

SECTION 08 17 00

INTEGRATED DOOR OPENING ASSEMBLIES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Integrated door opening assemblies including hardware and installation.
- B. Related Sections:
 - 1. Section 05 05 23 - Standards for Anchors and Fasteners.
 - 2. [Section 08 80 00 - Glazing: Glass for vision panels in doors.]
 - 3. Section 09 22 00 - Supports for Plaster and Gypsum Board.
 - 4. Section 09 91 00 - Painting: Field-finishing of doors and frames.

1.02 REFERENCE STANDARDS

- A. American National Standards Institute:
 - 1. ANSI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames.
 - 2. ANSI A250.8 - Recommended Specifications for Standard Steel Door and Frames.
 - 3. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
 - 4. ANSI A250.11 - Recommended Erection Instructions for Steel Frames.
- B. ASTM International:
 - 1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- C. California Department of General Services - Division of the State Architect -Access Polices:
 - 1. Policy 99-08 - Door Stops and other Floor-Mounted Obstructions.
- D. CBC - California Building Code.
- E. National Association of Architectural Metal Manufacturers:
 - 1. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames.
- F. National Fire Protection Association:
 - 1. NFPA 80 - Standard for Fire Doors and Fire Windows.
 - 2. [NFPA 105 - Standard for the Installation of Smoke Door Assemblies and Other Opening Protectives.]
 - 3. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.
- G. Underwriters Laboratories Inc.:
 - 1. UL - Building Materials Directory.
 - 2. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.
 - 3. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Coordinate integrated door opening assembly details with work supporting or adjoining steel frames.
 - 2. Coordinate integrated door opening assembly work with hardware installation.
- B. [Preinstallation Meeting:]
- C. [Sequencing:]
 - 1. [Install integrated door opening assemblies before construction of adjacent [walls][walls, except at concrete and masonry construction].]
 - 2. [Sequence fabrication and installation to ensure wire connections for electrified door hardware and security devices are achieved in an orderly and expeditious manner.]
- D. [Scheduling:]

1.04 [SUSTAINABLE CHARACTERISTICS]

- A. Section 01 35 63 - Sustainability Project Requirements: Requirements for sustainable design compliance.

- B. Materials and Resources Characteristics:

- 1. [Recycled Content Materials: Furnish materials with maximum available recycled content including:

SPEC NOTE *List materials specified in this section required to have recycled content.*

- a. [_____].]

- 2. [Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of Project site.]

SPEC NOTE *List materials specified in this section required to be regional materials.*

- a. [_____].]

1.05 SUBMITTALS

- A. See Section 01 33 00 - Submittal Procedures.
- B. Product Data: Manufacturer's descriptive literature demonstrating compliance with referenced standards.
- C. Shop Drawings:
 - 1. Reference each door using Door Number and hardware group.
 - 2. Show each opening indicating opening criteria, door and frame type, elevation, frame profiles, dimensions, fire-resistive rating, details including anchors and attachment to adjacent structure, machining criteria for hardware and identifying location of different finishes, if any.
- D. Samples: [Only as requested.]
- E. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.
- F. Certificates:
 - 1. Manufacturer's certification that it meets requirements of this Section.
 - 2. Manufacturer's certification that products meet or exceed specified requirements.

1.06 [SUSTAINABLE DESIGN SUBMITTALS]

- A. Section 01 35 63 - Sustainability Project Requirements: Requirements for sustainable design submittals.
- B. Manufacturer's Certificate: Certify products meet or exceed specified sustainable design requirements.
 - 1. Materials Resources Certificates:
 - a. Certify source and origin for [salvaged] [and] [reused] products.
 - b. Certify recycled material content for recycled content products.
 - c. Certify source for regional materials and distance from Project site.
- C. Product Cost Data: Submit cost of products to verify compliance with Project sustainable design requirements. Exclude cost of labor and equipment to install products.
 - 1. Provide cost data for the following products:
 - a. Salvage products.
 - b. Reused products/
 - c. Products with recycled material content.
 - d. Regional products.

1.07 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
- B. Installer Qualifications: Minimum 3 years of documented experience installing products specified in this section.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Store in accordance with NAAMM HMMA 840.
- B. Prior to delivery to site, identify each door and frame with individual Door Number, type, and size in way markings will not show through finish painting.
- C. Deliver, store, and handle doors and frames to prevent damage or deformation.
- D. Accept doors and frames on site in manufacturer's packaging. Inspect for damage.
- E. Storage and Protection:
 - 1. Protect doors and frames with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.
 - 2. Provide clean, dry surfaces, or platforms as required, and protect from deterioration and foreign matter.
 - 3. Do not store on ground.

1.09 WARRANTY

- A. See Section 01 78 00 - Closeout Procedures.
- B. Provide manufacturer's warranty of its products, commencing at date of purchase, against the following:
 - 1. Defects in product workmanship and materials, excluding wood components, for two years.
 - 2. Rust, for two years.

PART 2 PRODUCTS

2.01 MANUFACTURED UNITS

- A. Description: Hollow metal doors and frames design for inset type exit devices, fire rated where indicated, assembly to come with hinges or pocket pivots and, inset exit devices.
- B. Product: Adams Rite's "The Rite Door"; or equal.

2.02 DOOR TYPES

- A. [Flush Non-Rated Doors:
 - 1. Doors shall have no lites or louvers; or no lites or louvers greater than one-half door height.
 - 2. Door faces shall be flush and seamless.
 - 3. Interior Doors: ANSI A250.8, Level 2, heavy duty.
 - 4. Doors shall either honeycomb or polystyrene core that allows the push bar of the exit device to be recessed into the door. The recess for the push bar to have continuous rolled edges.]
- B. [Fire-Resistive Rated Doors:
 - 1. Conform to NFPA 80 when tested for the class of door or door opening shown.
 - 2. [Doors in 20 Minute Fire Rating: Meet requirements of CBC Section 715 and UL 10C without hose stream test.]
 - 3. [Doors in 3/4 Hour or Longer Fire Rating: Meet requirements of CBC Section 715 and UL 10C.]
 - 4. [Doors into stairway enclosures shall have maximum transmitted temperature of 450 degrees Fahrenheit at end of 30 minutes of standard fire test exposure.]
 - 5. [Doors in smoke and draft control assembly shall meet requirements of UL 1784.]
 - 6. Attach label from agency acceptable to authority having jurisdiction to identify each fire rated door.
 - 7. Door faces shall be flush and seamless.
 - 8. [Fire-resistive rated pairs of doors with 30 minute, 3/4 hour, 1 hour, and 1-1/2 hour fire-resistive rating shall have been fire tested without overlapping astragal.]

2.03 FRAME TYPES

- A. [Welded Door Frames (Non-Fire Rated):]
 - 1. Location: Typical unless otherwise noted.
 - 2. One-piece welded construction, fabricated to profiles shown on the Drawings and in accordance with requirements of this Section.
 - 3. Grade: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage
- B. [Fire-Resistive Rated Door Frames, 20 Minute or Longer Fire Rating:]
 - 1. Fabricate in accordance with welded frame type as noted above.
 - 2. Grade: Comply with frame requirements specified in ANSI A250.8 for Level 1, 16 gage
 - 3. [Frames with 20 Minute Fire Rating: Meet requirements of CBC Section 715 and UL 10C without hose stream test.]
 - 4. [Frames with 3/4 Hour or Longer Fire Rating: Meet requirements of CBC Section 715 and UL 10C.]
 - 5. [Frames in smoke and draft control assembly shall meet requirements of UL 1784 and installed in accordance with NFPA 105.]
 - 6. Attach label from agency approved by authority having jurisdiction to identify each fire rated door frame.

2.04 DOOR AND FRAME MATERIALS

- A. Sheet Steel: Cold-rolled, commercial, quality; ASTM A1008/A1008M.
- B. Framing Members and Channels: Commercial grade, cold-rolled steel.
- C. Primer: Provide primer compatible with paint systems specified in Section 09 91 00 - Painting.

2.05 ACCESSORY MATERIALS

- A. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.
- B. Inserts, Bolts, and Fasteners: Manufacturer's standard units.

2.06 HARDWARE

- A. All hardware shall meet requirements of CBC Sections 1003.3.1.B, 1133B.2.5.1, and 1133B.2.1.
- B. Pivots: Meet applicable requirements of Section 08 71 00 - Door Hardware.
- C. Closers:
 - 1. Description: All modern closers shall display the following characteristics:
 - a. Hydraulically controlled full rack and pinion in operation with separate noncritical adjustable regulation for general closing speed, latching speed, back check control and spring power.
 - b. Adhere to manufacturer's recommended schedule of sizes unless otherwise noted.
 - c. Closers shall have following maximum pressure for opening doors.
 - 1) Interior Door: 5 pounds pressure.
 - 2) Fire Doors: 5 pounds pressure maximum or maximum effort to operate door may be increased to maximum allowable by appropriate administration authority, not to exceed 15 pounds per CBC Section 1133B.2.5.
 - 2. Manufacturers: LCN Closers'; Norton Door Controls'; Sargent Manufacturing Co.'s; or equal.
- D. Inset Exit Devices:
 - 1. Description:
 - a. Exit devices shall comply with CBC Section 1008.1.9.
 - b. Unlatching force shall not exceed 15 pounds applied in direction of travel.
 - c. Exit device push bars shall protrude maximum 1-1/16 inch when held one for same swing and single doors. Push bars in double egress doors shall protrude maximum 1/2 inch when held open.
 - d. Entire length of push bar shall act as one piece.
 - e. Levers used for exit devices shall be same as levers used for cylindrical locksets specified in Section 08 71 00 - Door Hardware.
 - 2. Manufacturer: Adams Rite Mfg. Co., Architectural Products Div.; or equal.
- E. Stops:
 - 1. Description: All stops shall display the following characteristics:
 - a. All stops and holders shall be solid or forged bronze; wrought is not acceptable.
 - b. All fasteners for wall-mounted stops shall be concealed.
 - c. All rubber bumpers shall be fastened by pin or screw that goes through rubber and seals into metal on opposite side. Rubber bumper that is screwed into metal holders is acceptable.
 - 2. Stop Manufacturers: Rockwood Manufacturing Co.; Triangle Brass Manufacturing Co., Inc. (Trimco); Ives; or equal.

- F. Weatherstripping Manufacturers: Pemko Manufacturing. Co.; Zero International Inc.; Reese Enterprises, Inc.; or equal.

2.07 FABRICATION

- A. Door Fabrication:
1. Fabricate steel doors in accordance with SDI-100 unless otherwise indicated.
 2. Preparation:
 - a. Coordinate details with steel frames.
 - b. Verify partition dimensions; obtain reviewed hardware schedule, templates, and other information.
 - c. Verify [fire-resistive rating,] size, and design of each opening.
 3. Material Usage: Fabricate doors from sheet steel unless otherwise indicated.
 4. General:
 - a. Fabricate doors as rigid units, neat in appearance and free from defects, warp, or buckle.
 - b. Reinforce and weld joints. Weld exposed seams, grind them smooth, dress, and make smooth flush and invisible. Filler to conceal welds or manufacturing defects in not acceptable.
 - c. Use no exposed [fasteners, except for attaching glazing stops.
 - d. Bevel both stile edges 1/8 inch in 2 inches.
 - e. Door Edges: Fabricate flush. Seams will be permitted only if uniform and run continuous from top to bottom of door.
 - f. Undercut interior doors 1/4 inch from bottom of door to top of finish floor covering, unless otherwise noted.
 5. [Flush Non-Rated Doors:]
 - a. Face Sheet Gauge: 18 gauge.
 - b. Laminate face sheets to impregnated paper honeycomb core completely filling inside of door.
 - c. Form top and bottom edges of minimum 16 gauge continuous channels welded to face sheet.
 6. [Fire-Resistive Rated Doors: Fabricate to meet requirements of Door Types Paragraph.]
 7. [Vision Panel Moldings:]
 - a. Minimum 20 gauge steel.
 - b. Secure with rustproof countersunk Phillips head screws.
 - c. Provide non-removable glazing stops on exterior side of exterior doors and] on the secure side of interior doors.
- B. Frame Fabrication
1. Fabricate frames in accordance with ANSI A250.8 unless otherwise indicated.
 2. Preparation:
 - a. Coordinate details with work supporting or adjoining steel frames.
 - b. Verify partition dimension and door details; obtain reviewed hardware schedule, templates, and other information.
 - c. Verify fire-resistive rating, size, and design of each opening.
 3. Material Usage: Fabricate frames from sheet steel unless otherwise indicated.
 4. Gauges:
 - a. [Interior Frames: 16 gauge.]
 - b. [Door Frames over Four Feet Wide at Head: 14 gauge.]
 5. General:
 - a. Fabricate steel frames as rigid units, neat in appearance and free from defects, warp, or buckle. Accurately press-brake profiles as detailed.
 - b. Weld continuous to full depth of frame. Grind welds smooth, dress, and make smooth, flush and invisible. Filler to conceal welds or manufacturing defects is not acceptable.
 - c. Miter corners of frames unless otherwise noted.

- d. Preassemble frames in shop and deliver to job with spreader bar at sill; or tie frames in pairs to form box.
- 6. Anchors:
 - a. Fabricate from minimum 12 gauge by 1-1/4 inch strap as detailed.
 - b. Provide minimum four per side and two per head.
 - c. Space side anchors evenly at maximum 28 inches on center with top and bottom anchors at minimum distance from top and bottom hinges.
- 7. Floor Anchor at Metal Studs:
 - a. Fabricate from minimum 12 gauge, 2-1/2 by 2 inch angle equal in length to stud width.
 - b. Drill for two floor fasteners, except frames with a throat opening of less than 3 inches, use one floor fastener.
 - c. Weld to frames.
- C. Provisions for Hardware, Sensors, Contacts, and Similar Items:
 - 1. Factory machine doors for finish hardware and security devices in accordance with finish hardware requirements according to templates.
 - 2. Provide reinforcing and cutouts as required to receive hardware.
 - 3. Factory machine as required for sensors, contacts, and similar devices as indicated on the Drawings.
 - 4. Make total thickness of reinforced conditions equal to nominal thickness of fasteners required by hardware items.
 - 5. Drill and tap as required for hardware.
 - 6. Provide reinforcement hardware and security devices as noted, tack weld to door framing.
 - a. Hinges and Pivots: Eight gauge minimum.
 - b. Lock Faces, Flush Bolts: 16 gauge minimum.
 - c. Closers: 14 gauge minimum.
 - d. Exit Devices: As recommended by exit device manufacturer.
 - e. Other Surface Mounted Hardware and Security Devices: 14 gauge minimum.
- D. Hardware: Inset exit devices to be installed in the door at the factory.

2.08 FINISHING

- A. Doors and Frames:
 - 1. Preparation: Grind smooth edges and rough spots apply metallic filler and sand where necessary to achieve smooth surface; clean surfaces of rust, grease, and other impurities.
 - 2. Interior Steel Doors and Frames: After fabrication, chemically etch and apply one baked-on prime coat.
- B. Hardware: Meet requirements of Section 08 71 00 - Door Hardware unless indicated otherwise.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify proper coordination of doors, frames, and hardware.
- B. Examine doors, door frames, and hardware for damage, defects, and suitability for intended use.
- C. Examine wall locations and verify following:
 - 1. Correctness of dimensions, backing, or support conditions.
 - 2. Absence of defects that would adversely affect frame or door installation.
- D. Examine floor conditions and verify following:

1. Floor surface is level and will allow full swing of door.
 2. Adjacent frames can be installed with heads at same elevation.
- E. Verify that building is secured and free from weather elements prior to installing interior door hardware.
- F. [Verify electric power is available to power operated devices and is of correct characteristics.]
- G. Replace with good material any part or item found damaged, defective, or inadequate before installation.
- H. Correct unacceptable conditions before proceeding with installation.
- I. Do not start work until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Install doors and frames in accordance with following requirements.
1. Install frames in accordance with the requirements of the specified frame grade and ANSI A250.11
 2. Install doors in accordance with the requirements of the specified door grade and ANSI A250.8.
 3. [Install fire rated units in accordance with CBC Section 715 and requirements for fire rating as indicated on Drawings.]
 4. [Install smoke and draft control assembly in accordance with NFPA 105.]
 5. [Install fire rated units in accordance with CBC Section 715 and requirements for fire rating as indicated on Drawings.]
 6. [Install smoke and draft control assembly in accordance with NFPA 105.]
- B. Set welded frames accurately in position, aligned and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders leaving surfaces smooth and undamaged.
- C. Set frames with heads of adjacent frames aligned.
- D. Jamb Anchors: Secure each anchor to metal studs with two screw fasteners.
- E. Floor Anchors: Secure each anchor to concrete floor as indicated on Drawings.
- F. Hang doors and adjust to freely swinging operation without binding, sticking, sagging or excessive clearances. Maintain manufacturer's installation tolerances.
- G. [Coordinate installation of glass and glazing in doors.]

3.03 HARDWARE INSTALLATION

- A. Install door hardware in accordance with manufacturer's templates and instructions.
- B. [Install hardware for fire-rated openings in accordance with CBC Section 715 and requirements for door manufacturer's fire rating listing.]
- C. Install door hardware at heights indicated on the Drawings unless otherwise indicated.
1. Mounting height of latching hardware shall be 30 to 44 inches above finished floor surface per CBC Section 1133B.2.5.2.
 2. Mount exit devices 36 to 44 inches above finished floor surface.

- D. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage, and reinstallation, or application of surface protections with finishing work specified in the Division 09 Sections.
- E. Floor stops shall not be located in path of travel and 4 inches maximum from walls (Policy 99-08).
- F. Screws shall be screwed, not driven into place.
- G. Do not install surface-mounted hardware until finishes have been completed on substrates involved.
- H. Protect door hardware from damage or marring of finishes during construction; use strippable coatings, removable tapes, or other means as recommended by hardware manufacturer
- I. Fitting: Accurately and properly fit door hardware. Securely fasten fixed parts for smooth, trouble-free, nonbinding operation; fit faces of mortised parts snug and flush; operating parts shall move freely and smoothly without binding, sticking or excessive clearance.
- J. Ensure door hardware displays no evidence of finish paint after final building clean up with exception of prime-coated door hardware installed for finish painting. Contractor may achieve this by sequencing installation, removing after fitting and reinstalling after painting is completed, providing protection, cleaning to original hardware finish or other approved means.
- K. Latch and Bolt: Install latch and bolt to automatically engage in keeper, whether activated by closer or by manual push; in no case shall additional manual pressure be required to engage latch or bolt in keeper.
- L. Closers:
 - 1. Adjust closer delay and operating speeds to comply with requirements of CBC Section 1133B.2.5.1 and Americans with Disabilities Act Architectural Guidelines, Article 4.13.10.
 - 2. Adjust sweep period of door closers so that from an open position of 70 degrees, door will take at least 3 seconds to move to a point 3 inches from that latch, measured to leading edge of door.
 - 3. Do not mount closers on corridor or vestibule side of door, except at exterior doors.
 - 4. Mount closers for 180 degrees swing wherever possible. Supply drop plates at narrow top rail doors.
 - 5. Carefully adjust closers to operate noiselessly and evenly.
- M. Exit Devices: Contractor shall have authorized factory service technician inspect all exit devices after completion of installation to ensure proper adjustment and operation.
- N. [Kick Plates/Armor Plates: Install on push side of doors unless otherwise noted.]
- O. As required during progress of work, remove and reset doors and hardware for installation of work of others trades
- P. After work has been otherwise completed, examine hardware in place for complete and proper installation.

3.04 FIELD QUALITY CONTROL

- A. In the presence of integrated door opening manufacturer's representative and the University's Representative, test the operation of the fire-detection release mechanism to ensure a satisfactory installation.

3.05 ADJUSTING

- A. Adjust work under provisions of Section 01700 - Project Closeout.
- B. Adjust and check each operating item of hardware and each door, to ensure proper operation of function of every unit.
- C. Lubricate bearing surfaces of moving parts and adjust latching and holding devices for proper function; adjust door control devices for speed and power; test keys for proper conformance with keying system.
- D. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- E. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items as necessary. Restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

3.06 CLEANING

- A. Completely remove protective materials and devices and thoroughly clean exposed surfaces of hardware; check for surface damage prior to final cleaning for University's acceptance of Project.

3.07 PROTECTION OF INSTALLED WORK

- A. Protect installed Work under provisions of Section 01 76 00 - Protecting Installed Work.
- B. Protect door hardware from damage or marring of finish during construction; use strippable coatings, removable tapes or other approved means.
- C. Do not permit adjacent work to damage hardware or finish.

3.08 DEFECTIVE WORK

- A. Replace, rework or otherwise make good any hardware found defective as follows:
 - 1. Unauthorized substitutes.
 - 2. Hardware broken, damaged, disfigured, or defaced
 - 3. Hardware delivered with missing, broken, damaged or defaced parts.
 - 4. Hardware of incorrect hand or function.
 - 5. Incomplete, misaligned, or incorrectly located hardware.

3.09 HARDWARE SCHEDULE

- A. Only groups for integrated steel door assemblies are listed below. Refer to Section 08 71 00 - Door Hardware for balance of the hardware groups.

GROUP NO. ? - Each door to have:

3	Pocket Pivots	Ives 91105F
1	Modern Closers, Track Arm	LCN 400T
1	Inset Exit Device	Adams Rite D3677 by D3082.
2	Magnetic Wall Holder	Rixson 998
1	Gasket at Head and Jambs	Pemko S88D

GROUP NO. ? - Each door to have:

3	Pocket Pivots	Ives 91105F
1	Modern Closer, Wall Pocket Mounted	LCN 4000T Series
1	Inset Exit Device, Less Bottom Rod	Adams Rite D3677 by D3082-35
1	Magnetic Wall Holder	Rixson 998
1	Gasket at Head and Jambs	Pemko S88D

Cylinder is specified in Section 08 71 00 - Door Hardware.

END OF SECTION