



## SECTION 08 11 16

### ALUMINUM HINGED AND PIVOT DOORS AND FRAMES

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#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Aluminum hinged doors and frames.
- B. Aluminum pivot doors and frames.

##### 1.2 RELATED SECTIONS

- A. Section 06 10 00 - Rough Carpentry.
- B. Section 06 20 00 - Finish Carpentry.
- C. Section 07 90 00 - Joint Protection.
- D. Section 08 32 13 - Sliding Aluminum-Framed Glass Doors.
- E. Section 08 35 13.13 - Accordion Folding Doors.
- F. Section 08 51 13 - Aluminum Windows.
- G. Section 08 44 16 - Glazed Bronze Curtain Walls.

##### 1.3 REFERENCES

- A. Aluminum Anodizers Council (AAC):
  - 1. AAC Class 1 -Anodized Architectural Aluminum Coatings.
- B. American Architectural Manufacturers Association (AAMA):
  - 1. AAMA/WDMA/CSA/101/I.S.2/A440-11 - North American Fenestration Standard/Specification for windows, doors, and skylights.
  - 2. AAMA 611.98 - Voluntary Specification for Anodized Architectural Aluminum.
  - 3. AAMA 2605 - Voluntary Specifications, Performance Requirements and Test Procedures for Pigmented for High Performance Organic Coatings on Aluminum Extrusions and Panels.
- C. American National Standards Institute (ANSI):
  - 1. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
- D. ASTM International (ASTM):

1. ASTM C1036 - Standard Specification for Flat Glass.
  2. ASTM E 283 - Test Method for Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
  3. ASTM E 330 - Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
  4. ASTM E 547 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Cyclic Static Air Pressure Differential.
  5. ASTM E774 - Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units.
- E. Consumer Product Safety Commission (CPSC):
1. CPSC 16CFR-1201 - Safety Standard for Architectural Glazing Materials.
- F. National Fenestration Rating Council (NFRC):
1. NFRC 100 - Procedure for Determining Fenestration Product U-factors.
  2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
  2. Storage and handling requirements and recommendations.
  3. Installation methods.
- C. Shop Drawings: Include outside net frame dimensioning, direction of swing (outswing or inswing), swing orientation (left or right), typical head, side jamb, threshold, and door details and type of glazing material per vertical, plan and elevations view drawings.
- D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (152 mm) square, representing actual product, color, and patterns.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- F. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic checking, adjustment, cleaning, and maintenance of door, frame, and components.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide complete aluminum hinged door and frame system by a single source manufacturer with at least 5 years documented experience.
- B. Installer Qualifications: Installer with documented experienced in the installation of manufacturer's aluminum hinged door systems or similar and screen system to the products specified.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Finish areas designated by Architect.
  2. Do not proceed with remaining work until workmanship, color, and sheen are approved by the Architect.
  3. Remodel mock-up area as required to produce acceptable work.

- D. Pre-Installation Meetings: Conduct pre-installation meetings to verify project requirements, substrate conditions, construction documents, details and manufacturer's warranty requirements.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials in manufacturer's original, unopened, undamaged rolls/pallets with identification labels intact.
- B. Storage and Protection: Protect stored product from damage. Store products vertical in dry, well ventilated area out of direct sunlight, under cover, protected from weather, moisture and excessive dryness and construction activities.

## 1.7 SEQUENCING

- A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

## 1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

## 1.9 WARRANTY

- A. Provide manufacturer's standard limited warranty.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Substitutions: Not permitted.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

### 2.2 ALUMINUM HINGED DOORS AND FRAMES

- A. Basis of Design: Series 900: Aluminum Hinged Doors and Frames as manufactured by Western Window Systems.
  - 1. Aluminum hinged doors and frames, rails, stiles, and glazing to sizes indicated on the Drawings.
  - 2. Residential Step Threshold: 4.5 inch (114 mm) wide.
    - a. Exterior Step: 1 inch (25 mm) or 1.69 inch (43 mm) for inswing doors. No. E9860 as manufactured by Western Window Systems.
  - 3. Commercial Threshold: Low-profile meeting ADA requirements. Not warranted against water penetration. Not thermally broken.
  - 4. Performance Requirements:
    - a. Air Infiltration Per ASTM E 283: \_\_\_\_\_.
    - b. Water Infiltration Per ASTM E 547: \_\_\_\_\_.
    - c. Uniform Load Structural Per ASTM E 330: \_\_\_\_\_.
    - d. Uniform Load Design Pressure: \_\_\_\_\_.
    - e. Overall Design Pressure Rating: \_\_\_\_\_.

- f. Certifications:
  - 1) NFRC 100 for U-factor.
  - 2) NFRC 200 for Solar Heat Gain Coefficient (SHGC) and Visible Transmittance (VT).
- g. Thermally broken door and frame system.
- 5. Component Parts and Accessories: Aluminum alloy, plated steel, stainless steel, or nonmetallic materials to resist deterioration and corrosion.
- 6. Doors and Frames: Door frames, sidelites, and transoms shall be constructed using Western Window Systems' 4.5 inch (114 mm) deep frame system.
  - a. Material: Extruded aluminum stile, 6063-T5. Door panel stiles and rails shall have a nominal wall thickness of 0.125 inch (3 mm).
    - 1) Medium Stile: 4.71 inch (120 mm).
      - a) Width: 45 inch (1143 mm) maximum.
      - b) Height: 121.5 inch (3086 mm) maximum.
      - c) Top Rail: 4.18 inch (106 mm). Includes 0.75 inch (19 mm) stop for Duo-Pane glazing.
      - d) Bottom Rail: 7.17 inch (182 mm). Includes 0.75 inch (19 mm) stop for Duo-Pane glazing.
    - 2) Narrow Stile: 3.15 inch (80 mm).
      - a) Width: 39 inch (991 mm) maximum.
      - b) Hinged Pair Width: 75 inch (1905 mm) maximum.
      - c) Height: 109.5 inch (2781 mm) maximum.
      - d) Top Rail: 4.18 inch (106 mm). Includes 0.75 inch (19 mm) stop for Duo-Pane glazing.
      - e) Bottom Rail: 4.18 inch (106 mm). Includes 0.75 inch (19 mm) stop for Duo-Pane glazing.
  - b. Stops: Glazing secured with extruded aluminum snap-in stops, removable for glazing and reglazing.
  - c. Construction:
    - 1) Frame members fitted and mechanically joined at corners with stainless steel screws and ties rods.
    - 2) Door rails (horizontal members) shall be designed to nest with stiles (vertical members) to eliminate daylight and shine at cut edge.
    - 3) Stiles fabricated with interlock system that engages rails. Secured with tie rod assembly to ensure a permanent rigid connection at the top and bottom corners of the door panel.
  - d. Weatherstripping:
    - 1) Black Santoprene bulb at the doorframe stop, full perimeter on swing-out doors and at jambs, and head only on swing-in doors.
    - 2) Swing-in doors shall be equipped with multi-finger vinyl at the door bottom.
    - 3) Glazing shall be accomplished using a black extruded EDPM bulb on the interior, and a non-stretch extruded EDPM rubber wedge on the exterior.
- 7. Hardware:
  - a. Standard Type "A" Locking Hardware: Including a maximum-security plated steel lock case with latch bolt and lock bolt in one assembly.
    - 1) Eurostyle aluminum lever handles on the interior and exterior of all single doors and active panels of pairs.
      - a) Dummy levers for inactive panels.
  - b. Thumb Turn: Supplied on door interior.
  - c. Keyed Cylinder: Schlage 5-pin C keyway on door exterior.
  - d. Hinge: Continuous aluminum hinge between door and frame.
  - e. Inactive Panels: Top and bottom flush bolts and astragal assembly No. E9150 as manufactured by Western Window Systems.

- f. Door Frames: Equipped with stainless steel frame strike with dust box.
- g. Hardware Finish: Lever handles, continuous hinge, threshold, and astragal finished to match the frame.
  - 1) Cylinders, thumb turns, flush bolts, and faceplates shall be finished in bronze for bronze frames and in satin for all other frame finishes.
- h. Self-closing and self-latching hardware to meet swimming pool codes.
- i. Supply hardware with a 2.375 inch (60.5 mm) backset.
- j. Concealed overhead closure.
- 8. Glass: All glass to comply with safety glazing requirements of ANSI Z97.1 and CPSC 16CFR 1201.
  - a. Glazing: Argon Filled with LowE coating on No. 2 surface, from Cardinal Glass Industries.
    - 1) Glazing Type: LoE-270 all-climate coated glass.
    - 2) Glazing Type: LoE-366 high performance glass.
    - 3) Glazing Type: LoE-340 laminated, solar, and glare control glass.
    - 4) Glazing Type: As determined by the Architect.
    - 5) Glazing Type: \_\_\_\_\_.
    - 6) Enhanced Low-E Coating Used with Glazing Type Above: LoE-i89 enhanced winter performance glass.
    - 7) Overall Thickness: 1 inch (25 mm).
    - 8) Overall Thickness: As determined by the Architect.
    - 9) U-Factor: 0.60.
    - 10) U-Factor: As determined by the Architect.
    - 11) U-Factor: \_\_\_\_\_.
- 9. Aluminum Finish:
  - a. Provide same finish on inside and outside.
    - 1) Anodized Finish AAC - Class 1 Color: Satin.
      - a) Per AAMA 611.98.
    - 2) Anodized Finish AAC - Class 1 Color: Dark bronze.
      - a) Per AAMA 611.98.
    - 3) Paint Finish per AAMA - 2605.
      - a) Color: Hillside bronze.
      - b) Color: Bison beige.
      - c) Color: Navajo white.
      - d) Color: Briar.
      - e) Color: Stonish beige.
      - f) Color: Autumn night.
      - g) Color: Warmtone.
      - h) Color: Cinnamon toast.
      - i) Color: Western white.
      - j) Color: As determined by the Architect.
      - k) Color: \_\_\_\_\_.

### 2.3 ALUMINUM PIVOT DOORS AND FRAMES

- A. Basis of Design: Series 980: Aluminum Pivot Doors and Frames as manufactured by Western Window Systems.
  - 1. Aluminum hinged doors and frames, rails, stiles, and glazing to sizes indicated on the Drawings.
  - 2. Residential Step Threshold: 4.5 inch (114 mm) wide.
    - a. Exterior Step: 1 inch (25 mm) or 1.69 inch (43 mm) for inswing doors. No. E9860 as manufactured by Western Window Systems.
  - 3. Commercial Threshold: Low-profile meeting ADA requirements. Not warranted against water penetration.
  - 4. Performance Requirements:

- a. Air Infiltration Per ASTM E 283: \_\_\_\_\_.
- b. Water Infiltration Per ASTM E 547: \_\_\_\_\_.
- c. Uniform Load Structural Per ASTM E 330: \_\_\_\_\_.
- d. Uniform Load Design Pressure: \_\_\_\_\_.
- e. Overall Design Pressure Rating: \_\_\_\_\_.
- f. Certifications:
  - 1) NFRC 100 for U-factor.
  - 2) NFRC 200 for Solar Heat Gain Coefficient (SHGC) and Visible Transmittance (VT).
- g. Non-Thermally broken door and frame system.
- 5. Component Parts and Accessories: Aluminum alloy, plated steel, stainless steel, or nonmetallic materials to resist deterioration and corrosion.
- 6. Doors and Frames: Door frames, sidelites, and transoms shall be constructed using Western Window Systems' 4.5 inch (114 mm) deep frame system.
  - a. Material: Extruded aluminum stile, 6063-T5. Door panel stiles and rails shall have a nominal wall thickness of 0.125 inch (3 mm).
    - 1) Medium Stile: 4.71 inch (120 mm).
      - a) Width: 72 inch (1829 mm) maximum.
      - b) Height: 144 inch (3658 mm) maximum.
      - c) Top Rail: 4.18 inch (106 mm). Includes 0.75 inch (19 mm) stop for Duo-Pane glazing.
      - d) Bottom Rail: 7.17 inch (182 mm). Includes 0.75 inch (19 mm) stop for Duo-Pane glazing.
  - b. Stops: Glazing secured with extruded aluminum snap-in stops, removable for glazing and reglazing.
  - c. Construction:
    - 1) Frame members fitted and mechanically joined at corners with stainless steel screws and ties rods.
    - 2) Door rails (horizontal members) shall be designed to nest with stiles (vertical members) to eliminate daylight and shine at cut edge.
    - 3) Stiles to be fabricated with interlock system that engages rails. Secured with tie rod assembly to ensure a permanent rigid connection at the top and bottom corners of the door panels.
  - d. Weatherstripping:
    - 1) Black Santoprene bulb at the doorframe stop, full perimeter on swing-out doors and at jambs, and head only on swing-in doors
    - 2) Swing-in doors shall be equipped with multi-finger vinyl at the door bottom.
    - 3) Glazing shall be accomplished using a black extruded EDPM bulb on the interior, and a non-stretch extruded EDPM rubber wedge on the exterior.
- 7. Hardware:
  - a. Standard Type "A" Locking Hardware: Including a maximum-security plated steel lock case with latch bolt and lock bolt in one assembly.
  - b. Pull Handle: 48 inch (1219 mm) ladder-style.
    - 1) Finish: Brushed stainless steel.
    - 2) Finish: Black.
  - c. Thumb Turn: Supplied on door interior.
  - d. Keyed Cylinder: Schlage 5-pin C keyway on door exterior.
  - e. Hinge: Custom pivot hardware.
  - f. Door Frames: Equipped with stainless steel frame strike with dust box.
  - g. Hardware Finish: Threshold, and astragal finished to match the frame.
    - 1) Cylinders, thumb turns, flush bolts, and faceplates shall be finished in bronze for bronze frames and in satin for all other frame finishes.

- h. Self-closing and self-latching hardware to meet swimming pool codes.
- i. Concealed overhead closure.
- 8. Glass: All glass to comply with safety glazing requirements of ANSI Z97.1 and CPSC 16CFR 1201.
  - a. Glazing: Argon Filled with LowE coating on No. 2 surface, from Cardinal Glass Industries.
    - 1) Glazing Type: LoE-270 all-climate coated glass.
    - 2) Glazing Type: LoE-366 high performance glass.
    - 3) Glazing Type: LoE-340 laminated, solar, and glare control glass.
    - 4) Glazing Type: As determined by the Architect.
    - 5) Glazing Type: \_\_\_\_\_.
    - 6) Enhanced Low-E Coating Used with Glazing Type Above: LoE-i89 enhanced winter performance glass.
    - 7) Overall Thickness: 1 inch (25 mm).
    - 8) Overall Thickness: As determined by the Architect.
    - 9) U-Factor: 0.72.
    - 10) U-Factor: As determined by the Architect.
    - 11) U-Factor: \_\_\_\_\_.
- 9. Aluminum Finish:
  - a. Provide same finish on inside and outside.
    - 1) Anodized Finish AAC - Class 1 Color: Satin.
      - a) Per AAMA 611.98.
    - 2) Anodized Finish AAC - Class 1 Color: Dark bronze.
      - a) Per AAMA 611.98.
    - 3) Paint Finish per AAMA - 2605 minimum.
      - a) Color: Hillside bronze.
      - b) Color: Bison beige.
      - c) Color: Navajo white.
      - d) Color: Briar.
      - e) Color: Stonish beige.
      - f) Color: Autumn night.
      - g) Color: Warmtone.
      - h) Color: Cinnamon toast.
      - i) Color: Western white.
      - j) Color: As determined by the Architect.
      - k) Color: \_\_\_\_\_.

## PART 3 EXECUTION

### 3.1 EXAMINATION AND PREPARATION

- A. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.
- B. Verify dimensions of openings fit net frame dimensions of door system. Verify openings are level, plumb, and square, with no unevenness.
- C. Verify maximum deflection of header with the live load does not exceed the lesser of L/720 of the span and 1/4 inch (6 mm). Structural support for lateral loads including both wind load and when doors and door panels are open must be provided.
- D. Commencement of installation constitutes acceptance of conditions.

### 3.2 INSTALLATION

- A. Install products in strict accordance with manufacturer's instructions, recommendations, and approved submittals.

- B. Flash and waterproof the perimeter of the opening and frame.
- C. Securely fit frame, level, straight, plumb and square. Install frame in proper elevation, plane, location, and in proper alignment with other work.

### 3.3 CERTIFICATION

- A. Provide written certification that all components have been successfully operated, and will perform in accordance with the intent of this design.

### 3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Protect thresholds and floor channels from construction traffic.
- C. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION