

SECTION 08110

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Steel doors.
- B. Fire rated steel doors.
- C. Armored steel doors.
- D. Steel frames.
- E. Replacement steel doors and frames.

1.2 RELATED SECTIONS

- A. Section 08210 - Wood Doors.
- B. Section 08220 - Plastic Doors.
- C. Section 08710 - Door Hardware.
- D. Section 08800 - Glazing.
- E. Section 09900 - Paints and Coatings.
- F. Section 13090 - Radiation Protection.

1.3 REFERENCES

- A. ANSI/SDI 100-91 - Recommended Specifications for Standard Steel Doors & Frames; Steel Door Institute.
- B. SDI 105 - Recommended Erection Instructions for Steel frames.
- C. SDI 111 - Recommended Standard Details for Steel Doors & Frames.
- D. SDI 113 - Test Procedure and Acceptance Criteria for Acoustical Performance for Steel Door and Frame Assemblies.
- E. ASTM A 366/A 366M - Standard Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality.

- F. ASTM A 568/A 568M - Standard Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements For.
- G. ASTM A 569/A 569M - Standard Specification for Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial Quality.
- H. ASTM A 591/A 591M - Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Mass Applications.
- I. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- J. ASTM A 924/A 924M - Standard Specification for General Requirements for Sheet Steel, Metallic-Coated by the Hot-Dip Process.
- K. NFPA 80 - Standard for Fire Doors and Windows.
- L. Building Materials Directory; Underwriters Laboratories Inc.
- M. Certification Listings; Warnock Hersey International Inc.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide manufacturer's standard details and catalog data demonstrating compliance with referenced standards. Provide installation instructions.
- C. Certificates:
  - 1. Provide manufacturer's certification that products comply with referenced standards.
  - 2. Provide evidence of manufacturer's membership in the Steel Door Institute.
- D. Shop Drawings: Submit for approval the following:
  - 1. Door, frame, and hardware schedule in accordance with SDI 111D.
- E. Samples: Submit for approval the following:
  - 1. 6 x 6 inch samples of each color of factory finish specified.

## 1.5 QUALITY ASSURANCE

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

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Protect products from moisture, construction traffic, and damage.
  - 1. Store under cover.
  - 2. Place units on 4-inch high wood sills or in a manner that will prevent rust or damage.
  - 3. Do not use non-vented plastic or canvas shelters.
  - 4. Should wrappers become wet, remove immediately.
  - 5. Provide 1/4-inch space between doors to promote air circulation.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. **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.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- C. **Substitutions:** Not permitted.

### 2.2 MATERIALS

- A. **Steel Sheet for Doors and Frames:**
  - 1. Cold rolled steel: ASTM A 366 and A 568.
  - 2. Hot rolled, pickled, and oiled steel: ASTM A 569 and A 568.
  - 3. Hot dipped zinc coated steel: ASTM A 924 and A 653; Class A40 for alloyed coatings or G60 for spangled coatings, minimum.
- B. **Steel Sheet for Anchors and Accessories:**
  - 1. Electrolytically deposited zinc coated steel: ASTM A 591 and A 568; Class B (0.075 oz/sf), minimum.

### 2.3 STEEL DOORS

- A. Acceptable Product: Medallion.
1. Grade: ANSI/SDI 100 Grade II, Heavy Duty.
  2. Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.
  3. Performance:
    - a. Thermal Insulation: 'R' factor 2.38; 'U' factor 0.42.
    - b. Sound Transmission: STC 38.
  4. Construction:
    - a. Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.
    - b. 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.
    - c. Vertical Edges: Seamless construction.
    - d. Vertical Edges: Seams welded and ground smooth, full door height.
    - e. Top closure channel: 16 gage steel, \_\_\_\_\_.
    - f. Bottom closure channel: 16 gage steel, \_\_\_\_\_, recessed.
    - g. Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, full mortise hinges.
    - h. Closer Preparation: Concealed 12 gage steel tube continuous across door width, welded to inside face of each face sheet.
    - i. Lockset Preparation: \_\_\_\_\_ lockset, backset 2-3/4 inches.
  5. Fire Rated Doors: Furnish door units bearing UL Class Labels for fire ratings indicated in accepted shop drawing schedule.
  6. Finish: Factory Primer Finish.
  7. Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.

- B. Acceptable Product: Medallion Maxim.
1. Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.
  2. Performance:
    - a. Thermal Insulation: 'R' factor 2.38; 'U' factor 0.42.
    - b. Sound Transmission: STC 38.
  3. Construction:
    - a. Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.
    - b. 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.
    - c. Vertical Edges: Seamless construction.

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

C. Acceptable Product: Regent.

- 1. Grade: ANSI/SDI 100 Grade I, Standard Duty.
- 2. Grade: ANSI/SDI 100 Grade II, Heavy Duty.
- 3. Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.
- 4. Performance:
  - a. Thermal Insulation: 'R' factor 2.44; 'U' factor 0.41.
  - b. Sound Transmission: STC 32.
- 5. Construction:
  - a. Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.
  - b. Face Sheets: Steel, 20 gage, galvanized, textured finish.
  - c. 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.
  - d. Vertical Edges: Seamless construction.
  - e. Vertical Edges: Mechanically interlocked hemmed edges.
  - f. Top closure channel: 16 gage steel, \_\_\_\_\_, flush.
  - g. Bottom closure channel: 16 gage steel, \_\_\_\_\_, \_\_\_\_\_.
  - h. Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, full mortise hinges.
  - i. Closer Preparation: Concealed 12 gage steel tube.

- j. Lockset Preparation: \_\_\_\_\_ lockset,  
backset 2-3/4 inches.
  - 6. Fire Rated Doors: Furnish door units bearing UL Class Labels for fire ratings indicated in accepted shop drawing schedule.
  - 7. Finish: Factory Primer Finish.
  - 8. Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.
- D. Acceptable Product: Omega.
- 1. Grade: ANSI/SDI 100 Grade I, Standard Duty.
  - 2. Grade: ANSI/SDI 100 Grade II, Heavy Duty.
  - 3. Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.
  - 4. Performance:
    - a. Thermal Insulation: 'R' factor 2.44; 'U' factor 0.41.
    - b. Sound Transmission: STC 32.
  - 5. Construction:
    - a. Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.
    - b. Face Sheets: Steel, 20 gage, galvanized, textured finish.
    - c. 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.
    - d. Vertical Edges: Seamless construction.
    - e. Vertical Edges: Mechanically interlocked hemmed edges.
    - f. Top closure channel: 16 gage steel, \_\_\_\_\_, flush.
    - g. Bottom closure channel: 16 gage steel, \_\_\_\_\_, \_\_\_\_\_.
    - h. Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, non-handed full mortise hinges.
    - i. Closer Preparation: Concealed 12 gage steel tube.
    - j. Lockset Preparation: \_\_\_\_\_ lockset,  
backset 2-3/4 inches.
  - 6. Fire Rated Doors: Furnish door units bearing UL Class Labels for fire ratings indicated in accepted shop drawing schedule.
  - 7. Finish: Factory Primer Finish.
  - 8. Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.
- E. Acceptable Product: Imperial.

1. Grade: ANSI/SDI 100 Grade I, Standard Duty.
2. Grade: ANSI/SDI 100 Grade II, Heavy Duty.
3. Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.
4. Performance:
  - a. Thermal Insulation: 'R' factor 14.97, 'U' factor 0.067.
  - b. Sound Transmission: STC 26.
5. Construction:
  - a. Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.
  - b. Core: Full 1-3/4 inches thick rigid polyurethane, adhered to inside door faces with waterproof adhesive for bond strength and rust prevention.
  - c. Vertical Edges: Seamless construction.
  - d. Vertical Edges: Mechanically interlocked hemmed edges.
  - e. Top closure channel: 16 gage steel, \_\_\_\_\_, flush.
  - f. Bottom closure channel: 16 gage steel, \_\_\_\_\_, \_\_\_\_\_.
  - g. Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, non-handed full mortise hinges.
  - h. Closer Preparation: Concealed 12 gage steel tube.
  - i. Lockset Preparation: \_\_\_\_\_ lockset, backset 2-3/4 inches.
6. Fire Rated Doors: Furnish door units bearing UL Class Labels for fire ratings indicated in accepted shop drawing schedule.
7. Finish: Factory Primer Finish.
8. Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.

- F. Acceptable Product: Imperial Maxim.
1. Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.
  2. Performance:
    - a. Thermal Insulation: 'R' factor 14.97, 'U' factor 0.067.
    - b. Sound Transmission: STC 26.
  3. Construction:
    - a. Face Sheets: Steel, 14 gage, \_\_\_\_\_.
    - b. Core: Full 1-3/4 inches thick rigid polyurethane, adhered to inside door faces with waterproof adhesive for bond strength and rust prevention.
    - c. Vertical Edges: Seamless construction.

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

G. Acceptable Product: Versadoor.

- 1. Grade: ANSI/SDI 100 Grade I, Standard Duty.
- 2. Grade: ANSI/SDI 100 Grade II, Heavy Duty.
- 3. Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.
- 4. Performance:
  - a. Thermal Insulation: 'R' factor 15.27, 'U' factor 0.065.
  - b. Sound Transmission: STC 22.
- 5. Construction:
  - a. Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.
  - b. Face Sheets: Steel, \_\_ gage, cold-rolled, embossed panel designs indicated on approved shop drawings.
  - c. 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.
  - d. Vertical Edges: Seamless construction.
  - e. Vertical Edges: Mechanically interlocked hemmed edges.
  - f. Top closure channel: 16 gage steel, \_\_\_\_\_, flush.
  - g. Bottom closure channel: 16 gage steel, \_\_\_\_\_, \_\_\_\_\_.
  - h. Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, non-handed, full mortise hinges.
  - i. Closer Preparation: Concealed 12 gage steel tube.



- j. Lockset Preparation: \_\_\_\_\_ lockset,  
backset 2-3/4 inches.
  - 6. Fire Rated Doors: Furnish door units bearing Class Labels for fire ratings indicated in accepted shop drawing schedule.
  - 7. Finish: Factory Primer Finish.
  - 8. Finish: Factory Baked Enamel Finish; Finish No. \_\_,  
\_\_\_\_\_ color.
- H. Types: Furnish door design types indicated in accepted shop drawings.
- I. Sizes: Widths and heights indicated in approved shop drawing schedule, 1-3/4 inches thickness.

#### 2.4 FIRE RATED STEEL DOORS

- A. Acceptable Product: Fuego.
- 1. 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.
  - 2. Grade: ANSI/SDI 100 Grade I, Standard Duty.
  - 3. Grade: ANSI/SDI 100 Grade II, Heavy Duty.
  - 4. Grade: ANSI/SDI 100 Grade III, Extra Heavy Duty.
  - 5. Construction:
    - a. Face Sheets: Steel, \_\_ gage, \_\_\_\_\_.
    - b. Face Sheets: Steel, \_\_ gage, cold-rolled, embossed panel designs indicated on approved shop drawings.
    - c. Core: Solid incombustible mineral fiber; inside door faces coated with waterproof adhesive for bond strength and rust prevention.
    - d. Vertical Edges: Seamless construction.
    - e. Vertical Edges: Seams welded and ground smooth, full door height.
    - f. Top closure channel: 16 gage steel, \_\_\_\_\_, flush.
    - g. Bottom closure channel: 16 gage steel, \_\_\_\_\_, \_\_\_\_\_.
    - h. Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, full mortise hinges.
    - i. Closer Preparation: Concealed 12 gage steel tube.
    - j. Lockset Preparation: \_\_\_\_\_ lockset,  
backset 2-3/4 inches.

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

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

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

## 2.5 ARMORED STEEL DOORS

A. Acceptable Product: Armorshield.

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

2. Construction:

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

b. 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.

c. Vertical Edges: Mechanically interlocked seams.

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

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

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

g. Closer Preparation: Concealed 12 gage steel tube.

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

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

3. Finish: Factory Primer Finish.

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

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

## 2.6 STEEL FRAMES

A. Standard Steel Frames for Masonry or Stud Walls:

1. Acceptable Product: Series SF.

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

3. Construction: Factory-welded frames; cold-rolled steel, \_\_ gage.
    - a. 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.
    - b. Hinge Preparation: Recess for 4-1/2 inches high, standard weight, full mortise hinges.
    - c. Strike Preparation for Single Doors: 4-7/8 inches universal.
  4. Finish: Factory Primer Finish.
  5. Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.
- B. Custom Steel Frames for Masonry or Stud Walls:
1. Acceptable Product: Series CF.
  2. Construction: Three-piece knock-down frames; \_\_\_\_\_ steel, \_\_ gage.
  3. Construction: Factory-welded frames; \_\_\_\_\_ steel, \_\_ gage.
    - a. 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.
    - b. Backbend: Custom Backbend Alternate \_\_.
    - c. Profile: Custom Profile Alternate \_\_\_\_\_.
    - d. Backbend: Custom Backbend Alternate \_\_.
    - e. Profiles: Indicated in approved shop drawings.
    - f. Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, full mortise hinges.
    - g. Strike Preparation for Single Doors: 4-7/8 inches universal.
  4. Finish: Factory Primer Finish.
  5. Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.
- C. Standard Steel Slip-on Frames for Drywall Partitions:
1. Acceptable Product: Series DS.
  2. Construction: Three-piece knock-down frames; cold-rolled steel, \_\_ gage.
    - a. 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.
    - b. Hinge Preparation: Recess for \_\_\_\_\_ inches high, standard weight, full mortise hinges.

- c. Strike Preparation for Single Doors: 4-7/8 inches universal.
    - d. Strike Preparation for Single Doors: 2-3/4 inches cylindrical.
  - 3. Finish: Factory Primer Finish.
  - 4. Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.
  
- D. Custom Steel Slip-on Frames for Drywall Partitions:
  - 1. Acceptable Product: Series DC.
  - 2. Construction: Three-piece knock-down frames; cold-rolled steel, \_\_ gage.
    - a. 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.
    - b. Hinge Preparation: Recess for \_\_\_\_\_ inches high, standard weight, full mortise hinges.
    - c. Strike Preparation for Single Doors: 4-7/8 inches universal.
    - d. Strike Preparation for Single Doors: 2-3/4 inches cylindrical.
  - 3. Finish: Factory Primer Finish.
  - 4. Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.
  
- E. Adjustable Steel Frames for Masonry or Stud Walls:
  - 1. Acceptable Product: Series XP.
  - 2. Construction: Factory-welded frames; cold-rolled steel, 16 gage.
    - a. 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.
    - b. Hinge Preparation: Recess for 4-1/2 inches high, standard weight, full mortise hinges.
    - c. Strike Preparation for Single Doors: 4-7/8 inches universal.
  - 3. Finish: Factory Primer Finish.
  
- F. Gasketed Steel Slip-on Frames for Drywall Partitions:
  - 1. Acceptable Product: Series DC-WK.
  - 2. 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.

3. Construction: Three-piece knock-down frames; cold-rolled steel, \_\_\_ gage.
  - a. Gasket: Fire rated.
  - b. 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.
  - c. Hinge Preparation: Recess for \_\_\_\_\_ inches high, standard weight, full mortise hinges.
  - d. Strike Preparation for Single Doors: 4-7/8 inches universal.
  - e. Strike Preparation for Single Doors: 2-3/4 inches cylindrical.
4. Finish: Factory Primer Finish.
5. Finish: Factory Baked Enamel Finish; Finish No. \_\_\_, \_\_\_\_\_ color.

G. Gasketed Steel Frames for Masonry or Stud Walls:

1. Acceptable Product: Series CF-WK.
2. 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.
3. Construction: Three-piece knock-down frames; \_\_\_\_\_ steel, \_\_\_ gage.
4. Construction: Factory-welded frames; \_\_\_\_\_ steel, \_\_\_ gage.
  - a. 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.
  - b. Hinge Preparation: Recess for \_\_\_\_\_ inches high, \_\_\_\_\_ weight, full mortise hinges.
  - c. Strike Preparation for Single Doors: 4-7/8 inches universal.
5. Finish: Factory Primer Finish.
6. Finish: Factory Baked Enamel Finish; Finish No. \_\_\_, \_\_\_\_\_ color.

H. Armored Steel Frames:

1. Acceptable Product: Armorshield Frame.
  - a. Construction: Factory-welded frames.
  - b. Frame: Cold-rolled steel, 14 gage.
  - c. Armor: Cold-rolled steel, 10 gage, welded to inside of frame.

- d. 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.
  - e. Hinge Preparation: Recess for \_\_\_\_\_ inches by \_\_\_\_\_ inches by \_\_\_\_\_ inch ball-bearing full mortise hinges.
  - f. Strike Preparation for Single Doors: 4-7/8 inches universal.
- 2. Finish: Factory Primer Finish.
  - 3. Finish: Factory Baked Enamel Finish; Finish No. \_\_, \_\_\_\_\_ color.

## 2.7 REPLACEMENT STEEL DOORS AND FRAMES

- A. Replacement Steel Doors:
  - 1. Acceptable Product: Regent.
  - 2. Acceptable Product: Omega.
  - 3. Acceptable Product: Imperial.
  - 4. Acceptable Product: Versadoor.
  - 5. Construction: Specified in Steel Doors Article of this section.
  - 6. Sizes: Specially sized doors, fitting replacement frames; nominal sizes indicated in accepted shop drawing schedule.
  - 7. Fire Rated Doors: Furnish door units bearing UL Class Labels for fire ratings indicated in accepted shop drawing schedule.
  
- B. Replacement Steel Frames:
  - 1. Acceptable Product: Adaptor.
  - 2. Construction: Three-piece knock-down frames; cold-rolled steel, 16 gage.
    - a. Profile: \_\_\_\_\_.
    - b. Profiles: Indicated in accepted shop drawings.
    - c. Hinge Preparation: Recess for 4-1/2 inches high, standard weight, full mortise hinges.
    - d. Strike Preparation for Single Doors: 4-7/8 inches universal.
  - 3. Finish: Factory Primer Finish.
  
- C. Replacement Steel Frames:
  - 1. Acceptable Product: Retroset.
  - 2. Construction: Two-piece welded frames; cold-rolled steel, 16 gage.
    - a. Profile: Adjustable Type 50.

- b. Profile: Adjustable Type 55, with gasket kerf and fire rated smoke gasket.
  - c. Profiles: Indicated in accepted shop drawings.
  - d. Hinge Preparation: Recess for 4-1/2 inches high, standard weight, full mortise hinges.
  - e. Strike Preparation for Single Doors: 4-7/8 inches universal.
3. Finish: Factory Primer Finish.

## 2.8 ACCESSORIES

- A. Anchors: Manufacturer's standard framing anchors, specified in manufacturer's printed installation instructions for project conditions.
- B. 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.
- C. Astragals for pairs of non-labeled doors, one leaf active: Steel chair type overlapping type on inactive leaf.
- D. Astragals for pairs of labeled doors: Two piece overlapping type; steel edge channel on inactive leaf, steel overlap strip on active leaf.
- E. Astragals for pairs of labeled doors: Steel chair type overlapping type on inactive leaf.
- F. 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.
- G. Astragals for pairs of armored doors: Steel overlapping strip on each door, applied to opposite sides of door.
- H. Glazing trim for non-labeled doors: Extruded aluminum frame, mitered corners; screwless snap-in glazing beads; glazing pocket for indicated glazing thickness.
- I. Glazing trim for labeled doors: Steel frame, mitered corners; screw-on glazing beads; glazing pocket for 1/4 inch glazing thickness.

- J. Glazing trim for glazed-design doors: Steel channel screw-on glazing beads; glazing pocket for 3/8 inch glazing thickness.
- K. Silencers: Resilient rubber, black color.
- L. Glazing: Specified in Section 08800 - Glazing.

## 2.9 FABRICATION

- A. Steel Doors:
  - 1. Fabricate to conform to ANSI/SDI 100, and as follows:
    - a. Grade I, Standard Duty:
      - 1) Physical Endurance: ANSI 250.4, Level C.
      - 2) Structural: Resist 60 pounds per square foot air pressure inswing, 75 pounds per square foot air pressure outswing, in accordance with ASTM E 330.
    - b. Grade II, Heavy Duty:
      - 1) Physical Endurance: ANSI 250.4, Level B.
      - 2) Structural: Resist 75 pounds per square foot air pressure, inswing and outswing, in accordance with ASTM E 330.
    - c. Grade III, Extra Heavy Duty:
      - 1) Physical Endurance: ANSI 250.4, Level A.
      - 2) Structural: Resist 75 pounds per square foot air pressure, inswing and outswing, in accordance with ASTM E 330.
  - 2. 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.
  - 3. Lockset Preparation: Provide cutouts and reinforcement for mortise locksets in accordance with ANSI A115.1, backset 2-3/4 inches.
  - 4. Lockset Preparation: Provide cutouts and reinforcement for cylindrical lockset in accordance with ANSI A115.2, backset 2-3/4 inches.
  - 5. Closer Preparation: Continuous reinforcement across door width, welded to inside face of each face sheet.
  - 6. Top closure channels: Set back face of channel web flush with door top; weld to inside face of each face sheet.
  - 7. Bottom closure channels, recessed: Set flange edges flush with door bottom; weld to inside face of each face sheet.



8. Bottom closure channels, flush: Set back face of channel web flush with door bottom; weld to inside face of each face sheet.
9. Provide cut-outs in doors for lites and louvers in accordance with accepted shop drawings.
10. Install lites and louvers in doors:
  - a. Lite size in fire rated doors not to exceed ASTM E 152 limitations for indicated rating.
  - b. Provide operable-blade louvers with fusible-link operator in fire rated doors.

B. Steel Frames:

1. Three-piece knock-down frames: Head and jamb intersecting corners die-cut, mitered at 45 degrees, with locking tabs for rigid connection when assembled.
2. Factory-welded frames: Head and jamb intersecting corners mitered at 45 degrees, with full welded joints ground smooth.
3. 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.
4. Strike Preparation for Single Doors: Prepare frames for specified strike in accordance with ANSI A115.1 and ANSI A115.2.
5. 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.

2.10 FINISHES

- A. Chemical Treatment: Treat steel surfaces to promote paint adhesion.
- B. Factory Primer Finish: Meet requirements of ANSI A224.1
- C. Factory Baked Enamel Finish: Meet requirements of ANSI A250.3

PART 3 EXECUTION

3.1 EXAMINATION

- A. Have installer verify that project conditions are acceptable before beginning installation of frames.
  - 1. Verify that completed openings to receive knock-down wrap-around frames are of correct size and thickness.
  - 2. Verify that completed concrete or masonry openings to receive butt type frames are of correct size.
- B. Correct unacceptable conditions before proceeding with installation.

### 3.2 INSTALLATION

- A. Install frames in accordance with SDI 105.
- B. 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.
- C. Fill welded wrap-around frames in masonry construction with mortar as masonry is laid-up.
- D. Fill welded wrap-around frames in plaster construction with plaster as work progresses.
- E. If additives are used in masonry or plaster work during cold weather, field coat inside of steel frames with bituminous compound to prevent corrosion.

### 3.3 ADJUST AND CLEAN

- A. Adjust doors for proper operation, free from binding or other defects.
- B. Clean and restore soiled surfaces. Remove scraps and debris, and leave site and a clean condition.

END OF SECTION