



**DESIGN & CONSTRUCTION GUIDELINES**

**DIVISION 08 OPENINGS**

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**SECTION 08 10 00 DOORS & FRAMES****1.1 REFERENCE STANDARDS**

- A. USF Cost Containment Guideline (CCG) latest edition.
- B. Particular attention is called to STANDARDS PUBLISHED by the following with regard to work associated with this Section.
  - 1. Steel Door Institute (SDI)
  - 2. National Association of Architectural Metal Manufacturers (NAAMM) / Hollow Metal Manufacturers Association (HMMA)
  - 3. Architectural Woodwork Institute (AWI)
- C. Compliance with all codes and ordinances applicable to the particular project is mandatory. The Architect and/or Engineer shall be responsible for all such compliance matters.
- D. Install fire doors and windows according to National Fire Protection Association (NFPA) 80.

**1.2 QUALITY ASSURANCE**

- A. DOORS
  - 1. Doors shall generally have a minimum width of 3 feet and a minimum height of 7 feet. Medical, research, storage and access needs may require doors of larger sizes.
  - 2. Exterior doors shall be anodized aluminum or galvanized steel.
  - 3. All exterior doors shall be insulated.
  - 4. Material and finish of interior doors must also be suitable for the particular project.
  - 5. Plastic laminate doors with appropriate metal edge protection may be used on interiors.
  - 6. Tops and bottoms of wood doors must be sanded and sealed.
  - 7. All doors shall be of a type to withstand the abuse to which they will be subjected. Architect shall coordinate with USF Project Manager (USF-PM) and the User, to establish and determine usage characteristics for doors throughout the project.
- B. FRAMES
  - 1. Exterior door frames shall be standard rectilinear profiles of anodized aluminum or galvanized steel are preferred. All exterior frames must be weather-stripped.
  - 2. Interiors shall be paintable hollow-metal frames.
  - 3. Knocked down frames: Acceptable only when welded frames are not practicable.
  - 4. All frames shall be adequately constructed to receive the hardware being used and to withstand abuse.
- C. MINIMUM CLEARANCES REQUIRED FOR INSTALLATION OF AUTOMATIC DOOR OPENERS
  - 1. Clear space above door frame, below overhead dropped soffit: Maintain 12 inches minimum from top of frame to underside of ceiling or soffit to accommodate future installations of automatic door openers.
  - 2. Clear width, door and adjacent perpendicular walls to allow for automatic door openers: In addition to required ADA clearances, maintain 40 inches total clear width to accommodate future installations of automatic door openers.
- D. SUBMITTALS. See Division 1, General Requirements.

**1.2 PROHIBITED MATERIALS AND INSTALLATIONS**

- A. Sliding, bi-fold doors, pocket and hollow-core wood doors are prohibited.
- B. Mineral Core Doors are prohibited.
- C. Use of ink marking pens on surfaces of any kind of materials is prohibited. Experience has shown that such marks bleed through paint and other finishes.
- D. Reconditioned or used wood doors is prohibited.
- E. Narrow stile and narrow top and bottom rail aluminum doors are prohibited.

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END OF SECTION 08 10 00

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**SECTION 08 13 00 METAL DOORS AND FRAMES****1.1 STEEL DOOR AND FRAMES****A. STEEL DOORS**

1. EXTERIOR DOORS shall be not less than 16 ga galvanized metal. The top channel of each metal door shall be turned web up, to avoid a dirt pocket or moisture trap. Louvered doors and full glazed doors shall have 12 inches bottom rails.
  - a. Do not expose exterior door to direct western solar exposure to.
2. INTERIOR DOORS shall be not less than 18 ga metal. Louvered doors and full glazed doors shall have 12 inches bottom rails.

**1.2 STEEL FRAMES**

- A. STEEL FRAMES shall be one-piece, welded frames of not less than 16 ga metal for interior doors, 14 ga for frames over 3 feet-6 inches. Frames in interior walls through 8 inches thickness shall be full width of wall. Knock-down frames are generally prohibited; however, such frames may be used in movable partitions. In remodeling work, permission will be granted by the USF-PM to use knock-down frames if conditions justify their use.
- B. Frames for exterior doors shall be one-piece, welded frames of 14 ga or heavier metal. All frames shall be heavily reinforced at hinge, strike and closer locations. Exterior frames shall be galvanized to prevent rust and corrosion.

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END OF SECTION 08 13 00

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**SECTION 08 14 00 WOOD DOORS****1.1 WOOD DOORS**

- A. **WOOD VENEERS:** Judicious selection of face veneers shall be exercised. The A/E shall be required to make a grain selection, subject to the approval of the USF-FM.
- B. **INTERIOR WOOD DOORS** shall be flush type solid core, hardwood.
- C. **GUARANTEE:** Wood doors shall have lifetime guarantee. Guarantee to include rehanging of doors at no cost to the University.

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END OF SECTION 08 14 00

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**SECTION 08 41 00 ENTRANCES AND STOREFRONTS****1.1 GENERAL DESIGN CONSIDERATIONS**

- A. Protect exterior door assemblies from rain and wind driven rain.
- B. No porous type flooring material, such as wood shall be installed at exterior doors directly exposed to rain and wind driven rain.

**1.2 ALUMINUM ENTRANCES AND STOREFRONTS**

- A. Doors shall be aluminum and glass. All glass installed in hazardous locations shall be fully tempered safety type.
- B. DIMENSIONS of components shall be at least:
  - 1. Metal thickness: 1/8 inch
  - 2. Head rail size: 4-1/2 X 1-3/4 inches or 4 X 2 inches
  - 3. Jamb size: 4-1/2 X 1-3/4 inches or 4 X 2 inches
  - 4. Bottom rail size: 6-1/2 X 1-3/4 inches or 6 X 2 inches
  - 4. Hardware reinforcement: 1/4 inch thick metal material
  - 6. Architectural hardware should be included in the specifications.

**1.3 ALUMINUM ENTRANCE AND STOREFRONT FRAMES**

- A. DIMENSIONS of components shall be at least:
  - 1. Metal thickness: 1/8 inch
  - 2. Head size: 4-1/2 X 1-3/4 inches or 4 X 2 inches
  - 3. Jamb size: 4-1/2 X 1-3/4 inches or 4 X 2 inches
  - 4. Hardware reinforcement: 1/4 inch thick metal material

**1.4. EXTERIOR DOORS SUBJECT TO HIGH WIND CONDIITONS**

Exterior Doors subject to high wind conditions shall be balanced type.

**1.5 REMOVABLE MULLIONS**

Pairs of double doors shall have a removable mullion with lock strike unless approval is given by the USF-FM to deviate from this requirement.

**1.6 GLAZING**

Glass in entrances and storefronts shall be fully tempered (FT) safety type.

- A. EXTERIOR GLAZING. Coordination with HVAC design is required. Consideration should be given to the solar orientation, use of high performance and tinted glass, sun-shade materials, and other devices which will prevent excessive solar gain. Location of glazing on east and west elevations should be kept to a minimum. Review opportunity to utilize daylight in coordination with interior lightning. Window frames shall be water-tight.
- B. WHERE TEMPERED GLASS IS USED: When required by code, glazing stops covering mill marks in the glass shall be provide. Tempered glass which passes testing requirements of ANSI Z97.1 shall be used in all fully glazed doors as well as any entrance or exist doors having over 6 square feet of glass.
- C. GLAZING FOR INTERIOR PARTITIONS. Shall have a minimum thickness of 1/4 inch.
- D. SPECIAL GLAZING. Required when transmission of radioactivity is to be shielded.
- E. INSULATING GLASS GUARANTEE. Provide manufacturer's written guarantee for ten (10) years from the start of building completion stipulating a replacement will be provided for any unit which develops edge separation r other defects which materially obstruct vision through the glass or safety or affects the insulating qualities. Exception: guarantee shall not cover glass breakage from physical abuse, earthquakes, storm or similar causes.
- F. PARTIAL SHADING OF INSULATING GLASS can cause stress breakage. Manufacturers consider this to be a design error and will not replace glass broken by temperature differential stresses. Avoid partial shading of large panes.

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END OF SECTION 08 41 00

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**SECTION 08 51 00 METAL WINDOWS****1.1 REFERENCE STANDARDS**

- A. USF Cost Containment Guidelines (CCG) latest edition.
- B. Flat Glass Marketing Association (FGMA) "Glazing Manual".
- C. Sealed Insulating Glass Manufacturers Association (SIGMA) Standards/Specifications.
- D. Metal windows shall meet the requirements set forth by the Steel Windows Institute (SWI).

**1.2 QUALITY ASSURANCE**

- A. PERFORMANCE REQUIREMENTS: The manufacturer shall submit copies of test reports, made or witnessed by an independent testing laboratory, which show conformance to the specified performance standards.
  - 1. Careful coordination is required between the materials being specified for the various types of flashing. In each instance, the Architect shall follow the requirements of the Cost Containment Guidelines, and ensure that when questionable materials are specified, such as aluminum, especially when being used in a salt environment, meets the "40-year-lifecycle" test, and shall obtain supporting data from manufacturers.
  - 2. When flashing materials are used in conjunction with roofing systems, roofing manufacturers must also verify that specified materials are compatible with their materials, and that combined systems will not void required guarantees and warranties.
  - 3. A window mock-up is required for each type of window. In addition to window mock-ups, it will be required that after the first window has been installed by the regular work crew, it shall be inspected and tested to ensure full compliance with approved shop drawings, and with all related standards and specified requirements, before the remaining windows are installed. The Architect, General Contractor, Sub-Contractor, and related trades, together with the window manufacturer's representative will be required to be present at this first installation, and be expected to give a written report of approval before proceeding further.
- B. Such standards shall be specified by the A/E.
- C. WARRANTY. Provide a written warranty, guaranteeing that all parts of the installation will meet specified performance requirements and will be free from defects in materials and workmanship for a period of two (2) years following acceptance. Weather-stripping shall be guaranteed for a period of five (5) years. Warranties shall certify that all work is in accordance with the Contract Documents and shall contain a statement that should any defect develop during the warranty period, caused by improper workmanship or materials, such defects will be repaired or windows will be replaced at no expense to the University.

**1.3 ALUMINUM WINDOWS**

- A. WINDOW FRAMES AND SASHES in new construction shall generally be of anodized aluminum. Only commercial grade "C" or heavy commercial grade "HC" are acceptable. Family of paints, such as the Fluoropolymers, offering a five (5) years warranty for Southern Florida exposure, should be also considered.
- B. ENERGY CONSERVATION must be given thorough consideration when incorporating fenestration into the building design.
- C. FOR MAINTENANCE PURPOSES it is preferred that all windows be arranged, manufactured and installed so that complete maintenance can be accomplished from the room side, including glazing, washing, screening and normal repairs. Windows with fixed sashes should be designed to allow the "fixed" sash to be operable only for cleaning and maintenance, thus indicating the use of sliding, pivoted or tilting sashes at such locations.
- D. CERTIFICATION (signed and sealed) drawings shall be provided by a Florida registered engineer on anchorage method of windows and openings.
- E. Performance requirements per [Section 08 51 00, Subparagraph 1.2, Quality Assurance](#).

**1.4 GLAZING**

- A. EXTERIOR GLAZING. Coordination with the HVAC design is required. Consideration should also be given to the use of tinted glass, sun-shade materials, and any other devices which will prevent excessive solar gain. Location of glazing on east and west faces should be kept to a

- minimum. Review opportunity to utilize natural daylight in coordination with interior lighting. Window frames shall be weather-tight.
- B. WHERE TEMPERED GLASS IS USED, when required by code, glazing stops covering mill marks in the glass shall be provided. Tempered glass which passes testing requirements of USAS Z97.1 shall be used in all fully glazed doors as well as any entrance or exit doors having over 6 square feet of glass.
  - D. GLAZING FOR INTERIOR PARTITIONS shall have a minimum thickness of 1/4 inch.
  - E. SPECIAL GLAZING is required when transmission of radioactivity is to be prohibited.
  - F. INSULATING GLASS GUARANTEE: Provide manufacturer's written guarantee that, for 10 years from date of building completion stipulating a replacement will be provided for any unit which develops edge separation or other defects which materially obstruct vision through the glass or safety or affects the insulating qualities. Exception, guarantee shall not cover glass breakage from physical abuse, earthquake, storm, or similar causes.
  - G. PARTIAL SHADING OF INSULATING GLASS can cause stress breakage. Manufacturer's consider this to be a design error and will not replace glass broken by temperature differential stresses. Avoid partial shading of large panes.

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END OF SECTION 08 51 00

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**SECTION 08 60 00 SKYLIGHTS**

**1.1 SKYLIGHTS**

- A. Skylights are prohibited.

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END OF SECTION 08 60 00



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**SECTION 08 70 00 FINISH HARDWARE****1.1. REFERENCE STANDARDS**

- A. USF Cost Containment Guidelines (CCG), latest edition.
- B. All doors, hardware, closers hardware adjustments, etc., shall provide means for easy access and use by the physically disabled, (paying special attention to Americans with Disability Act (ADA) Standards, and to the Florida Accessibility Code).

**1.2 ITEMS INCLUDED**

- A. SPECIFICATIONS FORMAT: It is preferred that this section include all items of finish hardware, including items listed in the CSI MASTERFORMAT, with the exception of window operators, which should be included with section in which windows are specified. Such a format will facilitate the writing of hardware specifications in the form usually used by Architectural Hardware Consultants. It is also preferred that storefront entrances include hardware.

**1.3 QUALITY ASSURANCE**

- A. QUALITY AND DESIGN. Hardware must be adequate for the intended use and must satisfy code requirements, but shall not be excessively sophisticated nor unnecessarily expensive. Specifications for finish hardware shall be reviewed with the USF Project Manager (USF-PM), the using agency, and the FM-OPS Locksmith prior to completion of construction documents. Make submittal at a time which will allow for adequate review and for making required changes before final printing.
- B. STANDARDS AND OTHER MANUFACTURERS MEETING THE REQUIREMENTS. For each item, specify and schedule products of one manufacturer as the standard and, whenever possible, name two other acceptable manufacturers meeting the requirements. Lock set shall be Sargent with no substitutions.
  1. A complete list of items proposed as the standards, together with manufacturers' names and with the names of manufacturers whose products meet the requirements must be included in the outline specifications for the Design Development Submittal. Approval of the items must be obtained before their inclusion in the hardware schedule in final documents.
- C. For renovation projects, all door hardware shall match existing, unless directed otherwise by the USF-PM.
- D. The Architect must verify, for function and finish, the compatibility of proposed hardware with that already in use at the University. This is particularly critical on renovation projects. All submittals must be accompanied by manufacturers' cut sheets and sufficient related data to ensure a thorough evaluation. Door and hardware assemblies in the University, Residence Halls, and the Health Sciences Center frequently experience extreme stress and heavy usage. Therefore, all door assemblies (doors, hardware, frames, anchors, etc.) shall be designed as appropriate to the specific use and location. It is recommended that hardware installations be designed by a properly qualified member of the American Hardware Consultants Association. All hardware on fire doors shall comply with the applicable codes.
  1. To avoid expensive stockpiling of an extensive variety of repair parts and replacement items and to help the Owner to achieve cost effective maintenance, it is required to standardize brands, types, styles, and finishes of all hardware products.

**1.4 SUBMITTALS**

- A. Simultaneous hardware and wood, steel and aluminum door submissions are preferred, in order to promote closer coordination.
- B. HARDWARE SCHEDULES
  1. USF-FM will provide project construction documents to USF Facilities Management-Operations Key Shop (FM-OPS Key Shop) locksmith to review and identify format for Key Schedule.
  2. FM-OPS Key Shop locksmith and USF Project Manager will coordinate meeting with departments to review process for developing Key Schedule.

3. A complete parts list for all finish hardware shall be included in the final close-out documents prior to Substantial Completion.
4. **HARDWARE FOR ENTRANCE DOORS:** Aluminum entrance manufacturer to provide door hardware except cylinders.

**1.5 PROHIBITED MATERIALS AND INSTALLATIONS**

- A. **THRESHOLDS RAISED ABOVE FLOOR LEVELS** at doors to trash and receiving rooms and over 1/2 inch high at doors intended for use of disabled persons.
- B. **FLOOR MOUNTED DOOR STOPS.**
- C. **DOOR KNOBS OR LEVERS CONTAINING LOCK CORES OR KEYING DEVICES.**
- D. **FLOOR CLOSERS AND CLOSERS CONCEALED IN DOOR HEADS.**
- E. **DOOR CLOSERS WITH INTEGRAL SMOKE DETECTORS.** Smoke detection systems must be made a part of the documents for fire protection work.

**1.6 HINGES**

- A. **BUTTS:** Five-knuckle, wrought-steel. Specify ball bearing butts for doors equipped with closers. Butts shall be heavy duty, with four (4) bb for exterior doors and interior doors over 3 feet wide; use standard weight butts with two (2) bb for interior doors up to 3 feet wide. Specify non-bb for all doors without closers.
- B. **STAINLESS STEEL BUTTS** with non-removable pins shall be used on exterior doors.

**1.7 LOCKS**

- A. **LOCKS:** Specify heavy duty, mortise locks only, stainless steel 3/4 inch one-piece reversible latch bolt with anti-friction piece for quiet operation and to prevent scratching of strike plant. Locks shall be reversible and shall have capability for changing function within any one case. Lock sets shall be Sargent Series 8200 lever type, LL trim, 26D finish, on interior doors and 26D finish on exterior doors, with no substitutions.
- B. **FUNCTIONS:** Unless instructed otherwise by the USF-PM, select lock sets and latchsets having the functions shown on the following page. Specifications or door schedules shall show both the Federal Specification Numbers and the manufacturer's numbers to aid checking of documents and reduce the opportunity for error in function.

	<b>DOOR LOCATION OR USAGE</b>	<b>FED. SPEC. NUMBER</b>	<b>FUNCTION</b>
<b>1</b>	High Security	LC-8247-LL-26D	Key and thumbturn both retract & project deadbolt. Trim outside is locked by toggle or projecting deadbolt. Trim outside is unlocked by toggle only. Key retracts both latchbolt and deadbolt, trim outside remains locked. Trim inside retracts latchbolt only, deadbolt is retracted manually & trim outside remains locked. ANSI F08/F10.
<b>2</b>	Normal Office	LC-8205-LL-26D	Key outside retracts latchbolt, also locks & unlocks outside trim. Trim inside always retracts latchbolt, trim outside remains locked. Thumbturn inside locks & unlocks outside trim. Auxiliary deadlatch. ANSI F04.
<b>3</b>	Mech./Ele./ Equip. Rooms, Storage Closets	LC-8204-LL-26D	Key outside retracts latchbolt. Trim outside locked at all times. Trim inside always retracts latchbolt. Auxiliary deadlatch. ANSI F07.
<b>4</b>	Classroom Door	LC-8237-LL-26D	Key outside retracts latchbolt, also locks & unlocks outside trim. Trim inside always retracts latchbolt. Auxiliary deadlatch. ANSI F05.
<b>5</b>	Communicating /Passage Doors	LC-8215-LL-26D	Trim from either side retracts latchbolt at all times. ANSI F01.
<b>6</b>	Privacy Restroom Door	LC-8265-LL-26D	Lever outside retracts latchbolt except when locked by thumb turn inside. Lever inside retracts latchbolt and unlocks outside lever. Emergency Release locks/unlocks

			lever outside – by coin, screw driver or key. Thumb turn locks and unlocks lever outside. Closing the door will unlock lever outside. ANSI 22.
7	Doors with Card Access or Electromechanical Function	8271-LL-26D 24V RX	Solenoid activated mortise lock. Key outside retracts latchbolt. Lever outside retracts latchbolt except when locked. Lever outside can only be locked electronically. Lever inside always retracts latchbolt. Auxiliary deadlatch.
8	Pipe Chase	475-26D or 4875-26D	Key outside operates deadbolt. Thumb turn inside operates deadbolt.
9	Outside Entrance Door	Von Duprin 98/99 with Night latch outside trim operation	Outside by key only; pull handle outside with no thumb piece; panic bar; latch bolt, no vertical rod.
10			Lever Handles shall be Sargent L Lever Design With L Rose Design.
11			Residence Halls - coordinate with USF-PM

### 1.8 KEYWAYS

- A. Keys and one bitted cylinders to be by Sargent for all facilities on the Tampa Campus.
  1. INTERIOR AND EXTERIOR DOORS: Sargent “LA” series key way, one bitted.
  2. INTERIOR DOORS: Key way series to be assigned for building during FM-OPS Key Shop.
- B. PROVIDE TWO BLANK KEYS PER CYLINDER. Contractor shall install key way series as per contract documents (construction cores).
- C. HEALTH SCIENCES CENTER (College of Medicine, College of Nursing, and College of Public Health) shall be Best “M” series keyway, with 7-pin interchangeable core (IC) cylinders.
- D. RESIDENCE HALLS coordinate with USF-PM.
- E. FMHI shall be by Yale “Y” series keyway, with 6-pin interchangeable core (IC) cylinders.

### 1.9 CLOSERS

- A. Closers shall be LCN 4040XP series surface mounted, non-handed, and full rack and pinion hydraulic action. Open pressure of 5 pounds maximum for interior doors, 8.5 pounds maximum for exterior doors. Covers shall be of clean line design, high impact, with aluminum enamel finish and shall be type which DOES REQUIRE removal to make adjustments. Final selection and approval of closers must be coordinated with FM-OPS.
- B. Door closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder. Cylinder body shall be 1-1/2 inches in diameter, and double heat treated pinion shall be 11/16 inch in diameter with double D slab drive arm connection.
- C. Hydraulic fluid shall be of a type requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
- D. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and backcheck.
- E. All closers shall have solid forged steel main arms (and forged forearms for parallel arm closers).
- F. All surface mounted mechanical closers shall be certified to exceed ten million full load cycles by a recognized independent testing laboratory.
- G. Powder coating finish to be certified to exceed 100 hours salt spray testing by Electrical Testing Lab (ETL), an independent testing laboratory used by Builders Hardware Manufacturers Association (BHMA) for American National Standards Institute (ANSI) certification.
- H. Refer to door and frame details and furnish accessories such as drop plates, panel adapters, spacers and supports as required to correctly install door closers. State degree of door swing in the hardware schedule.
- I. Use concealed or minimum profile paralleled arm closers.
- J. INTERIOR DOOR CLOSERS shall not be visible from corridors, lobbies, and other public spaces. Room side visibility is desirable.

- K. OVERHEAD CLOSERS shall be mounted so that they are not exposed to the weather and so that they do not hit walls or other surfaces when doors are opened to full swing (minimum full swing: 90 degrees). Closers shall be mounted to doors with through bolts.

#### 1.10 STOPS

- A. Overhead stops are preferred on exterior doors. They shall be coordinated to stop the door simultaneously with the door closer check mechanism, when provided. Hold-open or select-hold-open features on overhead stops of exterior doors are not permitted, except where the building function requires such, in which case the select-hold-open type is to be used.
- B. INTERIOR DOORS
1. Wall mounted convex rubber bumpers, with concealed fasteners shall be used. Provide blocking in wall as required for bumper installation.
- C. EXTERIOR DOORS
1. Specify extra heavy-duty door checks or some other means of protection from wind damage.

- 1.11 **KICK PLATES:** Kick plates shall extend the full door width.

#### 1.12 POWER DOOR OPERATORS

- A. DISABLED ACCESS
1. On new buildings and renovations, at least one entrance door shall be electrically operated door, to facilitate access.
- B. DOOR OPERATORS may be surface-mounted or concealed in door head.
- C. ELECTRIC OPERATOR SWITCHES may be wall-mounted or post-mounted.
- D. INSTALLATION AND EQUIPMENT shall be provided by a factory authorized and trained distributor.
- E. MAINTENANCE MANUALS in triplicate shall be included in the close-out documents showing templates, wiring diagrams and full maintenance instructions.
- F. AUTOMATIC RESET is required. If the door is locked or if the door encounters an obstacle when the operator is activated, the operator system will do one of the following:
1. Continue to push gently on the door until the time delay period expires, then close.
  2. Sense the resistance, shut off power and close.
- G. OPERATOR SYSTEMS shall have:
1. Adjustable time delay period (opening time plus hold-open time) shall be approximately 20 seconds, adjustable from at least 40 seconds to 7 seconds minimum.
  2. Adjustable opening speed (time from activation until door is fully open) shall be approximately 7 seconds, adjustable from at least 11 seconds to 5 seconds minimum.
  3. Slow closing speed of approximately 7 seconds. Adjustability is desirable but not mandatory.
  4. Full compliance with ANSI A117 and Life Safety Code.
  5. Weatherproof controls and circuitry.
  6. Low voltage current from operators to controls.
  7. Heavy-duty "supermarket" quality.
  8. Easy manual door operation. In event of power failure or pedestrian impatience, pressure on strike side of door equal to that required to open a conventional 36 inches wide door with closer shall be adequate to open the door manually.
  9. Easy access for maintenance. Access covers, if provided, must also have vandal resistant screw attachment.
  10. Operation must be smooth and quiet.
  11. Closers shall be spring type which functions with power on and off.
  12. Suggested operators are Gyro-Tech "System 500", LCN "Senior-Swing" electro-mechanical unit, Besam "Econo-Swing" Model 350, or Besam "Electra" Model 150.

#### 1.13 PANIC DEVICES

- A. Doors required by code to have Panic Devices: Panic devices shall be Von Duprin 98/99 series with L trim or QEL+98/99 Series for Electric Latch retraction with push pad type, lever type function. Thumb-piece trim are not acceptable. All emergency exits must be equipped with

- panic devices. Panic devices shall be through-bolted where possible. Vertical rod devices shall be used at double doors. Emergency Exit alarm locks may be key-operated from the inside, the outside or both, as directed by the USF-FM.
- B. Exit devices shall be touchpad style, fabricated of brass, bronze, stainless steel, or aluminum, plated to the standard architectural finishes to match the balance of the door hardware.
  - C. All exit devices shall incorporate a fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation. Touchpad shall extend a minimum of one half of the door width. All latchbolts to be deadlatching type, with a self-lubricating coating to reduce wear.
  - D. End-cap will be sloped to deflect any impact from carts and they shall be flush with the external mechanism case. End caps that overlap and project above the mechanism case are unacceptable. End cap shall utilize a two-point attachment to the mounting bracket.
  - E. Touchpad shall match exit device finish, and shall be stainless steel for US26, US26D, US28, US32, and US32D finishes. Only compression springs will be used in devices, latches, and outside trims or controls.
  - F. Plastic templates shall be included with each exit device to facilitate a quick, easy and accurate installation.
  - G. Strikes shall be roller type and come complete with a locking plate to prevent movement.
  - H. All rim and vertical rod exit devices shall have passed a 5 million cycle test based on ANSI A156.3, 1994, Grade 1 test standards and certified by an independent testing lab. All mortise lock exit devices shall have passed a 10 million cycle test based on ANSI A156.3, 1994, Grade 1 test standards and certified by an independent testing lab.
  - I. Exit devices shall be UL listed panic exit hardware. All exit devices for fire rated openings shall be UL labeled fire exit hardware.
  - J. Lever trim for exit devices shall be vandal-resistant type, which will travel to a 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.
  - K. RESIDENCE HALL PANIC HARDWARE: Coordinate with USF-PM.

#### 1.14 MISCELLANEOUS

- A. THRESHOLDS: Thresholds shall be set in full bed of mastic and thoroughly anchored to concrete floors. Expansion shields of any kind are generally not acceptable, particularly at construction joints.
- B. SILENCERS: Silencers or mutes shall be provided at all door frames, at a minimum of three per door.
- C. CLOSERS: Closers and/or magnetic hold-open devices shall be specified in accordance with all applicable codes. They shall be integral, the one with the other, when possible.
- D. PUSH/PULL: Push/pull finishes shall match other hardware used. Where both a push and pull are used, they shall be through-bolted to each other.
- E. PULLS: Pulls on exterior doors shall be of a design that will not create a lever action at the point of attachment to the doors; i.e., mountings shall be made with two-point connections to the door.
- F. FINISHES: USP finish may be specified for butts on exterior hollow metal doors which are not exposed to public view. Closers shall be finished to suit room decor. For all other hardware, specify US-10 or US-26D. Other finishes may be used only where necessary to match materials to which hardware is applied.

#### 1.15 HOLD OPEN DEVICES

- A. Magnetic hold-open devices should be specified in areas where automatic door closers are required, but traffic patterns force the doors to be normally open. The hold-open devices shall automatically release the doors upon activation of the fire alarm system or power failure.

#### 1.16 PROVISIONS FOR NOISE CONTROL

- A. Refer to the Program of Requirements for possible special requirements. On machine room doors and other doors where excessive noise is anticipated, weather stripping at heads and jambs and surface applied automatic door bottoms shall be specified.

#### 1.17 AREAS OF RESCUE

- A. Doors shall have closers and have a tight fitting.

**1.18 HARDWARE**

- A. FM-OPS Key Shop locksmith will cut keys and prepare cylinders per Key Schedule.
- B. FM-OPS Key Shop locksmith will replace key-way (construction core) series installed by contractor with different key-way series per Key Schedule.
- C. Door closers shall be adjusted prior to Substantial Completion so that doors shall be operable by a maximum required pressure of 8 pounds.

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END OF SECTION 08 70 00

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**SECTION 08 80 00 GLAZING****1.1 GLAZING**

A. Use of tinted, mirrored, fritted, translucent glass, and/or spandrel panels is subject to approval of the USF-FM.

**1.2 DESIGN FOR ENERGY CONSERVATION**

A. A/E shall evaluate energy conservation considerations in design (location, size, shading, etc.) and selection of glazing. Energy model to include data for specified glazing assembly.

**1.3 LAMINATED GLASS**

A. Shall be 1/4 inch thick laminated safety glass, or an approved equal.

**1.4 INSULATING GLASS**

A. The following paragraph shall be included in the specifications; edit the heading to apply to the particular type of glass specified.

1. **INSULATING AND REFLECTIVE INSULATING GLASS, GUARANTEE:** Provide manufacturer's written guarantee that, for 10 years from date of building completion, a replacement will be provided for any unit which develops edge separation or other defects which materially obstruct vision through the glass or safety or affects the insulating qualities; except, that guarantee shall not cover glass breakage from physical abuse, earthquake, storm, or similar causes.
2. **PARTIAL SHADING OF INSULATING GLASS** can cause stress breakage. Manufacturers consider this to be a design error and will not replace glass broken by temperature differential stresses. Avoid partial shading of large panes.

**1.5 MIRROR GLASS**

A. Framed mirrors for toilet and shower rooms should be included in [Division 10, Specialties](#). Large mirrors unframed, or in custom made frames, should be included in this division.

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END OF SECTION 08 80 00