

STEEL DOORS AND FRAMES**SECTION 08112****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Steel doors and frames; interior and exterior, and frames for glazing vision lites.

1.02 RELATED SECTIONS

- A. Section 08710 - Door Hardware
- B. Section 08800 - Glazing
- C. Section 09900 - Painting: Field painting of doors

1.03 REFERENCES

- A. ANSI A117.1 - Specifications for Making Building and Facilities Accessible to an Usable by Physically Handicapped People
- B. ANSI/SDI-100 - Standard Steel Doors and Frames
- C. ASTM A224.1 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces.
- D. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
- E. DHI - Door Hardware Institute: The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware
- F. ASTM E152 - Methods of Fire Tests of Door Assemblies

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300
- B. Product Data: Indicate frame configuration, anchor types and spacings, location of cut-outs for hardware, reinforcement.
- C. Manufacturer's Installation Instructions: Indicate special installation instructions.
- D. Shop Drawings: Indicate door elevations, internal reinforcement, closure method, and cut-outs for glazing, louvers, and finish.

1.05 QUALITY ASSURANCE

- A. Conform to requirements of ANSI/SDI-100 by the Steel Door Institute and ANSI A117.1.
- B. Maintain one copy of each document on site.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.

1.07 REGULATORY REQUIREMENTS

- A. Fire Rated Construction: Conform to ASTM E152, NFPA 252 or UL 10B.
- B. Installed Assembly: Conform to NFPA 80 for fire rated class as scheduled.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.
- B. Accept doors and frames on site in manufacturer's packaging. Inspect for damage.

1.09 COORDINATION

- A. Coordinate the work with frame opening construction, door and hardware installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Steelcraft Manufacturing Company
- B. Republic Steel Corporation
- C. Amweld Building Products Division
- D. Ceko Industries, Medallion Design
- E. Curries
- F. Amertex
- G. Pioneer Industries, Inc

2.02 MATERIALS

- A. Hot-Rolled Steel Sheets: Commercial quality carbon steel, pickled and oiled, complying with ASTM A1011 and ASTM A568.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A1008 and ASTM A568.
- C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A924 and ASTM A653, with ASTM A525 G09 zinc coating, mill phosphatized for preparation of paint coating.
- D. Supports and Anchors: Fabricate of not less than 18 gage galvanized sheet steel.

- E. Inserts, Bolts and Fasteners: Manufacturer's standard units, except hot-dip galvanized items to be built into exterior walls, complying with ASTM A153, Class C or D as applicable.
- F. Shop Applied Paint: Rust-inhibitive primer, either air-drying or baking, suitable as a base for specified finish paints.

2.03 FRAMES

- A. Exterior Frames: 14 gauge thick galvanized steel material, base metal thickness.
- B. Interior Frames: 16 gauge thick cold-rolled or hot-rolled steel material, base metal thickness.

2.04 DOORS

- A. Exterior Doors: SDI-100 Level 3, (Extra Heavy Duty) Model 2 (Seamless Design) of galvanized steel.
- B. Interior Doors (Non-rated): SDI-100 Level 3, (Extra Heavy Duty) Model 2 (Seamless Design) of cold-rolled steel.
- C. Face: Steel sheet in accordance with ANSI/SDI 100 but not less than 16 gauge.
- D. Core: 20 gage steel channel vertical steel stiffeners at 6" o.c. with noncombustible insulation solidly packed between steel members.

2.05 ACCESSORIES

- A. Silencers: Resilient rubber fitted into drilled hole.

2.06 FABRICATION

- A. Fabricate frames as a single welded unit.
 - 1. Knock down frames are not acceptable.
- B. Fabricate frames with hardware reinforcement plates welded in place.
- C. Fabricate doors with hardware reinforcement welded in place.
- D. Reinforce frames wider than 48 with roll formed steel channels fitted tightly into frame head, flush with top.
- E. Prepare frame for silencers. Provide three single silencers for single doors on strike side. Provide two single silencers on frame head at double doors without mullions.
- F. Door shall be 1-3/4" thick unless otherwise indicated.
- G. Astragals for double doors: Steel, T-shaped, specifically for double doors.
- H. Close top edge of exterior doors with flush end closure. Seal joints watertight.

2.07 HARDWARE PREPARATION

- A. Mortise Hardware Preparation: Reinforce, drill and tap doors and frames to receive mortised hinges, locks, latches, flush bolts and concealed door closers as required. Preparation shall be in accordance with applicable requirements of ANSI A115.
- B. Surface Applied Hardware: Field drilling and/or tapping for surface applied hardware by others is standard.
- C. Reinforcings: Provide minimum hardware reinforcing gages as noted in SDI-107.
- D. Locate finish hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Builder's Hardware", published by Door and Hardware Institute.

2.08 NOMINAL DESIGN CLEARANCES

- A. The nominal clearance between the door and frame head and jamb s shall be 1/8" in the case of both single swing and pairs of doors.
- B. The nominal clearance between the meeting edges of pairs of doors can range from 1/8" to 1/4" (1/8" for fire rated doors).
- C. The nominal clearance at the bottom shall be 3/4".
- D. The nominal clearance between the face of the door and door stop shall be 1/16".
- E. All clearances are subject to a tolerance of + or - 1/32".

2.09 STEEL SHEET FINISH

- A. Doors and frames leading to the exterior shall be galvanized in accordance with ASTM A525 G60.
- B. Primer: Air dried or baked complying with requirements for acceptance stated in ANSI A224.1 with minimum 1.2 dry mil thickness. Doors and frames shall be thoroughly cleaned, and chemically treated to insure maximum paint adhesion. All surfaces of the door and frame exposed to view shall receive a factory applied coat of rust inhibiting primer, either air-dried or baked-on. The finish shall meet the requirements for acceptance stated in ANSI/SDI A250.10 "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that opening sizes and tolerances are acceptable.

3.02 INSTALLATION

- A. Install doors and frames in accordance with ANSI/SDI-100 and DHI.

- B. Place frames in accordance with SDI-105 "Recommended Erection Instructions for Steel Frames", with a minimum of three (3) wall anchors per at hinge and strike levels and four (4) anchors for frames over 7'-6" in height.
- C. Doors shall be installed and fastened to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Doors shall be adjusted to maintain perimeter clearances specified. Shimming shall be performed by the installer as needed to assure the proper clearances are achieved
- D. Coordinate installation of doors and frames with installation of hardware specified in Section 08710.
- E. Coordinate with glass and glazing.

3.03 ERECTION TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.04 ADJUSTING

- A. Adjust door for smooth and balanced door movement.

END OF SECTION



ACCESS DOORS**SECTION 08305****PART 1 - GENERAL**

1.01 SECTION INCLUDES

- A. Steel access doors.
- B. Provide fire rated doors when penetrating fire rated construction.

1.02 RELATED WORK

- A. Painting of Access Doors: Section 09900, Painting

1.03 FIRE RATING CLASSIFICATION

- A. Fire rated access doors shall bear the Underwriters Laboratories, Inc., 1-1/2 hour "B" Label (250 degrees rating).

1.04 SUBMITTALS

- A. In accordance with Section 01300.
- B. Shop Drawings:
 - Access doors, each type, showing construction, location and installation details.
- A. Manufacturer's Literature and Data:
 - Access doors, each type.

1.02 APPLICABLE PUBLICATIONS

- A. The National Association of Architectural Metal Manufacturers (NAAMM):
 - Metal Finishes Manual (August, 1969)

PART 2 - PRODUCTS

2.01 FABRICATION, GENERAL

- A. Fabricate components so as to be straight, square, flat and in same plane where required. Slightly round exposed edges and provide access without burrs, snags and sharp edges. Welds where exposed shall be continuous and ground smooth.
- B. Number of locks and non-continuous hinges shall be as required to maintain alignment of panel with frame, except for fire rated doors, the number shall be the same as required by the fire test.

- C. Provide anchors or make provisions in frame for anchoring to adjacent construction. Provide size, number and location of anchors as required to secure access door in opening and as required by fire test.

2.02 ACCESS DOORS, FIRE RATED

- A. Door Panel: Form of 0.0359 inch thick galvanized steel sheet, insulated sandwich type construction.
- B. Frame: Form of 0.0598 inch thick galvanized steel sheet of depth and configuration to suit material and type of construction where installed. Provide frame flange at perimeter where installed in concrete and masonry openings. Weld exposed joints in flange and grind smooth.
- C. Automatic Closing Device: Provide automatic closing device for each door.
- D. Hinge: Continuous steel hinge with stainless steel pin.
- E. Lock: Self-latching, with provision for fitting flush a standard screw-in type lock cylinder. Lock cylinder is specified in Section 08710- Hardware. Provide latch release device operable from inside of door. Mortise lock case in door.

2.03 ACCESS DOORS, FLUSH PANEL

- A. Door Panel: Form of 0.0747 inch thick galvanized steel sheet. Reinforce as required to maintain flat surface.
- B. Frame: Form of 0.0598 inch thick galvanized steel sheet of depth and configuration to suit material and type of construction where installed and to align flush with surrounding construction. Provide surface mounted units having frame flange at perimeter where installed in concrete or masonry construction. Weld exposed joints in flange and grind smooth.
 - 1. At drywall construction provide perforated portion of frame with bead for joint treatment flush with face of gypsum board; overlapping flange is not permitted.
- C. Hinge: Concealed spring hinge to allow panel to open 175 degrees. Provide removable hinge pin to allow removal of panel from frame.
- D. Lock: Flush, screw driver operated cam lock.

2.04 FINISH

- A. Steel Surfaces: Baked-on prime coat over a protective phosphate coating.

2.05 SIZE

- A. Access doors shall be minimum 12 inches, unless otherwise shown.

PART 3 - EXECUTION

3.01 LOCATION

- A. Provide access panels or doors wherever any valves, traps, air splitter dampers, cleanouts and other control items of mechanical, and electrical work are concealed in wall, partition or ceiling construction.

3.02 INSTALLATION, GENERAL

- A. Install access doors in openings to have sides vertical in wall installations, and parallel to ceiling grid or side walls when installed in ceiling. Set frames so that edge of frames without flanges will finish flush with surrounding finish surfaces.

3.03 ANCHORAGE

- A. Secure frames to adjacent construction using anchors attached to the frames or by use of bolts or screws through the frame members. Type, size and number of anchoring device shall be suitable for the material surrounding the opening, and as required to maintain alignment and resist displacement during normal use of the access door and the building.

- 1. Anchors for fire rated access doors shall be as required by the fire test.

3.04 ADJUSTMENT

- A. Adjust hardware so that the door panel will open freely, and when closed the door panel will be centered within the frame.

END OF SECTION

DOUBLE ACTING IMPACT TRAFFIC DOOR**SECTION 08381****PART 1 GENERAL****1.1 SUMMARY**

- A. Section Includes: Double acting, self closing, fully insulated, 1-13/16 inch (46 mm) thick, impact traffic door.

1.2 SUBMITTALS

- A. Reference Section 01300–Submittal Procedures; submit the following items:
 - 1. Product Data.
 - 2. Shop Drawings: Show fabrication details and anchorage. Include door elevations, head, jamb and meeting stile details including perimeter air seals.
 - 3. Samples: Full range of manufacturer’s standard color selections for facing material.
 - 4. Quality Assurance/Control Submittals:
 - a. Manufacturer’s Installation Instructions.
 - 5. Closeout Submittals:
 - a. Cleaning and Maintenance instructions.
 - b. Warranty

1.3 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Manufacturer Qualifications: Minimum five years experience in producing doors of the type specified.

1.4 DELIVERY STORAGE AND HANDLING

- A. Reference Section 01660–Product Storage and Handling Requirements.
- B. Verify doors were shipped in upright position.
 - 1. Note specific doors shipped in other than upright position on bill of lading and contact manufacturer.
- C. Store in upright position and follow manufacturer’s instructions printed on carton.

1.5 PROJECT/SITE CONDITIONS

- A. Existing Conditions: Frames installed under other sections shall be level and plumb.

1.6 WARRANTY

- A. One year against defects in materials and workmanship.

PART 2 PRODUCTS**2.1 MANUFACTURERS**

- A. Manufacturer: RubbAir Door-Division of Eckel Industries, Inc.; 100 Groton Shirley Rd.; Ayer, MA 01432-1050. Telephone: (800) 966-7822, (978) 772-0480. Fax: (978) 772-7114.
- B. Model: Standard.

2.2 DOOR COMPONENTS

- A. Internal Frame:
 - 0. Perimeter: 1-1/4 x 1-1/2 inch (32x38 mm) rubber honeycomb extrusions.
 - 1. Reinforcing: 1-1/2 x 1-1/2 inch (38x38 mm) rubber I-beam extrusions.
 - 2. Stile: Kiln-dried hardwood, full height of mount assembly.
- B. Core: 1-1/2 inch (38 mm) thick flexible re-bonded polyurethane foam.
- C. Facings: [1/8 inch (3 mm) thick high strength vinyl reinforced with woven cloth backing, 1,900 psi (13 MPa) tensile strength, color as selected by Architect.] [2-ply, reinforced rotocured rubber, 2,200 psi (15 MPa) tensile strength.]
- D. Hardware:
 - 1. Cam: "V" cam design; 1-1/2 inch (38 mm) standard rise, cast Meehanite, minimum 45,000 psi (310 MPa) compressive strength, ASTM B 633 zinc plated.
 - a. Swing: [90x90] [90x180] [90x135] degree swing.
 - 2. Cam Follower: 1-1/8 inch (28 mm) diameter by 5/8 inch (16 mm) wide stud mounted needle bearing roller mounted to cast iron arm; 2,100 lbf (290 Kgm) bearing dynamic capacity.
 - 3. Bottom Bearing: Standard, extruded aluminum bearing, minimum 45,000 psi (310 MPa) compressive strength, ASTM B 633 zinc plated.]
 - 4. Hinge Shaft: 1-5/16 inch (33 mm) diameter full height steel tube, 62,000 psi (430 MPa) tensile strength.
 - 5. Mount Plate: 4-1/2 inch (115 mm) wide by full height of door panel, 12 gauge anodized aluminum.
- E. Safety Nosing: Full height, 2-ply, reinforced rotocured rubber, 2,200 psi (15 MPa) tensile strength with 1/16 inch (2 mm) vinyl loop seal (loop seal on one leaf at pairs of doors).
- F. Seals: Less than 5 cfm (.002 m³/s) air infiltration per linear foot of seal per ASTM E 283.
 - 1. Jamb and Header: Polymer impregnated woven nylon fabric in hollow-loop configuration. Jamb seal: Factory installed; fixed. Header seal: Field installed; adjustable.
 - 2. Sill: 1/16 inch (2 mm) thick neoprene rubber, factory installed; fixed.
 - 3. Hardware Cutouts: 1/16 inch (2 mm) thick neoprene rubber, factory installed; fixed.
- G. Vision Panel:
 - 1. 1/8 inch (3 mm) thick polycarbonate, double glazed in rubber subframe mechanically attached; panels flush with both door faces.

- H. Impact Panels: 48 inch (1.22 m) [12 inch (300 mm) high, 1/8 inch (3 mm) thick vinyl, wrap around type, color as selected by Architect.
- I. Hold Open Pin: 1/4 inch (6 mm) diameter steel pin with wire ring and 8 inch (205 mm) chain for attachment to jamb.
- J. Cam Shields: 1/16 inch (2 mm) black rubber flap.

2.3 ACCESSORIES

- A. Pressure and Wind Load Accessories:
 - 1. Adjustable Spring Compensator.
 - 2. Compression Spring.
 - 3. Deep seat cam.
- B. Locking Device: 1 inch (25 mm) i.d. cast aluminum bushing (2 per leaf) with two 3/16 inch (5 mm) by 30 inch (760 mm) long galvanized proof coil chains.

2.4 FABRICATION

- A. Shop Assembly: Fabricate door components into 1-13/16 inch (46 mm) thick unitized assembly with facings adhesive bonded to core and frame. Adhesive peel strength shall be 60 piw minimum, standard 2 inches per minute at 25 degrees C., Scott tester. Provide horizontal reinforcing at 8 inches (205 mm) o.c. from top to bottom of door, full width of panel. Rigidly connect mount plate, stile and hinge shaft and secure hardware assembly to door with through-rivets at tubing and aluminum or stainless steel screws to stile. Align cam hardware and prepin.

2.5 SOURCE QUALITY CONTROL

- A. Fabrication Tolerances: Width and height of each leaf: + 0, -1/8 inch (3 mm).

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine opening in which door will be installed.
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory conditions.
- C. Commencement of work by installer is acceptance of opening conditions.

3.2 INSTALLATION

- A. Follow manufacturer's instructions.
- B. Install door with necessary anchors, hardware and accessories.
 - 1. Drill bottom bearing for hold open pin.

3.3 ADJUSTING

- A. Follow manufacturer's instructions as required to:
 - 1. Clean and lubricate operating parts.
 - 2. Adjust to open and close smoothly and freely without binding.
 - 3. Check seals for proper fit.

3.4 CLEANING

- A. Clean surfaces soiled by work as recommended by manufacturer.
- B. Remove surplus materials and debris from the site.

END OF SECTION

ALUMINUM WINDOWS**SECTION 08520****PART 1 - GENERAL****1.01 WORK INCLUDED**

- A. Furnish all necessary material, labor and equipment for the complete installation of 24" wide aluminum flush mounted bi-fold service window for manual operation, with 12" deep by 24" wide stainless steel shelf as shown on the Drawings and specified herein, complete with glass and glazing.

1.02 REFERENCE STANDARDS

- A. AAMA 101 - Specifications for Aluminum Prime Windows and Sliding Glass Doors.
- B. AAMA 607.1 - Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
- C. ASTM A386 - Zinc Coating (Hot Dip) on Assembled Steel Products.
- D. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- E. ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.

1.03 SYSTEM DESCRIPTION

- A. Windows: Tubular aluminum sections, shop fabricated, factory pre-finished, vision glass, sills, related flashings, anchorage and attachment devices.

1.04 PERFORMANCE REQUIREMENTS

- A. Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall specified below:
- B. Structural Performance: Provide units with no failure or permanent deflection for a positive (inward) and negative (outward) test at 130 mph design wind load pressure.

1.05 SUBMITTALS

- A. Submit shop drawings and product data in accordance with Section 01300.
- B. Product Data: Submit manufacturer's product specifications, technical product data, recommendations and standard details for each type of aluminum window unit required. Include the following information:
 - 1. Fabrication methods.
 - 2. Finishing.
 - 3. Hardware.
 - 4. Accessories.

1.06 QUALITY ASSURANCE

- A. Design Criteria: The drawings are based on a specific type and model of aluminum window by a single manufacturer. An equivalent type of window by another listed manufacturer may be accepted provided that deviations in dimensions and profiles are minor and do not materially detract from the design concept or intended performances as judged solely by the Architect.
- 5. Quality Standard: Equal to "CRL Manual Flush Mount Bi-Fold Service Window" by C.R. Laurence Company, Inc.

1.07 PROJECT CONDITIONS

- A. Field Measurements: Where possible, check actual window openings in construction work by accurate field measurement before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress as directed by the Contractor to avoid delay of work. Where necessary, proceed with fabrication without field measurements, and coordinate fabrication tolerances to ensure proper fit of window units.

PART 2 - PRODUCTS

2.03 MATERIALS

- A. Aluminum shall be of commercial quality and for window construction free from defects impairing strength and durability. All extruded sections shall be of 6063-T5 alloy temper complying with ASTM B221 and shall have a minimum ultimate tensile strength of 22,000 psi and a yield of 16,000 psi.
- B. Frame and Sash Members: Minimum .090" wall thickness.
- C. Fasteners: Provide aluminum, non-magnetic stainless steel, or other materials warranted by the manufacturer to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors and other components of window units.
 - 1. Reinforcement: Where fasteners screw-anchor into aluminum less than 0.125" thick, reinforce the interior with aluminum or non-magnetic stainless steel to receive screw threads, or provide standard non-corrosive pressed-in splined grommet nuts.
 - 2. Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For application of hardware, use fasteners that match the finish of the member or hardware being fastened, as appropriate.
- D. Anchors, Clips and Window Accessories: Fabricate anchors, clips and window accessories of aluminum, non-magnetic stainless steel or hot-dip zinc coated steel or iron complying with the requirements of ASTM A 386; provide sufficient strength to withstand design pressure indicated.

