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APPROVAL REPORT

Project No: PR449212
Class: 4471
Product Name: Tee-Lock Standing Seam Roof System
Name of Listing Company: Berridge Manufacturing Company
Address of Listing Company: 2610 Harry Wurzbach Rd.
San Antonio, TX 78209
United States
Customer ID: 1000000647-1
Customer website: <https://www.berridge.com>

Prepared by

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3/24/2020

Date of Approval

1 INTRODUCTION

1.1 Berridge Manufacturing Company requested Approval of their Tee-Lock roof panel and Tee-Lock roof panel components listed in Section 2, to determine if they meet the Approval requirements of the standard listed in Section 1.3.

1.2 This report may be freely reproduced only in its entirety and without modification.

1.3 Standard

Title	Number	Issue Date
Approval Standard for Class I Panel Roofs	4471	3/2010

1.4 Listing

The products and assemblies will be listed in RoofNav, an on-line resource of FM Approvals. Drawings and specifications are on file at FM Approvals.

2 DESCRIPTION

The Tee-Lock Panel and Approved components are described as follows:

2.1

Trade Name	Tee-Lock Panel
Width	18 in. (457 mm)
Length	Varies
Thickness	24 - 22 ga., 0.0240 to 0.0299 in. (0.610 to 0.759 mm)
Material	Steel
Surface type	Aluminum-zinc alloy-coated steel and/or Two-coat Kynar 500®/Hylar 5000® fluoropolymer color

2.2

Trade Name	Tee-Lock Continuous Rib
Width	5.750 in. (146 mm)
Length	Varies
Height	2.668 in. (67.8 mm)
Thickness	22 ga., 0.0299 in. (0.759 mm)
Material	Steel
Surface type	Aluminum-zinc alloy-coated steel

2.3

Trade Name	Tee-Lock Clip
Base Width	1.4 in. (35.6 mm)
Overall Length	6.0 in. (152.4 mm)
Height	2.7 in. (68.6 mm)
Thickness	16 ga. 0.064 in. (1.63 mm)
Material	Steel Grade 50
Surface type	Aluminum-zinc alloy-coated steel

2.4

Trade Name:	1/4-14 DP3 BLAZER Hex Washer Head Self-Drilling Screw
Material:	Steel

Fastener Diameter (Major):	0.237 - 0.246 in. (6.0 to 6.2 mm)
Fastener Diameter (Minor):	0.185 - 0.192 in. (4.7 to 4.9 mm)
Min Length:	1.25 in. (31.8 mm)
Max Length:	1.5 in. (38.1 mm)
Fastener Type:	Screw, self-drilling
Fastener Coating:	Zinc with Tri-Seal Fluoropolymer Topcoat
Drive Head:	5/16" and 3/8" Hex Washer Head
Point:	Type 3

2.5

Trade Name	Tee-Lock Seam Cap
Length	Varies
Thickness	24 - 22 ga., 0.0240 to 0.0299 in. (0.610 to 0.759 mm)
Material	Steel
Surface type	Aluminum-zinc alloy-coated steel and/or Two-coat Kynar 500®/Hylar 5000® fluoropolymer color

2.6 All other products are as described in RoofNav.

3 EXAMINATIONS AND TESTS

3.1 All components, except those in Sections 2.1 - 2.5, were produced under the FM Approvals Surveillance Audit program as indicated by FM Approvals labels. All samples were considered to be representative of standard production and were examined and tested as indicated below. Components incorporated into test samples were selected by FM Approvals personnel. Test samples were prepared by, or under the supervision of, FM Approvals personnel. All data is on file at FM Approvals along with other documents and correspondence applicable to this program.

3.2 Several performance requirements and tests required by the Standard have been waived due to previous successful testing. Calorimeter testing for the H-Shield was waived due to satisfactory performance of more critical constructions in Project I.D. 3019743, 3025031, 3025035 and 3036749, sponsored by Hunter Panels LLC. Calorimeter testing for ACFoam-II was waived due to satisfactory performance of a more critical construction in Project I.D. 3001900 & 3012034, sponsored by Atlas Roofing Corp. See Table 1 below for details.

Table 1

FM Standard 4471 Performance Requirement	Original Project ID(s)
Combustibility - From Below Roof Assembly	Waived, see 3019743, 3025031, 3025035, 3036749, 3001900 and 3012034
Combustibility - From Above Roof Assembly	Waived, see 3048395, 2Y5A1.AM
Wind Uplift Resistance Test	Included
Foot Traffic Resistance Test	Included
Hail Damage Resistance Test	Waived, see 3048395, 2Y5A1.AM

4 MARKING

4.1 Marking on the product or, if not possible due to size, on its packaging or label accompanying the product, shall include the following information:

- name and address of the manufacturer or marking traceable to the manufacturer;
- date of manufacture or code traceable to date of manufacture or lot identification;
- model number, model type and/or product trade name as appropriate.

When hazard warnings are needed, the markings shall be universally recognizable.

4.2 The product trade name, model number or model type identification shall correspond with RoofNav, the manufacturer's catalog designation and shall uniquely identify the product as FM Approved. The manufacturer shall not place this trade name or model number identification on any other product unless covered by a separate agreement with FM Approvals.

4.3 The Approval Mark shall be displayed visibly and permanently on the product and/or packaging as appropriate. The manufacturer shall not use this Mark on any other product unless such product is covered by a separate FM Approvals Approval Report.

4.4 Markings denoting Approval by FM Approvals shall be applied by the manufacturer only within and on the premises of manufacturing locations that are under the FM Approvals Surveillance Audit program.

4.5 The manufacturer agrees that use of the FM Approvals name or Approval Mark is subject to the conditions and limitations of the Approval by FM Approvals. Such conditions and limitations must be included in all references to Approval by FM Approvals.

5 REMARKS

5.1 The securement of the roof system must be enhanced at the building corners and perimeter.

5.2 The roof cover must be installed using a roof perimeter flashing system Approved by FM Approvals. See RoofNav.

6 SURVEILLANCE AUDIT

The manufacturing facilities at the following location(s) shall be visited on a routine basis. The facility processes and quality control procedures in place have been determined to be satisfactory to manufacture products identical to that tested and Approved. An FM Approved Products/Specification Tested Revision Request Form shall be submitted to FM Approvals for requesting to manufacture products at any additional or alternate manufacturing facilities which are not listed below.

Audit Locations:

Site 1

Site 2

2201 Rudeloff Road
 Seguin, TX 78155
 United States

No 1-37, Yuku, Alian District
 Kaohsing
 Taiwan

Site 3

Site 4

No. 135, Kang Hou Vill., A Lien District,
 Kaohsiung City, 82246
 Taiwan, R.O.C.

20101 Schiel Road
 Houston, TX 77433
 United States

7 MANUFACTURER’S RESPONSIBILITIES

- 7.1 The manufacturer shall notify FM Approvals of any planned change in the Approved products, prior to general sale or distribution, using the FM Approved Products/Specification Tested Revision Request Form. No changes of any nature shall be made unless notice of the proposed change has been given and written authorization obtained from FM Approvals.
- 7.2 To ensure compliance with his procedures in the field, the manufacturer shall supply to the installer such necessary instruction or assistance required to produce the desired performance achieved in the tests.
- 7.3 In accordance with the Master Agreement, the manufacturer shall make full and immediate disclosure to FM Approvals of all information concerning any defect in, or potential hazard of, the product or service manufactured or provided by the Customer which is Approved by, or being examined by, FM Approvals. The manufacturer shall make all necessary arrangements for the investigation of complaints / anomalies applicable to this approval and shall keep records of all complaints / anomalies including actions taken.

8 DOCUMENTATION

The following documents describe the Tee-Lock Panel and Approved Tee-Lock Panel components and is on file at FM Approvals.

Document Title	Issue Date
Surveillance Audit Manual for 2201 Rudeloff Road, Seguin, TX 78155, United States	March 2020
Surveillance Audit Manual for No 1-37, Yuku, Alian District Kaohsing, Taiwan	March 2020
Surveillance Audit Manual for No. 135, Kang Hou Vill., A Lien District., Kaohsiung City 82246, Taiwan, R.O.C.	March 2020
Surveillance Audit Manual for 20101 Schiel Road, Houston, TX 77433, United States	March 2020

9 CONCLUSIONS

- 9.1 Test results from this and previous programs indicate that the submitted products as evaluated, meet the requirements FM Approvals Standard listed in section 1.3 when installed as follows:

9.2

Cover:	24 ga., 18 in. (457 mm) wide, Tee-Lock Panel
Seam Cap:	Tee-Lock Panel Seam Cap w/ vinyl weather seal
Seam Cap Comment:	Tee-Lock Seam Cap with vinyl weather seal is placed over Tee-Lock Panel seams and preliminarily secured with a manual crimping tool then mechanically zipped tight with an electric seaming tool
Clip:	16 ga. Tee-lock Clip spaced 16 in. (406 mm) o.c. along panel seam
Clip Comment:	24 ga., Bearing Plates are placed under Tee-lock Clips
Fastener:	Two (2) #14-13 Concealor Pancake Fastener at each clip
Insulation (Optional):	Minimum 1.5 in (38 mm) thick, H-Shield or AC Foam-II, loose laid
Deck:	Min 22 ga. (0.030 in., 76 mm), FM Approved steel deck, with 6 ft. (1.8 m) spans secured to ¼ in. (6 mm) structure steel deck supports at ribs with one Teks 5 fastener spaced 6 in. (152 mm) o.c. The deck side laps secured with one ICH Stitch Teks 1 fastener spaced 24 in (610 mm) o.c. Perimeter securements spaced 6 in. (152 mm) o.c. along the 24 ft. (7.3 m) length and 6 in. (152 mm) o.c. along the 12 ft. (3.7 m) length using Teks 5 fasteners
Wind / Hail:	1-150 / Class 1-SH
ASTM E 108:	Class A @ 5 in 12

9.3

Cover:	24 ga., 18 in. (457 mm) wide, Tee-Lock Panel
Seam Cap:	Tee-Lock Seam Cap w/ vinyl weather seal
Seam Cap Comment:	Tee-Lock Seam Cap with vinyl weather seal is placed over Tee-Lock Panel seams and preliminarily secured with a manual crimping tool then mechanically zipped tight with an electric seaming tool
Clip:	Tee-Lock Continuous Rib secured directly to 16 ga. (0.060 in., 1.52 mm) thick steel purlin with two fasteners, spaced 5.0 ft. o.c.
Clip Comment:	Two (2) Tee-Lock Continuous Rib clips are placed back-to-back along each panel seam and secured with two fasteners per rib for a total of four fasteners per purlin attachment point
Fastener:	Two (2) 1/4-14 DP3 BLAZER Hex Washer Head Self-Drilling Screw per rib @ every purlin attachment point (total 4 fasteners at every connection)
Purlins:	16 ga. (0.060 in., 1.52 mm) thick steel purlins, spaced 5.0 ft. (1524 mm) o.c.
Wind / Hail:	1-240 / Class 1-SH
ASTM E 108:	Class A @ 5 in 12

9.4 Tests show that the tested roof constructions in and of themselves would not create a need for automatic sprinklers.

- 9.5** Since a duly signed Master Agreement is on file for this customer, Approval is effective as of the date of this report.
- 9.6** Continued Approval will depend upon satisfactory field experience and periodic Facilities and Procedures Audits.

PROJECT DATA RECORD: PR449212

ORIGINAL TEST DATA: See Table 1