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APPROVAL REPORT

Project No: PR458126
Class: 4451
Product Name: NW32, NW32I, NW32A, NW32IA
Name of Listing Company: New Millennium Building Systems LLC
Address of Listing Company: 6115 County Rd 42
Butler IN 46721
United States
Customer ID: 1000009190-1
Customer website: <http://www.newmill.com/>

Prepared by

Christian Lopez
Engineer

Reviewed by

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AVP, Technical Team Manager, Materials

Phillip J. Smith
VP, Manager of Materials

2/1/2021

Date of Approval

1 INTRODUCTION

1.1 New Millennium Building Systems LLC requested Approval of their NW32, NW32I, NW32A and NW32IA steel decks 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 Profiled Steel Panels for Use as Decking in Class 1 Insulated Roof Construction	4451	6/2012

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 Steel decks are described as follows:

Trade Name	Thickness, MSG	Grades	Structural Attachment	Side Lap Attachment
NW32	0.0295, 0.0355, 0.0465 and 0.0583 in (0.75, 0.90, 1.2 and 1.5 mm)	A653 SS Grade 33 & A653 SS Grade 80	FM Approved Fasteners	FM Approved Fasteners
NW32I				Button Punch
NW32A*				FM Approved Fasteners
NW32IA*				Button Punch

*Decks are perforated (Acoustical)

2.2 All other products are as described in RoofNav.

3 EXAMINATIONS AND TESTS

3.1 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. See Table 1 below for details.

Table 1

FM Standard 4451 Performance Requirement	FM Standard 4451 Section	Submissions Required / Waivers
Allowable Live Load Deflection	4.1	Included
Combustibility From Below the Roof Deck	4.2	Waived, See Project ID 3018355
Combination pull out / pull over resistance of fasteners (Testing)	4.3.1.1	Testing waived, steel deck installed in combination with FM Approved steel deck fasteners
Pull over resistance of fasteners (Calculation)	4.3.1.2	Waived, not required
Combination pull off / pull over resistance of arc spot welds	4.3.1.3	Waived, not required
Side lap fastener and side lap crimping and interlocking resistance	4.3.1.4	Waived, See Project ID 3022701
Fastener pull out resistance for above deck components	4.3.1.5	Waived, not required
Steel Deck Bending Stresses Under Service Wind Loads	4.3.1.6	Included
Wind Uplift Ratings Greater Than Class 1-90 and all assemblies that utilize steel deck with a design thickness less than 0.0295 in. (0.75 mm)	4.3.2	Waived, Not required
Foot Traffic Resistance of Insulation	4.4	Waived, See Project ID 3018355
Bearing Capacity of Insulation	4.5	Waived
Corrosion Resistance Test (Optional Test)	4.6	Waived, not requested
Drivability Evaluation of Fasteners	4.7	Waived, not required

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

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 Location

4900 Hungerford Road
Memphis, TN 38118
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 document describes the steel decks and is on file at FM Approvals.

Document Title	Issue Date
Surveillance Audit Manual	12/2020

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:

9.1.1 The following decks are steel roof decks are secured to the structural supports spaced at the maximum center to center spans as shown in the tables below for Class 1-60, Class 1-75 and Class 1-90.

The deck is covered with an FM Approved fully or partially adhered roof covering or with a mechanically attached roof covering when the in-row fastener spacing is less than or equal to one-half of the deck span, per proprietary listings. Meets wind rating per securement of the deck and securement of the above deck components. The NW32A & NW32IA decks require metal lathe strips that are loose laid in the bottom of the deck with minimum 2 in. (52 mm) thick acoustical fiberglass insulation (3 pcf [48 kg/m³]) loose laid over the metal lathe, minimum ½ in (13 mm) thick Dens Deck is loose laid directly over the deck and minimum 2 in (52 mm) FM Approved polyisocyanurate insulation with insulation board edges bearing along the centerline of the deck top flange. The NW32 & NW32I decks require only a minimum 2 in (52 mm) FM Approved polyisocyanurate insulation with insulation board edges bearing along the centerline of the deck top flange. Steel deck side laps are secured using fasteners FM Approved for securing steel deck laps. Interlocking deck sides laps of adjacent sheets shall be securely fastened together at a spacing not to exceed 36 in (914 mm) using a button punch tool. Refer to RoofNav product listing for fastener details. The maximum allowable span is the lesser of the deck span shown in the table below, maximum span for the selected proprietary fastener of the maximum span shown in the specified RoofNav assembly.

When utilizing an FM Approved above-deck system with a mechanically fastened cover, select one with a cover fastener spacing greater than 8 in. (203 mm) and reduce the fastener spacing to coincide with placement of the fastener into the deck top flanges (e.g., FM Approved 12 in. (305mm) spacing is reduced to 8 in. (203 mm) spacing; FM Approved 18 in. (457 mm) spacing is reduced to 16 in. (406mm) spacing).

9.1.2 For NW32 and NW32I [A653 SS Grade 33 & A653 SS Grade 80]

New Millennium Building Systems LLC NW32 and NW32I steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
22 (0.0295 [0.75])	146	3708	146	3708	146	3708
20 (0.0355 [0.9])	160	4064	160	4064	160	4064
18 (0.0465 [1.18])	183	4648	183	4648	183	4648
16 (0.0583 [1.48])	204	5182	204	5182	204	5182
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
22 (0.0295 [0.75])	172	4369	167	4242	151	3835
20 (0.0355 [0.9])	189	4801	189	4801	171	4343
18 (0.0465 [1.18])	216	5486	216	5486	204	5182
16 (0.0583 [1.48])	241	6121	241	6121	231	5867
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
22 (0.0295 [0.75])	172	4369	172	4369	169	4293
20 (0.0355 [0.9])	189	4801	189	4801	189	4801
18 (0.0465 [1.18])	216	5486	216	5486	216	5486
16 (0.0583 [1.48])	241	6121	241	6121	241	6121

9.1.3 NW32A and NW32IA [A653 SS Grade 33 & A653 SS Grade 80]

New Millennium Building Systems LLC NW32A and NW32IA steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
22 (0.0295 [0.75])	142	3607	142	3607	142	3607
20 (0.0355 [0.9])	156	3962	156	3962	156	3962
18 (0.0465 [1.18])	178	4521	178	4521	178	4521
16 (0.0583 [1.48])	199	5055	199	5055	199	5055
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
22 (0.0295 [0.75])	168	4267	167	4242	151	3835
20 (0.0355 [0.9])	184	4674	184	4674	171	4343
18 (0.0465 [1.18])	210	5334	210	5334	204	5182
16 (0.0583 [1.48])	235	5969	235	5969	231	5867
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
22 (0.0295 [0.75])	168	4267	168	4267	168	4267
20 (0.0355 [0.9])	184	4674	184	4674	184	4674
18 (0.0465 [1.18])	210	5334	210	5334	210	5334
16 (0.0583 [1.48])	235	5969	235	5969	235	5969

- 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: PR458126

ORIGINAL TEST DATA See Table 1



Certificate of Compliance

This certificate is issued for the following:

NW32, NW32I, NW32A and NW32IA

Prepared for:

New Millennium Building Systems LLC
6115 County Rd 42
Butler, IN 46721
United States

FM Approvals Class: 4451

Approval Identification: PR458126 Approval Granted: 2/1/2021

To verify the availability of the Approved product, please refer to www.roofnav.com

Said Approval is subject to satisfactory field performance, continuing Surveillance Audits, and strict conformity to the constructions as shown in RoofNav, an online resource of FM Approvals.

A handwritten signature in black ink that reads 'Phillip J. Smith'.

Phillip J. Smith
VP - Manager of Materials
FM Approvals
1151 Boston-Providence Turnpike
Norwood, MA 02062



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