SECTION 08 17 00 – INTEGRATED DOOR OPENING ASSEMBLIES

**PART I – GENERAL**

1. SUMMARY
   1. SECTION INCLUDES
      1. Work in this section includes the provision of integrated door opening assemblies including metal frame, integrated doors, and associated finish hardware, unless specified elsewhere. Smoke Seals shall be included in related work areas, unless specifically listed in this section.
   2. RELATED DOCUMENTS
      1. Related documents, drawings and general provisions of contract, including General and Supplementary Conditions and Division 1 specification sections apply to this section.
   3. RELATED SECTIONS
      1. 06 10 00 – Rough Carpentry
      2. 06 20 00 – Finish Carpentry
      3. 08 01 00 – Operations and Maintenance
      4. 08 06 71 – Door Hardware Schedule
      5. 08 71 00 – Door Hardware
      6. 08 81 00 – Glass Glazing
      7. 08 91 00 – Door Louvers
      8. 09 90 00 – Painting
2. REFERENCES
   1. STANDARDS
      1. ANSI-A250.4 – Steel Doors and Frames Physical Endurance
      2. ANSI A156.1 – Butts and Hinges
      3. ANSI A156.2 – Bored Locks and Latches
      4. ANSI A156.3 – Exit Devices
      5. ANSI A156.4 – Door Controls – Door Closers
      6. ANSI A156.5 – Auxiliary Locks and Associated Products
      7. ANSI A156.6 – Architectural Door Trim
      8. ANSI A156.7 – Template Hinge Dimensions
      9. ANSI A156.8 – Door Controls – Overhead Holders
      10. ANSI A156.15 – Closer Holder Release Devices
      11. ANSI A156.16 – Auxiliary Hardware
      12. ANSI A156.18 – Material and Finishes
      13. ANSI A156.26 – Continuous Hinges
      14. ANSI A156.32 – Integrated Door Opening Assemblies
      15. ANSI/NAAMM-HMMA-841–Tolerances & Clearances for Commercial Hollow Metal Doors
      16. SDI-105 – Recommended Erection Instructions for Steel Frames
      17. SDI-107 – Hardware on Steel Doors (reinforcement application)
   2. CODES
      1. NFPA 101 – Life Safety Code
      2. IBC 2009 – International Building Code
      3. ANSI A117.1 – Accessible and Usable Buildings and Facilities
      4. ADA – Americans with Disabilities Act
      5. UL10C – Positive Pressure Fire Tests of Door Assemblies
      6. UL305 – Standard for Life Safety Exit Devices
      7. UL1784 – Standard for Safety of Air Leakage Tests of Door Assemblies
      8. NFPA252 – Standard Methods of Fire Tests of Door Assemblies
      9. NFPA 80 – Fire Doors and Windows
3. SUBMITTALS
   1. Submit for information: Manufacturer’s technical product data / catalog cut sheets. Clearly marked for each component item, including installation details, material descriptions, dimensions of individual components and profiles and finishes.
      1. Submit copies of schedule in accordance with Division 1, General Requirements.
   2. Submit for approval: Door schedule organized into headings, grouping doors to receive same hardware items, indicating quantity and complete designations of every item required for each door opening.

The schedule shall include:

* + 1. A list of abbreviations used in the schedule.
    2. Listing of each door in numerical order according to door numbers in the door schedule denoting: Locations, configurations (single, pair, etc.), door type (elevation, glazing, etc.), door and frame sizes, door and frame materials, handing, frame profile, anchor details and fire rating.
    3. Type, style, model number, function, size, hand and finish of each door hardware item.
    4. Manufacturer of each item.
    5. Fastenings and other pertinent information.
  1. SHOP DRAWINGS
     1. Submit shop drawings with proposed integrated door opening assembly system, product and hardware options. Include anchors, hardware and other components not included in manufacturer's standard data for a complete and working installation.
  2. Submit for approval: electrified hardware details, identified by door number, and detailed specifically for each type and function of electrified door opening.
     1. Sequence of operation
     2. Elevation
     3. Point-to-point wiring diagram for field installed wiring
  3. OPERATIONS AND MAINTENANCE MANUALS
     1. Upon completion of construction and building turnover, furnish two (2) complete operation and maintenance manuals to the owner.
  4. LEED Building submittal requirements

1. QUALITY ASSURANCE
   1. Qualifications
      1. Integrated Door Assembly personnel to have to no less than 5 years of experience in the provision of Integrated Door Assemblies and related products for projects of similar size and complexity to projects of this type.
   2. Supplier / Installer of Integrated Door Assemblies shall be a factory authorized and trained distributor in the supply of integrated door assemblies on projects of similar size, complexity and type to this project.

* 1. Substitutions
     1. All substitution requests must be submitted before bidding and within the procedures and time frame as outlined in Division 1, General Requirements. Those manufacturers whose products are deemed acceptable for this project are listed and approved in this section. Deviations are not permitted unless required for the purpose of providing proper operational function due to special circumstances. These will be approved in advance by the architect.
  2. WARRANTY
     1. The complete integrated opening assembly (doors, frames and locking hardware) except as noted below shall be warranted to be free of defect in material or workmanship under normal use for a period of five (5) years from date of first shipment. The manufacturer, at its sole option, will repair or replace the product or parts thereof found to be defective in material or workmanship per the details contained in the warranty certificate. Consult full, written warranty for details.
        1. Doors finished in Surfacequest© Architectural Fusions: Three (3) years from date of first shipment
        2. Continuous Hinges: Ten (10) years from date of first shipment
        3. Door closers: Ten (10) years from date of first shipment
        4. All electrical functions: Three (3) years from date of first shipment
  3. Regulatory Requirements

1. Fire Rated Door Assemblies: Provide integrated door assemblies complying with all applicable requirements of the most current versions of NFPA 80 and UL10C listed and labeled by a Nationally Recognized Independent Testing Laboratory.
   1. Provide 450 degree temperature rise doors at openings as required by building code.
2. Comply with all applicable accessibility guidelines as set forth in Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities.
3. Latching and locking doors that are hand activated and are in a path of travel shall be operated with a single effort by lever, panic bars, push pads or other hardware designed to provide passage without requiring the ability to grasp the opening hardware and from the egress side shall not require the use of a key, tool or special knowledge for operation.
   1. Delivery, Storage and handling
4. Each Door shall be properly marked to be readily identifiable with the approved door schedule.
5. Manufacturer’s printed installation instructions, fasteners and special tools shall be included.
6. Deliver pre-finished doors with protective wrappings.
7. Store off ground, under cover protected from weather and construction activities.
   1. Coordination
8. Electrical System Rough-in: Coordinate layout and installation of electrified door hardware with connections to power supplies, fire alarm system, detection devices, access control system and security system as applicable.
9. Pre-installation conference: Arrange a conference at the job site to coordinate door, frame, hardware and electronic security system installation.
   1. Maintenance
10. Furnish a complete set of specialized tools and maintenance instructions as needed.

**Part 2 – Products**

1. MANUFACTURERS
   1. Only manufacturers of integrated door systems as listed below shall be accepted. Obtain all products from a single manufacturer.
      1. Specified Manufacturer: Syntégra (SYN)
      2. Approved Substitutes: NONE
      3. Hardware supplied with integrated door system:
         1. Hinges
         2. Locking hardware
         3. Door closers
         4. Magnetic holder/releases
         5. Protective plates
         6. Gasketing
         7. Lite kits
2. Materials and Fabrication
   1. Requirements for grade, materials, size and other distinctive qualities of each type of door hardware are indicated herein.
   2. Requirements for design, function, finish and other distinctive qualities of each type of door hardware at specific openings are indicated in the door hardware sets at the end of part 3.
   3. Unless modified by Contract Documents, construct integrated hollow metal door opening assemblies in accordance with manufacturer’s published specifications and applicable code Requirements.
3. Factory assembled with continuous hinges and all reinforcements, locksets, exit devices. Closers, kickplates, lite kits, glazing, mop plates and armor plates. Assembly to include integral adjustable door edge.
4. Fasteners
   1. Provide Phillips flat-head screws with finished heads to match surface of door hardware as needed.
   2. Combination machine screws and expansion shields shall be used for attaching items to concrete or masonry.
   3. Fasteners exposed to the weather in the finished work shall be of brass, bronze, stainless steel or adequately protected by applied finish.
5. Door Frames
   1. Conform to ANSI/SDI A250.8 for steel door frames. Fire labeled frames shall comply with NFPA 80.
   2. Frames shall have mitered corners continuously welded and ground smooth on frame faces; shall be provided with a temporary spreader bar securely fastened to the bottom of each frame and anchors for each jamb spaced a 24 inch maximum intervals.
6. Door Assemblies
   1. Integrated Door Assemblies shall meet or exceed ANSI/BHMA A156.32 Standard for Integrated Opening Assemblies.
   2. Door assemblies shall include door body with factory installed latching/locking devices and will include:
      1. A continuous hinge or a hinging system suitable to match the performance and duty of the application. When used, stainless steel continuous hinges should be standard with medical bearings and welded end pins.
      2. An adjustable leading edge with hidden lock mounting fasteners.
      3. Doors shall be constructed with a U-shaped, 16 gauge reinforcement channel top and bottom and will include metal internal reinforcements for closers and magnetic holder/releases.
      4. Door assemblies shall be tested and listed for use without the need for overlapping astragals.
   3. Doors shall conform to ANSI/SDI A250.8, Grade 1 for Steel Doors. Doors shall be 1-3/4” thick, with no seams or spot welds on door face and be of manufacturer’s standard construction: Door face skins to be minimum 18 gauge cold rolled steel; door core construction shall be determined by application, building codes, and fire label requirements. Door core choices shall be:

Honeycomb

Steel stiffened

Temperature Rise

Polystyrene

Lead lined

1. Continuous Hinges
2. Continuous hinges shall meet ANSI/BHMA A156.26 requirements.
3. Continuous hinge used shall be selected based on performance requirements of opening.
4. Integrated Locking/Latching Hardware
   1. General
      1. Provide a complete integrated door opening assembly including the installation and adjustment of the latching mechanism within the door construction.
      2. Latching to be accomplished by single or optional multi-point mechanism. Top latching shall be accomplished by friction reducing latch bolt with 7/8” throw.
      3. The top strike shall be mortised flush with no projections and painted to match the jamb.
   2. Integrated Exit Devices (XT Series)
      1. Shall meet ANSI/BHMA A156.3, Grade 1 requirements
      2. Panic Exit Devices: Listed and labeled by a Nationally Recognized Independent Testing Laboratory for panic protection to UL 305.
      3. Fire Exit Devices: Listed and labeled by a Nationally Recognized Independent Testing Laboratory for panic and fire protection to UL 10C and UL 305.
      4. Exit devices shall be clean and unobtrusive in design with a nominal bar height of 4”. The push bar of exit devices shall not exceed a projection of 3/16” when the door is in the held open position and 1-3/16” when the door is closed and shall be made of heavy duty aluminum extrusion, available in anodized and true architectural finishes using a metal cladding; end caps shall metal with ¼” maximum width and include concealed fasteners.
      5. To prevent pinch hazards, the clearance tolerances between the pushpad and door pocket shall not exceed 7/64”.
      6. Exit devices shall have **CleanVue**TM hygienic release feature allowing for full access to the recessed pushbar for cleaning without disassembly.
      7. Outside lever trim, when required, shall be clean and unobtrusive in design with a maximum projection of 2-1/2” and shall match design of other hardware furnished on project unless otherwise specified. No escutcheons shall be required. Lever mechanism must be protected by integral clutch assembly. Lever can be locked by cylinder as required.
      8. Optional electric operation of exit device shall be accomplished with the use of a motor that retracts bar to a 3/16” projection.
      9. Optional electrified lever operation shall be accomplished via an integral low-current solenoid.
   3. Single Lever or Lever X Lever Latch (LX Series)
      1. Levers shall be clean and unobtrusive in design with a maximum projection of 2-1/2” and shall match design of other hardware furnished on project unless otherwise specified. No escutcheons shall be required. Lever mechanism must be protected by integral clutch assembly. Lever can be locked or unlocked by cylinder as required.
      2. Lever operation can be accomplished on one or both sides of the door.
      3. Levers shall operate and secure each leaf of a pair of doors independently without the need for coordinators, astragals, and automatic flushbolts.
      4. Optional electrified lever operation shall be accomplished via an integral low-current solenoid.
      5. Optional electric latch retraction shall be accomplished with the use of motorized platform.
      6. Door systems are listed for fire protection per UL10C.
   4. Push Pad (PX Series)
      1. Push Pad shall be clean and unobtrusive in design with a minimal bar height of 4” and a length of 8”. The push pad shall not exceed a projection of 3/16” when in the held open position and 1-3/16” when closed and shall be made of heavy duty aluminum extrusion, available in anodized and true architectural finishes using a metal cladding; end caps shall metal with ¼” maximum width and include concealed fasteners.
      2. To prevent pinch hazards, the clearance tolerances between the pushpad and door pocket shall not exceed 7/64”.
      3. Outside lever trim, when required, shall be clean and unobtrusive in design with a maximum projection of 2-1/2” and shall match design of other hardware furnished on project unless otherwise specified. No escutcheons shall be required. Lever mechanism must be protected by integral clutch assembly. Lever can be locked by cylinder as required.
      4. Optional electrified lever operation shall be accomplished via an integral low-current solenoid.
      5. Push pad and latching mechanism are listed for fire protection per UL10C.
5. Gasketing
6. Shall be a compression type product for use with steel doors and labeled for use on fire-rated doors.
7. Meeting stile gasket shall be arranged to conceal the adjusting fasteners on adjustable door edge.
8. FINISH REQUIREMENTS
   1. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 or traditional U.S. finishes shown by certain manufacturers for their products.
   2. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
   3. FINISHES
      1. Door Faces:
         1. Primed for field applied finish
         2. Factory applied finish powder coat paint per specification
         3. Surfacequest© Architectural Fusions
      2. Frames:
         1. Primed for field applied finish
      3. Lite Kits
         1. Primed for field applied finish
         2. Factory applied finish paint per specification
      4. Hardware:
         1. As specified in headings

**Part 3 – Execution**

3.01 Examination

1. Examine rough openings and other site conditions for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction and other conditions effecting performance.
2. Examine rough-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 Installation

1. Steel doors shall be prepared for all non-factory installed hardware per ANSI/BHMA A156.115.
2. Installation shall be in accordance with DHI A115.IG.
3. Install work in accordance with approved shop drawings and these specifications using factory authorized installers.
4. Set frames plumb and square and brace until adjacent wall or finish is constructed and securely anchored thereto. Furnish necessary clips, fastenings and anchorages and conceal unless otherwise noted.
5. Fire doors shall be installed conforming to NFPA 80 and all other applicable building codes and regulations.
6. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
7. Install all non-factory installed hardware items using only fasteners provided or authorized by manufacturer.

3.03 Door closing devices

1. Door closing devices shall be installed in accordance with the templates and printed instructions supplied by the manufacturer of the devices.
2. Door closing devices with adjustable spring power shall be adjusted for proper door operation and compliance with all applicable codes and regulations.

3.04 Adjusting

1. Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit.

3.05 Completion

1. When complete all door, frame, hardware and other components shall be properly secured in place and all exposed surfaces shall be clean and free from scratches and other defects and damages.

3.06 Door Hardware Sets

1. The following is a general listing of Integrated Door Assembly hardware requirements. The base Integrated Door Assembly is provided with the following pre-installed items:
   1. Door body
   2. Latching mechanism
   3. Continuous hinge
   4. Adjustable edge

Provide additional hardware items as required for function indicated and to meet applicable code requirements whether or not specifically indicated in the following sets.

1. Refer to Door Schedule for door opening information, hardware set assignment and related requirements.

**The following are examples of typical hardware sets for each application and function noted. They are offered only as a guideline. They can be modified to fit required application and function.**

**Pair of doors, same swing, cross corridor held open with exit device x lever trim**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | \* Full Mortise Cont. hinges | EM or EMA | 630/628 | SYN |
| 2 | Exit device x lever trim | XT-L | 630 | SYN |
| 2 | Surface Closers | CLSC16 | 689 | SYN |
| 2 | Wall Magnets | DH1 | 628 | SYN |
| 1 Set | Smoke Seal | SS | DBZ | SYN |
| 1 | Kickplate | KP | 630 | SYN |

\*Stainless steel or Aluminum Geared Continuous Hinges - also available as Swing Clear (Specify SC).

**Pairs of doors, same swing, cross corridor, electrified exit device, automatic operator**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | Full mortise continuous hinges, edge mount | EM | 630 | SYN |
| 2 | Electrified exit device x Lever (lever always locked) | XT-LC-ML | 630 | SYN |
| 2 | Mortise Cylinder |  |  | By others |
| 1 | Automatic operator |  |  | By others |
| 1 Set | Smoke seal | SS | DBZ | SYN |
| 2 | Kickplate | KP | 630 | SYN |
| 1 | Wire Transfer | EPT-EM-105 |  | SYN |
| 1 | Power Supply | PS-210 |  | SYN |

**Pair of doors, same swing, lever x lever**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | Full mortise continuous hinges, edge mount | EM or EMA | 630 | SYN |
| 2 | Lever x Lever Latch | LX-F05 | 630 | SYN |
| 1 | Mortise Cylinder |  | 630 | By Others |
| 2 | Surface Closers | CLSC16 | 689 | SYN |
| 1 Set | Smoke Seal | SS | DBZ | SYN |

\*Stainless steel or Aluminum Geared Continuous Hinges - also available as Swing Clear (specify SC).

**Pairs of doors, cross corridor, double egress, held open, pocketed**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | Cont. hinges, swing clear | EMSC or EMASC | 630/628 | SYN |
| 2 | Exit Device | XT | 630 | SYN |
| 2 | Pocket Closers | CLPKT90 | 689 | SYN |
| 2 | Wall Magnet | DH1 | 628 | SYN |
| 1 Set | Smoke Seal | SS | DBZ | SYN |

**Pairs of doors, cross corridor, double egress non-pocketed, active**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | \*Full Mortise Cont. hinges, edge mount | EM | 630 | SYN |
| 2 | Exit Device | XT | 630 | SYN |
| 2 | Surface Closers | CLSC16 | 689 | SYN |
| 1 Set | Smoke Seal | SS | DBZ | SYN |
| 2 | Armor Plate | AP | 630 | SYN |

\*Stainless steel or Aluminum Geared Continuous Hinges - also available as Swing Clear (specify SC).

**Pairs of doors, same swing, held open, pocketed, lever trim**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | Cont. Hinges, Swing clear | SC | 630 | SYN |
| 2 | Exit Device x lever trim | XT-L | 630 | SYN |
| 2 | Mortise Cylinder | As Required |  | Others |
| 2 | Pocket Closers | CLPKT90 | 689 | SYN |
| 2 | Wall Magnets | DH1 | 628 | SYN |
| 1 set | Smoke Seal | SS | DBZ | SYN |

**Unequal pair, one leaf active with exit device x lever trim**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | Full Mortise Continuous Hinges, edge mount | EM | Prime | SYN |
| 1 | Exit Device x lever trim | XT-L | 630 | SYN |
| 1 | Automatic Flush Bolts w/ coordinator | AFB | 630 | SYN |
| 1 | Coordinator |  | Prime | By others |
| 2 | Surface Closers | CLSC16 | 689 | SYN |
| 1 Set | Smoke Seal | SS | DBZ | SYN |
| 2 | Kickplate | KP | 630 | SYN |

**Elevator Cab, Single, held open**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | Full surface continuous hinge, concealed | FSC | 630 | SYN |
| 1 | Push Pad Operator x Lever | PX-L | 630 | SYN |
| 1 | Pocket Closer | CLPKT180 | 689 | SYN |
| 1 | Wall Magnet | DH1 | 628 | SYN |
| 1 Set | Smoke Seal | SS | DBZ | SYN |

**Elevator lobby, pair of doors, same swing, pocketed, held open**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | Cont. Hinge, swing clear, Edge Mount | EMSC or EMASC | 630/628 | SYN |
| 2 | Lever X lever Latch | LX-F01 | 630 | SYN |
| 2 | Pocket Closer | CLPKT90 | 689 | SYN |
| 2 | Wall Magnets | DH1 | 628 | SYN |
| 1 Set | Smoke Seal | SS | DBZ | SYN |

**Elevator lobby, pair of doors, same swing, held open**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | Full surface continuous hinge, concealed | FSC | 630 | SYN |
| 2 | Lever x Lever Latch | LX-F01 | 630 | SYN |
| 2 | Pocket Closer | CLPKT90 | 689 | SYN |
| 2 | Wall Magnet | DH2 | 628 | SYN |
| 1 Set | Smoke Seal | SS | DBZ | SYN |

**Office Suite, independent latching pairs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2 | Continuous full mortise hinges | EM | | Prime | SYN |
| 2 | Lever x Lever latch | LX-F04 | | 630 | SYN |
| 1 | Mortise Cylinder |  | |  | By others |
| 1 | Mortise Thumbturn |  | | 630 | By others |
| 2 | Concealed closers | CLC25 | | 689 | SYN |
| 1 Set | Smoke Seal | | SS | DBZ | SYN |

**Single door, stairwell, access to occupied floors**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | Continuous hinge, full mortise, edge mount | EM or EMA | 630/628 | SYN |
| 1 | Exit device x lever trim | XT-L | 630 | SYN |
| 1 | Surface closer | CLSC16 | 689 | SYN |
| 1 Set | Smoke seal | SS | DBZ | SYN |
| 1 | Kickplate | KP | 630 | SYN |

\*Stainless steel or Aluminum Geared Continuous Hinges - also available as Swing Clear (specify SC).

**Single door, stairwell, last exit out of building in means of egress**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | Continuous hinge, full mortise, edge mount | EM or EMA | 630/628 | SYN |
| 1 | Exit device, EO | XT | 630 | SYN |
| 1 | Surface Closer | CLSC16 | 689 | SYN |
| 1 Set | Smoke seal | SS | DBZ | SYN |
| 1 | Kickplate | KP | 630 | SYN |

\*Stainless steel or Aluminum Geared Continuous Hinges - also available as Swing Clear (specify SC).

**Surgical Suite**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2 | Continuous hinge, full mortise, swing clear | SC | | 630 | SYN |
| 2 | Lever x Lever latch w/ Electrified Latch Retraction | LX-F01-ML | | 630 | SYN |
| 1 | Automatic Door Operator |  | |  | By others |
| 1 Set | Smoke Seal | SS | | DBZ | SYN |
| 2 | Armor plate | AP | | 630 | SYN |
| 1 | Wire Transfer | | EPT-105 |  | SYN |
| 1 | Power Supply | | PS-210 |  | SYN |

**END OF SECTION**