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APPROVAL REPORT

Project No: 0003063425
Class: 4470
Product Name: STIFERITE GTE and STIFERITE FIRE B
Name of Listing Company: Imper Italia SRL
Address of Listing Company: Via Volta 8
Mappano (Torino) 10039
Italy
Customer ID: 1000001266
Customer website: <http://www.imper.it>

Prepared by

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VP, Manager of Materials

10/31/18

Date of Approval

1 INTRODUCTION

1.1 Imper Italia SRL requested Approval of their STIFERITE GTE and STIFERITE FIRE B 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
Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction	4470	12/2016

1.4 Listing

The products and assemblies will be listed in RoofNav, an on-line resource of FM Approvals.

2 DESCRIPTION

2.1 The STIFERITE GTE and STIFERITE FIRE B are described as follows:

2.1.1 STIFERITE GTE has a polyisocyanurate foam core with gas tight multi-layer aluminum foil facers. The board is manufactured at a minimum thickness of 20 mm (0.79 in.) and a maximum thickness of 140 mm (5.5 in.) with a length and width of 1200 x 600 mm (47.2 x 23.6 in.).

2.1.2 STIFERITE FIRE B has a polyisocyanurate foam core with mineral coated glass facers. One is black and positioned on the top surface (exposed side). The board is manufactured at a minimum thickness of 20 mm (0.79 in.) and a maximum thickness of 200 mm (7.9 in.) with a length and width of 1200 x 600 mm (47.2 x 23.6 in.). The underside is required to indicate "This Side Down".

2.2 All other products are as described in RoofNav. Formulations, drawings and specifications are on file at FM Approvals.

3 EXAMINATIONS AND TESTS

3.1 All components, except those in Section 2.1, 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 Production of STIFERITE GTE and STIFERITE FIRE B was witnessed by a representative of FM Approvals on April 9, 2018.

3.3 Several performance requirements and tests required by the Standard have been waived due to previous successful testing. See Table 1 below for details.

Table 1

FM Standard 4470 Performance Requirement	Original Project ID(s)
Combustibility From Above the Roof Deck	Testing required
Combustibility From Below the Roof Deck	Testing required
Hail Damage Resistance Test	Waived, see 3002938
Water Leakage Resistance Test	Waived ¹
Foot Traffic Resistance Test	Testing required
Susceptibility to Heat Damage Test	Testing required
Corrosion Resistance Test	Waived ²
Wind Uplift Resistance	Waived, see 3047326
NCC Rated Roof Insulation	Optional – not requested
Dynamic Puncture Resistance Rating	Optional – not requested
Solar Reflectance of Roof Surfaces	Optional – not requested
Identification Tests	Waived, not required
¹ All roof covers are Approved for the OEM, no new roof covers included.	
² All fasteners are Approved for the OEM, no new fasteners included.	

3.4 ASTM E108 Spread of Flame Testing:

3.4.1 Four Spread of Flame tests were completed with the sample construction and results noted below.

Sample No. 1 & 2:

Roof Cover:	2.0 mm (0.080 in.) thick Sintofoil RC/FR roof cover installed mechanically attached
Insulation:	20 mm (0.8 in.) thick STIFERITE GTE roof insulation pre-secured
Deck:	Plywood

Sample No. 3 & 4:

Roof Cover:	2.0 mm (0.080 in.) thick Sintofoil RC/FR roof cover installed mechanically attached
Insulation:	20 mm (0.8 in.) thick STIFERITE FIRE B roof insulation pre-secured
Deck:	Plywood

Results:

Sample No.	Slope	Spread Distance	Rating
1	¼ in 12	28 in. (711 mm)	A
2	¼ in 12	20 ½ in. (521 mm)	A ¹
3	¼ in 12	32 ½ in. (826 mm)	A
4	¼ in 12	29 in. (737 mm)	A ¹

¹ Confirming sample

Deck exposure, flying brands and significant lateral flame spread were not observed during the tests.

3.5 FM Approvals Calorimeter Testing:

3.5.1 Two samples were prepared. The components, sequence of installation and test results were as follows:

Sample No. 1:

Roof Cover:	2.0 mm (0.080 in.) thick Sintofoil RC/FR roof cover installed mechanically attached
Insulation:	20 mm (0.8 in.) thick STIFERITE FIRE B roof insulation secured to the steel deck
Deck:	Steel

Sample No. 2

Roof Cover:	2.0 mm (0.080 in.) thick Sintofoil RC/FR roof cover installed mechanically attached
Insulation:	200 mm (7.9 in.) thick STIFERITE FIRE B roof insulation secured to the steel deck
Deck:	Steel

The samples were evaluated for their fuel contribution rates. These rates and the rates for the Class 1 limits are given below:

Maximum Average Rate of Fuel Contribution
For Various Time Intervals
Btu/ft./min (kW/m²)

Time Interval:	3 minutes	5 minutes	10 minutes	Average
Class 1 Standard	410 (77.6)	390 (73.8)	360 (68.1)	285 (53.9)
Sample No. 1	175 (33.1)	144 (27.2)	110 (20.8)	82 (15.5)
Sample No. 2	220 (41.6)	207 (39.2)	205 (38.3)	185 (35.0)

3.6 Susceptibility to Heat Damage Testing:

3.6.1 Two Susceptibility to Heat Damage Tests were completed with the sample constructions and results noted below

Sample No. 1:

Insulation:	20 mm (0.8 in.) thick piece of STIFERITE GTE
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Result: Pass

Sample No. 2:

Insulation:	20 mm (0.8 in.) thick piece of STIFERITE FIRE B
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Result: Pass

3.7 Resistance to Foot Traffic Damage Testing:

3.7.1 Two Resistance to Foot Traffic tests were completed with the sample descriptions and results noted below.

Sample No. 1:

Insulation:	20 mm (0.8 in.) thick STIFERITE GTE roof insulation secured to the steel deck
Deck:	Steel

Result: Pass

Sample No. 2:

Insulation:	20 mm (0.8 in.) thick STIFERITE FIRE B roof insulation secured to the steel deck
Deck:	Steel

Result: Pass

4 MARKING

- 4.1 The manufacturer shall mark each product and/or packaging with the manufacturer's name and product trade name. In addition, product and/or packaging must be marked with the Approval Mark of FM Approvals.
- 4.2 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.
- 4.3 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 as outlined in FM Global Property Loss Prevention Data Sheet 1-29.
- 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 facility at the following location 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 Location:

STIFERITE SpA
 Viale Navigazione Interna, 54/5
 35129 Padova, Italy

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 document describes STIFERITE GTE and STIFERITE FIRE B and is on file at FM Approvals.

Document Title	Issue Date
Surveillance Audit Manual	10/2018

9 CONCLUSIONS

- 9.1 Test results from this and previous test programs indicate that the submitted products as evaluated, meet the requirements of the FM Approvals Standard listed in section 1.3 when installed as follows:
 - 9.1.1 STIFERITE GTE and STIFERITE FIRE B may be used in existing FM Approved roof assemblies as indicated below:

Construction No. 1:	
Roof Cover:	Sintofoil RC/FR roof cover installed mechanically attached with a minimum thickness of 1.2 mm (0.047 in.) and a maximum thickness of 2.0 mm (0.080 in.)
Insulation:	STIFERITE GTE or STIFERITE FIRE B roof insulation pre-secured to the steel deck with a minimum thickness of 20 mm (0.8 in.) and a maximum thickness of 200 mm (7.9 in.)
Deck:	Steel
Wind Classification:	See RoofNav
Hail Resistance:	See RoofNav
ASTM E 108:	Class A at a maximum slope of ¼ in 12

- 9.2 Tests show that the tested roof constructions in and of themselves would not create a need for automatic sprinklers.
- 9.3 Since a duly signed Master Agreement is on file for this customer, Approval is effective as of the date of this report.
- 9.4 Continued Approval will depend upon satisfactory field experience and periodic Facilities and Procedures Audits.

PROJECT DATA RECORD: 0003063425

ATTACHMENTS: None

ORIGINAL TEST DATA See Project ID's in Table 1

