**3-Part CSI MasterFormat Specification**

**SECTION 07 7200**

**Roof Accessories: roof hatch and smoke vent**

Rev 02/24

1. General
	* + 1. SUMMARY
				1. Section includes:

Roof Hatches.

Personnel Series are metal, single door hatches used by personnel. Tested for wind-uplift, forced entry and air infiltration where basic wind speed reached greater than 70 miles per hour

ThermalMax thermally broken Roof hatch, Single-leaf metal lid for ladder access, Superior energy efficiency with a cover and curb design that minimizes heat transfer between interior and exterior metal surfaces.

SunLit™ Series incorporate a dome in the cover for natural daylighting.

Security Series use thicker materials and optional additional locks.

Equipment Series are used to install or service large equipment through the roof.

Accessory Products for Roof Hatches

Safety Railings for all roof hatches

Safety posts for vertical ladder access roof hatches

Remote-controlled operation

Hatch type Heat and Smoke Vents

SafeMAX metal lids used in all smoke venting applications

LightMAX Translucent Lid, Incorporating a translucent multiwall polycarbonate lid for natural daylighting

AcousticMAX Acoustical STC 50 - OITC 47 smoke vents are sound transmission class rated for stages and theaters.

AcousticMAX Acoustical STC 50 - OITC 39 smoke vents are sound transmission class rated in compliance with IBC 1207.

ThermalMAX thermally broken Smoke Vent used in all smoke venting applications.

* + - 1. Related Requirements:
				1. Division 05 for ladders and stairs.
				2. Division 07 for roofing and sealants.
			2. COORDINATION
				1. Coordinate layout and installation of roof accessories with roofing membrane and base flashing andinterfacing and adjoining construction to provide a watertight installation.
				2. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.
			3. Action SUBMITTALS
				1. Shop Drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected Work.

Hatch Units: Show types, elevations, thickness of metals, and full-size profiles.

Hardware: Show materials, finishes, locations of fasteners, types of fasteners, locations and types of operating hardware, and details of installation.

General: Show connections of units and hardware to other Work. Include schedules showing location of each type and size of unit

* + - * 1. Product Data: Manufacturer’s technical data for each type of hatch assembly, including setting drawings, templates, finish requirements, and details of anchorage devices.

Include complete schedule, types, locations, construction details, finishes, latching or locking provisions, and other pertinent data.

* + - 1. informational submittals
				1. Provide manufacturer's standard warranty.
				2. Sustainable Design Submittals:

Building Product Disclosure Requirements: To encourage the use of building products that are working to minimize their environmental and health impacts, provide the following information when available:

Material Ingredients Documentation demonstrating the chemical inventory of the product

* + - 1. Closeout submittals
				1. Manufacturer's Installation Instructions and Operation & Maintenance: Indicate installation, operation and maintenance requirements and rough-in dimensions.
			2. Quality Assurance
				1. Regulatory Requirements:

Miami-Dade County, FL Approved NOA

TAS 201 Impact test

TAS 202 Uniform Static Air Pressure

TAS 203 Cyclic Wind Pressure Loading

OSHA 29 CFR 1910.23 Guarding floor and wall openings and holes

OSHA 29 CDR 1919.29 Fall protection systems and falling object protection-criteria and practices.

OSHA 29 CFR 1926.502 Fall protection systems criteria

International Building Code (IBC) Section 1013.6 Roof Access

International Building Code (IBC) Section 1009.11 Means of Egress, Stairways, Stairway to Roof

International Building Code for venting requirements

IBC Section 410 for Stages and Platforms

IBC Section 910 for Factory and Storage occupancies

IBC Section 1207 Sound Transmission

Underwriters Laboratories Inc, UL 793 Listed for Heat and Smoke Vents

FM Global, Factory Mutual, FM 4430 Heat and Smoke Vents for Roofs

Reference NFPA 204 for general maintenance of Heat and Smoke vents.

ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

* + - 1. DELIVERY, STORAGE, and HANDLINg
				1. Deliver materials to Project site ready use.
				2. Exercise proper care in handling of Work so as not to disrupt finished surfaces.
				3. Store materials under cover in a dry and clean location off the ground.
			2. WARRANTY
				1. Provide manufacturer's standard 5-year warranty. Roof hatches and smoke vents shall be free from manufacturing defects in materials and fabrication for a period of 5 years from the date of shipment. Should a product fail to function in normal use within this period, manufacturer shall furnish a replacement or new part at Nystrom’s discretion.
1. PRODUCT
	* + 1. MANUFACTURER
				1. Nystrom

9300 73rd Ave N

Minneapolis, MN 55428

PH: (800) 547-2635

www.Nystrom.com

* + - 1. ROOF HATCH
				1. Roof Hatches:

Basis-of-Design Product: Subject to compliance with requirements, provide Nystrom; **[Personnel] [ThermalMax][SunLit][Security] [Equipment]**

Retain one of five “Type and Size" paragraphs below if type and size are not indicated on Drawings; for more than one type or size, indicate locations on Drawings or by inserts.

Type and Size: Personnel, Single-leaf metal lid for ladder, ship stair, or alternating tread stair access, [G3630, **36 by 30 inches (900 by 750-mm)**] [G3054, **30 by 54 inches (750 by 1370 mm)**] [G3636, **36 by 36 inches (900 by 900 mm)**] [G48B48, **48 by 48 inches (1220 by 1220 mm)**] [A3630, **36 by 30 inches (900 by 750-mm)**] [A3054, **30 by 54 inches (750 by 1370 mm)**] [A3636, **36 by 36 inches (900 by 900 mm)**] [A4848, **48 by 48 inches (1220 by 1220 mm)**] [As selected by Architect from manufacturer's full range] [as indicated on drawings]

Verify load requirements with authorities having jurisdiction.

Miami-Dade County, FL Product Control Approved for units with Aluminum Curb and Cover (RHUA) and galvanneal steel curb and cover (RHUG) with a maximum size of 16 Sq Ft for a single point latch and 20 Sq Ft for a two-point latch.

Performance Requirements

Units shall be Miami-Dade County, FL Product Control Approved meeting large and small impact requirements. Miami-Dade County Approved NOA# 21-1201.01, Expiration Date January 27, 2027

Hatch shall be reinforced to support live load of 40-lbf/sq. ft. (1.9-kPa) with a maximum deflection of 1/150th of the span with a wind load of plus or minus 140-lbf/sq. ft. (6.70-kPa).

Loads

Units less or equal to than 60-inches (152-cm) in length: Minimum 40-lbf/sq. ft. (1.9-kPa) external live load with a maximum deflection of 1/150 of the span and 20-lbf/sq. ft. (0.95-kPa) internal uplift load

Units greater than 60-inches (152-cm) in length: Minimum 40-lbf/sq. ft. (1.9-kPa) external uplift load with a maximum deflection of 1/150 of the span and 90-lbf/sq. ft. (4.31-kPa) internal uplift load

Hatch Material:

Cover: [0.07895-inch **(1.9-mm)** galvanneal steel] [**0.0907-inch** **(2.3-mm)** aluminum] [0.0907-inch (1.9-mm) thick Type 304 stainless steel].

Cover Insulation: 1-inch (25-mm) polystyrene

Insulation Options: [**1-inch** **(25-mm)** polyisocyanurate**]** [**2-inch** **(50-mm)** polyisocyanurate**]**

Curb height in "Curb: paragraph below may be determined by adding thickness of roof insulation to the minimum base flashing height recommended by roofing membrane manufacturer or established by office practice.

Curb: [**0.07895-inch** (**1.9-mm)** galvanneal steel] [**0.0907-inch** **(2.3-mm)** aluminum] with a [single wall] [double wall] [consult manufacturer for additional curb options], curb and integral railing ready EZ tabbed counter flash. Mounting flange continuous around base of frame.

Fabricate curbs to minimum height of **[12-inches (305-mm)] [<Insert dimension>** above roofing surface unless otherwise indicated.

Sloping Roofs: Where slope or roof deck exceeds 7:12, fabricate curb with perimeter curb height that is tapered to accommodate roof slope so that top surfaces of perimeter curb are level.

Curb Insulation: 1-inch (25-mm) Polyisocyanurate

Insulation options: 2-inch (50-mm) polyisocyanurate

First option in "Finish" subparagraph below applies only to aluminum

Finish: [Mill finish] [TGIC Polyester powder coat paint] [Trinar].

Retain "Color" subparagraph below if retaining second option in "Finish" subparagraph above.

Color**: [ANSI 70 Gray] [High Reflectance White] [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range]** <Insert color>.

Hardware: [Zinc plated steel] [Stainless Steel].

Hinge Assembly: Pintle hinge with stainless steel hinge pin.

Spring: Gas spring with integrated damper.

Hold Open Device: Automatic zinc plated steel hold open arm with red vinyl grip handle.

Latch and pull handle:

Units less or equal to than 60-inches (152-cm) in length: Zinc plated steel spring-type slam latchwith inside and outside operating turn handles and padlock hasp provisions. Powder coated safety yellow interior pull down handle.

Units greater than 60-inches (152-cm) in length: two-point rotary latchwith. inside and outside operating turn handles, padlock hasp provisions and interior pull down handle.

Gasket: Extruded EPDM adhesive back seal, continuous around cover.

Type and Size: ThermalMax (RHT) thermally broken Roof hatch, Single-leaf metal lid for ladder access, Superior energy efficiency with a cover and curb design that minimizes heat transfer between interior and exterior metal surfaces. **[RHTA36X30 36 by 30 inches (900 by 750-mm)] [RHTA36X36 36 by 36 inches (900 by 900 mm)] [RHTA48X48 48 by 48 inches (1220 by 1220 mm)] [RHTA30X54 30 by 54 inches (750 by 1370mm)] [RHTA60X60 60 by 60 inches (1325 by 1325mm)][As selected by Architect from manufacturer's full range] [as indicated on drawings]**

Loads: Minimum 40-lbf/sq. ft. (1.9-kPa) external live load with a maximum deflection of 1/150 of the span and 20-lbf/sq. ft. (0.95-kPa) internal uplift load.

Hatch Material:

Cover: 0.0907-inch (2.3-mm) aluminum cover. Interior and exterior surfaces shall be thermally broken to minimize heat transfer and to resist condensation. Cover shall have a heavy extruded EPDM acoustical rated gasket bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.

Cover insulation: Foil faced Single layer 3-inch (76-mm) rigid polyisocyanurate insulation covered by 0.0907-inch (2.3-mm) aluminum liner. (R-value = 20.3) (U=0.284 W/m2K)

Curb height in "curb: paragraph below may be determined by adding thickness of roof insulation to the minimum base flashing height recommended by roofing membrane manufacturer or established by office practice.

Curb: 0.0907-inch (2.3-mm) aluminum with a single wall curb, integral metal cap flashing of the same gauge and material as the curb, fully welded at the corners. EZ tab counterflash, 9-inch (228-mm) on center, to be bent inward to hold single ply roofing membrane securely in mounting flange continuous around base of frame. Pre-drilled nailing and bolt mounting holes.

Fabricate curbs to minimum height of 12-inch es (305-mm) above roofing surface unless otherwise indicated.

Sloping Roofs: Where slope or roof deck exceeds 7:12, fabricate curb with perimeter curb height that is tapered to accommodate roof slope so that top surfaces of perimeter curb are level.

Curb insulation: Foil faced Single layer 3 inch (76-mm) continuous rigid polyisocyanurate insulation. (R-value = 20.3) (U=0. 284 W/m2K)

Finish: Mill finish

Hardware:

Hinge Assembly: Pintle hinge with stainless steel hinge pin.

Spring: Gas spring with integrated damper.

Hold Open Device: Automatic hold open arm. Zinc-plated steel with red vinyl grip handle cover.

Latch and Pull Handle:

Units less or equal to than 60-inches (152-cm) in length: Zinc plated steel spring-type slam latchwith inside and outside operating turn handles and padlock hasp provisions. Powder coated safety yellow interior pull down handle.

Units greater than 60-inches (152-cm) in length: two-point rotary latchwith. inside and outside operating turn handles, padlock hasp provisions and interior pull down handle.

Gasket: Extruded EPDM adhesive back seal, continuous around cover.

Type and Size: SunLit Polycarbonate lid, RHL [**36 by 30 inches (900 by 750-mm)**] [**36 by 36 inches (900 by 900 mm)**] [**30 by 54 inches (750 by 1370 mm)**] [**48 by 48 inches (1220 by 1220 mm)**] <Insert dimensions>.

Verify load requirements with authorities having jurisdiction.

Loads

Units less or equal to than 60 inches (152-cm) in length: Minimum 40-lbf/sq. ft. (1.9-kPa) and 20-lbf/sq. ft. (0.95-kPa) internal uplift load

Units greater than 60 inches (152-cm) in length: Minimum 40-lbf/sq. ft. (1.9-kPa) external uplift load and 90-lbf/sq. ft. (4.31-kPa) internal uplift load

Hatch Material

Cover: 0.0907-inch (2.3-mm) aluminum frame with [**Clear] [White]** in **[single] [double]** dome layers.

Cover Insulation: 1-inch (25-mm) fiberglass

Curb height in "Curb: paragraph below may be determined by adding thickness of roof insulation to the minimum base flashing height recommended by roofing membrane manufacturer or established by office practice.

Curb: [**0.07895 inch** (**1.9-mm)** galvanneal steel] [**0.0907-inch (2.3-mm)** aluminum] with a [single wall curb] [double wall curb/liner] [consult manufacturer for additional curb options], with integral counterflashing. Mounting flange continuous around base of frame.

Fabricate curbs to minimum height of **[12-inch (305-mm)]** [<**Insert dimension**> above roofing surface unless otherwise indicated.

Sloping Roofs: Where slope or roof deck exceeds 3:12, fabricate curb with perimeter curb height that is tapered to accommodate roof slope so that top surfaces of perimeter curb are level.

Curb Insulation: Insulation: 1-inch (25-mm) polyisocyanurate

Insulation Options: **[2-inch (50-mm) Polyisocyanurate] [2-inch (50-mm) polyisocyanurate with fiberglass]**

First option in "Finish" subparagraph below applies only to aluminum.

Finish: **[Mill finish] [TGIC Polyester powder coat paint] [Trinar**].

Retain "Color" subparagraph below if retaining either of the last two options in "Finish" subparagraph above.

Color: **[ANSI 70 Gray] [High Reflectance White] [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range] <Insert color>.**

Hardware **[Zinc plated steel] [Type 316 stainless steel].**

Hinge Assembly: Pintle hinge with stainless steel hinge pin.

Spring: Gas spring with integrated damper

Hold Open Device: Automatic zinc plated steel hold open arm with red vinyl grip handle.

Latch: **[Zinc plated steel spring-type slam latch] [two-point rotary latch]** with inside and outside operating turn handles and padlock hasp provisions.

Gasket: Extruded EPDM adhesive back seal, continuous around cover.

Type and Size: Security, RHS, single-leaf metal lid, [**30 by 96 inches (750 by 2440 mm)**] [**36 by 96 inches (900 by 2440 mm)**] [**48 by 120 inches (1220 by 3050 mm)**] <Insert dimensions greater than **60 inches** **(1525 mm)**>.

Verify load requirements with authorities having jurisdiction.

Loads

Minimum 40-lbf/sq. ft. (1.9-kPa) external live load with a maximum deflection of 1/150 of the span and 20-lbf/sq. ft. (0.95-kPa) internal uplift load.

Hatch Material

Cover: [**3/16-inch (4.76-mm)** hot rolled pickled and oiled (HRPO)] [**1/4-inch (6.4 mm)** aluminum]

Cover Insulation: 1-inch (25-mm) polystyrene.

Insulation Options: **[1-inch (25-mm) Polyisocyanurate] [2-inch es (50-mm) Polyisocyanurate] [2-inch (50-mm) polystyrene]**

Curb height in "Curb: paragraph below may be determined by adding thickness of roof insulation to the minimum base flashing height recommended by roofing membrane manufacturer or established by office practice.

Curb: **[3/16 inch (4.76-mm) galvanneal steel] [1/4 inch (6.4 mm) aluminum] 12-inch (305-mm) high [single wall curb] [double wall curb/liner] [consult manufacturer for additional curb options],** with integral counterflashing. Mounting flange continuous around base of frame.

Fabricate curbs to minimum height of **[12-inch es (305-mm)]** [<**Insert dimension**> above roofing surface unless otherwise indicated.

Sloping Roofs: Where slope or roof deck exceeds 3:12, fabricate curb with perimeter curb height that is tapered to accommodate roof slope so that top surfaces of perimeter curb are level.

Curb Insulation: 1-inch (25-mm) polyisocyanurate.

Insulation Options: [2-inch (50-mm) polyisocyanurate]

First option in "Finish" subparagraph below applies only to aluminum.

Finish: **[Mill finish] [TGIC Polyester powder coat paint] [Trinar].**

Retain "Color" subparagraph below if retaining either of last two options in "Finish" subparagraph above.

Color**: [ANSI 70 Gray] [High Reflectance White] [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range] <Insert color>.**

Hardware: **[Zinc plated steel] [Type 316 stainless steel].**

Hinge Assembly: Pintle hinge with stainless steel hinge pin.

Spring: Gas spring with integrated damper.

Hold Open Device: Automatic zinc plated steel hold open arm with red vinyl grip handle.

Latch and Pull Handle:

Units less or equal to than 60-inches (152-cm) in length: Zinc plated steel spring-type slam latchwith inside and outside operating turn handles and padlock hasp provisions. Powder coated safety yellow interior pull down handle.

Units greater than 60-inches (152-cm) in length: two-point rotary latchwith. inside and outside operating turn handles, padlock hasp provisions and interior pull down handle.

Gasket: Extruded EPDM adhesive back seal, continuous around cover.

Security Locking Options

Mortise Lock - Specify standard or specific manufacturer and model.

Mortise operated deadbolt with Schlage cylinder, standard key lock access from both interior and exterior

Detention Lock options- Specify Standard or specific manufacturer and model Detention

Lock: Brinks 7016, Key lock access from both interior and exterior

View port window option- Security glazing size 8 inch by 8 inch (203 mm by 203 mm).

Door Position Sensor to tie into the building alarm system. Honeywell roller lever VL series miniature type limit switch.

Type and Size: Equipment Hatch metal lid with 90 degree opening, RHE [**48 by 48 inches (1220 by 1220 mm)**] [**60 by 60 inches (1525 by 1525-mm)**] [**72 by 72-inch es (1830 by 1830 mm)**] [**72 by 96 inches (1830 by 2440 mm)**] <Insert dimensions>.

Custom sizes are available in aluminum up to 14 feet (4267 mm) by 20 feet (6096 mm). Verify the size of the equipment to determine clear opening.

Clear Unobstructed Opening Size: **<Insert dimensions>.**

Verify load requirements with authorities having jurisdiction

Load Requirements:

Minimum 40-lbf/sq. ft. (1.9-kPa) external live load with a maximum deflection of 1/150 of the span and 20-lbf/sq. ft. (0.95-kPa) internal uplift load.

Hatch Material

Cover: **[0.07895-inch (1.9-mm) galvanneal steel] [0.0907-inch (2.3-mm) aluminum]** with **[Single door] [Double door].**

Cover Insulation:1-inch (25-mm) polystyrene

Insulation Options: **[1-inch (25-mm) polyisocyanurate] [1-inch (25-mm) polystyrene] [2-inch (50-mm) polyisocyanurate]**

Curb height in "Curb: paragraph below may be determined by adding thickness of roof insulation to the minimum base flashing height recommended by roofing membrane manufacturer or established by office practice.

Curb: [0.07895 inch(**1.9-mm)** galvanneal steel] [**0.0907-inch (2.3-mm)** aluminum] with a [single wall curb] [double wall curb/liner] [consult manufacturer for additional curb options], with integral counterflashing. Mounting flange continuous around base of frame.

Fabricate curbs to minimum height of **[12-inches (305-mm)] [<Insert dimension>** above roofing surface unless otherwise indicated.

Sloping Roofs: Where slope or roof deck exceeds 3:12, fabricate curb with perimeter curb height that is tapered to accommodate roof slope so that top surfaces of perimeter curb are level.

Curb Insulation: 1-inch (25-mm) polyisocyanurate.

Insulation Options: 2-inch (51 mm) Polyisocyanurate.

First option in "Finish" subparagraph below applies only to aluminum.

Finish: **[Mill finish] [TGIC Polyester powder coat paint] [Trinar].**

Retain "Color" subparagraph below if retaining either of the last two options in "Finish" subparagraph above.

Color: **[ANSI 70 Gray] [High Reflectance White] [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range] <Insert color>.**

Hardware: **[Zinc plated steel] [Type 316 stainless steel].**

Hinge Assembly: Tamper proof pin type hinge

Spring: Gas spring with integrated damper.

Hold Open Device: Automatic zinc plated steel hold open arm with red vinyl grip handle.

Latch and Pull Handle:

Units less or equal to than 60-inches (152-cm) in length: Zinc plated steel spring-type slam latchwith inside and outside operating turn handles and padlock hasp provisions. Powder coated safety yellow interior pull down handle.

Units greater than 60-inches (152-cm) in length: two-point rotary latchwith. inside and outside operating turn handles, padlock hasp provisions and interior pull down handle.

Gasket: Extruded EPDM adhesive back seal, continuous around cover.

Retain one or both "Safety Railing System" and "Ladder-Assist Post" paragraphs below; revise to suit Project. If retaining both paragraphs, indicate location of each on Drawings or by inserts. Consult authorities having jurisdiction for their requirements. See the Evaluations.

* + - * 1. Safety Railing System: Model SRC Roof-hatch manufacturer's standard system including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; attached to roof hatch and complying with 29 CFR 1910.23 requirements and authorities having jurisdiction.

Retain "Height" Subparagraph below if railing system is not fully detailed on Drawings. Option is based on OSHA fall protection requirements; revise to suit Project.

Height: 42-inch (1060-mm) above finished roof deck.

Dimensions in "Rails" subparagraph below is typical; other diameters and thicknesses may be specified; revise to suit Project.

Rails:

Aluminum, 1-1/4 inch (31 mm), 1.66 inch (42 mm) outside diameter, schedule 40 pipe, 6061-T6 alloy

Finish: **[TGIC Polyester powder coat paint] <Insert finish>.**

Color: **[Safety Yellow] [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range] <Insert color>**.

Fittings: 5052-H32 Cast aluminum alloy with set screw hold.

Mounting Brackets: 3/16-inch (4.75 mm) steel, zinc plated with nut backing plate.

Exit: **[Self-closing gate, 1-1/4-inch (32 mm) aluminum, self-closing with coil spring] [Chain, 3/16-inch (4.76-mm) zinc plated steel-like chain with spring clip ends].**

* + - * 1. Ladder-Assist Post: Model SP Roof-hatch manufacturer's standard device for attachment to roof-access ladder.

Operation: Post locks in place on full extension; release mechanism returns post to closed position.

Option in "Height" Subparagraph below is typical height.

Height: **42-inch (1060-mm)**] <Insert dimension> above finished roof deck.

Material: **[Steel tube] [Stainless steel] [Aluminum].**

Option in "Post" Subparagraph below is an example only; revise to suit Project.

Post: 1-1/2-inch (38.1-mm) by 1-1/2-inch (38.1-mm) by 1/8 inch (2.3-mm) <Insert dimension> diameter high strength square.

Finish**: [Manufacturer's standard baked enamel or powder coat] <Insert finish>.**

Color: **[As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range] <Insert color>.**

* + - * 1. Safety Grab Bar: Model SGB provide safe access through roof hatches while providing added functionality and weight bearing support

Operation: mounts through a corner section through the curb counterflashing.

Material: Aluminum pipe 1-1/4-inch (32-mm) inside diameter Schedule 40 ATSM A53 Seamed Steel

Fittings: Cast aluminum alloy with set screw hold

Hardware: Hex head bolts 3/8-inch (9.5-mm) by 3/4 inch (19-mm)

Finish: [Manufacturer's standard baked enamel or powder coat] <Insert finish>.

Color: [Safety Yellow] [As indicated by manufacturer's designations] [Match Architect's sample] [As selected by Architect from manufacturer's full range] <Insert color>.

* + - 1. HEAT AND SMOKE VENTS

Retain "Hatch-Type Heat and Smoke Vents" Paragraph below if required for Project. Coordinate fusible link rating with rating for automated sprinkler system heads. See the Evaluations.

* + - * 1. Hatch-Type Heat and Smoke Vents: For emergency heat and smoke removal

Basis-of-Design Product: Subject to compliance with requirements, provide Nystrom; [**SmokEscape**] [**SunLit**][**AcousticMAX][ThermalMAX]** or a comparable product by one of the following:

Retain one of three "Type and Size" subparagraphs below if type and size are not indicated on Drawings; for more than one type or size, indicate locations on Drawings or by inserts. Options are most manufacturers' stock sizes. Smoke vents used in all smoke venting applications; factories and storage occupancies, theaters, hoist ways, and other. Sizes available in single door, double door, and quad door construction.

Type and Size: SmokEscape metal lids used in all smoke venting applications, SV.

Certification: Smoke vent to have official UL label for testing to UL 793 Smoke and Heat Vents **[,and FM 4430 Approved].**

Verify load requirements with authorities having jurisdiction.

Performance

Loads: 40-lbf/sq. ft. (1.9-kPa) live load with a maximum deflection of 1/150th of the span **[30 lbf/sq. (1.4 kPa) single door units] [90 lbf/sq. (4.3 kPa) double door, quad door]** wind uplift

When release is actuated lid shall open against 10 lbf/sq. (0.5 kPa) snow load

Door Options

Single Door: [**36 by 30 inches (900 by 750 mm)**] [**36 by 36 inches (900 by 900 mm)**] [**48 by 48 inches (1220 by 1220 mm)**] [Size as indicated on Drawings] <Insert dimensions>.

Double Door: [**48 by 48 inches (1220 by 1220 mm)**] [**48 by 96 inches (1220 by 2440 mm)**] [**60 by 60 inches (1525 by 1525 mm)**] [**60 by 96 inches (1525 by 2440 mm)**] [**60 by 120 inches (1525 by 3050-mm)**] [**72 by 72-inch es (1830 by 1830 mm)**] [**72 by 96 inches (1830 by 2440 mm)**] [Size as indicated on Drawings] <Insert dimensions>.

Quad Door: [**66 by 144 inches (1675 by 3660 mm)**] [**72 by 120 inches (1830 by 3050-mm)**] [**72 by 144 inches (1830 by 3660 mm)**] [Size as indicated on Drawings] <Insert dimensions>.

Hatch Material:

Cover: **[0.07895-inch (1.9-mm) galvanneal steel] [0.0907-inch (2.3-mm) aluminum]**

Cover Insulation: 1-inch (25-mm) Polyisocyanurate insulation

Insulation options: 2-inch (50-mm) Polyisocyanurate

Curb height in "Curb/Frame" paragraph below may be determined by adding thickness of roof insulation to the minimum base flashing height recommended by roofing membrane manufacturer or established by office practice.

Curb/Frame**: [0.07895-inch (1.9-mm) galvanneal steel] [0.0907-inch (2.3-mm) aluminum].** 12-inch (305-mm) high curb with integral counterflashing. Continuous 3.5-inch (89 mm) mounting flange with 5/8 inch (16 mm) mounting holes

Curb Insulation: 1-inch (25-mm) rigid Polyisocyanurate insulation

Insulation options: [2-inch (50-mm) Polyisocyanurate insulation]

Finish: **[ANSI 70 powder coat steel] [High Reflectance White powder coat steel] [Mill finished aluminum].**

Latch Positive hold zinc plated steel rotary latch assembly. Upon latch releases, vent covers are closed manually at rooftop level.

released manually via internal and external pull handles with cables.

Latch released automatically by UL 33 listed fusible melt-out link at temperature of [**165 deg F** **(74 deg C)**] [**212 deg F** **(100 deg C)**] [**280 deg F** **(138 deg C)**] [**350 deg F** **(177 deg C)**] [**360 deg F** **(182 deg C)**] [**370 deg F** **(188 deg C)**] [**386 deg F** **(197 deg C)**] [**450 deg F** **(232 deg C)**].

Springs: Gas spring with integrated damper.

Hinge: Pintle type with stainless steel hinge pin.

Hold Open Device: Automatic hold open arm with red vinyl grip handle release.

Weather Stripping: Extruded EPDM adhesive backed gasket seal continuous around perimeter of cover.

Options and Accessories

Burglar Bars: **[1/2-inch (13-mm)] [3/4-inch (19 mm)] diameter steel rod [6 inches (152 mm) by 12-inch es (305-mm)] [6 inches (152 mm) by 6 inches (152 mm)]** spacing, attached to inside of curb.

Fall Protection Security Mesh: 3/16-inch (4.8 mm) diameter steel rod, 4 inch (102 mm) by 4 inch (102 mm) spacing, securely attached to inside of curb.

Manual Winch: Operation allowing remote closing of smoke vent from the floor area.

Optional latch release with electrical Belimo motor actuator, [**24 V DC/AC**] [**110 V AC**].

Linear Actuator Operation allowing remote opening and closing of smoke vent. Push button operator includes open and close.

Type and Size: SunLit Translucent Lid, SVL: Incorporating a translucent polycarbonate lid for natural daylighting.

Certification: Smoke vent to have official UL label for testing to UL 793 Smoke and Heat Vents.

Performance

Loads: 40-lbf/sq. ft. (1.9-kPa) live load [30 lbf/sq. ft. (1.4 kPa) single door units] [90 lbf/sq. ft. (4.3 kPa) double door, quad door] wind uplift

When release is actuated lid shall open against 10 lbf/sq. (0.5 kPa) snow load.

Door Options:

Single Door: [**36 by 30 inches (900 by 750-mm)**] [**36 by 36 inches (900 by 900 mm)**] [**48 by 48 inches (1220 by 1220 mm)**] [Size as indicated on Drawings] <Insert dimensions>.

Double Door: [**48 by 48 inches (1220 by 1220 mm)**] [**48 by 96 inches (1220 by 2440 mm)**] [**60 by 60 inches (1525 by 1525 mm)**] [**60 by 96 inches (1525 by 2440 mm)**] [**60 by 120 inches (1525 by 3050 mm)**] [**72 by 72 inches (1830 by 1830 mm)**] [**72 by 96 inches (1830 by 2440 mm)**] [Size as indicated on Drawings] <Insert dimensions>.

Quad Door: [**66 by 144 inches (1675 by 3660 mm)**] [**72 by 120 inches (1830 by 3050 mm)**] [**72 by 144 inches (1830 by 3660 mm)**] [Size as indicated on Drawings] <Insert dimensions>.

Hatch Material

Retain one of two "cover assembly" paragraphs below. For more than one type or size, indicate locations on drawings or by inserts

Cover:

0.0907-inch (2.3-mm) aluminum cover with 5/8-inch (16-mm) structural 3-wall multiwall polycarbonate cover Color: **[White] [Clear] [Green] [Blue] [Bronze].**

0.0907-inch (2.3-mm) aluminum extrusion cover with polycarbonate **[single] double]** dome. Color **[standard white] [clear]**

Cover Insulation: 1-inch (25-mm) Polyisocyanurate insulation (R-6/LTTR 5.6)

Insulation options: [1-inch (25-mm) polystyrene] [2-inch (50-mm) Polyisocyanurate insulation]

Curb height in "Curb/Frame" paragraph below may be determined by adding thickness of roof insulation to the minimum base flashing height recommended by roofing membrane manufacturer or established by office practice.

Curb/Frame: [**0.07895-inch (1.9-mm) galvanneal steel**] [**0.0907-inch (2.3-mm) aluminum**]. 12-inch (305-mm) high curb with integral counterflashing. Continuous 3.5-inch (89-mm) mounting flange with 5/8-inch (16-mm) mounting holes.

Curb Insulation: 1-inch (25-mm) rigid Polyisocyanurate insulation R-6

Insulation options: **[2-inch** (**50-mm)** Polyisocyanurate insulation]

Finish: **[ANSI 70 powder coat steel] [High Reflectance White powder coat steel] [Mill finished aluminum].**

Latch: Positive hold zinc plated steel rotary latch assembly Upon latch releases, vent covers are closed manually at rooftop level.

Latch released manually via internal and external pull handles with cables.

Latch released automatically by UL 33 listed fusible melt-out link at temperature of [**165 deg F** **(74 deg C)**] [**212 deg F** **(100 deg C)**] [**280 deg F** **(138 deg C)**] [**350 deg F** **(177 deg C)**] [**360 deg F** **(182 deg C)**] [**370 deg F** **(188 deg C)**] [**386 deg F** **(197 deg C)**] [**450 deg F** **(232 deg C)**].

Springs: Gas spring with integrated damper

Hinge: Pintle type with stainless steel hinge pin.

Hold Open Device: Automatic hold open arm with red vinyl grip handle release.

Weather Stripping: Extruded EPDM adhesive backed gasket seal continuous around perimeter of cover.

Options and Accessories

Burglar Bars: [1/2-inch (13-mm)] [3/4-inch (19 mm)] diameter steel rod [6 inch (152 mm) by 12-inch (305-mm)] [6-inch (152-mm) by 6-inch (152-mm)] spacing, attached to inside of curb.

Fall Protection Security Mesh: 3/16 inch (4.8-mm) diameter steel rod, 4-inch (102-mm) by 4 inch (102-mm) spacing, securely attached to inside of curb.

Manual Wrench: Operation allowing remote closing of smoke vent from the floor area.

Optional latch release with electrical Belimo motor actuator, [**24 V DC/AC**] [**110 V AC**].

Linear Actuator Operation allowing remote opening and closing of smoke vent. Push button operator includes open and close.

Type and Size: Acoustical Smoke Vents, AcousticMAX SV, rated per ASTM E 90 and OITC rated per ASTN E 1332.

Performance:

Certification: Smoke vent to have official UL label for testing to UL 793 Smoke and Heat Vents **[,and FM 4430 Approved].**

STC Rating: [**STC 50 - OITC 47, model SVZ**] [**STC 50 - OITC 39, model SVY**] Rated per ASTM E 90 and OITC rated per ASTM E 1332.

Loads: 40-lbf/sq. ft. (1.9-kPa) live load with a maximum deflection of 1/150th of the span; 90 lbf/sq. (4.3 kPa) wind uplift.

When release is actuated, lid shall open against 10-lbf/sq. ft. (0.5-kPa) snow or wind load and lock in position.

Door Options:

Double Door: [**48 by 48 inches (1220 by 1220 mm)**] [**48 by 96 inches (1220 by 2440 mm)**] [**60 by 60 inches (1525 by 1525-mm)**] [**60 by 96 inches (1525 by 2440 mm)**] [**60 by 120 inches (1525 by 3050 mm)**] [**72 by 72-inches (1830 by 1830 mm)**] [**72 by 96 inches (1830 by 2440 mm)**] [Size as indicated on Drawings] <Insert dimensions>.

Quad Door: [**66 by 144 inches (1675 by 3660 mm)**] [**72 by 120 inches (1830 by 3050-mm)**] [**72 by 144 inches (1830 by 3660 mm)**] [Size as indicated on Drawings]

Hatch Material:

Cover: **[STC 50 - OITC 47 0.1046-inch (2.65-mm)] [STC 50 - OITC 39, 0.07895-inch (1.9-mm)]** galvanneal steel cover and liner.

Cub and Cover Insulation: **[STC 50 - OITC 47, 4-inch (102 mm) Mineral Wool insulation with sound mat contained within 4-1/4 inch (108 mm) thick covers, providing total thermal resistance of R-16.8][STC 50 - OITC 39, 3 inch (83 mm) Mineral Wool insulation with sound mat contained within 3-1/4 inch (108 mm) thick covers, providing total thermal resistance of R-12.6]**

Curb height in "Curb" paragraph below may be determined by adding thickness of roof insulation to the minimum base flashing height recommended by roofing membrane manufacturer or established by office practice.

Curb: **[STC 50 - OITC 47 0.1046-inch (2.65 mm)] [STC 50 - OITC 39, 0.07895-inch (1.9-mm)]** galvanneal steel curb. 12-inch (305-mm) high double wall curb with EZ tab counterflashing and 5-1/2-inch (140-mm) mounting flange with 1/2-inch (13-mm) diameter holes.

Finish:

Cover Exterior: **[ANSI 70 powder coat steel][High Reflectance White powder coat steel.] [As selected by Architect from manufacturer's full range] <Insert color>**

Cover Interior: Black powder coat finish.

Curb: Black powder coat finish.

Latch: Positive hold zinc plated steel rotary latch Upon latch releases, vent covers are closed manually at rooftop level.

Latch released manually via internal and external pull handles with cables.

Latch released automatically by UL 33 listed fusible melt-out link at temperature of [**165 deg F** **(74 deg C)**] [**212 deg F** **(100 deg C)**] [**280 deg F** **(138 deg C)**] [**350 deg F** **(177 deg C)**] [**360 deg F** **(182 deg C)**] [**370 deg F** **(188 deg C)**] [**386 deg F** **(197 deg C)**] [**450 deg F** **(232 deg C)**].

Options and Accessories

Burglar Bars: **[1/2-inch (13-mm)] [3/4inch (19-mm)] diameter steel rod [6 inches (152 mm) by 12-inch es (305-mm)] [6 inches (152-mm) by 6 inches (152-mm)]** spacing, attached to inside of curb.

Fall Protection Security Mesh: 3/16-inch (4.8 mm) diameter steel rod, 4 inch (102 mm) by 4 inch (102 mm) spacing, securely attached to inside of curb.

Manual Winch: Operation allowing remote closing of smoke vent from the floor area.

Optional latch release with electrical Belimo motor actuator, [**24 V DC/AC**] [**110 VAC**].

Linear Actuator Operation allowing remote opening and closing of smoke vent. Push button operator includes open and close.

Type and Size: ThermalMAX thermally broken smoke vents used in all smoke venting applications, SVT.

Certification: Smoke vent to have official UL label for testing to UL 793 Smoke and Heat Vents

Verify load requirements with authorities having jurisdiction.

Performance

Loads: 40-lbf/sq. ft. (1.9-kPa) live load with a maximum deflection of 1/150th of the span **[30 lbf/sq. (1.4 kPa) single door units] [90 lbf/sq. (4.3 kPa) double door]** wind uplift

When release is actuated lid shall open against 10 lbf/sq. (0.5 kPa) snow load

Door Options

Single Door: [**36 by 30 inches (900 by 750 mm)**] [**36 by 36 inches (900 by 900 mm)**] [**48 by 48 inches (1220 by 1220 mm)**] **[Size as indicated on Drawings] <Insert dimensions>.**

Double Door: [**48 by 48 inches (1220 by 1220 mm)**] [**48 by 96 inches (1220 by 2440 mm)**] [**60 by 60 inches (1525 by 1525 mm)**] [**60 by 96 inches (1525 by 2440 mm)**] [**60 by 120 inches (1525 by 3050 mm)**] [**72 by 72 inches (1830 by 1830 mm)**] [**72 by 96 inches (1830 by 2440 mm)**] **[Size as indicated on Drawings]** <Insert dimensions>.

Hatch Material:

Cover: 0.0907-inch (2.3 mm) aluminum cover. Interior and exterior surfaces shall be thermally broken to minimize heat transfer and to resist condensation. Cover shall have a heavy extruded EPDM acoustical rated gasket bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.

Cover insulation: Foil faced Single layer 3-inch (76 mm) rigid polyisocyanurate insulation covered by 0.0907-inch (2.3 mm) aluminum liner. (R-value = 20.3) (U=0.284 W/m2K)

Curb height in "curb: paragraph below may be determined by adding thickness of roof insulation to the minimum base flashing height recommended by roofing membrane manufacturer or established by office practice.

3) Curb: 0.0907 inch (2.3 mm) aluminum with a single wall curb, integral metal cap flashing of the same gauge and material as the curb, fully welded at the corners. EZ tab counterflash, 9 inches (228 mm) on center, to be bent inward to hold single ply roofing membrane securely in mounting flange continuous around base of frame. Pre-drilled nailing and bolt mounting holes.

Curb insulation: Foil faced Single layer 3 inch (76 mm) continuous rigid polyisocyanurate insulation. (R-value = 20.3) (U=0. 284 W/m2K)

Finish: Mill finish

Latch Positive hold zinc plated steel rotary latch assembly. Upon latch releases, vent covers are closed manually at rooftop level.

released manually via internal and external pull handles with cables.

Latch released automatically by UL 33 listed fusible melt-out link at temperature of [**165 deg F** **(74 deg C)**] [**212 deg F** **(100 deg C)**] [**280 deg F** **(138 deg C)**] [**350 deg F** **(177 deg C)**] [**360 deg F** **(182 deg C)**] [**370 deg F** **(188 deg C)**] [**386 deg F** **(197 deg C)**] [**450 deg F** **(232 deg C)**].

Springs: Gas spring with integrated damper.

Hinge: Pintle type with stainless steel hinge pin.

Hold Open Device: Automatic hold open arm with red vinyl grip handle release.

Weather Stripping: Extruded EPDM adhesive backed gasket seal continuous around perimeter of cover.

Options and Accessories

Burglar Bars**: [1/2 inch (13 mm)] [3/4 inch (19 mm)] diameter steel rod [6 inches (152 mm) by 12 inches (305 mm)] [6 inches (152 mm) by 6 inches (152 mm)]** spacing, attached to inside of curb.

Fall Protection Security Mesh: 3/16-inch (4.8 mm) diameter steel rod, 4 inch (102 mm) by 4 inch (102 mm) spacing, securely attached to inside of curb.

Optional latch release with electrical Belimo motor actuator, [**24 V DC/AC**] [**110 V AC**].

1. EXECUTION
	* + 1. EXAMINATION
2. Verification of Conditions: Examine areas and conditions under which Work is to be performed and identify conditions detrimental to proper or timely completion.
3. Verify that deck, curbs, roof membrane, base flashing, and other items affecting Work of this Section are in place and positioned correctly.
4. Verify tolerances and correct improper condition
5. Identify conditions detrimental to providing proper quality and timely completions of work.
6. Do not proceed with installation until detrimental conditions have been corrected.
	* + 1. Installation
7. Comply with manufacturer's recommendations.
8. For Miami-Dade Hurricane Hatch™, install using the manufacturer’s anchoring options as detailed on shop drawings and installation instructions for wood curbs, steel curbs or concrete curbs.
9. Coordinate installation of components of this Section with installation of roof deck, roof structure, roofing membrane, and base flashing.
10. Coordinate installation of sealant and roofing cement with Work of this Section to ensure water tightness.
11. Securely anchor roof accessories in compliance with manufacturer's instructions.
12. Set units plumb, level, and true to line without warp or rack. Separate metal from incompatible metal or corrosive substrates, including wood, by coating concealed surfaces, at locations of contact, with bituminous coating or providing other permanent separation.
13. Flange Seals: Unless otherwise indicated, set flanges of accessory units in a thick bed of roofing cement to form a seal
	* + 1. FIELD QUALITY CONTROL
14. Smoke Vent Testing: Test for proper operation after installation by one or all of the operational methods:
15. Melting fusible link for inside at smoke vent level recommend using handheld propane tank torch. Replace fusible link, then close vents from the exterior at the roof top level.
16. Pull internal and/or external manual pull handles and then close vents from the exterior at the roof top level.
17. If applicable; open the vents using an electrical signal for fire alarm, push button or other, then close vent from the exterior at the roof top level.
18. Do not paint the internal mechanisms, especially moving parts such as spring/dampers, rotary latches and especially the fusible links. Painting any of these components may damage the vents and will void the warranty.
	* + 1. ADJUSTING
				1. Adjust movable parts for smooth operation
				2. Operational Units: Test-operate units with operable components. Clean and lubricate joints and hardware. Adjust for proper operation.
			2. cleaning
19. Clean exposed surfaces per manufacturer's written instructions. Touch up damaged metal coatings.

END OF SECTION