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| This guide specification was prepared utilizing 3-part format recommended by the Construction Specifications Institute (CSI), and generally incorporates recommendations from their SectionFormat™/Page Format™, and MasterFormat™, latest Editions, insofar as practicable.Carefully review and edit the text to meet the Project requirements and coordinate this Section with the remainder of the Specifications and the Drawings. Where bracketed text is indicated, e.g. [text], make appropriate selection and delete the remainder of text within additional brackets, highlighting, and bold face type, if any.Consult the manufacturer for assistance in editing this guide specification for specific Project applications where necessary.This Specification was current at the time of publication but is subject to change. Please confirm the accuracy of these specifications with the manufacturer prior to use. Shape  Description automatically generated with medium confidence  |

 **SECTION 07 72 33**

 **ROOF ACCESSORIES**

**PART 1 - GENERAL**

**1.01 SUMMARY**

A. Section Includes:

*SPECIFIER: Revise subparagraphs below to suit Project requirements.*

1. Roof access hatch.

2. Accessories:

 a. Safety railing

a. Safety post.

b. Railing gate.

c. Warning light.

B. Related Sections

 1. Section Includes: Furnish and install factory fabricated roof hatches.

 2. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

*SPECIFIER: Revise section numbers and titles in subparagraphs below per CSI MasterFormat****™*** *and Project requirements.*

 3. Related Sections: Other specification sections which directly relate to the work of this section include, but are not limited to, the following:

 a. Section 05 50 00 - Metal fabrications for metal vertical ladders, ships’ ladders and stairs for access to roof hatches

 b. Section 07 01 40 – Maintenance Roofing

 c. Section 07 01 70 – Operation and Maintenance of Roofing Specialties and Accessories

 d. Section 07 06 70 – Schedules for Roof Specialties and Accessories

 e. Section 07 22 00 – Roof and Deck Installation

 f. Section 07 26 00 – Vapor Retarders

 g. Section 07 27 00 – Air Barriers

 h. Section 07 50 00 – Membrane Roofing

 i. Section 07 81 00 – Roofing Specialties

 j. Section 07 72 00 – Roofing Accessories

 k. Section 07 72 43 – Roofing Walkboards

 l. Section 07 72 46 – Roofing Walkways

 m. Section 08 71 00 – Hardware: For Lock Type Furnished by Others

 n. Section 09 91 00 – Painting: For Field Painting of Roof Hatches

1.02 Allowances

*SPECIFIER: Retain products and work included in this Section that are covered by cash or quantity allowance. Do not include amounts. Insert descriptions of items in Part 2 or 3 to provide information affecting the cost of the Work that is not included under the allowance.*

A. Roof hatches are part of a roof access and equipment hatch allowance.

1.03 Reference Standards

 1. The following standards and publications are applicable to the extent referenced in the text.

 2. American Society of Testing and Materials (ASTM) and Others:

a. ASTM A36/A36M-12, Standard Specification for Carbon Structural Steel

b. ASTM A153/A153M-09, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

c. ASTM A653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process

d. ASTM A879/A879M-12, Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface

e. ASTM A1008/A1008M-12a, Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable

f. ASTM B209-10, Standard Specification for Aluminum and Aluminum-Alloy Sheet

and Plate

g. ASTM B221-12a, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes

h. ASTM F2329-11, Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

i. ASTM C1289-17, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation

3. International Code Council (ICC)

 a. International Building Code (IBC)

**1.04 ACTION SUBMITTALS**

*SPECIFIER: Revise Section number in the paragraph below to match that used in the Project Manual.*

A. Submit in accordance with Section [**01 33 00**] [**other**]:

1. Product Data:

a. Materials description for roof hatches including details showing mounting type, relationships to surrounding construction, hatch type, materials, and construction, and locking features.

b. Installation instructions for each product specified.

2. Shop Drawings:

a. Include details of each hatch type, size and description of components, materials, attachment devices, description of frame and finish and construction details.

b. Schedule showing each type of hatch, locations, sizes, latching or locking provisions, and other data pertinent to installation

c. Indicate installation procedures and accessories required for a complete installation.

*SPECIFIER: Delete subparagraph below for standard steel or galvanized steel hatches; retain for aluminum or other factory-finished products.*

3. Samples: For each roof hatch curb section, 12 inches high by 4 inches wide in size, and in specified finish.

**1.05 QUALITY ASSURANCE**

 A. Regulatory Requirements:

 1. OSHA 29 CFR 1910.23 Walking-Working Surfaces, Ladders

 3. OSHA 29 CFR 1910.25 Walking-Working Surfaces, Stairways

 4. OSHA 29 CFR 1910.28 Walking-Working Surfaces – Duty to have Fall Protection

 5. OSHA 29 CFR 1910.29 Walking-Working Surfaces – Fall Protection Systems

 6. International Building Code (IBC) Section 1015.7 Roof Access

 7. International Building Code (IBC) Section 1011.12 Means of Egress, Stairway to Roof

 8. International Building Code (IBC) Section 1011.13 Means of Egress, Guards

B. Comply with standards referenced in Article 1.03 REFERENCES.

C. Provide roof hatches produced by a single manufacturer.

**1.06 DELIVERY, STORAGE, AND HANDLING**

A. Deliver, store, and handle roof hatches using means and methods that will prevent damage, deterioration, or loss.

1. Deliver units in manufacturer's original packaging, properly labeled for identification.

**PART 2 - PRODUCTS**

**2.01 ROOF HATCH MANUFACTURERS**

A. Acceptable Manufacturers:

JL Industries – Part of Activar Construction Products Group, Inc.

9702 Newton Av South

Bloomington, MN 55431

(800) 554-6077

[www.activarcpg.com](http://www.activarcpg.com)

sales@activarcpg.com

B. Substitutions: Manufacturers seeking approval of their products are required to comply with the Owner's Instructions to Bidders, generally contained in the Project Manual.

2.02 **RHDG Diamond Series – Galvannealed Steel Roof Hatch**

 A. Style RHDG: Galvanneal steel, insulated roof hatch cover and roof curb.

 1. Model No. RHDG [**insert remainder of model number**].

 2. Performance Criteria: Tested and approved to support a minimum live load of 40 lbs./ft2 (18 kg/0.09 m2), with a maximum deflection of 1/150th of the span, maximum load of 50 lbs./ft2 (22 kg/0.09 m2) wind uplift.

 3. Cover: Insulated, 14-gauge (1.99 mm) galvannealed steel exterior, welded cover with 22- gauge liner. Door opens 75 degrees. Cover has continuous weatherproof EPDM sponge rubber adhesive backed gasket.

 4. Cover Insulation: 1” polyisocyanurate with thermal resistance R-6.

 5. Curb: Insulated, 14-gauge (1.99 mm) galvannealed steel single wall curb and counterflashing with DiamondGrip™ feature. 12 inches (305 mm) high, 3-1/2” (88.9 mm) wide flange for securing to roof.

 6. Hold Open Arm: Clear zinc-plated automatic locking arm with red vinyl grip for one- handed door operation.

 7. Latch: Clear zinc-plated steel slam latch with outside and inside handles and padlock hasps.

 8. Finish: Textured white polyester powder coat.

 9. Hatch Opening Size and Weight:

 a. RHDG-1WT: 36” X 30” (762 mm x 914 mm); (138 lbs.)

 b. RHDG-2WT 54: x 30” (1371.60 mm x 762 mm); (187 lbs.)

 c. RHDG-3WT 96” x 30” (2438.40 mm x 762 mm); (289 lbs.)

 d. RHDG-4WT 36” x 36” (914.40 mm x 914.40 mm); (162 lbs.)

 e. RHDG-5WT 48” x 48” (1219.20 mm x 1219.20 mm); (232 lbs.)

 f. RHDG-6WT 32” x 72” (812.8 mm x 1828.8 mm); (235 lbs.)

 g. RHDG-7WT 37” x 30” (939.8 mm x 762 mm); (140 lbs.)

 h. <Insert dimensions>

 11. Model RHDG Options:

*SPECIFIER: Select specific options listed below, if desired.*

1. Energy-efficient polyisocyanurate insulation 1-1/2” on curb walls (R-9).
2. ¾” Wood pine nailer on curb walls
3. 1” Fiberboard insulation on curb walls
4. Curb Double Wall
5. Curb Heights, choose from 13 inches up to 22 inches in height; [\_\_\_\_”]
6. Galvannealed steel curbs with Aluminum covers
7. Stainless steel Type 316 hinge pins
8. Stainless steel Type 316 hardware
9. Finish color options: [Gray Textured], [Red Textured], [Bronze Textured]

**2.03 RHDA Diamond Series – Aluminum Roof Hatch**

 A. Style RHDA: Aluminum, insulated roof hatch cover and roof curb.

 1. Model No. RHDA [**insert remainder of model number**].

 2. Performance Criteria: Tested and approved to support a minimum live load of 40 lbs./ft2 (18 kg/0.09 m2), with a maximum deflection of 1/150th of the span, maximum load of 50 lbs./ft2 (22 kg/0.09 m2) wind uplift.

 3. Cover: Insulated, 11-gauge aluminum exterior, welded cover with 18-gauge liner. Door opens 75 degrees. Cover has continuous weatherproof EPDM sponge rubber adhesive backed gasket.

 4. Cover Insulation: 1” polyisocyanurate with thermal resistance R-6.

 5. Curb: Insulated, 11-gauge aluminum single wall curb and counterflashing with DiamondGrip™ feature. 12 inches (305 mm) high, 3-1/2” (88.9 mm) wide flange for securing to roof.

 6. Hold Open Arm: Clear zinc-plated automatic locking arm with red vinyl grip for one- handed door operation.

 7. Latch: Clear zinc-plated steel slam latch with outside and inside handles and padlock hasps.

 8. Finish: Mill finish.

 9. Hatch Opening Size and Weight:

 a. RHDA-1 36” X 30” (762 mm x 914 mm); (68 lbs.)

 b. RHDA-2 54: x 30” (1371.60 mm x 762 mm); (88 lbs.)

 c. RHDA-3 96” x 30” (2438.40 mm x 762 mm); (133 lbs.)

 d. RHDA-4 36” x 36” (914.40 mm x 914.40 mm); (76 lbs.)

 e. RHDA-5 48” x 48” (1219.20 mm x 1219.20 mm); (111 lbs.)

 f. RHDA-6 32” x 72” (812.8 mm x 1828.8 mm); (110 lbs.)

 g. RHDA-7 37” x 30” (939.8 mm x 762 mm); (69 lbs.)

 h. <Insert dimensions>

 10. Model RHDA Options:

*SPECIFIER: Select specific options listed below, if desired.*

1. Energy-efficient polyisocyanurate insulation 1-1/2” on curb walls (R-9).
2. ¾” Wood pine nailer on curb walls
3. 1” Fiberboard insulation on curb walls
4. Curb Double Wall
5. Curb Heights, choose from 13 inches up to 22 inches in height; [\_\_\_”]
6. Galvannealed steel curbs with Aluminum covers
7. Stainless steel Type 316 hinge pins
8. Stainless steel Type 316 hardware
9. Finish color options: [Gray Textured], [Red Textured], [Bronze Textured]
10. Polyvinylidene Fluoride PVDF, 70% Fluoropolymer [10 year],[20 year] select from color chart

**2.05 RHTB ThermalBlock Series – Thermally Broken Roof Hatch**

 A. Style RHTB: Thermally broken aluminum roof hatch cover and roof curb.

 1. Model No. RHTBA [**insert remainder of model number**].

 2. Performance Criteria: Tested and approved to support a minimum live load of 40 lbs./ft2 with a maximum deflection of 1/150th of the span, maximum load of 20 lbs./ft2 wind uplift.

 3. Cover: Aluminum cover (0.09 inch/2.3mm). Both interior and exterior surface is thermally broken. Cover has continuous extruded EPDM acoustical rated gasketing.

 4. Cover Insulation: 3 inches of foil-faced rigid polyisocyanurate insulation with R-value 20.

 5. Liner: Aluminum liner cover (0.0907 inch (2.3mm)).

 6. Curb: Aluminum (0.0907 inch (2.3mm)) with single wall curb, integral metal flashing, same gauge, fully welded corners, counter flash 9 inches on center (228mm), to be bent inward to hold single ply roofing membrane.

 a. Curb fabricated a minimum height of 12 inches above roof surface.

 b. Sloping Roofs: Where slope of 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. How do they specify this?

 7. Curb Insulation: 3 inches of single layer rigid polyisocyanurate insulation R-value = 20.

 8. Hardware:

 a. Hinge: Pintle hinge with stainless steel hinge pin.

 b. Spring: Gas spring with integrated damper.

 c. Hold Open Arm: Automatic hold open arm, zinc plated steel with red vinyl grip handle cover.

 d. Latch: Zinc plated steel spring type slam latch with inside and outside operating turn handles and padlock hasp.

 9. Finish: Mill finish.

 10. Hatch Opening Size and Weight:

 a. RHTBA-1 36” X 30” (900 mm x 750 mm); (107 lbs.)

 b. RHTBA-2 30: x 54” (750 mmx 1370 mm); (128 lbs.)

 c. RHTBA-3 30” x 96” (2438.40 mm x 762 mm); (172 lbs.)

 d. RHTBA-4 36” x 36” (900 mm x 900 mm); (145 lbs.)

 e. RHTBA-5 48” x 48” (1220 mm x 1220 mm); (235 lbs.)

 11. Model RHTBA Options:

*SPECIFIER: Select specific options listed below, if desired.*

1. Curb Double Wall

**2.06 RHG-STH SERIES - COMBINATION ROOF HATCH AND SAFETY RAIL SYSTEM**

A. Style RHG-STH: Self-attaching galvanneal steel roof hatch with integral safety rail system.

1. Model RHG-[**X**]-STH: **insert remainder of model number**].

2. Roof Hatch:

a. Performance Criteria: Tested and approved to support a minimum live load of 40 lbs./ft2 (18 kg/0.09 m2), with a maximum deflection of 1/150th of the span, maximum negative load of 50 lbs./ft2 (22 kg/0.09 m2) wind uplift, and 110 mph (177 kph) wind load with cover in open position.

b. Cover: Insulated, 14-gauge (1.99 mm) galvanneal steel exterior and 22-gauge (0.79 mm) galvanized steel liner, with EDPM gasket door seal.

1) Insulation: One inch (25.40 mm) thick mineral wool insulation.

c. Curb: Insulated, 14-gauge (1.99 mm) galvanneal steel, 12 inches (305 mm) high with 3-5/8 inch (92.075 mm) wide flange for securing to roof deck.

 d. Curb Insulation: One-inch fiberboard insulation curb (R-6) value.

e. Hardware:Heavy-duty zinc-coated hinge and pin. Heavy- gauge automatic hold open arm with red vinyl grip, compression operated, shock absorbing cylinder. Fastening hardware, exterior handle and inside locking handle with interior and exterior padlock hasp are zinc-coated.

f. Hatch Finish: Grey hammertone powder coat.

 3. Integral Safety Railing: Saf-T-Hatch rooftop safety railing bolts onto a permanently-attached bracket that is welded to the corners of the curb.

 a. Certification: Meets OSHA required compliance for safe egress and ingress through rooftop hatch openings while hatch is in use; complies with OSHA CFR 29-1910.28 and CFR 29-1910.29.

 b. Rail: ASTM A53, Grade B, seamed galvanized steel rail, 1-5/8 inch outer dimension., with post caps.

 c. Chain Guard: Zinc-plated 3/16-inch (4.76 mm) chain with quick links and hoops.

 d. Finish: Safety yellow powder coat.

 4. Hatch Opening Size and Total Weight with Rail:

1) RHG-1-STH: 30 inches by 36 inches (762 mm by 914.40 mm); 183 lbs.(84 kg).

2) RHG-2-STH: 54 inches by 30 inches (1371.60 mm by 762 mm); 245 lbs. (112 kg).

 3) RHG-3-STH: 96 inches by 30 inches (2438.40 mm by 762 mm); 315 lbs. (143 kg).

4) RHG-4-STH: 36 inches by 36 inches (914.40 mm by 914.40 mm); 219 lbs. (100 kg).

5) RHG-5-STH: 48 inches by 48 inches (1219.20 mm by 1219.20 mm); 298 lbs. (136 kg**).**

5. Model RHG-STH Options:

*SPECIFIER: Select specific options listed below, if desired.*

1. Stainless steel hinges, cylinder housing & brackets, exterior & interior latches, interior padlock hasp, hold-open arm.
2. Energy-efficient polyisocyanurate insulation 1-1/2 inch on curb walls (R-10).
3. Optional colors: [White hammertone], [Red hammertone].
4. Railing Gate: Self-closing, rigid galvanized steel gate with spring hinge for attachment to manufacturer's Saf-T-Hatch roof hatch railing; fits RHG-STH hatch-railing system.

1. Model SHG-2436

**2.11 ACCESSORIES**

 **SHWC SERIES - SAFETY RAILING FOR NEW AND EXISTING HATCHES**

A. Style SHWC: Saf-T-Hatch rooftop safety railing. Self-attaching design clamps to curb base.

1. Model No. SHWC- [**insert remainder of model number from subparagraph 7 below**].

2. Certification: Meets OSHA required compliance for safe egress and ingress through rooftop hatch openings while hatch is in use; complies with OSHA CFR 29-1910.28 and CFR 29-1910.29.

3. Rail: ASTM A53, Grade B, seamed galvanized steel rail, 1-5/8 inch outer dimension., with post caps.

4. Base: 16-gauge (1.61 mm) seamed galvanized steel base, 2 inches by 2 inches (50.80 mm by 50.80 mm) square, with cast steel, hot-dipped galvanized clamps.

5. Chain Guard: Zinc-plated 3/16-inch (4.76 mm) chain with quick links and hoops.

6. Finish: Safety yellow powder coat.

7. Hatch Opening Size, Railing Weight, and Installs to J.L. Industries Hatch Model:

a. SHWC-3036 (STH-1): 30 inches by 36 inches (762 mm by 914.40 mm); 66 lbs. (30 kg); Designed to fit Models RHA/RHG/RHR-1.

b. SHWC-3054 (STH-2): 54 inches by 30 inches (1371.60 mm by 762 mm); 70 lbs. (32 kg); Designed to fit Models RHA/RHG-2.

c. SHWC-3096 (STH-3): 96 inches by 30 inches (2438.40 mm by 762 mm); 80 lbs. (37 kg); Designed to fit Models RHA/RHG-3.

d. SHWC-3636 (STH-4): 36 inches by 36 inches (914.40 mm by 914.40 mm); 68 lbs. (31 kg); Designed to fit Models RHA/RHG-4.

e. SHWC-4848 (STH-5): 48 inches by 48 inches (1219.20 mm by 1219.20 mm); 75 lbs. (35 kg); Designed to fit Models RHA/RHG-5.

8. Model SHWC Options:

*SPECIFIER: Select specific options listed below, if desired.*

1. Railing Gate: Self-closing, rigid galvanized steel gate with spring hinge for attachment to manufacturer's Saf-T-Hatch roof hatch railing; fits both STH stand-alone railing and RHG-STH hatch-railing system.

1. Model SHG-2436

B Ladder-Assist Safety Post (Extendable): Preassembled steel safety post which attaches directly to the top 2 rungs (either square or round) of the vertical access ladder with 2 U-shaped bolts.

1. Model LP- [**insert remainder of model number from subparagraph 3 below**].

2. Post Assembly: Square post with latch which maintains the post at variable heights, and spring coil at base to allow user to lift (extend) post with one hand.

3. Post Finish:

a. LP-4: Safety yellow powder coat.

4. Weight: 25 lbs. (12 kg).

C. Ladder-Assist Safety Post (Extendable): Preassembled steel safety post which attaches directly to the top 2 rungs (either square or round) of the vertical access ladder with 2 bolts and mounting bracket.

1. Model RSLP- [**insert remainder of model number from subparagraph 3 below**].

2. Post Assembly: Square post with release latch which maintains the post securely locked into the upright position, and spring coil at base to allow user to lift (extend) post with one hand.

3. Post Finish:

a. RSLP-G: Hot-dipped galvanized.

4. Weight 23 lbs

D. Ladder-Assist EZ-Up Safety Post (Retractable): Preassembled steel safety post which attaches directly to and stows inside the roof hatch curb. Allows user to lift post and automatically lock into upright position with one hand.

1. Model LP-6.

2. Post Assembly: 1 ½” x 1 ½” 12 gauge steel square post attached by swivel bolt to welded 10-gauge steel mounting plate.

3. Post Finish: Safety yellow powder coat.

4. Weight: 8 lbs. (4 kg).

5. Testing: 200-pound design load rating.

E. Warning Light: Xenon type strobe light for detection and for alerting personnel that the roof hatch or opening is in an OPEN position.

1. Light Location, Characteristics and Operation:

a. Light is equipped with a magnetic base and is mounted to the inside surface of the cover or door.

b. Bright, red light which emits 60 double flashes per minute and is activated as the hatch is lifted upward 30 degrees.

c. Light automatically turns off when the hatch is returned to the CLOSED position.

2. Light comes complete with 2 new D-Cell alkaline batteries which provide 50 to 60 flashing hours.

**PART 3 - EXECUTION**

**3.01 EXAMINATION**

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

1. Notify the Contractor in writing of conditions detrimental to proper and timely completion of the installation.

2. Verify dimensions of roof openings for roof accessories.

3. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.02 INSTALLATION**

A. General: Comply with manufacturer's written instructions for installing roof hatches and accessories, if any.

1. Install roof hatches level, plumb, true to line and elevation, and without warping, jogs in alignment, buckling, or tool marks.

2. Anchor roof hatches securely in place so they are capable of resisting indicated loads.

3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof hatches and fit them to substrates.

4. Install roof hatches to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.

B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Coat concealed side of uncoated aluminum components with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.

2. Underlayment: Where installing roof hatches directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene sheet.

C. Installation: Install roof hatch so top surface of hatch curb is level.

*SPECIFIER: Retain subparagraphs below if roof hatches are so equipped.*

1. Attach safety railing system to roof hatch curb.

2. Attach ladder‑assist post according to manufacturer's written instructions.

D. Surface Repairs:

*SPECIFIER: Select galvannealed surfaces or factory-painted surfaces in subparagraphs below.*

1. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A 780.

2. Powder Coat Painted Surfaces: Touch up factory‑painted surfaces with compatible paint.

**3.03 ADJUSTING AND CLEANING**

A. Verify that roof hatches operate properly.

B. Clean, lubricate, and adjust operating mechanism and hardware.

C. Clean exposed surfaces according to manufacturer's written instructions.

D. Replace roof hatches that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

 END OF SECTION