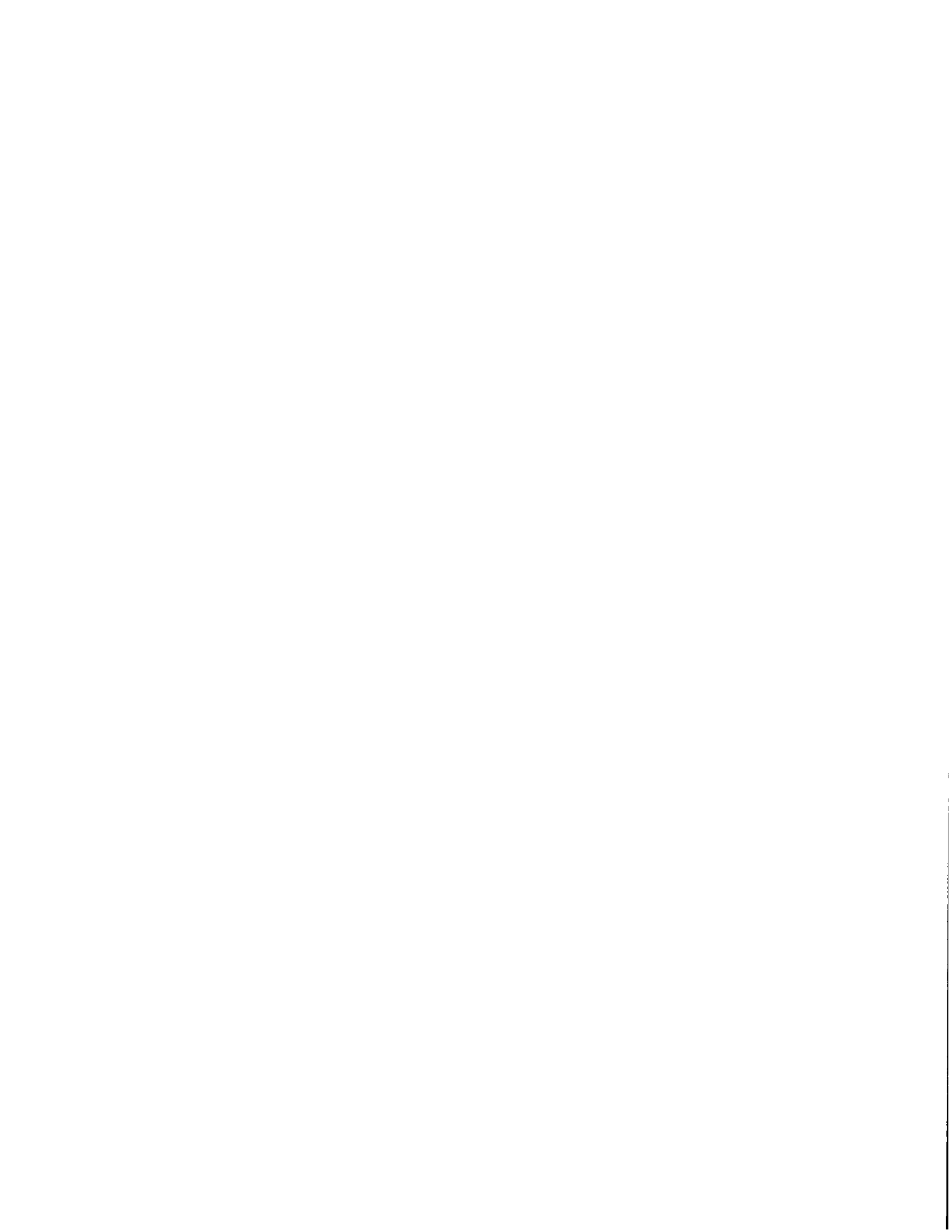


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## **SECTION 08110 – STEEL DOORS**

### **PART 1 GENERAL**

#### **1.01 SUMMARY**

- A. Section includes steel doors. Also included is door installation. Coordinate with louver manufacturer for proper cut-outs (see Section 10225 – Door Louvers).

#### **1.02 RELATED WORK**

- A. Section 08710 – Door Hardware
- B. Division 9 for painting
- C. Section 10225 – Door Louvers

#### **1.03 REFERENCES**

- A. American Society for Testing and Materials
  - 1. ASTM B 117 - Standard Practice for Operating Salt Spray (Fog) Apparatus
  - 2. ASTM E 283 – Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
  - 3. ASTM A 568 & A 569 – Standard Specification for Steel, Sheet, Carbon, Hot-Rolled, Commercial Quality.
  - 4. ASTM A 653 – Standard Specification for Steel, Sheet, Zinc-Coated (Galvannealed) by the Hot-Dip Process
  - 5. ASTM A 924 – Standard Specification for General Requirements for Steel, Sheet, Metallic Coated by the Hot-Dip Process
  - 6. ASTM D 1735 - Standard Practice for Testing Water Resistance of Coating Using Water Fog Apparatus
- B. American National Standards Institute
  - 1. ANSI A224.1 – Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames
  - 2. ANSI A250.3 – Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames
  - 3. ANSI A250.4 – Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing
  - 4. ANSI A250.6 (SDI 107) – Hardware on Standard Steel Doors (Reinforcement-Application)
  - 5. ANSI A250.7 – Nomenclature for Steel Doors and Steel Door Frames
  - 6. ANSI A250.8 (SDI-100) – Recommended Specifications for Steel Doors & Frames
  - 7. ANSI A250.10 – Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames
  - 8. ANSI/DHI A115 – Specifications for Hardware Preparations in Standard Steel Doors and Frames
  - 9. ANSI/DHI A115.IG – Installation Guide for Doors and Frames

C. Steel Door Institute

1. SDI 106 – Recommended Standard Door Type Nomenclature
2. SDI 108 – Recommended Selection and Usage Guide for Standard Steel Doors
3. SDI 109 – Hardware for Standard Steel Doors & Frames
4. SDI 111 – Recommended Standard Details for Steel Doors and Frames
5. SDI 112 – Zinc-Coated (Galvanized/Galvannealed) Standard Steel Doors & Frames
6. SDI 122 – Installation and Troubleshooting Guide for Standard Steel Doors and Frames
7. SDI 124 – Maintenance of Standard Steel Doors and Frames

1.04 REGULATORY REQUIREMENTS

- A. Doors and frames shall conform to applicable codes for fire ratings.
- B. Install fire labeled doors and frame products in accordance with NFPA-80, current edition.

1.05 SUBMITTALS

- A. Submit shop drawings, product data, and O&M data under provisions of Division 1.
- B. Indicate door elevations, material thickness, internal reinforcement, closure method, and cutouts for louvers.
- C. Submit manufacturer's installation instructions and other information as necessary to show specification and code compliance.
- D. Submit samples of manufacturer's colors for Owner selection.

1.06 DELIVERY, STORAGE AND PROTECTION

- A. Doors shall be stored in an upright position under cover. Place the units on at least 4-inch wood sills on floors in a manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters which create humidity chambers and promote rusting. If the corrugated wrapper on the door becomes wet, or moisture appears, remove the wrapper immediately.

**PART 2 PRODUCTS**

2.01 MANUFACTURERS

- A. Doors and Frames shall be manufactured by Amweld, Steelcraft, Fleming, Curries, or approved equal. All products supplied under this Section shall be from a single manufacturer.

2.02 MATERIALS

- A. Frames, frame components, and doors shall be manufactured tension leveled steel conforming to ASTM A924, galvanized to ASTM A653, commercial steel (CS), coating designation A40 (Galvanneal). Galvannealed steel shall be treated to insure proper paint adhesion. All steel component parts used in galvannealed doors and/or frames shall meet the galvanized specification.

- B. All exterior doors, frames and frame components shall be cleaned, phosphatized and finished as standard with one coat of rust inhibiting prime paint in accordance with ANSI A250.10. Exterior doors and frames will be field painted.

## 2.03 DOORS

### A. Exterior doors

1. 16-gage hot dipped galvanized steel, with closed tops.
2. Full-flush Seamless construction, continuous smooth welded or epoxy filled mechanically interlocked edge seams.
3. Sizes and style as shown on the drawings. Verify size and thickness with on-site measurements.
4. Rigid extruded polystyrene, polyisocyanurate, or polyurethane core, fire retardant, thermal value: R11.0 minimum, conforming to ASTM C578.

### B. Construction of Doors:

1. Doors shall be reinforced, stiffened, sound deadened and insulated with impregnated specified core completely filling the inside of the doors and laminated to inside faces of both panels using contact adhesive applied to both panels and core.
2. Door shall have continuous vertical mechanical interlocking or welded joints at lock and hinge edges with visible edge seams (interior) or with edge seam filled and ground smooth (exterior). The internal portion of the seam shall be sealed with epoxy, or welded. An intermittent fastening along the seam is not permitted. Doors shall have beveled (1/8" in 2") hinge and lock edges. Top and bottom steel reinforcement channels shall be galvanized 14 gage and projection welded to both panels.
3. Hinge reinforcements shall be 7-gage for 1-3/4" doors. Lock reinforcements shall be 16 gage and closer reinforcements 14 gage - box minimum 6" high and 20" long. Hinge and lock reinforcements shall be projection welded to the edge of the door. Doors shall be factory blanked, reinforced, drilled and tapped for fully templated hardware and factory blanked and reinforced for hardware that is not fully templated. Galvanized doors shall have galvanized hardware reinforcements. Adequate reinforcements shall be provided for other hardware as required. Coordinate with specified hardware. Hinge locations must match existing frames, Contractor to verify.
4. Trim for doors with cutouts shall be 24-gage steel conforming to ASTM designation A 924 hot dipped galvanized steel with a zinc coating of 0.06 ounces per square foot (A60). The trim shall be installed into the door as a four sided welded assembly. The trim shall cap the cutout but shall not extend more than 1/16" from the door face. The corners of the assembly shall be mitered, reinforced and welded. The trim shall be the same on both sides of the door. Exposed fasteners shall not be permitted. Label and non-label doors shall use the same trim.
5. All exterior out swing doors shall have the tops closed to eliminate moisture penetration. Door tops shall not have holes or openings. Top caps are permitted. All exterior doors shall include a self-adjusting, concealed door sweep installed in the bottom channel. The bottom seal shall not utilize springs.

6. Door faces shall be fabricated without visible seams, free of scale, pitting, coil brakes, buckles or waves.

**PART 3 EXECUTION**

3.01 EXAMINATION

- A. Verify door frame openings are installed plumb, true and level, and dimensionally correct before beginning the installation process. Make corrections and/or adjustments as necessary.
- B. Verify that proper door and frame reinforcement has been provided for the specified hardware and that cutouts and reinforcements are properly located.
- C. Select fasteners of adequate type, number and quality to perform the intended functions.
- D. Verify that louver cutouts are located and sized properly.

3.02 INSTALLATION

- A. Doors and frames shall be installed in accordance with ANSI/DHI A115.IG Installation Guide for Doors and Frames and manufacturer's installation instructions.
- B. Adjust operable parts for correct clearances and function.
- C. Exposed field welds shall be finished to present a smooth, uniform surface. Touch-up with rust inhibitive primer.
- D. Exposed surfaces that have been scratched or otherwise marred during shipment, installation or handling shall be touched-up with a rust inhibitive primer.
- E. Finish paint in accordance with Section 09900.

**PART 4 SPECIAL PROVISIONS**

4.01 MEASUREMENT AND PAYMENT

- A. Cost for work and materials in this Section shall be included as a portion of the lump sum bid price for the Project as stated on the Bid Form. No separate measurement for these quantities will occur.

**END OF SECTION**

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## **SECTION 08120 – ROLL UP DOORS**

### ***PART 1 GENERAL***

#### **1.01 SUMMARY**

- A. Section includes provisions for a steel weatherized roll up door, track, hub and other accessories.

#### **1.02 RELATED WORK**

- A. Division 9 for painting

#### **1.03 REGULATORY REQUIREMENTS**

- A. Doors and frames shall conform to applicable building codes.

#### **1.04 SUBMITTALS**

- A. Submit shop drawings, product data, and O&M data under provisions of Division 1.
- B. Indicate door elevations, material thickness, and wind load.
- C. Submit manufacturer's installation instructions and other information as necessary to show specification and code compliance.
- D. Submit samples of manufacturer's colors for Owner selection.

#### **1.05 DELIVERY, STORAGE AND PROTECTION**

- A. Doors shall be delivered to the site in the manufacturer's original, unopened container and packaging with labels clearly identifying the product name and manufacturer.
- B. Store materials in a clean dry place in accordance with the manufacturer's instructions. Keep containers sealed until ready to use.

### ***PART 2 PRODUCTS***

#### **2.01 MANUFACTURERS**

- A. Door, tracking, guides, hood and other products supplied under this Section shall be from a single manufacturer.

#### **2.02 CURTAIN**

- A. Roll-formed sections, factory-seamed from 26-gauge, Grade 80 galvanized steel. Full-length felt tape at each drum.

#### **2.03 BOTTOM ASSEMBLY**

- A. Zinc-coated steel bottom angle mounted to corrosion-resistant aluminum extrusion with stainless steel bolts. TPE blade astragal also included.

2.04 DRUM

- A. Stamped, continuously welded at the hub. 12" diameter x 1-1/2" wide. 16-gauge, zinc-coated steel. Three drums with doors up to 8' wide, four drums with doors over 8' wide.

2.05 GUIDES

- A. 16-gauge, zinc-coated, 2-3/4" deep. Featuring polypropylene guide runners to assure smooth operation and prevent steel-on-steel contact. Guide windlock bar manufactured from 12-gauge, zinc-coated steel.

2.06 INTERIOR LOCK

- A. 12-gauge, zinc-coated steel slide bolt engages a lock strike attached to the side guide. Two locks per door fasten to the bottom assembly and are suitable for padlocking.

2.07 PULL CHAIN

- A. Door operation shall be use of a manual chain hoist. Chain to have a locking bracket located on a guide angle.

2.08 SPRING COUNTERBALANCE

- A. Counterbalance: Housed in a steel pipe, maximum deflection of 0.03" per foot of door width is achieved by having the appropriate diameter and wall thickness.
- B. Springs: Helical torsion with a 25% overload factor for ease of operation and are greased packed mounted on a cold rolled steel inner shaft.
- C. Spring Tension: Can be adjusted from outside of end bracket plate.
- D. Ball Bearing: Sealed in order to minimize wear of pipe shaft rotating around inner shaft.

2.09 HOOD

- A. Hoods: To completely enclose curtain and counterbalance, hoods shall be provided form #24 U.S. Gauge galvanized steel.
- B. Reinforcing: Hoods can be reinforced laterally to prevent sag.
- C. Intermediate Hood Supports: Provided where door width exceeds 16'.

**PART 3 EXECUTION**

3.01 EXAMINATION

- A. Verify door frame openings are installed plumb, true and level, and dimensionally correct before beginning the installation process. Make corrections and/or adjustments as necessary.
- B. Verify that proper door and guide reinforcement has been provided for the specified hardware and that cutouts and reinforcements are properly located.
- C. Select fasteners of adequate type, number and quality to perform the intended functions.

### 3.02 INSTALLATION

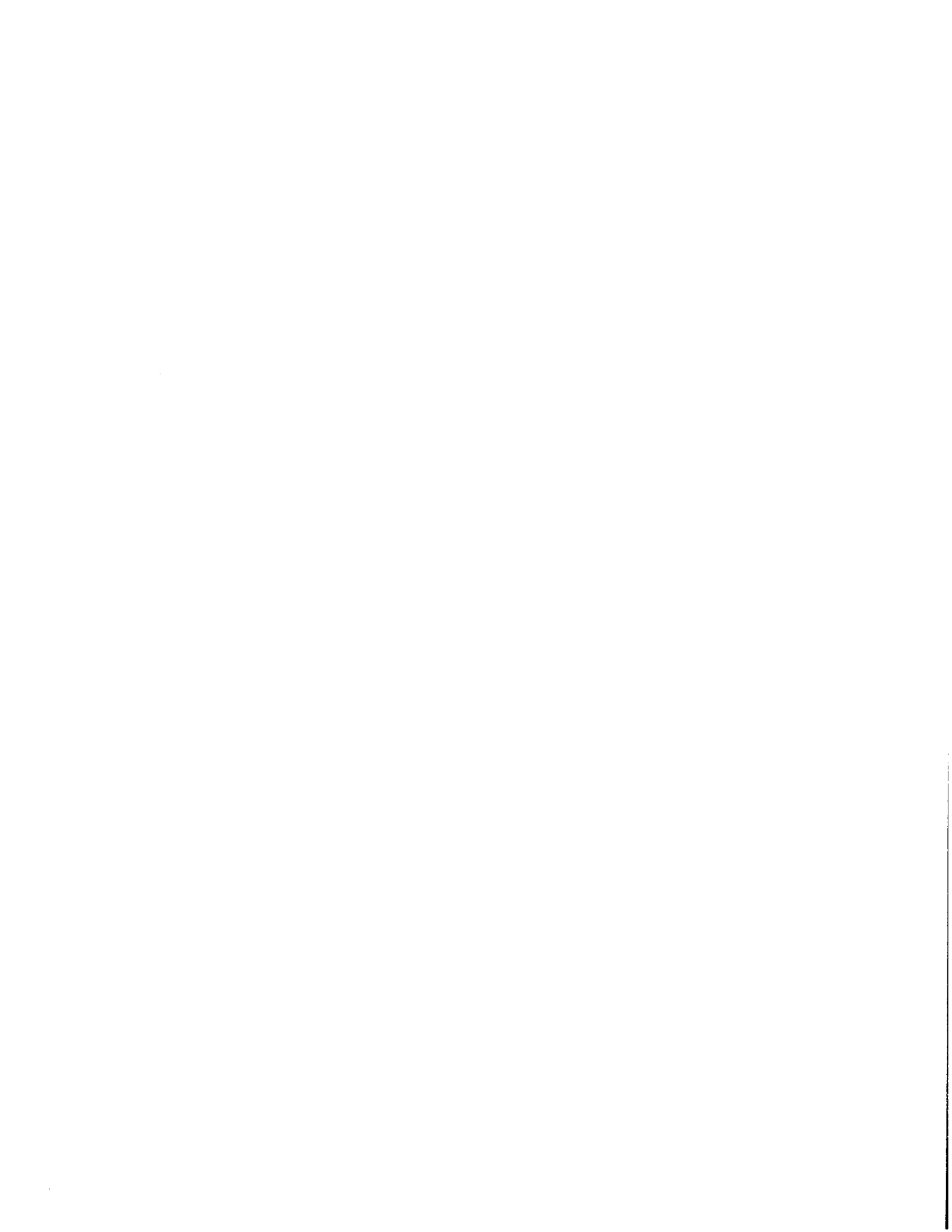
- A. Doors and frames shall be installed in accordance with ANSI/DHI A115.IG Installation Guide for the roll up door per manufacturer's installation instructions.
- B. Adjust operable parts for correct clearances and function.
- C. Exposed field welds shall be finished to present a smooth, uniform surface. Touch-up with rust inhibitive primer.
- D. Exposed surfaces that have been scratched or otherwise marred during shipment, installation or handling shall be touched-up with a rust inhibitive primer.
- E. Finish paint in accordance with Section 09900.

### **PART 4 SPECIAL PROVISIONS**

#### 4.01 MEASUREMENT AND PAYMENT

- A. Cost for work and materials in this Section shall be included as a portion of the lump sum bid price for the Project as stated on the Bid Form. No separate measurement for these quantities will occur.

**END OF SECTION**



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## **SECTION 08305 – CAST-IN ACCESS DOORS**

### **PART 1 GENERAL**

#### **1.01 SUMMARY**

- A. The work in this Section consists of furnishing all labor and materials, and performing all work necessary for the proper installation of cast-in-place metal access doors as indicated on Plans. Coordinate with access door manufacturer.

#### **1.02 REFERENCES**

- A. Section 03300 – Cast-In-Place Concrete.

#### **1.03 SUBMITTALS**

- A. Submit product data in accordance with Section 01300.
- B. Submit shop drawings showing layout, profile and product components including attachment, accessories, finish and color. Submit shop drawings for approval prior to fabrication.

#### **1.04 PROJECT CONDITIONS**

- A. Verify all dimensions before ordering product. Contractor is responsible for product fitment and function.

#### **1.05 DELIVERY, STORAGE AND HANDLING**

- A. General: Comply with Division 1 Product Requirements Sections.
- B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Sequence deliveries to avoid delays and minimize on site storage.
- D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by the Manufacturer. Protect from sunlight, weather, excessive temperatures and construction operations.

#### **1.06 WARRANTY**

- A. Provide written warranty signed by Manufacturer, agreeing to repair or replace equipment which exhibits defects in materials or workmanship for a minimum period of 5 years.

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**PART 2      PRODUCTS**

**2.01    ACCESS HATCHES**

- A.    Valve Vault Hatch shall be FLED-AOSH 48x72 or approved equal. Clear opening shall be 48-inch x 72-inch. Overall (outside frame) dimensions shall be no more than 55-inch x 79-inch.
- B.    Wetwell Hatch shall be FLET 36x84 or approved equal. Clear opening shall be 36-inch x 84-inch. Opening shall accommodate the Flygt NP3153.091 SH pumps. Overall (outside frame) dimensions shall be no more than 46-inch x 87-inch.
- C.    Flowmeter Hatch shall be 332AL or approved equal. Clear opening shall be 34-inch x 33.5-inch. Opening shall accommodate the 8" flowmeter. Overall (outside frame) dimensions shall be no more than 37-inch x 37.75-inch.
- D.    Access covers shall be designed for cast-in-place installation and be cast into the vault by the manufacturer. All surfaces that will come into contact with concrete shall be coated with bitumastic paint.
- E.    Access covers shall be single leaf with integral safety grate. Safety grate shall not allow hatch to be closed unless the fall through protection has been put back in place. Safety grate shall be constructed of aluminum and painted safety orange. Safety grate shall have a load rating at least equal to the load rating of access cover. Safety grate must be able to rotate 180° on a side (i.e. open either to the right or left) by moving grate hinges.
- F.    Frame shall be extruded aluminum channel and all surfaces that will come into contact with concrete shall be coated with bitumastic paint. Frame shall be rated for 300 pounds per square foot.
- G.    Hatch shall be constructed of ¼" thick aluminum diamond tread plate. Hatch shall be equipped with pneumatic-spring lift assist and automatic hold-open arm. Hatch must be easily opened such that one person can reasonably open hatch with one hand.
- H.    Hatch shall be equipped with a stainless steel slam lock with protected keyway. Lock shall be fastened with 316 stainless steel hardware.
- I.    Hinge shall be 316 stainless steel construction with 316 stainless steel hinge pin. Hardware shall be 316 stainless steel.
- J.    Hatch shall be equipped with a stainless steel flush drop handle.
- K.    All hatches shall be lockable with the use of a padlock.
- L.    Latch shall be stainless steel slam lock with fixed interior handle. Latch release shall be protected by a removable threaded plug.
- M.    Each door shall be equipped with automatic hold-open arms with grip handle release. Each door shall be easily opened by one person with one hand operation. Door shall lock open in the 90 degree position.
- N.    Manufacturer shall be Syracuse Castings (available through Flygt for pump access applications) or Bilco.

**PART 3      EXECUTION**

3.01    INSTALLATION

- A.      Install per manufacturers recommendations and per contract drawings. Steel rebar shall not be allowed to be in contact with any portion of aluminum frame. Hatches shall open in direction indicated on drawings. No alteration of location or orientation will be allowed without written approval by the Engineer.

**PART 4      SPECIAL PROVISIONS**

4.01    MEASUREMENT AND PAYMENT

- A.      Cost for work and materials in this Section shall be included as a portion of the lump sum bid amount for the project as stated on the Bid Form. No separate measurement for work in this Section will occur.

**END OF SECTION**



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## **SECTION 08710 – DOOR HARDWARE**

### **PART 1 GENERAL**

#### **1.01 SUMMARY**

- A. Section includes items known commercially as finish hardware or builders hardware, required for swing and other doors.
- B. Types of finish hardware may include: hinges, lock cylinders and keys, lock and latchsets, bolts, thresholds, protection plates, weatherstripping, sound stripping, astragals, and other miscellaneous door hardware as required.

#### **1.02 REFERENCES**

- A. ANSI A117.1 – American National Standards Institute Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People
- B. ANSI A115.1 – Specification for Standard Steel Door and Frame Preparation for Mortise Locks for 1 3/8" and 1 3/4" Doors
- C. ANSI A115.2 – Specification for Standard Steel Door and Frame Preparation for Bored or Cylindrical Locks for 1 3/8" and 1 3/4" Doors.
- D. ANSI/BHMA A156.2 – Bored and Preassembled Locks and Latches
- E. ANSI/BHMA A156.13 – Mortise Locks and Latches
- F. ANSI/BHMA A156.18 – Materials and Finishes
- G. National Fire Protection Association (NFPA) Standard No. 80. This requirement takes precedence over other requirements for such hardware.

#### **1.03 SUBMITTALS**

- A. Submit Hardware Schedule, 3 copies
  - 1. Detailed hardware schedule shall be prepared by an experienced hardware consultant. All items shall be suitable for the intended location and purpose.
  - 2. Hardware finish and styles shall match as closely as possible at all locations.
  - 3. Organize hardware schedule into "hardware sets" for each door, indicating complete designations of every item.
  - 4. Include manufacturer's technical data and hardware directions for each door.
  - 5. Do not order materials until Schedule has been reviewed and approved by the Engineer.
- B. Deliver templates to fabricators of other work which is to receive finish hardware.

#### **1.04 QUALITY ASSURANCE**

- A. Use products of similar type from one manufacturer throughout project. Coordinate with manufacturer for proper use and installation of each piece of hardware.

- B. Hardware supplier shall be a recognized builders hardware supplier, who has been furnishing hardware in Oregon for a period of not less than 3 years. Supplier shall employ an experienced AHC certified hardware consultant, available for consultation during the course of the work.
- C. Hardware supplier shall prepare detailed hardware schedule based on these specifications and their experience for the best use and function of hardware.

#### 1.05 WARRANTY

- A. Blanket coverage on locksets for a minimum period of 5 years. Mechanical failure on door closers for 5 years. Failure on other parts of hardware for 2 years. These minimums may be superceded by specific requirements in the following sections.

### **PART 2 PRODUCTS**

#### 2.01 FINISH

- A. All hardware shall have a silver satin (dull, brushed) finish. Finishes from various manufacturers and different hardware shall be matched as closely as possible.

#### 2.02 HINGES

- A. Five knuckle, button tip, full mortise template type with non-rising loose pins and ball bearings. Manufactured by Stanley; or approved equal.
- B. Doors up to 36-inches wide: 4.5-inch by 4.5-inch. Provide at least 3 hinges per leaf for doors up to 86-inches high.
- C. Exterior Doors: 4 ball bearing, stainless steel, 0.180 gage minimum hinges with non-removable pin construction.

#### 2.03 LOCKS

- A. Heavy-Duty Cylindrical Locks and Latchsets. Reversible door handing. Solid cast Lever handles. Stanley/Best Access 9K Series.
  - 1. Lockset must be cylindrical type with minimum 2 ¾-inch backset, with 9/16-inch throw latchbolt.
  - 2. Lockset with 7-pin interchangeable and masterkeyed core.
  - 3. Keyed lever to be removeable only after core is removed, by authorized control key, to allow access to lever "keeper".
  - 4. Locks to have solid shank with no opening for access to keyed lever keeper.
  - 5. Locksets and latchsets must conform to ANSI A156.2, Series 4000, Grade 1. and be UL listed.
- B. Heavy-Duty Commercial Security Deadbolts. Stanley/Best Access Systems T Series.
  - 1. High strength, solid stainless steel deadbolts.
  - 2. 1-Inch throw, 5/8-inch x 7/8-inch bolt.
  - 3. Solid brass or bronze rotating cylinder rings.
  - 4. Solid bronze or brass cylinders.
  - 5. Interchangeable 7-pin tumbler, masterkeyed.
  - 6. Meets all ANSI 156.5 Grade 1 requirements, UL listed.