



# Engineering Technical Bulletin

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## FACTORY MUTUAL GLOBAL Approval of EM Double-Lok® Standing Seam Roof Systems as Class 1 Panel Roof

- Trade Name:** EM Double-Lok® Standing Seam Roof System with HW-2122 Low or 2124 High 2" Sliding Clips, HW-2126 Low or 2128 High 4" Sliding Clips, HW-2129 Hi-Thermal Sliding Clips.
- Size:** 22-ga. (0.0299 in., 0.76mm) or 24-ga. (0.0239 in., 0.61 mm) steel panels, max. 24 in. (610 mm) wide coated with Signature® 200 or 300 paint or Galvalume®.
- Supports:** Min. 16-ga. (0.0598 in., 1.5 mm) steel supporting members.
- Application:** The clips are secured to each steel roof purlin, as described below, using **SFS Fasteners ¼-14 x 1 ¼" HWH SDS with 15mm bonded washer or Atlas ¼-14 x 1 ¼" HWH Long Pilot TCP2 Screws with a #14 x 0.594 in. (15 mm) diameter galvanized EPDM sealing washer**. A min. length on ½ in. (13 mm) of threaded portion of screw must penetrate underside of purlin. Adjacent panels are seamed together along side laps with an MBCI electric seaming tool.
- Special Application:** Optional liner panels are corrugated decks of Galvalume® coated steel or painted Galvalume® steel having a min. yield strength of 50 ksi (345 N/mm<sup>2</sup>). The panels are min. 0.017 in. (0.4 mm) thick, 36 in. (914 mm) wide and <sup>13</sup>/<sub>16</sub> in. (21 mm), or 1 ¼ in. (32 mm) deep, PBU Liner Panels and PBR Liner Panels, respectively.
- Optional Insulation:** Max. 6 in. (152 mm) vinyl faced glass fiber blanket insulation, or Celotex® Thermax Insulation Board, max. 4.25 in. (108 mm) thickness (max supporting members spacing 5 ft. (1.5 m) o.c., placed between the roof panels and the supporting members and used in conjunction with either the "M" or "R" liner panel. Steel Bearing Plates of 16-ga. (0.0598 in., 1.5 mm) red oxide coated steel plate having a min. yield strength of 50 ksi (345 N/mm<sup>2</sup>). The plate measures 4 in. x 5 in. (102 mm x 127 mm), has one recessed ¼ in. (6.4 mm) dia. center hole, two ¼ in. (6.4 mm) wide by 1 in. long slots and is applied over ridged insulation and positioned. The clips, as described below, are secured through the bearing plate, insulation and liner panel to the steel supporting members.
- Hail Rating:** Class 1-SH.
- ASTM E 108:** Class A noncombustible deck at max. 5 in 12 slope.
- Construction #1:** EM Double-Lok® Roof Panels, min. **24-ga.** (0.0239 in., 0.61 mm), max. **24 in.** (610 mm) wide are secured to min. **16-ga.** (0.0598 in., 1.5 mm) steel supporting members, spaced a max. **5 ft.** (1.5 m) o.c., with HW-2122 Low or HW-2124 High 2" Sliding Clips or HW-2126 Low or HW-2128 High 4" Sliding Clips or HW-2129 Hi-Thermal Sliding Clips. The Clips are secured to each steel roof purlin using a minimum of **two** fasteners per clip. **Meets Class 1-60. RoofNav Assembly # 16871-0-0.**
- Construction #1a:** EM Double-Lok® Roof Panels, min. **22-ga.** (0.0299 in., 0.76 mm), max **24 in.** (610 mm) wide secured to steel supporting members, spaced a max. **5 ft.** (1.5 m) o.c. **Meets Class 1-75. RoofNav Assembly # 16868-0-0.**
- Construction #1b:** EM Double-Lok® Roof Panels, min. **24-ga.** (0.0239 in., 0.61 mm), max **18 in.** (457 mm) wide secured to steel supporting members, spaced a max. **5 ft.** (1.2 m) o.c. **Meets Class 1-90. RoofNav Assembly # 16869-0-0.**

**Construction #1c:** EM Double-Lok® Roof Panels, min. **22-ga.** (0.0299 in., 0.76 mm), max **24 in.** (610 mm) wide secured to steel supporting members, spaced a max. **4 ft.** (1.1 m) o.c. **Meets Class 1-105.**  
**RoofNav Assembly # 90-0-0.**

**Construction #2:** EM Double-Lok® Roof Panels, min. **24-ga.** (0.0239 in, 0.61 mm) ,max. **24 in.** (610 mm) wide are secured to min. **16-ga.** (0.0598 in., 1.5 mm) steel supporting members, spaced a max. **5 ft.** (1.5 m) o.c., with HW-2122 Low or HW-2124 High 2" Sliding Clips or HW-2126 Low or HW-2128 High 4" Sliding Clips or HW-2129 Hi-Thermal Sliding Clips. The Clips are secured to each steel roof purlin using a minimum of **two** fasteners per clip. **One** S5! DL WINDCLAMP is installed, centered, at every clip location. **Meets Class 1-75.**

**Construction #2a:** EM Double-Lok® Roof Panels, min. **24-ga.** (0.0239 in., 0.61 mm), max **24 in.** (610 mm) wide are secured to min. **14-ga.** (0.0675 in., 1.7 mm) steel supporting members, spaced a max. **5 ft.** (1.2 m) o.c. **Meets Class 1-90.** **RoofNav Assembly # 189522-0-0.**

**Construction #2b:** EM Double-Lok® Roof Panels, min. **24-ga.** (0.0239 in., 0.61 mm), max **18 in.** (457 mm) wide secured to min. **16-ga.** (0.0598 in., 1.5mm) steel supporting members, spaced a max. **5 ft.** (1.2 m) o.c. The clips are secured to each steel roof purlin using a minimum of **three** fasteners per clip. **Meets Class 1-135.** **RoofNav Assembly # 160502-0-0.**

**Construction #3:** EM Double-Lok® Roof Panels, min. **22-ga.** (0.0299 in., 0.76 mm), max **24 in.** (610 mm) wide secured to **16-ga.** (0.0598 in., 1.5mm) steel supporting members, spaced a max. **5 ft.** (1.2 m) o.c. with HW-2126 Low or HW-2128 High 4" Sliding Clips. The clips are secured to each steel roof purlin using a minimum of **three** fasteners per clip. **One** S5! DL WINDCLAMP is installed, centered, at every clip location. **Meets Class 1-120.** **RoofNav Assembly # 160505-0-0.**

**Construction #3a:** Double-Lok® Roof Panels, min. **22-ga.** (0.0299 in., 0.76 mm), max **24 in.** (610 mm) wide are secured to min. **14-ga.** (0.0675 in., 1.7 mm) steel supporting members, spaced a max. **5 ft.** (1.2 m) o.c. **Two** S5! DL WINDCLAMP is installed, centered, at every clip location. **Meets Class 1-150.**  
**RoofNav Assembly # 160506-0-0.**

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