(**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 of components of storm shelters that comply with ICC 500-2008.

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 – SECURITY ALUMINUM ENTRANCES**

**Insulgard TH350 Impact and Wind Resistant Architectural Aluminum Door Assemblies**

For use in FEMA 361-08 /ICC 500-08 Storm Shelter

1. GENERAL
	* + 1. SECTION INCLUDES
				1. Impact and Wind Resistant Aluminum Door Assemblies
			2. ACTION SUBMITTALS
				1. Refer to Section **[01 33 00 Submittal Procedures] [Insert section number and title].**
				2. Product Data: For each type of door assembly, including manufacturer recommended installation instructions.
				3. Shop Drawings: Include plans, elevations, sections, details, attachment to other work [**and glazing details for field-glazed units**].
				4. Samples: For each exposed finish.
			3. INFORMATION SUBMITTALS
				1. Product Test Reports: Indicating compliance with requirements
				2. Warranty: Sample of finish warranty
				3. Special Inspection Report: As indicated in **[Section 01 45 33 - Code-Required Special Inspections and Procedures] [Insert section number and title].**
			4. CLOSEOUT SUBMITTALS
				1. Refer to Section **[01 78 00 Closeout Submittals] [Insert section number and title].**
				2. Maintenance data.
			5. DELIVERY, STORAGE AND HANDLING
				1. Refer to Section **[01 60 00 Product Requirements] [Insert section number and title].**
			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.)

* + - * 1. Finish Warranty: Manufacturer’s warranty against deterioration of factory finishes for the period of **[5] [10**] years from the date of Substantial Completion.
				2. 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.
1. 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.)

* + - 1. DOORS
				1. Basis of Design: Insulgard TH350 Impact and Wind Resistant Architectural Aluminum Door Assembly by Insulgard Security Products; Phone 800.624.6315; website [www.insulgard.com](http://www.insulgard.com)

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**].

* + - * 1. Description

Factory fabricated door assembly constructed from either 6105-T5 or 6005-T5 extruded aluminum.

Dimensions: Wide Stile Door

Stiles: 5 inches by 2-3/8inches

Top Rail: 7 inches by 2-3/8 inches

Bottom Rail: 8-1/2 inches by 2-3/8 inches

Glazing Stops: 1 inch face

* + - 1. GLAZING

*(****Specifier Note****: TOR-GARD Products conform to FEMA 361 requirements.)*

* + - * 1. Wind and Impact Laminated Glazing Material: TOR-GARD NBR2
			1. PERFORMANCE CRITERIA
				1. 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:

Type of Shelter: **[Tornado] [Hurricane] [Both Tornado and Hurricane]**

*(****Specifier Note****: SELECT shelter design wind speeds based on ICC 500-2008 Figure 304.2(1) for Tornadoes and Figure 304.2(2) for Hurricanes.)*

* + - * 1. Shelter Design Wind Speeds: **[As indicated on Drawings]**

Tornado **[130] [160 ] [200] [250]** MPH

Hurricane **[160] [170] [180] [190] [200] [210] [220] [225]** MPH

* + - * 1. 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.)*

FEMA 361 Compliant: Pass missile-impact tests according to FEMA 361 / ICC 500-2008 in accordance with:

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

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 500-2008 Table 305.1.1 based on the Shelter Design Wind Speed. Insulgard TH350 glazed with Tor-Gard NBR2 will meet the tornado resistance requirements for the most stringent conditions.)*

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 TH350 entrances glazed with Tor-Gard NBR2 exceed the FEMA requirement)*

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

* + - * 1. Pressure Testing

FEMA 361 Compliant: Pass static pressure tests and cyclic tests according to FEMA 361/ICC 500-2008 in accordance with:

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

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.)*

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

* + - 1. FABRICATION
				1. Tolerances: All joints and connections shall be tight, providing hairline joints and true alignment of adjacent members.
				2. 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. FINISH
				1. Factory-applied finish:

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

[**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"

[**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".

Color: Dark Bronze.

[**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”

Coats: [**two**] [**three**] [**four**] coat system,

Color: [**Insert color**] [**custom**] [**to be selected from manufacturer's full color range**].

* + - 1. ACCESSORIES
				1. Anchors: Fully concealed.
			2. DOOR HARDWARE
				1. Manufacturer Standard Door Hardware including:

(**Specifier Note**: In accordance with ICC-500-08 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.)

1. EXECUTION
	* + 1. PREPARATION
				1. Verify field dimensions of opening prior to fabrication of door assemblies.
				2. Coordinate structural requirements to ensure proper attachment and support.
			2. INSTALLATION
				1. Install doors and frames in accordance with manufacturer's recommendations and approved shop drawings.
				2. Provide required support and securely fasten and set doors and frames plumb, square, and level without twist or bow.
				3. 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. ADJUSTING AND CLEANING
				1. Adjust door to provide for weather tightness, and leave doors clean and free of debris.
			4. PROTECTION
				1. Protect doors and glazing from damage during construction operations. If damage occurs, remove and replace as required to provide windows in their original, undamaged condition.

END OF SECTION