

08 11 00 – Metal Doors and Frames

1. General

A. Steel doors and frames must meet all standards as established by the following references:

1. American National Standards Institute (ANSI) A115.1 - Door and Hardware Preparation
2. National Fire Protection Association (NFPA) 101 - Life Safety
3. Building codes (latest editions)
4. NFPA 80 - Fire Doors and Windows (latest edition)
5. Americans With Disabilities Act (ADA)

B. General Standards:

1. The minimum door opening shall be 3 feet.
2. Flush doors shall be specified.
3. Fire-rated doors required to be B-Label classification shall be made of metal.
4. On labeled fire doors, all closers shall be of a “non-hold-open” type approved by Underwriters Laboratories (UL).
5. Doors that open to corridors and contain glass shall use 1/4 inch UL fire-rated tempered glass.
6. Steel doors and frames shall be manufactured by a single firm specializing in the production of this type of product.
7. Door and frame design must comply with all building codes, fire codes, life safety codes and requirements of the ADA.
8. Residential windows must be Energy Star compliant.

C. Fabrication:

1. All doors shall be the type and sizes shown on approved shop drawings. Minimum door thickness shall be 1 3/4 inch.
2. All doors shall be constructed with smooth, flush surfaces, without visible joints, seams or exposed faces, except around glass pane trim or louvered panel inserts.

3. Doors swinging in pairs are not recommended but the following guidelines apply when it is necessary to use them:
 - a. Non-labeled doors shall have a two piece overlapping astragal that consists of an 18 gauge steel channel applied to the inactive leaf and either a plain extruded aluminum leaf or a plain aluminum overlap member with a wood pile applied to the active leaf. All metal parts shall be painted to match the door.
 - b. When both leaves are active, utilize an extruded aluminum split astragal consisting of a two piece adjustable base and cover set in either anodized aluminum or bronze finish with a wood pile insert. This astragal shall be packaged separately from the door for field attachment.
 - c. For labeled fire doors, a two piece overlapping astragal consisting of a 16 gauge steel edge channel applied to the inactive door and a 12 gauge steel overlap strip applied to the active door shall be provided in accordance with requirements of the various labeling agencies.
4. Tops and bottoms of all doors shall be reinforced with a continuous steel channel not less than 16 gauge, extending the full width of the door and spot welded to the face sheet. The top channel shall be flush steel. Plastic filler is not acceptable.
5. Where specified or scheduled, doors shall be provided with either aluminum or steel moldings to secure glass in accordance with glass opening sizes as shown on approved shop drawings.
6. On non-labeled doors, glass openings shall have frames and be securely attached. The glass frame may be made of aluminum. The glazing beads shall be screwless snap-in type or made of steel, with beads made not less than 20 gauge and secured to the framed opening by cadmium or zinc-coated countersunk screws.
7. On labeled fire doors, doors prepared for glass openings shall have the frames securely attached. The glass frame must be made of 20 gauge steel. The glazing bead shall not be less than 20 gauge steel, with butt or mitered corner joints and shall be secured to the frame opening by cadmium or zinc-coated countersunk screws.
8. Louvers in non-labeled doors shall be fabricated of 18 gauge frames and 20 gauge commercial quality, cold rolled steel blades. Louvers shall be inverted blades of "Y" design. Free air flow shall be 50% of the total area.
9. Louvers in fire-rated doors shall be manufactured in accordance with UL standards and shall bear the appropriate label. Testing of fire-rated door louvers shall be in accordance with the American Society for Testing and Materials (ASTM) E152 and with UL 10B. Components shall be fabricated from 16 gauge commercial-quality, cold rolled steel. Corners shall be mitered and flush welded. All units shall be

equipped with a 160°F rated fusible link actuated by a concealed spring mechanism. Adjustable louver blades shall employ clearance rivets at operating points. Free air flow shall be 40% of the total area.

10. Mineral core doors are strictly prohibited. Acceptable cores for doors are Kraft honeycomb, polyurethane and vertical steel stiffeners. Methods of reinforcing shall conform to requirements of ANSI A151.1.
11. Steel panels shall be made of the same materials and be constructed and finished in the same way as specified for steel doors.
12. Steel frames shall be either cold rolled steel conforming to ASTM A366 or commercial-quality hot rolled steel conforming to ASTM A569 and not less than 16 gauge. Minimum 16 gauge, hot-dipped, zinc-coated steel shall comply with the requirements of ASTM A525 and either A526 or A642. The coating weights shall meet or exceed the minimum requirements shown for A40 in the case of alloyed coatings and G60 for spangled coatings.
13. All frames to be welded shall be provided with a steel spreader attached to the feet of both jambs to serve as a temporary brace during shipping and handling. Spreader bars are for bracing only and shall not be used to size the frame. Except on weather-stripped doors, holes shall be drilled in the stop of the frame to receive three silencers on double-door frames. Contractor shall drill for two silencers on heads of double-swing frames.
14. Wherever a fire resistant labeled classification is shown or scheduled for steel work, the contractor shall provide fire-rated steel doors and frames investigated and tested as a fire door assembly, complete with type of fire door hardware to be used. Each fire door and frame shall be identified with recognized testing laboratory labels, indicating applicable fire rating of both door and frame.

D. Floor and Jamb Anchors:

1. Floor anchors shall be securely welded or screwed inside each jamb, with two holes provided at each jamb for anchorage.
2. Minimum thickness of floor anchors shall be 16 gauge.
3. The preferred method of installing metal jambs in masonry is to anchor and fill the frame cavity with grout.
4. Frames for installation in masonry walls shall be provided with adjustable, wire-type jamb anchors. Anchors shall be not less than 0.156 inch diameter steel wire. The number of anchors provided on each jamb shall be as follows:
 - a. Frames up to 7 feet 6 inches in height: three anchors

- b. Frames 7 feet 6 inches to 8 feet in height: four anchors
 - c. Frames over 8 feet in height: one anchor for each 2 feet or fraction thereof
5. Frames for installation in stud partitions shall be provided either with steel anchors of not less than 18 gauge thickness, securely welded inside each jamb or insert type with notched clip to engage stud inserted to back of the frame as identified above.