

SECTION 08110

STEEL DOORS AND FRAMES

PART GENERAL

SECTION INCLUDES

Steel doors.

Fire rated steel doors.

Armored steel doors.

Steel frames.

Replacement steel doors and frames.

RELATED SECTIONS

Section 08210 - Wood Doors.

Section 08220 - Plastic Doors.

Section 08710 - Door Hardware.

Section 08800 - Glazing.

Section 09900 - Paints and Coatings.

Section 13090 - Radiation Protection.

REFERENCES

ANSI/SDI 100-91 - Recommended Specifications for Standard Steel Doors & Frames; Steel Door Institute.

SDI 105 - Recommended Erection Instructions for Steel frames.

SDI 111 - Recommended Standard Details for Steel Doors & Frames.

SDI 113 - Test Procedure and Acceptance Criteria for Acoustical Performance for Steel Door and Frame Assemblies.

ASTM A 366/A 366M - Standard Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality.

ASTM A 568/A 568M - Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements For.

ASTM A 569/A 569M - Standard Specification for Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality.

ASTM A 591/A 591M - Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Mass Applications.

ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

ASTM A 924/A 924M - Standard Specification for General Requirements for Sheet Steel, Metallic-Coated by the Hot-Dip Process.

NFPA 80 - Standard for Fire Doors and Windows.

Building Materials Directory; Underwriters Laboratories Inc.

Certification Listings; Warnock Hersey International Inc.

#### SUBMITTALS

Submit under provisions of Section 01300.

Product Data: Provide manufacturer's standard details and catalog data demonstrating compliance with referenced standards. Provide installation instructions.

#### Certificates:

Provide manufacturer's certification that products comply with referenced standards.

Provide evidence of manufacturer's membership in the Steel Door Institute.

Shop Drawings: Submit for approval the following:

Door, frame, and hardware schedule in accordance with SDI 111D.

Samples: Submit for approval the following:  
6 x 6 inch samples of each color of factory finish specified.

#### QUALITY ASSURANCE

Manufacturer Qualifications: Provide all products from a single manufacturer who is a member of the Steel Door Institute.

#### DELIVERY, STORAGE, AND HANDLING

Protect products from moisture, construction traffic, and damage.

Store under cover.

Place units on 4-inch high wood sills or in a manner that will prevent rust or damage.

Do not use non-vented plastic or canvas shelters.

Should wrappers become wet, remove immediately.

Provide 1/4-inch space between doors to promote air circulation.

#### PART PRODUCTS

##### MANUFACTURERS

Acceptable Manufacturer: Ceco Door Products Division of United Dominion Company; 750 Old Hickory Boulevard, One Brentwood Commons, Suite 150, Brentwood, TN 37027; Telephone (615) 661-5030, FAX (615) 370-5299.

Requests for substitutions will be considered in accordance with provisions of Section 01600.

Substitutions: Not permitted.

#### MATERIALS

Steel Sheet for Doors and Frames:

Cold rolled steel: ASTM A 366 and A 568.

Hot rolled, pickled, and oiled steel: ASTM A 569 and A 568.

Hot dipped zinc coated steel: ASTM A 924 and A 653; Class A40 for alloyed coatings or G60 for spangled coatings, minimum.

Steel Sheet for Anchors and Accessories:

Electrolytically deposited zinc coated steel: ASTM A

591 and A 568; Class B (0.075 oz/sf), minimum.

## STEEL DOORS

Acceptable Product: Medallion.

Grade: ANSI/SDI 100 Grade II, Heavy Duty.

Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.

Performance:

Thermal Insulation: 'R' factor 2.38; 'U' factor 0.42.

Sound Transmission: STC 38.

Construction:

Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.

Core: Vertical stiffeners, \_\_ gage \_\_\_\_\_ steel, spaced 6 inches apart and spot-welded to face sheets at 5 inches OC; full-thick glass fiber insulation between stiffeners.

Vertical Edges: Seamless construction.

Vertical Edges: Seams welded and ground smooth, full door height.

Top closure channel: 16 gage steel, \_\_\_\_\_.

Bottom closure channel: 16 gage steel, \_\_\_\_\_, recessed.

Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, full mortise hinges.

Closer Preparation: Concealed 12 gage steel tube continuous across door width, welded to inside face of each face sheet.

Lockset Preparation: \_\_\_\_\_ lockset, backset 2-3/4 inches.

Fire Rated Doors: Furnish door units bearing UL Class Labels for fire ratings indicated in accepted shop drawing schedule.

Finish: Factory Primer Finish.

Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.

Acceptable Product: Medallion Maxim.

Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.

Performance:

Thermal Insulation: 'R' factor 2.38; 'U' factor 0.42.

Sound Transmission: STC 38.

Construction:

Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.

Core: Vertical stiffeners, \_\_ gage \_\_\_\_\_ steel, spaced 6 inches apart and spot-welded to face sheets at 5 inches OC; full-thick glass

fiber insulation between stiffeners.  
Vertical Edges: Seamless construction.  
Vertical Edges: Seams welded and ground smooth,  
full door height.  
Top closure channel: 16 gage steel, \_\_\_\_\_.  
Bottom closure channel: 16 gage steel,  
\_\_\_\_\_, recessed.  
Hinge Preparation: Recess for \_\_\_\_\_ inches high,  
\_\_\_\_\_ weight, full mortise hinges.  
Closer Preparation: Concealed 12 gage steel  
tube.  
Lockset Preparation: \_\_\_\_\_ lockset,  
backset 2-3/4 inches.  
Fire Rated Doors: Furnish door units bearing UL  
Class Labels for fire ratings indicated in accepted  
shop drawing schedule.  
Finish: Factory Primer Finish.  
Finish: Factory Baked Enamel Finish; Finish No. \_\_,  
\_\_\_\_\_ color.

Acceptable Product: Regent.

Grade: ANSI/SDI 100 Grade I, Standard Duty.

Grade: ANSI/SDI 100 Grade II, Heavy Duty.

Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.

Performance:

Thermal Insulation: 'R' factor 2.44; 'U' factor  
0.41.

Sound Transmission: STC 32.

Construction:

Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.

Face Sheets: Steel, 20 gage, galvanized,  
textured finish.

Core: Impact resistant, resin impregnated,  
sanded edge, honeycomb core, crush strength 45  
pounds per square inch; inside door faces coated  
with waterproof adhesive for bond strength and  
rust prevention.

Vertical Edges: Seamless construction.

Vertical Edges: Mechanically interlocked hemmed  
edges.

Top closure channel: 16 gage steel, \_\_\_\_\_,  
flush.

Bottom closure channel: 16 gage steel,  
\_\_\_\_\_, \_\_\_\_\_.

Hinge Preparation: Recess for \_\_\_\_\_ inches high,  
\_\_\_\_\_ weight, full mortise hinges.

Closer Preparation: Concealed 12 gage steel  
tube.

Lockset Preparation: \_\_\_\_\_ lockset,  
backset 2-3/4 inches.  
Fire Rated Doors: Furnish door units bearing UL  
Class Labels for fire ratings indicated in accepted  
shop drawing schedule.  
Finish: Factory Primer Finish.  
Finish: Factory Baked Enamel Finish; Finish No. \_\_,  
\_\_\_\_\_ color.

Acceptable Product: Omega.  
Grade: ANSI/SDI 100 Grade I, Standard Duty.  
Grade: ANSI/SDI 100 Grade II, Heavy Duty.  
Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.  
Performance:  
Thermal Insulation: 'R' factor 2.44; 'U' factor  
0.41.  
Sound Transmission: STC 32.  
Construction:  
Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.  
Face Sheets: Steel, 20 gage, galvanized,  
textured finish.  
Core: Impact resistant, resin impregnated,  
sanded edge, honeycomb core, crush strength 45  
pounds per square inch; inside door faces coated  
with waterproof adhesive for bond strength and  
rust prevention.  
Vertical Edges: Seamless construction.  
Vertical Edges: Mechanically interlocked hemmed  
edges.  
Top closure channel: 16 gage steel, \_\_\_\_\_,  
flush.  
Bottom closure channel: 16 gage steel,  
\_\_\_\_\_, \_\_\_\_\_.  
Hinge Preparation: Recess for \_\_\_\_\_ inches high,  
\_\_\_\_\_ weight, non-handed full mortise hinges.  
Closer Preparation: Concealed 12 gage steel  
tube.  
Lockset Preparation: \_\_\_\_\_ lockset,  
backset 2-3/4 inches.  
Fire Rated Doors: Furnish door units bearing UL  
Class Labels for fire ratings indicated in accepted  
shop drawing schedule.  
Finish: Factory Primer Finish.  
Finish: Factory Baked Enamel Finish; Finish No. \_\_,  
\_\_\_\_\_ color.

Acceptable Product: Imperial.  
Grade: ANSI/SDI 100 Grade I, Standard Duty.

Grade: ANSI/SDI 100 Grade II, Heavy Duty.  
Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.

Performance:

Thermal Insulation: 'R' factor 14.97, 'U' factor 0.067.

Sound Transmission: STC 26.

Construction:

Face Sheets: Steel, \_\_\_ gage, \_\_\_\_\_.

Core: Full 1-3/4 inches thick rigid polyurethane, adhered to inside door faces with waterproof adhesive for bond strength and rust prevention.

Vertical Edges: Seamless construction.

Vertical Edges: Mechanically interlocked hemmed edges.

Top closure channel: 16 gage steel, \_\_\_\_\_, flush.

Bottom closure channel: 16 gage steel, \_\_\_\_\_, \_\_\_\_\_.

Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, non-handed full mortise hinges.

Closer Preparation: Concealed 12 gage steel tube.

Lockset Preparation: \_\_\_\_\_ lockset, backset 2-3/4 inches.

Fire Rated Doors: Furnish door units bearing UL Class Labels for fire ratings indicated in accepted shop drawing schedule.

Finish: Factory Primer Finish.

Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.

Acceptable Product: Imperial Maxim.

Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.

Performance:

Thermal Insulation: 'R' factor 14.97, 'U' factor 0.067.

Sound Transmission: STC 26.

Construction:

Face Sheets: Steel, 14 gage, \_\_\_\_\_.

Core: Full 1-3/4 inches thick rigid polyurethane, adhered to inside door faces with waterproof adhesive for bond strength and rust prevention.

Vertical Edges: Seamless construction.

Vertical Edges: Mechanically interlocked hemmed edges.

Top closure channel: 16 gage steel, \_\_\_\_\_,

flush.  
Bottom closure channel: 16 gage steel,  
\_\_\_\_\_, \_\_\_\_\_.  
Hinge Preparation: Recess for \_\_\_\_\_ inches high,  
\_\_\_\_\_ weight, non-handed, full mortise hinges.  
Closer Preparation: Concealed 12 gage steel  
tube.  
Lockset Preparation: \_\_\_\_\_ lockset,  
backset 2-3/4 inches.  
Fire Rated Doors: Furnish door units bearing UL  
Class Labels for fire ratings indicated in accepted  
shop drawing schedule.  
Finish: Factory Primer Finish.  
Finish: Factory Baked Enamel Finish; Finish No. \_\_,  
\_\_\_\_\_ color.

Acceptable Product: Versadoor.

Grade: ANSI/SDI 100 Grade I, Standard Duty.

Grade: ANSI/SDI 100 Grade II, Heavy Duty.

Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.

Performance:

Thermal Insulation: 'R' factor 15.27, 'U' factor  
0.065.

Sound Transmission: STC 22.

Construction:

Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.

Face Sheets: Steel, \_\_ gage, cold-rolled,  
embossed panel designs indicated on approved shop  
drawings.

Core: Full 1-3/4 inches thick rigid  
polyurethane, adhered to inside door faces with  
waterproof adhesive for bond strength and rust  
prevention; full perimeter epoxy thermal barrier.

Vertical Edges: Seamless construction.

Vertical Edges: Mechanically interlocked hemmed  
edges.

Top closure channel: 16 gage steel, \_\_\_\_\_,  
flush.

Bottom closure channel: 16 gage steel,  
\_\_\_\_\_, \_\_\_\_\_.

Hinge Preparation: Recess for \_\_\_\_\_ inches high,  
\_\_\_\_\_ weight, non-handed, full mortise hinges.

Closer Preparation: Concealed 12 gage steel  
tube.

Lockset Preparation: \_\_\_\_\_ lockset,  
backset 2-3/4 inches.

Fire Rated Doors: Furnish door units bearing Class  
Labels for fire ratings indicated in accepted shop



drawing schedule.

Finish: Factory Primer Finish.

Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.

Types: Furnish door design types indicated in accepted shop drawings.

Sizes: Widths and heights indicated in approved shop drawing schedule, 1-3/4 inches thickness.

#### FIRE RATED STEEL DOORS

Acceptable Product: Fuego.

Fire Ratings: Furnish door units bearing \_\_ Class Labels for fire ratings indicated in accepted shop drawing schedule, and having 250 degree F. maximum temperature rise for 30 minute test period when tested in accordance with ASTM E 152.

Grade: ANSI/SDI 100 Grade I, Standard Duty.

Grade: ANSI/SDI 100 Grade II, Heavy Duty.

Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.

Construction:

Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.

Face Sheets: Steel, \_\_ gage, cold-rolled, embossed panel designs indicated on approved shop drawings.

Core: Solid incombustible mineral fiber; inside door faces coated with waterproof adhesive for bond strength and rust prevention.

Vertical Edges: Seamless construction.

Vertical Edges: Seams welded and ground smooth, full door height.

Top closure channel: 16 gage steel, \_\_\_\_\_, flush.

Bottom closure channel: 16 gage steel, \_\_\_\_\_, \_\_\_\_\_.

Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, full mortise hinges.

Closer Preparation: Concealed 12 gage steel tube.

Lockset Preparation: \_\_\_\_\_ lockset, backset 2-3/4 inches.

Finish: Factory Primer Finish.

Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.

Types: Furnish door design types indicated in accepted

shop drawings.

Sizes: Widths and heights indicated in approved shop drawing schedule, 1-3/4 inches thickness.

#### ARMORED STEEL DOORS

Acceptable Product: Armorshield.

Bullet Resistive Rating: Furnish door units bearing UL Class Labels for bullet resistive rating SPSA.

Construction:

Face Sheets: Steel, 16 gage, cold-rolled.

Core: Rigid polyurethane, foamed in place and chemically bonded to face sheets; 10 gage cold-rolled steel armor plate welded to inside of door edges.

Vertical Edges: Mechanically interlocked seams.

Top closure channel: 14 gage steel, cold-rolled, flush.

Bottom closure channel: 14 gage steel, cold-rolled, flush.

Hinge Preparation: Recess for \_\_\_\_\_ inches by \_\_\_\_\_ inches by \_\_\_\_\_ inch ball-bearing full mortise hinges.

Closer Preparation: Concealed 12 gage steel tube.

Lockset Preparation: \_\_\_\_\_ lockset, backset 2-3/4 inches.

Vision Panels: UL listed bullet resistive rated SPSA glazing and steel trim.

Finish: Factory Primer Finish.

Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.

Sizes: Widths and heights indicated in approved shop drawing schedule, 1-3/4 inches thickness.

#### STEEL FRAMES

Standard Steel Frames for Masonry or Stud Walls:

Acceptable Product: Series SF.

Construction: Three-piece knock-down frames; cold-rolled steel, \_\_ gage.

Construction: Factory-welded frames; cold-rolled steel, \_\_ gage.

Profile: 2 inches face dimension, 7/16 inch minimum backbend, 1-15/16 inches rabbet, 5/8 inch high soffit, 1-9/16 inches rabbet, throat

dimensions indicated in accepted shop drawings.  
Hinge Preparation: Recess for 4-1/2 inches high,  
standard weight, full mortise hinges.

Strike Preparation for Single Doors: 4-7/8  
inches universal.

Finish: Factory Primer Finish.

Finish: Factory Baked Enamel Finish; Finish No. \_\_,  
\_\_\_\_\_ color.

Custom Steel Frames for Masonry or Stud Walls:

Acceptable Product: Series CF.

Construction: Three-piece knock-down frames;  
\_\_\_\_\_ steel, \_\_ gage.

Construction: Factory-welded frames; \_\_\_\_\_  
steel, \_\_ gage.

Profile: 2 inches face dimension, 1-15/16 inches  
rabbet, 5/8 inch high soffit, 1-9/16 inches  
rabbet, throat dimensions indicated in accepted  
shop drawings.

Backbend: Custom Backbend Alternate \_\_.

Profile: Custom Profile Alternate \_\_\_\_\_.

Backbend: Custom Backbend Alternate \_\_.

Profiles: Indicated in approved shop drawings.

Hinge Preparation: Recess for \_\_\_\_\_ inches high,  
\_\_\_\_\_ weight, full mortise hinges.

Strike Preparation for Single Doors: 4-7/8  
inches universal.

Finish: Factory Primer Finish.

Finish: Factory Baked Enamel Finish; Finish No. \_\_,  
\_\_\_\_\_ color.

Standard Steel Slip-on Frames for Drywall Partitions:

Acceptable Product: Series DS.

Construction: Three-piece knock-down frames; cold-  
rolled steel, \_\_ gage.

Profile: 2 inches face dimension, 7/16 inch  
minimum backbend with return leg, 1-15/16 inches  
rabbet, 5/8 inch high soffit, 1-9/16 inches  
rabbet, throat dimensions indicated in accepted  
shop drawings.

Hinge Preparation: Recess for \_\_\_\_\_ inches high,  
standard weight, full mortise hinges.

Strike Preparation for Single Doors: 4-7/8  
inches universal.

Strike Preparation for Single Doors: 2-3/4  
inches cylindrical.

Finish: Factory Primer Finish.

Finish: Factory Baked Enamel Finish; Finish No. \_\_,

\_\_\_\_\_ color.

Custom Steel Slip-on Frames for Drywall Partitions:

Acceptable Product: Series DC.

Construction: Three-piece knock-down frames; cold-rolled steel, \_\_\_ gage.

Profile: 2 inches face dimension, 7/16 inch minimum backbend with return leg, 1-15/16 inches rabbet, 5/8 inch high soffit, 1-9/16 inches rabbet, throat dimensions indicated in accepted shop drawings.

Hinge Preparation: Recess for \_\_\_\_\_ inches high, standard weight, full mortise hinges.

Strike Preparation for Single Doors: 4-7/8 inches universal.

Strike Preparation for Single Doors: 2-3/4 inches cylindrical.

Finish: Factory Primer Finish.

Finish: Factory Baked Enamel Finish; Finish No. \_\_\_, \_\_\_\_\_ color.

Adjustable Steel Frames for Masonry or Stud Walls:

Acceptable Product: Series XP.

Construction: Factory-welded frames; cold-rolled steel, 16 gage.

Profile: 2 inches face dimension, 1/2 inch backbend with return, 1-15/16 inches rabbet, 5/8 inch high soffit, 1-1/4 inches throat adjustment, standard throat dimensions indicated in accepted shop drawings.

Hinge Preparation: Recess for 4-1/2 inches high, standard weight, full mortise hinges.

Strike Preparation for Single Doors: 4-7/8 inches universal.

Finish: Factory Primer Finish.

Gasketed Steel Slip-on Frames for Drywall Partitions:

Acceptable Product: Series DC-WK.

Fire Ratings: Type tested by Warnock Hersey for 1-1/2 hour duration in accordance with ASTM E 152; bearing WH label as evidence of compliance.

Construction: Three-piece knock-down frames; cold-rolled steel, \_\_\_ gage.

Gasket: Fire rated.

Profile: 2 inches face dimension, 1/2 inch backbend with return leg, 1-15/16 inches rabbet, 5/8 inch high soffit, 1-9/16 inches rabbet, integral frame kerf for gasket, throat dimensions

indicated in accepted shop drawings.  
Hinge Preparation: Recess for \_\_\_\_\_ inches high,  
standard weight, full mortise hinges.  
Strike Preparation for Single Doors: 4-7/8  
inches universal.  
Strike Preparation for Single Doors: 2-3/4  
inches cylindrical.  
Finish: Factory Primer Finish.  
Finish: Factory Baked Enamel Finish; Finish No. \_\_\_\_,  
\_\_\_\_\_ color.

Gasketed Steel Frames for Masonry or Stud Walls:

Acceptable Product: Series CF-WK.  
Fire Ratings: Type tested by Warnock Hersey for 1-  
1/2 hour duration in accordance with ASTM E 152;  
bearing WH label as evidence of compliance.  
Construction: Three-piece knock-down frames;  
\_\_\_\_\_ steel, \_\_ gage.  
Construction: Factory-welded frames; \_\_\_\_\_  
steel, \_\_ gage.  
Profile: 2 inches face dimension, 1/2 inch  
backbend, 1-15/16 inches rabbet, 5/8 inch high  
soffit, 1-9/16 inches rabbet, integral frame kerf  
for gasket, throat dimensions indicated in  
accepted shop drawings.  
Hinge Preparation: Recess for \_\_\_\_\_ inches high,  
\_\_\_\_\_ weight, full mortise hinges.  
Strike Preparation for Single Doors: 4-7/8  
inches universal.  
Finish: Factory Primer Finish.  
Finish: Factory Baked Enamel Finish; Finish No. \_\_\_\_,  
\_\_\_\_\_ color.

Armored Steel Frames:

Acceptable Product: Armorshield Frame.  
Construction: Factory-welded frames.  
Frame: Cold-rolled steel, 14 gage.  
Armor: Cold-rolled steel, 10 gage, welded to  
inside of frame.  
Profile: 2 inches face dimension, 7/16 inch  
minimum backbend, 1-15/16 inches rabbet, 5/8 inch  
high soffit, 1-9/16 inches rabbet, throat  
dimensions indicated in accepted shop drawings.  
Hinge Preparation: Recess for \_\_\_\_\_ inches by  
\_\_\_\_\_ inches by \_\_\_\_\_ inch ball-bearing full  
mortise hinges.  
Strike Preparation for Single Doors: 4-7/8  
inches universal.

Finish: Factory Primer Finish.  
Finish: Factory Baked Enamel Finish; Finish No. \_\_,  
\_\_\_\_\_ color.

#### REPLACEMENT STEEL DOORS AND FRAMES

##### Replacement Steel Doors:

Acceptable Product: Regent.  
Acceptable Product: Omega.  
Acceptable Product: Imperial.  
Acceptable Product: Versadoor.  
Construction: Specified in Steel Doors Article of this section.  
Sizes: Specially sized doors, fitting replacement frames; nominal sizes indicated in accepted shop drawing schedule.  
Fire Rated Doors: Furnish door units bearing UL Class Labels for fire ratings indicated in accepted shop drawing schedule.

##### Replacement Steel Frames:

Acceptable Product: Adaptor.  
Construction: Three-piece knock-down frames; cold-rolled steel, 16 gage.  
Profile: \_\_\_\_\_.  
Profiles: Indicated in accepted shop drawings.  
Hinge Preparation: Recess for 4-1/2 inches high, standard weight, full mortise hinges.  
Strike Preparation for Single Doors: 4-7/8 inches universal.  
Finish: Factory Primer Finish.

##### Replacement Steel Frames:

Acceptable Product: Retroset.  
Construction: Two-piece welded frames; cold-rolled steel, 16 gage.  
Profile: Adjustable Type 50.  
Profile: Adjustable Type 55, with gasket kerf and fire rated smoke gasket.  
Profiles: Indicated in accepted shop drawings.  
Hinge Preparation: Recess for 4-1/2 inches high, standard weight, full mortise hinges.  
Strike Preparation for Single Doors: 4-7/8 inches universal.  
Finish: Factory Primer Finish.

#### ACCESSORIES

Anchors: Manufacturer's standard framing anchors, specified in manufacturer's printed installation instructions for project conditions.

Astragals for pairs of non-labeled doors, one leaf active: Two piece overlapping type; steel edge channel on inactive leaf, extruded aluminum overlap strip on active leaf; aluminum overlap strip to have wool pile weatherstrip insert for exterior doors.

Astragals for pairs of non-labeled doors, one leaf active: Steel chair type overlapping type on inactive leaf.

Astragals for pairs of labeled doors: Two piece overlapping type; steel edge channel on inactive leaf, steel overlap strip on active leaf.

Astragals for pairs of labeled doors: Steel chair type overlapping type on inactive leaf.

Astragals for pairs of doors, both leaves active: Aluminum split type; two-piece base and cover set, anodized; wool pile weatherstrip inserts for exterior doors.

Astragals for pairs of armored doors: Steel overlapping strip on each door, applied to opposite sides of door.

Glazing trim for non-labeled doors: Extruded aluminum frame, mitered corners; screwless snap-in glazing beads; glazing pocket for indicated glazing thickness.

Glazing trim for labeled doors: Steel frame, mitered corners; screw-on glazing beads; glazing pocket for 1/4 inch glazing thickness.

Glazing trim for glazed-design doors: Steel channel screw-on glazing beads; glazing pocket for 3/8 inch glazing thickness.

Silencers: Resilient rubber, black color.

Glazing: Specified in Section 08800 - Glazing.

## FABRICATION

Steel Doors:

Fabricate to conform to ANSI/SDI 100, and as follows:

Grade I, Standard Duty:

Physical Endurance: ANSI 250.4, Level C.

Structural: Resist 60 pounds per square foot air pressure inswing, 75 pounds per square foot air pressure outswing, in accordance with ASTM E 330.

Grade II, Heavy Duty:

Physical Endurance: ANSI 250.4, Level B.

Structural: Resist 75 pounds per square foot air pressure, inswing and outswing, in accordance with ASTM E 330.

Grade III, Extra Heavy Duty:

Physical Endurance: ANSI 250.4, Level A.

Structural: Resist 75 pounds per square foot air pressure, inswing and outswing, in accordance with ASTM E 330.

Hinge Preparation: Recess for specified hinges, provide 07 gage steel hinge reinforcement, tap holes for hinge attachment; locations in accordance with ANSI A156.7 template.

Lockset Preparation: Provide cutouts and reinforcement for mortise locksets in accordance with ANSI A115.1, backset 2-3/4 inches.

Lockset Preparation: Provide cutouts and reinforcement for cylindrical lockset in accordance with ANSI A115.2, backset 2-3/4 inches.

Closer Preparation: Continuous reinforcement across door width, welded to inside face of each face sheet.

Top closure channels: Set back face of channel web flush with door top; weld to inside face of each face sheet.

Bottom closure channels, recessed: Set flange edges flush with door bottom; weld to inside face of each face sheet.

Bottom closure channels, flush: Set back face of channel web flush with door bottom; weld to inside face of each face sheet.

Provide cut-outs in doors for lites and louvers in accordance with accepted shop drawings.

Install lites and louvers in doors:

Lite size in fire rated doors not to exceed ASTM E 152 limitations for indicated rating.

Provide operable-blade louvers with fusible-link operator in fire rated doors.

Steel Frames:

Three-piece knock-down frames: Head and jamb



intersecting corners die-cut, mitered at 45 degrees, with locking tabs for rigid connection when assembled.

Factory-welded frames: Head and jamb intersecting corners mitered at 45 degrees, with full welded joints ground smooth.

Hinge Preparation: Recess for specified hinges, provide 07 gage steel hinge reinforcement, tap holes for hinge attachment; locations in accordance with ANSI A156.7 template.

Strike Preparation for Single Doors: Prepare frames for specified strike in accordance with ANSI A115.1 and ANSI A115.2.

Silencer Preparation for Non-Gasketed Frames: Tap single door frames with three holes on strike side, spaced 6 inches from top and bottom of door opening, and at center of door opening; tap double door frames with two holes in head, spaced 6 inches each way from meeting point of door swings.

#### FINISHES

Chemical Treatment: Treat steel surfaces to promote paint adhesion.

Factory Primer Finish: Meet requirements of ANSI A224.1

Factory Baked Enamel Finish: Meet requirements of ANSI A250.3

#### PART EXECUTION

##### EXAMINATION

Have installer verify that project conditions are acceptable before beginning installation of frames.

Verify that completed openings to receive knock-down wrap-around frames are of correct size and thickness. Verify that completed concrete or masonry openings to receive butt type frames are of correct size.

Correct unacceptable conditions before preceding with installation.

##### INSTALLATION

Install frames in accordance with SDI 105.

Install doors plumb and in true alignment and fasten to achieve the maximum operational effectiveness and appearance of the unit. Maintain clearances specified in SDI 100 or NFPA 80.

Fill welded wrap-around frames in masonry construction with mortar as masonry is laid-up.

Fill welded wrap-around frames in plaster construction with plaster as work progresses.

If additives are used in masonry or plaster work during cold weather, field coat inside of steel frames with bituminous compound to prevent corrosion.

#### ADJUST AND CLEAN

Adjust doors for proper operation, free from binding or other defects.

Clean and restore soiled surfaces. Remove scraps and debris, and leave site and a clean condition.

END OF SECTION