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Model FIRE-STORM IMB<sup>®</sup>  
Insulated Slats  
Fire-Tite Rolling Doors

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NOTE: For specifications, architects must choose from a variety of options. The standard choice will be shown first in plain text followed by the options shown in [brackets] (Example “Finish: Galvanized [Powder coated] [Baked enamel]”). The specifier must make the appropriate choices and delete the others (Example: “Finish: Powder coated”).

**GENERAL**

1.01 SUMMARY

- A. This section includes: [Manual] or [Electric] operated, automatic closing, Insulated Windstorm Resistant Overhead Rolling Fire Door.
1. Successfully tested by Architectural Testing Institute (ATI) under Dade County protocols PA 201, PA 202, and PA 203 for a design load of  $\pm 60$  psf.
  2. Provide doors with Underwriter’s Laboratories, Inc. (UL) and Underwriter’s Laboratories of Canada (ULC) label for the fire rating classification. [4 hr.], [3 hr.], [1 ½ hr.], or [¾ hr.] UL and ULC approved doors to be in accordance with both fire and windstorm resistant standards.
  3. Design doors to withstand a windload of  $\pm 60$  psf, 1.5 safety rating (Dade County equivalent to a normal  $\pm 90$  psf rating) for doors up to 20’8” x 30’. Provide compatible analysis certified by a Florida professional engineer for doors over 20’8” x 30’.
  4. Manufacturer must be capable of providing certified Net Vertical and Net Horizontal reaction forces imposed on door jambs.
  5. Quality manufacturer listed by the Texas Department of Insurance’s Windstorm Resistant Construction Guide and the Texas Windstorm Insurance Association Building Code for Windstorm Resistant Construction.
  6. Cycle life: Design doors of standard construction for normal use of 10,000 cycles standard [up to 400,000 cycles].
  7. Manually resettable drop out mechanism with optional release devices. (For automatically resettable doors see specs for Auto Fire-Storm<sup>®</sup>)
- B. Related Sections: Related to this section, but not limited to, the following (based on Master Format 2004):
1. Section 01660 – Product Storage and Handling Requirements.
  2. Section 04220 – Concrete Unit Masonry.
  3. Section 05120 – Structural Steel.
  4. Section 06100 – Rough Carpentry.
  5. Section 08310 – Access Doors and Panels.
  6. Section 08710 – Door Hardware.
  7. Section 09290 – Gypsum Board.
  8. Section 09900 – Paints and Coatings.
  9. Section 26000 – Electrical.
  10. Section 28310 – Fire Detection and Alarm.



## 1.02 REFERENCES

- A. ASTM A 653/A 653M – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- B. ASTM A 36 – Standard Specification for Carbon Structural Steel, Hot Rolled Steel
- C. ASTM A 123 – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- D. ASTM A 312 – Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
- E. ASTM A 240 – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
- F. ASTM A 276 – Standard Specification for Stainless Steel Bars and Shapes
- G. ASTM A 31 – Standard Specification for Steel Rivets and Bars for Rivets, Pressure Vessels
- H. ASTM A 449 – Standard Specification for Quenched and Tempered Steel Bolts and Studs
- I. ASTM E 330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference
- J. Dade County PA-201, PA-202, PA-203: Large Missile Impact Test, Cyclic Wind Pressure Test, and Uniform Static Air Pressure Test
- K. ASCE 7-93 – Standard Minimum Design Loads on Buildings and Other Structures
- L. ASTM C 665 – Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
- M. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials

## 1.03 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide manufacturer's standard details and catalog data. Provide installation instructions.
- C. Shop Drawings: Furnish shop drawings for architect's approval. Include elevation, sections, and details indicating dimensions, materials, finishes, conditions for anchorage and support of each door.
- D. Submit manufacturer's recommended operation, troubleshooting, and maintenance instructions.

## 1.04 QUALITY ASSURANCE

- A. Manufacturer: Rolling doors shall be manufactured by a firm with a minimum of five years experience.
- B. Fire-Rated Assemblies: Provide all doors with fire resistance rating required to comply with governing regulations which are inspected, tested, listed and labeled by UL, complying with NFPA 80 for class of opening. Provide UL label permanently fasted to each fire door assembly. Door shall be tested under UL10B and ULC10B, and provided with a [4 hour] [3 hr.] [1 ½ hr.] [3/4 hr.] rating. Also Factory Mutual and NY MEA approved.
- C. Single-Source Responsibility: Manufacturer shall provide doors, tracks, motors, and accessories for each type of door. Secondary components shall come from a source acceptable to the manufacturer of the primary components.



#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packaging supplied by manufacturer with intact labels. Store materials away from harmful environmental conditions and construction.

#### 1.06 WARRANTY

- A. Door Warranty: Provide one year written warranty from date of installation against deficiencies due to defects in materials or workmanship. Installer agrees to repair or replace any defects in materials or workmanship.
- B. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURER

- A. Manufacturer: Alpine Overhead Doors, Inc.; 8 Hulse Road Suite 1S, East Setauket, NY 11733. Telephone 800-257-4634 or 631-473-9300. Fax 631-642-0800.
- B. Model: FIRE-STORM IMB® Windstorm Resistant Rolling Fire Door

#### 2.02 MATERIALS

##### A. Curtain:

1. Slats: Constructed of 7/8" thick interlocking, roll-formed Insulated Metal Backed (IMB) V7 slats. (Slat construction allows for dual coiling flexibility)
  - a) Slat/Back Cover Material:
    - i) Galvanized steel, G90 coating exterior (G60 interior), Structural Quality Grade C, as per ASTM A 653/ A 653 M  
Finish (Can be different for exterior/interior): Galvanized [Powder coated] [Baked enamel] (Minimum coating conforming with Coating Designation G-01 is required)  
– OR –
    - ii) ASTM 240 Stainless steel 300 series  
Finish (Can be different for slat and back cover): [Mill finish #2B] [#4 satin finish]
  - b) Insulation: Flame retardant mineral fiber and acoustical dampening insulation, ASTM C 665. Surface Burning Characteristics (per ASTM E 84 and UL 723): Flame Spread = 0, Smoke Developed = 0. [Polycrete]
    - i) Thickness: 7/8"
    - ii) R-Value: 8.0 (U-factor of 0.125) calculated using the ASHRAE Handbook of Fundamentals. Gauge: (Per manufacturer's standard)
      - i) Doors up to 20'8" wide: Minimum 21 gauge as manufacturer standard [20, 18, 16 gauge].
      - ii) Doors up to 12' wide: Minimum 22 gauge [20, 18, 16]
2. Endlocks and Windlocks:
  - a) Ductile cast iron, hot-dipped, galvanized endlocks riveted to each end of each slat with four Semi-tubular, Mushroom Head 1/4" rivets to prevent lateral movement and to limit slat deflection and bending stress. [Windlocks are dependent on windload and increase resistance to curtain jamming]



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3. Bottom Bar: Two roll formed steel angles of minimum 2"x2"x1/8", designed to reinforce curtain bottom. (Size dependent on dimensions per manufacturer's standard)
- a) Material:
- i) Galvanized Steel as per ASTM A 653/ A 653 M  
Finish: Gray shop prime [Powder Coated] [Baked Enamel]  
– OR –
- ii) ASTM 240 Stainless Steel 300 Series  
Finish: [Mill finish #2B] [#4 satin finish]
- b) Bolting:
- i) 20'8" wide: 1/4" bolts at 15" o.c.
- ii) 12' wide: 1/4" bolts at 20" o.c.
- c) Weather Stripping: Rubber astragal bolted between bottom angles (Dade County Approved).
- B. Guides:
1. Guides shall be designed using structural steel angles with a minimum thickness of 3/16", minimum 1 1/4" slotted connections, and removable bellmouth curtain stops to allow for curtain maintenance without removal of guides. Bellmouth stops shall be flush with guide groove.
- a) Angles:
- i) 20'8" wide: Wall angle 3 1/2 x 3 1/2 x 7/16", inside angle 2 1/2 x 2 1/2 x 3/8", outside angle 4 x 3 x 1/4".
- ii) 12' wide: Wall angle 2 1/2 x 3 1/2 x 1/4", inside angle 2 x 2 1/2 x 1/4", outside angle 3 x 3 3/16" min
- b) Bolting:
- i) 20'8" wide: Minimum 5/8" bolts at no more than 9" o.c.
- ii) 12' wide: Minimum 1/2" bolts at no more than 15" o.c.
- c) Material:
- i) ASTM A 36 Carbon Structural Steel  
Finish: Gray shop prime coat [ASTM A 123 Galvanized] [baked enamel paint] [powder coated].  
– OR –
- ii) ASTM 276 Stainless Steel 300 Series  
Finish: [Mill finish #2B] [#4 finish satin]
- C. Door Support Brackets and Mounting Plates:
1. Steel plate not less than 1/4" thick. Provide ball bearings at rotating support points. Bolt plates to wall mounting angles with minimum 1/2" fasteners. Plate supports counterbalance assembly and forms end enclosures.
- a) Material:



- i) ASTM A 36 Carbon Steel:  
Finish: Gray shop prime coat [ASTM A 123 Galvanized] [Baked enamel paint] [Powder coated].  
– OR –
- ii) ASTM 240 Stainless Steel 300 Series  
Finish: [Mill Finish #2B]

D. Counterbalance Assembly: Torsion

1. Counterbalance assembly: Steel pipe barrel of a size capable of carrying a curtain load with a maximum deflection of 0.03” per foot of door width. Heat-treated helical torsion springs encased in a steel pipe and designed to include an overload factor of 25% to ensure minimum effort to operate. Sealed and prelubricated high speed ball bearing at rotating support points. Torsion spring charge wheel for applying spring torque and for future adjustments.
  - a) Material:
    - i) ASTM A 36 Carbon Structural Steel  
Finish: Gray shop prime coat [A 123 Hot-Dip Galvanized]  
– OR –
    - ii) A 312 Stainless Steel 300 Series Finish: Mill finish
  - b) Life Cycle: High Cycle springs designed to satisfy 10m through 400m life cycles. Consult engineering if height exceeds width for any cycle above 20m. (Cycle defined as one time opening and closing of door)

E. Hood:

1. 24 gauge steel. Formed to fit the contour of the end brackets with reinforced top and bottom edges. Provide support bracing for doors wider than 20 feet at every 10 feet to prevent excessive sag. Fasten with minimum ¼” bolts at 10” o.c.
2. Shape: Hexagon [square] [round]
3. Material:
  - a) Galvanized Steel as per ASTM A 653/ A 653 M  
Finish: [Baked enamel paint] [Powder coated]  
– OR –
  - b) ASTM 240 Stainless Steel 300 Series:  
Finish: [Mill finish #2B] [#4 satin finish]
4. [Fascia]: Galvanized [Stainless Steel], provided where areas behind door hood are open. Materials and finish same as hood.

F. Locking:

1. Provide padlockable slide locks for latching and locking door on coil side bottom bar at each jamb extending into slots in guides. (Electric Interlocks recommended with motorized doors only)
2. Manual chain hoist: Provide padlockable chain keeper on guide.



### 2.03 OPERATION:

- A. Opening/Closing: Manual push-up [Manual hand chain] [Manual hand crank] [Motor Operator].
- B. Automatic closure is activated by fusible link [Fire Door Release Device].
- C. [Manual hand chain]:
  1. Provide chain hoist operator with endless steel chain, chain pocket wheel and guard, geared reduction unit, and chain keeper secured to guide.
- D. [Manual hand crank]:
  1. Provide crank hoist operator including crank gear box, steel crank drive shaft and geared reduction unit. Fabricate gear box to completely enclose operating mechanism and be oil-tight.
- E. [Motor Operators]:
  1. Choose ONE:
    - a) Medium-Duty, Alpine® Model Redi-Hoist™ driven by efficient V-belt primary drive with chain/sprocket secondary. Maximum ½ hp. For use on doors up to 10' x 10'.  
– OR –
    - b) Industrial-Duty, Alpine® Model Redi-Lift™ driven by heavy-duty V-belt with chain/sprocket secondary reduction. Optional auxiliary chain hoist. Maximum 1 hp. For use on doors up to 12' x 12'.  
– OR –
    - c) Heavy Industrial-Duty, Alpine® Model Redi-Master™ driven by heavy-duty worm gear in oil bath reduction. Standard auxiliary chain hoist. Standard ½ hp (maximum 3 hp)
  2. [Sensing Edges] (For double angle bottom bar): For motorized doors, sensing edges allow door to go up in case of obstruction. [Pneumatic Edge] [Electric Edge] [Wireless Edge].
    - a) Colors: Gray [Yellow] [Black] [White] [Yellow with black stripes]
- F. Release Devices:
  1. Fusible link with chain system:
    - a) Activation: Melting of fusible link at 165° Fahrenheit. When automatic closing is activated, chain shall disengage causing door to close.
    - b) Closing speed controlled by Integral Oscillating governor [Viscous governor].
    - c) Average closing speed: No less than 6" per second and not more than 24" per second as per NFPA 80 Section 6, paragraph 4.1.5.
  2. [Redi-Release™ Release Devices]: Electric Fail-Safe devices used in conjunction with fusible link. [Smoke detector] Choose ONE from either standard models or SS class:
    - a) Class 1: Manually operated system that can be tied into most fire alarm systems.  
– OR –
    - b) Class 2: All the features of Class 1, with the additional capability to allow motor operation. If operator is chosen, an electrical edge is recommended.



– OR –

- c) Class 3: All the features of Class 2 with the addition of standard Alpine Control Panel and Standard Electric Safety Edge. Allows door to automatically go up in case of an obstruction.

– OR –

- d) Class 4: All the features of Class 3 with the addition of the Alpine Uninterrupted Power Supply (Battery backup) that is self-activating during a power outage.

– OR –

- e) SS Class Model A: Includes independently adjustable delays of 10 seconds on alarm activations (10 sec. max. adjust) and 10 seconds on power loss (30 sec. max. adjust) with a hold/release rating of 40 lbs.
- f) SS Class Model B: All the features of model A with:
  - i) The hold open/release device shall recognize that the door is in the closed position and where motor driven, be capable of sensing that power is available to the motor. The device may be wired to close on alarm.
  - ii) [Audible and visual annunciators]: To operate during alarm closing cycle.
- g) SS Class Model B2: All the features of model B with:
  - i) 72-hour battery backup with low/no battery logic sounder.
  - ii) Sounder/Strobe annunciator: To sound during closure due to alarm or power loss.
- h) SS Class Model C: All the features of model B2 with:
  - i) Bottom bar sensing edge.
  - ii) Remote test plate.

#### 2.04 Mounting:

1. Interior face mounted on prepared opening.
2. Interior mounted between jambs and under lintel in a prepared opening.
3. Exterior face mounted on prepared opening.

#### 2.05 Fire Ratings:

1. Underwriter's Laboratories:

Doors are constructed to conform within requirements specified by Underwriters Laboratories, Inc. (UL) and Underwriter's Laboratories of Canada (ULC). Doors are automatic and self-closing, Class (A) (B) (C) (D) or oversized certificate.

4 hour - Approved for doors with openings not exceeding 162 sq. ft. in area.

Class (A) – 3 hour approved for doors in dividing fire walls with openings not exceeding 120 sq. ft. in area

Class (B) – 1 ½ hour approved for doors, in vertical shaft openings not exceeding 120 sq. ft. in area.

Class (C) – ¾ hour approved for doors in corridor or room-partition opening not exceeding 120 sq. ft. in area.



Class (D) – 1 ½ hour approved for doors in exterior wall opening not exceeding 120 sq. ft. in area.

The oversize Certificate is authorized for rolling steel doors for the protection of openings in fire walls, vertical shafts, and exterior walls where the area exceeds 120 square ft., or for openings in the above locations when width or height exceeds 12 ft. The maximum dimensions for doors for standard fire protection provided with the Oversize Door Certificate are not to exceed 56 ft. in width and 24 ft. in height.

2. Factory Mutual.
3. New York Materials, Equipment and Acceptance Division (MEA).

### **PART 3 - EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify that dimensions are correct and project conditions are in accordance with manufacturer's installation instructions; do not proceed with installation until unacceptable conditions have been corrected.

#### **3.02 INSTALLATION**

- A. Install units in accordance with manufacturer's instructions.
- B. Ensure that units are installed plumb and true, free of warp or twist, and within tolerances specified by manufacturer for smooth operation.
- C. Preparation for opening and installation of fire door to be in strict compliance with NPFA-80.

#### **3.03 FIELD TESTING**

- A. Test doors for regular operation and automatic closing. Proper authorities having jurisdiction must witness test and sign Drop Test Form.

#### **3.04 DEMONSTRATION**

- A. Instruct the Owner's personnel in correct operation and maintenance of units.

#### **3.05 ADJUST AND CLEAN**

- A. Clean units in accordance with manufacturer's instructions.
- B. Restore slight blemishes in finishes in accordance with manufacturer's instructions to match original finish. Remove and provide new units where repairs are not acceptable to the Architect.