

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Base Bid: Unless noted otherwise, the General Prime Contractor shall provide all labor and materials for the complete installation of work as specified in this section.
 - 1. Electrically operated, fire-rated accordion folding partitions.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.3 RELATED WORK

- A. Structural specifications (on drawings) regarding "Metal Fabrications" for supports that attach supporting tracks to overhead structural system.
- B. Division 6 Section "Rough Carpentry" for blocking.
- C. Division 9 Section "Gypsum Board."
- D. Electrical specification sections for conduit, wiring, and connectors.

1.4 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project Site.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include UL listing data.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Indicate storage and operating clearances. Indicate location and installation requirements for hardware and track, blocking, and direction of travel.
 - 2. Indicate facing-material seam locations if any.
 - 3. Wiring Diagrams: For power, signal, and control wiring.
- C. Samples for Initial Selection: For each type of exposed material, facing material, and finish indicated.
 - 1. Include similar Samples of accessories involving color selection.

- D. Samples for Verification: For each type of exposed material, facing material, and finish indicated, prepared on Samples of size indicated below:
- E. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
 - 1. Suspended ceiling components.
 - 2. Structural members to which suspension systems will be attached.
 - 3. Size and location of initial access modules for acoustical tile.
 - 4. Items penetrating finished ceiling, including the following:
 - a. HVAC ductwork, outlets, and inlets.
 - b. Speakers.
 - c. Sprinklers.
 - d. Smoke detectors.
 - e. Access panels
 - 5. Plenum fire barriers.
- F. Setting Drawings: For embedded items and cutouts required in other work, including support-beam, mounting-hole template.
- G. Qualification Data: For manufacturer and installer.
- H. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For accordion folding partitions to include in maintenance manuals. In addition to items specified in Division 1 "Operation and Maintenance Data," include the following:
 - 1. Facing materials and finishes for exposed trim and accessories. Include precautions for cleaning materials and methods that could be detrimental to finishes and performance.
 - 2. Seals, hardware, track, carriers, and other operating components.
 - 3. Electric operator.

1.7 QUALITY ASSURANCE

- A. Installation shall be performed by factory trained and certified installers with a minimum of three years' experience installing electrically operated accordion folding fire doors.
- B. Automatic closing system shall be listed by Underwriters Laboratories in accordance with the requirements of UL 864 and be listed for use with the assembly in compliance with NFPA 80, Chapter 9.
- C. Fire doors used for smoke and draft control shall bear the "S" mark on the fire door label and shall have an air leakage of less than 3 ft³/ft² at 0.1 inch of water column pressure when tested in accordance with UL 1784 with an artificial bottom seal.

- D. Fire-Rated Assemblies: Provide fire-rated accordion folding partitions with the following characteristics as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. Fire-Rated Door Assemblies: Comply with NFPA 80, based on testing according to UL 10B and NFPA 252.
 - 2. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification or label certification by a testing agency acceptable to authorities having jurisdiction that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
- E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.8 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of accordion folding partition openings by field measurements before fabrication.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of accordion folding partitions that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Faulty operation of accordion folding partitions.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal wear.
 - 2. Warranty Period: Two years from date of Substantial Completion.

1.10 DELIVERY, STORAGE, AND HANDLING

- 1. Deliver to job site in manufacturer's original, unopened package, labeled to show name, brand, and type.
- 2. Store products in a protected dry location. Replace damaged materials on-site at no cost to owner.

PART 2 - PRODUCTS

2.1 FIRE-RATED ACCORDION FOLDING PARTITION

- A. Fire-Rated Accordion Folding Partition: Accordion folding frame with pantograph sections designed for horizontal extension and retraction, covered with decorative facing material, reinforced for hardware attachment, supported by overhead suspension system, and equipped with manufacturer's standard air-release method to prevent billowing.

- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Won-Door Corporation. FireGuard Compressed Stack CS 90 S Hybrid.
 - 2. McKeon Door Company, as distributed by Modernfold. AC8000 Series.
 - 3. Cornell Iron Works. Tranzform Fire.
- C. Drawings and specifications are based on Won-Door's FireGuard Compressed Stack model FG-CS 90 S Hybrid (with Flat Lead-Post) -[number designates minutes of fire rating]. Other companies listed have equivalent products as indicated.
- D. Source Limitations: Both fire-rated accordion folding doors in this project are to be from a single source from a single manufacturer. The manufacturer is to be the same for both doors.
- E. Partition Type: Single-parting sliding jamb with accordion door. Electrically-powered and self-closing upon activation by smoke detector or fire alarm.
- F. Fire Rating: 90 minute.
- G. Closing and Opening Operation: Automatic Closing System including motor operator and releasing devices shall be a Microprocessor-based system rated to UL864 (Releasing Device Control Unit) and shall commence closing upon activation by fire alarm system and/or by low battery charge.
 - 1. Obstruction Detection: Contact with an obstruction shall cause the door to stop, reverse enough to remove pressure on the leading edge, pause, and then re-close when in an alarm condition.
 - 2. While the door is opening under motor power, constant pressure to the leading edge in the direction of opening shall cause the door to continue to open until the leading edge is released. This is termed motor-assisted opening.
 - 3. Constant pressure to the leading edge while not under motor power shall prevent motor operation and allow the door to be opened manually.
- H. Exit Hardware Operation: Provide fire exit hardware on both sides of door.
 - 1. In emergency mode, a slight pressure on the hardware will cause the door to open a minimum of 32 inches, pause for 3 seconds, and then automatically close.
 - 2. The open distance shall be field programmable, up to the entire opening width, if the local authority requires an opening larger than 32 inches.
 - 3. The pause before re-close shall be field programmable, up to 30 seconds, if the local authority requires a longer pause time.
 - 4. The exit hardware shall have the ability when not in the emergency (fire) mode to be used to open the door and move it back into the storage pocket.

2.2 DOOR PANEL COMPONENTS

- A. Door panels: Two parallel, accordion-type walls independently suspended with no floor tracks, pantographs, or interconnections.
 - 1. Panels: 24 gauge steel, V-grooved; modular in design; capable of in-place repair.
- B. Posts and Seals: Provide types of posts and seals that produce accordion folding partitions complying with performance requirements.

1. Posts: Steel or aluminum; formed with deep-nesting and interlocking interfaces and fabricated to ensure rigidity of accordion folding partition.
- C. Perimeter Seals: Manufacturer's standard vinyl, neoprene, or woven silica vertical seals, horizontal top and bottom seals, and closures for lead posts and jambs. Seals and closures at fire-rated partitions shall be identical to products tested for fire rating indicated and shall form an effective smoke and draft seal.
- D. Hardware: Manufacturer's standard as required to operate accordion folding partitions; with decorative, protective finish.
- E. Trim: Manufacturer's standard with decorative, protective finish.
- F. Finish: All steel parts factory-applied enamel.
- G. Color: Door panels – Manufacturer's standard platinum gray. Door track to be white.

2.3 SUSPENSION SYSTEMS

- A. Suspension Tracks: Steel or aluminum mounted directly to overhead structural support designed for type of operation, size, and weight of accordion folding partition indicated. Size track to support partition operation and storage without damage to suspension system, accordion folding partitions, or adjacent construction. Limit track deflection to no more than 0.10 inch between bracket supports. Provide a continuous system of track sections and accessories to accommodate configuration and layout indicated for partition operation and storage.
 1. Track: Recessed, 14 gauge cold rolled steel. Two tracks on 8 inch centers attached to overhead structural support
 - a. Head Closure Trim and Track Channel Pocket: For protecting overhead surfaces and enclosing overhead track opening; with factory-applied, decorative, protective finish.
 2. Panel Hangers: Every other panel is suspended by a steel hanger pin and ball bearing roller.
 3. FLP Flat Lead Post
 4. Lead Post Hangers: 16-gauge steel structural tube frame with 18-gauge steel preformed cover. The lead post shall function as an integrated cover panel over the storage pocket opening when the fire door is in the open position.
- B. The HPH Steel Half Pan Header/Track assembly shall be provided as an integrated part of the door assembly including integrated self-supporting track, threaded rods and mechanical attachment hardware.
- C. Steel Finish: Factory-applied, corrosion-resistant, protective coating unless otherwise indicated.
- D. Exit Hardware will be located on both sides of each fire door.
 1. In emergency mode, a slight pressure on the hardware will cause the door to open a minimum of 32 inches, pause for 3 seconds, and then automatically close.

2. The open distance shall be field programmable, up to the entire opening width, if the local authority requires an opening larger than 32 inches.
 3. The pause before re-close shall be field programmable, up to 30 seconds, if the local authority requires a longer pause time.
 4. The exit hardware shall have the ability when not in the emergency (fire) mode to be used to open the door and move it back into the storage pocket.
 5. The exit hardware shall be field programmable to provide access control. When programmed, the exit hardware shall not respond when pressed until activated by signal from smoke detector or fire alarm.
- E. LEVEL 1 Access Control: The Exit Hardware shall not respond when pressed until activated/overridden by signal from smoke detector or fire alarm. A rigid jamb stop and key switch shall be provided for authorized operation of the door assembly. A signal from the smoke detector or fire alarm will automatically override the access control feature. (*Note: At least one key switch required*).
- F. Remote Operation and Monitoring: Fire doors shall be remotely monitored and controlled through a building monitoring system (BMS) and interface with the BMS using MODBUS communication.
1. MODBUS Door Controls shall Include: Open, Close, Set Fire Mode for Testing, Reset, Lock (with Access Control Option), Unlock (with Access Control Option).
 2. MODBUS Monitor Status: Door position across opening width, Door Status (OPEN, CLOSED, OPENING, CLOSING), Errors, Battery Voltage, AC Voltage.

2.4 ELECTRIC OPERATORS

- A. General: Factory-assembled electric operation system of size and capacity recommended and provided by accordion folding partition manufacturer for partition specified; with electric motor and factory-rewired motor controls, speed reducer, chain drive, remote-control stations, control devices, and accessories required for proper operation. Include wiring from motor control to motor. Coordinate operator wiring requirements and electrical characteristics with building electrical system.
- B. Comply with NFPA 70.
- C. Power Supply: 12-volt maintenance-free DC battery, automatically maintained at capacity by continuous charger, 120 V AC.
- D. Automatic Closing System shall be listed to UL864 including capability to send and receive signals from the Fire Control Panel,
- E. Motor Operator Assembly including a DC gear-motor, drive sprocket, clutch, and position sensors. The motor shall drive the fire door by means of a chain attached to a stabilizer bar trolley. The motor shall be rated for continuous use with unlimited cycle duty.
- F. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor; complying with NEMA MG 1.
- G. Control Equipment: Complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6.

1. Leading Edge Obstruction Detector shall be pressure sensitive such that contact with an obstruction shall cause the door to stop, pause for 3 seconds, then re-close when in alarm mode. The obstruction detection system shall be fully functional at all times.
2. Limit Switches: Provide each partition with adjustable switches, interlocked with motor controls and set to automatically stop accordion folding partition at fully extended and fully stacked positions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine flooring, structural support, and opening, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of accordion folding partitions.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Verify that electrical utilities have been installed and are accessible.
- D. Verify that door opening is plumb and header is level and of correct dimensions.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions, shop drawings, and NFPA 80.
- B. Install accordion folding partitions and accessories after other finishing operations, including painting, have been completed.

3.3 ADJUSTING

- A. Adjust accordion folding partitions to operate smoothly, without warping or binding. Lubricate hardware and other moving parts.
 1. Fire-Rated Accordion Folding Partitions: Verify that operations are functional and comply with requirements of authorities having jurisdiction.
- B. Adjust storage pocket doors to operate smoothly and easily, without binding or warping. Check and readjust operating hardware. Confirm that latches and locks engage accurately and securely without forcing or binding.

3.4 CLEANING AND PROTECTION

- A. Clean soiled surfaces of accordion folding partitions, to remove dust, loose fibers, fingerprints, adhesives, and other foreign materials according to manufacturer's written instructions.
- B. Protect installed work from damage.

3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain accordion folding partitions.

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