DIVISION 08 – OPENINGS

Contents

08 05 00 Common Work Results for Openings

1. Areaways and other access to mechanical rooms, electrical vaults, and other areas containing equipment, including departmental research, and teaching equipment, shall be large enough to pass the largest piece of equipment without undue disassembly. The design shall place doors and frames in positions that discourage the entrance of water without the dependence on caulking and sealants.

2. All openings will be given unique ID numbers in accordance with Clemson Room and Door Numbering Standards.

3. All exterior doors and openings not protected by other means shall have drip caps to prevent water intrusion to the building.

08 10 00 Doors and Frames

Doors

1. Do not specify honeycomb core metal doors for any application.

2. Doors are to between 7'-0" and 8’-0” in height. The standard size for single doors, and for each leaf of pairs of doors, is 3'-0" x 7'-0". The standard door thickness is 1-3/4".

3. Plumbing chase doors shall be 2’-0” x 7’-0” minimum.

4. Mechanical room doors shall be 3’-0” x 7’-0” minimum, but access shall be configured such that the equipment housed can be removed, replaced, serviced etc.

5. All new exterior, classroom, office, hallway, stairwell, mechanical room, electrical room, and IT closet doors are to have any internal cabling pathways to facilitate installation of access control hardware in place from manufacturer.

6. Exit doors are to be designed to receive the appropriate panic hardware. The building plan must locate exit doors so that the stresses are minimized by the impact of hurried egress from the building by its occupants.

7. Exterior hollow metal doors shall be 14-gauge steel; others may be 16-gauge.

8. Heavy doors, fire doors, and doors wider than 3'-0" must be installed using four heavy duty ball bearing butts or continuous hinges.

9. All storefront type doors must be designed with the following minimum dimensions: 5” vertical stiles, 8” top rail, and 10” bottom rail. Those receiving panic hardware must also have at least an 8” mid rail. All rails and styles are to be constructed of aluminum.

10. Doors to receive cylindrical locksets shall be factory prepared to accept Best 9k series hardware.

Frames

1. Steel door frames for openings wider than 3'-0", and all steel frames for exterior doors shall be constructed of 14-gauge material. Interior frames for doors narrower than 3'-0" may be constructed of 16-gauge material. All frames are to be fully welded and shall have double rabbeted profiles with equal sized rabbets.

2. All frame strike plate pockets shall be designed for commercial strikes, 4 7/8" x 1 ¼" curved lip. Residential bedrooms may be excepted from this and are allowed to use a 2 ¾" x 1 ¼".

3. All new frames for exterior, classroom, office, hallway, stairwell, mechanical room, electrical room, and IT closet doors are to have any internal cabling pathways to facilitate installation of access control hardware in place from the manufacturer.

4. "Wrap around" steel frames shall be used in masonry walls so that the masonry wall fits into the frame. The use of "inset" type frames or "knock-down" type frames are prohibited.

08 50 00 Windows

1. Fall Protection: Any time a window system is specified and installed that will require elevating workers 4 stories (55') or greater to perform cleaning, fall protection anchorage that is permanently attached to the building structure shall be provided in accordance with IWCA 1-14.1-2001.

2. The use of window wells is not allowed.

08 60 00 Roof Windows and Skylights

1. The use of roof windows and skylights is discouraged.

08 70 00 Hardware

08 71 00 Door Hardware

Design Standards

1. The construction documents must have specific and complete hardware schedules on each door.

2. Exterior pairs shall have hardware for ingress on one leaf only. Any access control shall operate the active leaf. Every effort shall be made to ensure that free egress cannot be hindered by means of chaining, barring or otherwise disabling trim/pull/levers from the exterior of the building.

3. Interior pairs of doors shall follow the "Right Hand Reverse Active" convention (right

side active as viewed from the interior public way/ingress side of the door) and have ingress hardware on the active leaf only. The secondary or "inactive" leaf shall be exit only and without ingress hardware. Every effort shall be made to ensure that free egress from interior spaces cannot be hindered by means of chaining, barring or otherwise disabling trim/pull/levers. Pairs of interior doors shall have keyed removable mullions.

4. Classroom doors shall have hardware configured as "fail secure" with single motion egress and key override for entry. It shall also keep the space locked unless activated by the access control system or manual key override. See Section 28 14 00 for access control hardware requirements.

5. Assembly spaces receiving electronic lockdown buttons are to receive panic hardware without manual locking functionality.

6. Locksets and panic hardware for spaces that would be appropriate for occupants to secure in but not deemed necessary receive electronic lockdown buttons shall have door hardware capable of manual locking the interior of the room. The locking mechanism must be part of the hardware and overridden by the normal function required to exit the space.

7. Spaces that are not normally occupied such as storage rooms, mechanical rooms, electrical rooms, IT closets etc. shall have storeroom function hardware that always remains locked and automatic door closers.

8. For walkout roof access, door hardware shall be configured to require key or electronic access control to go onto the roof but allow single motion egress from roof.

Finish Hardware

1. The A/E shall coordinate with the Access Control vendor and Clemson's Maintenance Building Security Shop to develop appropriate hardware schedule compliant with Division 28 specifications.

2. Access Control vendor shall furnish and install all hardware connected building access control system.

3. Door hardware vendor shall furnish and install all non-electrified components.

4. For new construction, all door and frame preparation shall be performed by the Division 8 vendor.

5. Every effort shall be made to ensure consistency in manufacturer, aesthetic and functionality across all door hardware provided by Division 8 and Division 28.

6. The following products must not be used on any University facility:
    - Pivot hinges on both interior and exterior doors.
    - Bottom rail locking devices.
    - Concealed or flush mounted head and foot bolts except for head bolts for fire

hold open hallway doors.
- Concealed closers of any kind.
- Electrified strike plates or strike plates on mullions.
- Hardware requiring the use of concealed vertical rods.

7. All locksets, exit devices, removable mullions, and keyed exit alarms shall be equipped with housings to accept small format interchangeable cores as manufactured by the Stanley Security Solutions (formerly Best Universal Lock Company) of Indianapolis, Indiana.

8. Specify the use of temporary or "construction" cores during the construction phase of the project.

9. Electrified door strike plates shall only be used on interior doors in housing and residential facilities so long as the installation does not require modification of the door frame.

10. Specify the contractor to begin coordinating the installation of permanent cores with Clemson's Maintenance Building Security Shop a minimum of 120 days prior to substantial completion.

11. All hardware removed that will not be reused within the project must be returned to Clemson's Maintenance Building Security Shop.

12. See Division 28 for electrified door hardware.

08 71 13 Automatic Door Openers

1. All power operated pedestrian doors shall be swinging type doors as defined by the edition of BHMA A156.10 referenced in the IBC as adopted by Chapter 5 of the OSE Manual. Sliding and rotating doors are not allowed.

2. Every new building must have power operated pedestrian doors at primary entrances. These doors shall be configured as double egress following the "right hand reverse" convention. Both leaves will be powered, and the mechanical mechanisms must be activated by touchless proximity sensors placed on both the interior and exterior of the building. All access control and door operator hardware shall be placed in accordance with Powered Door Access Control Device Typical

3. Where power operated door openers are specified on access-controlled openings; the Division 28 Access Control vendor shall furnish and install the powered operator system. The A/E shall coordinate with the Division 28 Access Control vendor to ensure that all required pathways, cabling, installation methods and testing procedures are specified for proper integration with the access control system.

4. Powered openers that are required for complying with the opening force in the most current version of ICC A117.1 shall also be connected to generator backup power, if present.

5. Door hardware will require door preparation to be defined under project hardware schedule.

6. Conduit and/or pathways from accessible ceiling space and/or head-end equipment to all door devices shall be provided in accordance with Division 26.

7. All card reader equipment and installation, including the Door Hardware, shall be provided by the Access Control Vendor.

8. All access control power supplies and control panels shall be integrated into the emergency fire alarm panel in instances where an electronically locked door does not allow for a mechanical means of free egress.

9. All power operated pedestrian doors shall be inspected by Clemson's Maintenance Building Security Shop prior to acceptance.

08 80 00 Glazing

1. Glazing shall be selected paying careful consideration to the type of facility, location, proximity to other structures, daylighting impacts, thermal comfort, glare, and solar heat gain. See Section 08 88 00 for requirements pertaining to Special Function Glazing.

2. Clemson is committed to making its built environment successfully coexist with the surrounding natural environment. In doing so, Clemson requires that new construction and major renovations incorporate measures from the following areas to minimize bird strikes on glass surfaces.

    a. Apply window films designed to make glass visible to birds.
    b. Reduce reflection in glass that creates the illusion of open space.
    c. Eliminate uplighting on glass surfaces. When necessary, use downlighting.

08 88 00 Special Function Glazing

08 88 36 Switchable Glass

1. Any time designs call for windows and/or glass openings in the building facades, the effect of additional window shading and the additional thermal control it provides shall be considered for enhanced building function and increased occupant comfort. The results of this consideration shall be vetted with the Project Manager and any other appropriate University personnel. If it is deemed appropriate to incorporate the additional shading for building function and/or occupant comfort, electrochromic glass shall be the primary product choice over physical shading, blinds, permanent tinting, etc.
2. All electrochromic glass systems shall be capable of autonomous operation and connection to BACnet module(s) for integration into the building automation system. It is incumbent upon the designer to determine which of the two methods of operation

required to be present will best serve the building and shall provide sufficient detail to the University to justify the decision.

3. The A/E shall consider the effects of electrochromic glass on the design and operation of other affected building systems such as lighting and HVAC.

4. All proposed installations of systems other than electrochromic glass for the purposes stated above will be considered a deviation from these standards as described in the Preamble of this document.

PRODUCTS AND MATERIALS- DIVISION 08 – OPENINGS

Mortise Locksets

- Dormakaba: Best Hardware/45H Series, 7 Core Housing, "AT" Function for classrooms and offices spaces not receiving access control. "D" Function Code for mechanical rooms and storage rooms. 15 Lever/Knob Style, "J" Trim Style with Full Escutcheon, 626 Finish, Door Hand - RH, LH, RHR, LHR.

- For Housing and Residential Facilities Only: Sargent 8200 series mortise lock, 7 core housing. Classrooms and office spaces shall have "05" Function Code. Storage rooms and mechanical rooms shall have "04" Function Code, 'L' lever, LW1 Escutcheon; RH, LH, RHR, LHR

Cylindrical Locksets

- Dormakaba: Best 9K3 Series Cylindrical Lock. Office Spaces, Classrooms and Bedrooms interior to apartments and suites shall be Office Function (AB). Storage rooms and mechanical rooms shall be storeroom Function.

Electrochromic Glass

- SageGlass or approved equal

Panic Hardware

- Von Duprin 98/99 series or approved equal - exterior and interior doors
- Sargent 8000 series or approved equal– exterior and interior doors

Removable Keyed Mullions

- Von Duprin KR4954 series or approved equal

Automatic Door Openers

Doors Designed for Primary Operation by Powered Opener

- Record 8000/8100 Series ADA Low Energy Operator or approved equal
- LCN 9500/2800 Senior Swing Operator Low Energy Operator or approved equal

Doors Designed for Primary Operation by Manual Opening

- LCN 4630/4640 Auto-Equalizer Series Low Energy Operator or approved equal

Activator Mounting Post: BEA 10BOLLARDBRZ or approved equal.

Activator Switch: BEA Magic Switch MS41 Family, Norton 700 and 704 Series or approved equal

Cores

- Interchangeable small format (7-pin) cores as manufactured by Dormakaba/Best Universal and Medeco (Housing/Residential only). Cores shall be provided by University. Cylinders/housings shall be provided by vendor.

Closers

- LCN 4011 or approved equal
- LCN 4111 or approved equal

Doors

- Exterior doors with wide stile and rail profile only. See Section 08 10 00 for Dimensions

Hinges

- Select Hinges (Select Products Limited) - full mortise - specify continuous hinges on exterior doors.
- Pemko or approved equal – continuous hinges
- McKinney or approved equal – full mortise hinges