

(Specifier Note: The purpose of this guide specification is to assist the Specifier in correctly specifying FEMA compliant bullet, impact and wind resistant aluminum door assemblies and their installation as components of storm shelters that comply with ICC 500-2020 and ICC 500-2014. Additionally, these assemblies meet UL-752 Level 3 Bullet Resistance criteria.

The Specifier needs to edit this guide specification to fit the needs of each specific project. References have been made within the text of the specification to MasterFormat section numbers and titles. The Specifier needs to coordinate these numbers and titles with sections included for the specific project.

Throughout the guide specification, there are Specifier Notes to assist in the editing of the file. Brackets have been used to indicate when a selection is required. Contact an Insulgard representative for further assistance with appropriate product selections)

SECTION 08 42 13.13 – WIND AND IMPACT SECURITY ALUMINUM ENTRANCES
Insulgard STORMDEFEND TTH350
Tornado and Hurricane Storm Shelter Architectural Aluminum Door Assemblies
For use in FEMA P-361-21/15/ICC 500-20/14 Storm Shelter

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Impact, Wind and Ballistic Resistant Aluminum Door Assemblies

1.2 ACTION SUBMITTALS

- A. Refer to Section **[01 33 00 Submittal Procedures] [Insert section number and title]**.
- B. Product Data: For each type of door assembly, including manufacturer recommended installation instructions.
- C. Shop Drawings: Include plans, elevations, sections, details, attachment to other work **[and glazing details for field-glazed units]**.
- D. Samples: For each exposed finish.

1.3 INFORMATION SUBMITTALS

- A. Product Certificates: Indicating compliance with
 - 1. ICC 500-**[2020] [2014]** and FEMA P-361-**[2021] 20155]** requirements
 - 2. UL 752 Level 3
- B. Warranty: Sample of finish warranty

(Specifier Note: Substantial changes have been made and incorporated into the 2014 and more recent versions of ICC 500, including the requirement for the testing and labeling of units by a third-party agency.)

- C. Special Inspection Report: As indicated in **[Section 01 45 33 - Code-Required Special Inspections and Procedures]** **[Insert section number and title]**.
- D. Qualification Data: For Installer and Testing Agency

1.4 CLOSEOUT SUBMITTALS

- A. Refer to Section **[01 78 00 Closeout Submittals]** **[Insert section number and title]**.
- B. Maintenance data.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Refer to Section **[01 60 00 Product Requirements]** **[Insert section number and title]**.

1.6 WARRANTY

(Specifier Note: The 5-year finish warranty applies to the Class I anodic finishes and the 10 year applies to the 70% PVDF coating finish.)

- A. Finish Warranty: Manufacturer's warranty against deterioration of factory finishes for the period of **[5]** **[10]** years from the date of Substantial Completion.
- B. Glass Warranty: Manufacturer's warranty against defects in material and workmanship resulting in edge separation or delamination for a period of 5 years from the date of Substantial Completion.

PART 2 - PRODUCTS

(Specifier Note: Product information is proprietary to Insulgard Security Products. If additional products are required for competitive procurement, contact Insulgard, Inc. for assistance in listing competitive products that may be available.)

2.1 ALUMINUM ENTRANCES

- A. Basis of Design: Insulgard STORMDEFEND TTH350 Tornado and Hurricane Storm Shelter Aluminum Door Assembly by Insulgard Security Products; Phone 800.624.6315; website www.insulgard.com
 - 1. Subject to compliance with requirements, manufacturers of products of equivalent design may be acceptable if approved in accordance with **[Section 01 25 00 Substitution Procedures]** **[Insert section number and title]**.
- B. Description

1. Factory fabricated door assembly constructed from either 6105-T5 or 6005-T5 extruded aluminum.
2. Dimensions: Wide Stile Door
 - a. Stiles: 5 inches by 2-3/8 inches
 - b. Top Rail: 7 inches by 2-3/8 inches
 - c. Bottom Rail: 8-1/2 inches by 2-3/8 inches
 - d. Glazing Stops: 1-3/4 inch face
3. Certification Label: Permanently mark unit with certification label of the certification agency acceptable to authorities having jurisdiction. Label to include manufacturers name, product name, design pressure; test pressure, missile criteria and ICC 500-~~2020~~ ~~2014~~ Certification Listing.

2.2 GLAZING

(Specifier Note: TOR-GARD Products conform to FEMA P-361-21, FEMA P-361-15 and UL 752 Level 3 requirements.)

- A. Wind, Impact and Level 3 Ballistic Resistant Laminated Glazing: TOR-GARD 30

2.3 PERFORMANCE CRITERIA

- A. Indicated areas of this project have been design for occupancy as a storm shelter. The Work identified in this Section is a component of that security occupancy as follows:

1. Type of Shelter: ~~Tornado~~ ~~Hurricane~~ ~~Both Tornado and Hurricane~~

(Specifier Note: SELECT shelter design wind speeds based on ICC 500-2020 or ICC 500-2014 Figure 304.2(1) for Tornadoes and Figure 304.2(2) for Hurricanes.)

- B. Shelter Design Wind Speeds: ~~As indicated on Drawings~~

1. Tornado ~~130~~ ~~160~~ ~~200~~ ~~250~~ MPH
2. Hurricane ~~160~~ ~~170~~ ~~180~~ ~~190~~ ~~200~~ ~~210~~ ~~220~~ ~~225~~ MPH

- C. Debris Hazard

(Specifier Note: Caution should be used in only requiring comparable products to be FEMA 361 compliant. Some products may only meet requirements of the lower wind speeds and may not be appropriate for the specific project location.)

1. FEMA P 361-21 Compliant: Pass missile-impact tests according to FEMA P 361-~~21~~ ~~15~~ / ICC 500-~~20~~ ~~14~~ in accordance with:
 - a. ASTM E1886 - Standard Test Method for Performance Of Exterior Windows, Curtain Walls, Doors And Impact Protective Systems Impacted By Missiles and Exposed To Cyclic Pressure Differentials
 - b. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.

(Specifier Note: For a tornado shelter to be FEMA 361 compliant - the assembly must resist the impact of a 15 pound 2 by 4 at the wind speed indicated in ICC 500-2020/2014 Table 305.1.1 based on the Shelter Design Wind Speed. Insulgard TTH350 glazed with Tor-Gard 30 will meet the tornado resistance requirements for the most stringent conditions.)

2. Tornado: Resists impact of a 15 pound 2 by 4 at **[80] [84] [90] [100]** MPH

(Specifier Note: For a hurricane shelter to be FEMA 361 compliant - the assembly must resist the impact of a 9 pound 2 by 4 at 0.50 times the shelter design wind speed. Insulgard TTH350 entrance glazed with Tor-Gard 30 exceed the FEMA requirement)

3. Hurricane: Resists impact of a 9 pound 2 by 4 at **[Design Wind Speed multiplied by 0.5]**

D. Pressure Testing

1. FEMA P-361 Compliant: Pass static pressure tests and cyclic tests according to FEMA 361-**[2021] [2015]** /ICC 500-**[2020] [2014]** in accordance with:

(Specifier Note: ASTM E330 is used for both tornado and hurricane shelters)

- a. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference

(Specifier Note: ASTM E1886 is used for hurricane shelters, DELETE if application is tornado shelter.)

- b. ASTM E1886 - Standard Test Method for Performance Of Exterior Windows, Curtain Walls, Doors And Impact Protective Systems Impacted By Missiles and Exposed To Cyclic Pressure Differentials

- E. Ballistic Resistant: Level 3 in accordance with UL 752 - Standard for Bullet-Resisting Equipment

2.4 FABRICATION

- A. Tolerances: All joints and connections shall be tight, providing hairline joints and true alignment of adjacent members.
- B. Door corner joinery of extruded and keyed aluminum spline with a continuous 3/8 inch diameter steel tie rod at top and bottom rails.

2.5 FINISH

- A. Factory-applied finish:

(Specifier Note: SELECT the project specific finish from the following. Baked Enamel may also be available but may require minimum quantities.)

1. **[Clear Anodic Finish]:** Architectural Class I, clear coating AA-M10C22A41 Mechanical Finish Chemical Finish: etched, medium matte; 0.70 mils minimum complying with AAMA 611 "Voluntary Specification for Anodized Architectural Aluminum"
2. **[Color Anodic Finish]:** Architectural Class I, color coating AA-M10C22A42/A44 Mechanical Finish Chemical Finish: etched, medium matte; 0.70 mils minimum complying with AAMA 611 "Voluntary Specification for Anodized Architectural Aluminum".

- a. Color: Dark Bronze.
- 3. **[PVDF-Based Coating]**: Fluoropolymer finish containing minimum 70 percent PVDF resins, in accordance with AAMA 2605 "Voluntary Specification, Performance Requirements and Test Procedures for Superior Performance Organic Coatings on Aluminum Extrusions and Panels"
 - a. Coats: **[two] [three] [four]** coat system,
 - b. Color: **[Insert color] [custom] [to be selected from manufacturer's full color range]**.

2.6 ACCESSORIES

- A. Anchors: Fully concealed.
- B. Glazing Gaskets: Manufacturer supplied EPDM gasket utilized as component of the tested assembly.

2.7 DOOR HARDWARE

(Specifier Note: In accordance with ICC-500-20 and ICC-500-14 Section 503.1, door locks and latching must be part of the tested door assembly. Consult with door manufacturer to identify available hardware options and functions appropriate for the project. Include project specific hardware components.)

- A. Manufacturer standard door hardware

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify field dimensions of opening prior to fabrication of door assemblies.
- B. Coordinate structural requirements to ensure proper attachment and support.

3.2 INSTALLATION

- A. Install doors and frames in accordance with manufacturer's recommendations and approved shop drawings.
- B. Provide required support and securely fasten and set doors and frames plumb, square, and level without twist or bow.
- C. Apply sealant in accordance with door and sealant manufacturer's recommendations as indicated in installation instructions. Wipe off excess, and leave exposed sealant surfaces clean and smooth

3.3 ADJUSTING AND CLEANING

- A. Adjust door to provide for correct operation and weather tightness.

(Specifier Note: The glazing utilized in this system contains polycarbonate, an impact resistant plastic that could be affected by some chemicals commonly used in the glass industry. Extreme caution should be used especially as related to cleaning products, sealants, setting blocks, gaskets and tape. Use of incompatible products may void the warranty.)

- B. Clean in strict accordance with manufacturer's recommended cleaning procedures using recommended cleaning agents.

3.4 PROTECTION

- A. Protect doors and glazing from damage during construction operations. If damage occurs, remove and replace as required to provide doors in their original, undamaged condition.
 - 1. In addition to breakage, damage includes but is not limited to crazing, cracking, fissures and delamination.

END OF SECTION