

SECTION 08 11 16- ALUMINUM THERMAL FLUSH DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Cross Aluminum Flush Doors.
- B. Aluminum Door Frames

1.02 RELATED SECTIONS

- A. Section 04 20 00: Masonry (Frame Installation)
- B. Section 07 92 00: Joint Sealers
- C. Section 08 71 00: Door Hardware

1.03 REFERENCES

- A. ASTM B 209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- B. ASTM B 221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- C. ASTM B 308 - Aluminum-Alloy 6061-T6 Standard Structural Profiles.
- D. ASTM E 283 - Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- E. ASTM E 330 - Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- F. ASTM E 331 - Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- G. ASTM E 1886 – Standard Test Method for Performance of Exterior Windows, Curtain Walls, Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
- H. ASTM E 1996 – Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.

1.04 SYSTEM DESCRIPTION

- A. System Performance Requirements:

1. Air infiltration: When tested in accordance with ASTM E 283, the air infiltration should not exceed .04 cfm per square foot of fixed area.
2. Water Penetration: No water will pass through the entry system when tested in accordance with ASTM E 331 at a pressure of 6.24.
3. Uniform Load Deflection: Entry system shall be tested in accordance with ASTM E 330: 3840 Pa or 80.0 psf positive and negative.
4. Uniform Load Structural: Entry system shall be tested in accordance with ASTM E 330: 5760 Pa or 120.0 psf positive and negative.
5. Missile Impact: Entry system will pass double impact from large missile; ASTM E 1886.

1.05 SUBMITTALS

- A. General: Refer to Submittal Procedures – Section 01 33 00
- B. Product Data: Include manufacturer's product information, including material, elemental construction, fabrication, and finishes.
- C. Shop Drawings: Include shop drawings relating to dimensions, fabrication, finish and installation.
 1. Drawings should include the following:
 - a. Dimensions
 - b. Elevations with necessary detail keys
 - c. Entry system reinforcements (if applicable)
 - d. Fabrication and Finish
- D. Samples:
 1. Color: Provide manufacturer's samples of standard and non-standard finishes.
 2. Door: Supply manufacturer's door sample presenting finish, interior insulation, and standard reinforcement components.
- E. Test Results: Offer any required test results for particular jobs. Accredited test reports will be available upon request.
- F. Manufacturer's Instructions: Provide all necessary instructions for installation including glazing, anchoring, reinforcement (if applicable), and optimum performance installation.

1.06 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
 1. Manufacturing process with contemporary inspection using neoteric checklist for optimum field performance.
 2. Manufacturing same product specified for over 25 years.
- B. Pre-Installation Meetings: Plan initial pre-installation meetings for job details and regional regulations.

1.07 DELIVERY, STORAGE, HANDLING

- A. Packing: Finished products shall be packaged securely with appropriate labeling for protection and product identification visible on packaging.
- B. Shipping and Handling: Deliver materials to site in original condition and packaging without any damage to packaging or materials.
- C. Unloading: Individually packaged products to be unloaded by hand truck or 2-person team lift (or more if needed) to avoid unnecessary damage.
- D. Storage and Protection:
 - 1. Store items indoors away from excessive amounts of moisture.
 - 2. Protect entry doors against damage from outdoor hazards and during the entire installation
- E. Waste Management: Refer to contact information apparent on packaging for appropriate recycling opportunities.

1.08 WARRANTY

- A. Warrant doors and frames to be free from defects and premature degradation of finish and door structure.
- B. Warranty period will be ten years from the date of manufacture.

PART 2 PRODUCTS

2.01 MANUFACTURER

Subject to compliance with requirements, provide basis of design products by Cross Aluminum Products, FLT-400 Series with required aluminum frames. Web: www.crossaluminum.com. Email: door@crossaluminum.com or similar products by one of the following:

- A. CMI Architectural
- B. EFCO Corporation.
- C. Kawneer North America, an Arconic company

2.02 THERMAL ALUMINUM FLUSH DOORS

- A. Product: basis of design FLT-400 Series with required aluminum frames.
- B. Door Opening Size: [refer to drawings]
- C. Door Assembly:
 - 1. Door Stile: To be aluminum alloy 6063; temper to be T5 with a minimum 1/8" wall thickness.
 - 2. Stile Thickness: To be 1 3/4" thick tubular extrusion.
 - 3. Door Joinery: Joinery shall be 3/8" diameter zinc plated tie rods bolted through interlocking stiles. Minimum of 3 tie rods per door (where applicable).

- 4. Top of Door: To receive added 1/8" reinforcement closer plate adhered to interior wall for door closer hardware.
- 5. Top/Bottom of Door: To receive 1/8" thick cap for further seal and to trim the top and bottom of door.
- D. Pattern:
 - 1. Inside Door Face[Fluted] or [Smooth]
 - 2. Outside Door Face [Fluted] or [Smooth]
- E. Insulation: Polyisocyanurate Rigid Foam

2.03 MATERIALS & ACCESSORIES

- A. Aluminum:
 - 1. ASTM B 221, alloy and temper to be 6063 T-5 or similar alloy and temper recommended by manufacturer for optimum finish results and consistency.
- B. Internal Reinforcement
 - 1. ASTM B 308, for structural aluminum.
- C. Fasteners
 - 1. Material: Aluminum, 18-8 Stainless Steel, or other non-corrosive materials compatible with items being screw applied.
 - 2. Exposed:
 - a. Type: Fasteners exposed will be Philips flathead fasteners unless provided by other supplier.
 - b. Finish: Fasteners to match appropriate finish on standard doors and frames.
 - 3. Concealed: To be standard according to manufacturer's standards.
- D. Weather stripping:
 - 1. Wool pile:
 - a. Material: Solid Propylene Base with resilient fibers.
 - b. Color: Manufacturer's standard black color.
- C Thermal Bar:
 - 1. Thermal I-Strut. Mechanically attached to thermally Break Tubular extrusions:
 - a. Material to be Polyamide 6.6 with 25% glass fibers
 - b. Color: manufacturer's standard black color

2.04 HARDWARE

- A. Hardware Preparation: To be fabricated at factory according to hardware templates provided.
- B. Hardware Installation: To factory install all applicable and supplied hardware to doors and frames.
- C. Hardware Reinforcement: To provide necessary reinforcement for proper longevity and hardware function; ASTM B 209 and/or ASTM 308.

- D. Hardware types:
1. Butt Hinges
 2. Continuous Gear Hinges
 3. Pivot Hinges
 4. Closers
 6. Concealed Overhead Stops
 7. Push Bars
 8. Panic Exit Devices
 9. Pull Handles
 10. Mortise Locks
 11. Manual Flush Bolts
 12. Cylindrical Locks
 13. Dead Locks
 14. Electric Power Transfer
 15. Electric Strikes
 16. Position Switches
 17. Kick Plates
 18. Door Sweeps
 19. Thresholds
 20. Other
- E. Hardware Finish: See Hardware Schedule

2.05 FABRICATION

- A. Processes:
1. Job Preparation:
 - a. Preliminary Analysis: Job drawings to indicate door types, sizes, vision lite configuration(s), and finishes.
 - b. Fulfill Custom Requirements: Follow through on any specific deviations from standard requirements.
 2. Assembly:
 - a. Product Operation: Measure, cut, and fabricate required materials for designated job.
 - b. Product Refinement: Smooth rough cut edges.
 - c. Arrangement: Place prepared structural fasteners inside door to conceal from view.
 - d. Reinforcement Preparation: To apply necessary structural and hardware reinforcement in beneficial areas of doors and frames where needed.
 3. Fitting:
 - a. Placement: Product materials to fit accurately in appropriate locations.
 - b. Alignment: Doors to be in proper alignment with intended elevations.
- B. Tolerances: Doors and/or frame elevations will not deviate from last revised and approved drawings.

2.06 FRAMING SYSTEMS

- A. Framing Members: Manufacturer's standard aluminum extruded profiles with required thickness for load support.
 - 1. Vertical Jamb Sizes: [1 3/4" x 4 1/2] [2"x 4 1/2"] [2" x 6 1/2"]
 - 2. Header Sizes: [1 3/4" x 4 1/2"] [2" x 4 1/2"] or [4" x 4 1/2"]
- B. Clips and Reinforcements: Manufacturer's standard high strength aluminum: ASTM B 221 and/or ASTM B 308.
- C. Fasteners and Accessories: Manufacturer's standard non-bleeding and non-corrosive material congruent to adjacent material.
 - 1. Exposed Fasteners: To be stainless steel Philips flathead screws with appropriate finish: ASME B 18.6.4
 - 2. Concealed Fasteners: To be manufacturer's standard.
- D. Assembly:
 - 1. Framing members are separate aluminum pieces cut to length and mechanically fastened from either spline or clip systems.
 - 2. Joinery to be hairline.
 - 3. Sommer and Maca Dymonic or Dow Corning® 795 Sealants applied on applicable areas.
 - 4. Framing elevations to be identified according to final approved drawings.
- E. Anchoring:
 - 1. Appropriate anchoring fasteners to be secured no more than 18" apart on entire frame opening.
 - 2. Frame headers to receive no less than 2 anchoring fasteners.
 - 3. Add extra fasteners where hardware and hinge may require more.
- F. Doorstop:
 - 1. To be #CDM-32.
 - a. Wall Thickness: To be 3/16" thick for receiving applicable hardware.
 - b. Profile Height: To be no less than 5/8" high.
 - 2. Snap-in: Fits standard manufacturer's door jamb profiles.
 - 3. To receive weather strip around acting door leafs.
 - a. Wool pile: Solid Propylene Base with resilient fibers in a standard black color.
- G. Hardware Preparation:
 - 1. Intramural Work: Hardware preparation according to hardware suppliers' templates.
 - 2. Field Work: Refer to manufacturers' installation instructions.

2.08 LOUVERS

- A. Style: Extruded Aluminum, mitered corners secured with reinforcing clips, inverted-Y design.
- B. Dimension: To match existing.
- C. Finish: Clear
- D. Installation: Louvers to be factory installed and removable from interior only.

2.09 FINISHES

- A. Standard Anodic Finishes:
 - 1. Clear 204 R1: Architectural Class 11, AA-M12C22A31, 0.4 mils.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine conditions for compliance with requirements for installation tolerances and other conditions affecting proper installation.

3.02 INSTALLATION

- A. Comply with manufacturer's instructions.
- B. Do not install damaged components.
- C. Install doors plumb, level, and square, with no warp or rack in frame.
- D. Hang doors with the following required clearances:
 - 1. Lock Stiles: 0.125"
 - 2. Between Meeting Stiles: 0.187" - 0.250"
 - 3. At Top Rails: 0.125"
 - 4. Between Bottom Rail and Threshold: 0.125" - 0.187"
- E. Fit joints to produce hairline joints free of burrs and distortion.
- F. Rigidly secure non movement joints.
- G. Install recommended anchors with separators to prevent metal corrosion and electrolytic deterioration.
- H. Seal joints watertight, unless otherwise indicated.
- I. Place thresholds in proper weather sealant.

3.03 ADJUSTING

- A. Fine-tune doors and hinges to operate properly without bind or sag.
- B. Adjust pressure settings on closers.
 - 1. For doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches from the latch measured to the leading door edge.

3.04 CLEANING

- A. Immediately clean doors after installation.
- B. Avoid any harsh cleaners not specified on manufacturer's cleaning and care guide.

3.05 PROTECTION

- A. Follow Manufacturer's guide to cleaning and care for proper treatment on entrances for optimum longevity, function, and performance.

END OF SECTION