shall be neat and accurate. The mortised slot shall be neither too loose nor too tight. Screws shall be installed in properly sized pilot holes. Screws shall not be driven with a hammer nor spun out with power screw driver.

Hardware shall be tightly mounted, properly fitted and correctly aligned.

The lock function on all locksets shall permit the **lever** on the side opposite the lock cylinder to be free to operate the latch.

4.1. Corbin Russwin mortise type locksets (2000 series) with through bolted roses shall be specified as follows:

4.1.1. ML2057 storeroom function for mechanical rooms, electrical rooms, telephone cable rooms, custodial closets and storerooms.

4.1.2. ML2051 entry functions for offices and conference rooms.

4.1.3. ML2065 function for dorm rooms and areas needing deadbolt security.

4.1.4. **ML2065 with M19N thumb turn - entrance function with indicator for classrooms. All classrooms are defined as classrooms schedule by the registrar's office or rooms.**

4.2 Trim to match existing styles in use.

4.3 Finish US26D or US32D where appropriate. US10 may be substituted on renovations to better coordinate with existing hardware.

5. CLOSERS

Closers without hold-open feature shall be provided. If necessary to hold door open, other means shall be provided.

Overhead door closers shall be mounted with through-bolts where attached to the door. Solid blocking reinforcement shall be provided in the door jamb for attachment of closer or

closer arm. Mounting of the closer may be on the door, inverted on frame, or if parallel arm position is used, care shall be taken to specify a closer of adequate size. Semi-concealed and floor closers are not acceptable.

Closers shall be prevented from hitting walls or other surfaces when doors are opened to full swing. Minimum full swing shall be 90 degrees.

5.1. No track arms are permitted.

5.2. Finish - SBL; DBL may be used on renovations to coordinate with existing hardware.

5.3. Mounting - Wood screws in solid wood blocks; machine screws tapped into 1/8" thick reinforcing plate; sexnuts, bolts and reinforcing plate when mounted over mineral core.

6. PUSH/PULLS

Push/pull finishes shall match other hardware used.

7. MUTES (SILENCERS)

All frames shall be provided with silencers or mutes (minimum 3 per door).

8. THRESHOLDS

Thresholders shall be provided for all thresholds to be anchored to concrete floors. Expansion shields of any kind will not be acceptable. Thresholds shall be caulked for waterproofing and to deaden sound. Fully secured anchors shall be installed at each recess provided. Dummy blanks will not be used.

9. STOPS

Overhead stops or "Cush" arms on closers are not permitted. Knob bumpers mounted on dry wall construction **must** be backed up by a stud or intermediate reinforcement.

Floor stops shall be positioned a proper distance from the hinged edge of the door. Stops shall be located 2/3 the width of the door from the hinged edge and never less than 1/2 the width of the door.

Doors may be held open by means of magnetic holders or, select hold-open features on door closers. See other specific requirements regarding entrance doors and corridor doors.

10. CYLINDERS, CORES, KEYS

- 10.1. All locks shall be great grand master keyed to the existing UNCG Corbin key system only after review and approval by the University Locksmith. A factory bitting list shall be provided documenting keying used on project including **50** spare key changes per master. All exterior and exit device cylinders shall be Corbin removable core.
 - 10.2. All Keys shall be 12 Bow and VKCO from factory.
 - 10.3. All permanent cylinders will be delivered to and installed by the University Locksmith when the project is completed and turned over to the University.
 - 10.4. Provide two plain bow keys factory stamped "DO NOT DUPLICATE" per cylinder (VKCO).
 - 10.5. Specific keying requirements to be determined and checked by the University locksmith.
 - 10.6. All permanent lock, thermostat, paper towel dispenser, displays, elevator, etc. keys will be delivered directly to the University Locksmith by the manufacturer.
 - 10.7. Provide a minimum of 200 "12" bow, manufacturer's original key blanks in each key section used on the job.
 - 10.8. All permanent cylinders and keys will be delivered to and installed **by** the University Locksmith.
11. EXIT DEVICES, FIRE DEVICES

Panic devices shall be installed where required by code.

- 11.1. Exit devices to be rim type device and provide optional built in exit alarm feature. All exit devices, alarmed and standard, to be the same model: Von Duprin Model 99 or Model 33.
- 11.2. Use key removable mullions on pairs of doors.
- 11.3. No vertical rod devices unless specifically required by code, i.e. oversize doors.**
- 11.4. Pull side trim - latching fire doors (stairs, corridors) lever handle - no key cylinder.
- 11.5. Pull side trim - locking doors - NL (key and pull) or DT (pull only) function only - only one NL function per pair, set or bank of doors.
- 11.6. Finish matching US26D - i.e. US28XUS32D. US10ANXUS10 may be used on renovations to coordinate with existing hardware.

11.7. Use cylinder dogging where dogging is required.

12. FLUSH BOLTS

Where flush bolts are required, dust-proof strikes shall be provided for the foot bolts. Automatic flush bolts are not acceptable unless approved by University locksmith.

13. HINGES

All doors shall have a minimum of three hinges, except those wider than 3'0" shall have four hinges. Doors wider than 3'0" or which have closers shall have ball bearing joints.

Continuous hinges are not acceptable.

14. LOCKS FOR YARD HYDRANT CABINETS

Slot-type locks that are operable with a screw driver shall be provided whenever possible. Key locks in walkway cabinets are not acceptable.

15. BUTTS

15.1. All exterior butt hinges to be non-removable pin ball bearing.

15.2. Finish US26D.

16. AUTOMATIC OPERATORS

Automatic Door Operators (**electronically operated**) are required on ADA entrances and bathrooms. The University prefers LCN 4820 Series operators.

17. DOORS TO HAZARDOUS AREAS

17.1. Doors that lead to areas that may prove dangerous to visually impaired persons (e.g. doors leading to loading docks or platforms, mechanical rooms, electrical rooms, etc.) shall be made readily identifiable to the touch by a textured surface on the door handle, knob, pull or other operating hardware device.

17.2. Textured surfaces may be made by knurling, roughing or by applying an abrasive surface to the door operating hardware.

18. SECURITY ACCESS

18.1. The University uses the Blackboard Transact One-Card Access Control System to

provide and monitor access into buildings from the exterior and [some](#) interior spaces [as defined in Section 16722. A.](#) The Designer shall include a discussion of this scope of work in the meeting(s) with the University Locksmith and FDC Project Manager early in the Design Development phase of the project. This system shall be included in the project as a Preferred Brand Alternate and as one of the three manufacturers in the base bid.

18.2. The Designer shall refer to Section 16000 for additional information and to coordinate electrical issues for this work. The specifications shall include shop drawings for the security hardware installation and coordination with standard hardware prior to door frame approval. The needs of the security hardware equipment shall be reflected and specifically noted on the door frame submittal.

18.3. The Designer shall require a pre-installation conference with all Contractors involved with this work including the Designer and FDC project manager soon after the Notice to Proceed.

19. KNOX BOXES

Updated: April 24, 2013

The University does not use knox boxes for emergency access into buildings. The University Police are first responders to any emergency and will provide whatever access is required.

20. CABINET LOCKS FOR CASEWORK

Updated: March 17, 2021

The preferred brand for cabinet locks for casework is Olympus Locks, Inc., [National Keyway](#).

08700. WINDOWS

1. GENERAL

Energy conservation shall be given prime consideration when incorporating fenestration into building design.

Window materials and glazed areas shall be compatible with design objectives of each project. Aluminum window systems shall be provided with an anodized finish or a “Duramar” (or fluoropolymer finish). Stools shall be metal, masonry, natural stone, or cast stone.

Provision shall be made to allow for exterior cleaning of all windows with minimum

inconvenience and hazard; e.g., double hung windows or windows which open into building. (Removable sash features have not proven satisfactory.)

2. PLATE GLASS

Glass shall be 1/4" minimum thickness, clear, polished plate. Glass of 1/8" thickness will not be accepted.

3. TEMPERED GLASS OR SAFETY GLASS

Where tempered glass is used, glazing stops which will cover the mill marks in the glass shall be provided.

All doors with full glazing and any exit or entrance doors with over six square feet of glass shall be glazed with fully-tempered glass which passed the test requirements of USAS Z 97.1 - 1966.

4. INSULATING GLASS

Low-e, clear, insulating glass is generally preferred to conserve energy. All insulating glass used shall be vacuum sealed to prevent condensation between the two glass layers.

5. WIRE GLASS

Wire glass which is specified to have Underwriter's Laboratories, Inc. approval shall have the label left on the glass. The Owner will remove the labels after acceptance of the building.

Wire glass shall have wire strands which run diagonally at 45 degrees to the floor.

6. SCREENS

6.1. Insect screens shall be included on all operable windows for residence halls.

6.2. Security screens shall be provided on all first floor windows of residence halls.

7. WINDOW REPLACEMENT AND/OR RESTORATION PROJECTS

Clearly delineate in the scope of work what parts of existing windows are to be replaced and/or restored. Clearly identify accessories such as curtains and blinds that are included in the project. If existing weights are reused, use nylon (as opposed to cotton) sash cord to carry the weights.