



ICC-ES Evaluation Report

ESR-4655

Reissued August 2023

This report is subject to renewal August 2025.

DIVISION: 05 00 00—METALS
Section: 05 31 00—Steel Decking

REPORT HOLDER:

NEW MILLENNIUM BUILDING SYSTEMS, LLC

EVALUATION SUBJECT:

NW32 COLD-FORMED STEEL DECK PANELS

1.0 EVALUATION SCOPE

Compliance with the following codes:

2018, 2015, and 2012 *International Building Code*® (IBC)

Property evaluated:

Structural

2.0 USES

The New Millennium NW32 cold-formed steel deck panels are used as roof deck panels.

3.0 DESCRIPTION

3.1 General:

The types of the NW32 cold-formed steel deck panels are as shown in Tables 1 and 2 along with Figure 1. The deck panels are cold-formed from steel sheets with thicknesses ranging from 16 to 22 gage, with nestable or interlocking edges and solid, acoustical and cellular profiles complying with either of the following:

- ASTM A653 SS Grade 50 (Class 1, 3, & 4) or Grade 80 with galvanized or galvanized coating. Optional primer or finish paint coatings applied over the galvanized or galvanized coating are available for the top surface, bottom surface, or both surfaces.
- ASTM A1008 SS Grade 50 or Grade 80 steel with primer painted top and bottom surfaces. Optional finish paint coatings are available for the top surface, bottom surface, or both surfaces.

4.0 DESIGN AND INSTALLATION

4.1 Design:

Deck panel section properties are provided in Table 1.

4.2 Installation:

The deck panels must be installed in accordance with this report and also with New Millennium’s published installation guidelines and instructions. If there is a conflict between New Millennium’s published installation guidelines and instructions and this report, this report governs.

5.0 CONDITIONS OF USE

The New Millennium NW32 cold-formed steel deck panels described in this report comply with, or are a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** The design base-metal thicknesses for all steel deck panels are indicated in Table 1. The thickness delivered to the jobsite must be at least 95 percent of the thickness noted in the tables.
- 5.2** The minimum loads of IBC Chapter 16, in addition to the construction loads required by references in IBC Section 2210.1.1, must be considered by the registered design professional, based on the specific occupancy or use, as applicable.
- 5.3** Special inspections must be provided in accordance with Chapter 17 of the IBC.
- 5.4** Use of New Millennium’s steel roof deck panels has not been evaluated for use without a roof covering.
- 5.5** Calculations and details demonstrating that the loads applied to the steel roof deck panels comply with this report must be submitted to the code official for approval. Calculations and drawings must be prepared, signed, and sealed by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.
- 5.6** The deck panels are fabricated in Memphis, Tennessee, under an approved quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Steel Deck Roof and Floor Systems (AC43), dated February 2020.

7.0 IDENTIFICATION

- 7.1** Each bundle of New Millennium NW32 steel deck panels described in this report is identified by a label

7.2 bearing the manufacturer’s name (New Millennium Building Systems, LLC); the deck panel profile name; the design thickness; the minimum specified yield strength; the manufacturing location (MD—Memphis, Tennessee); the cover width of the panel; and the evaluation report number (ESR-4655).

7.3 The report holder’s contact information is the following:
NEW MILLENNIUM BUILDING SYSTEMS, LLC
7575 WEST JEFFERSON BOULEVARD
FORT WAYNE, INDIANA 46804
(260) 969-3500
www.newmill.com

TABLE 1—SECTION PROPERTIES

DECK PANEL	F _y (ksi) ²	GAGE	DESIGN THICKNESS ¹ (in)	FULL MOMENT OF INERTIA (in ⁴ /ft. width)	EFFECTIVE MOMENT OF INERTIA ³ (in ⁴ /ft. width)		EFFECTIVE SECTION MODULUS ³ (in ³ /ft. width)	
			t	I _x	Normal, I _{on}	Inverted, I _{oi}	Normal, S _{en}	Inverted, S _{ei}
NW32	50	22	0.0295	0.783	0.649	0.741	0.352	0.386
	50	20	0.0358	0.951	0.836	0.926	0.457	0.496
	50	18	0.0474	1.256	1.192	1.252	0.672	0.711
	50	16	0.0598	1.581	1.561	1.581	0.902	0.937
NW32 Interlocking	50	22	0.0295	0.777	0.642	0.754	0.348	0.405
	50	20	0.0358	0.941	0.826	0.933	0.451	0.514
	50	18	0.0474	1.242	1.178	1.242	0.663	0.721
	50	16	0.0598	1.562	1.543	1.562	0.890	0.934
NW32 Cellular	50	20/20	0.0358 / 0.0358	1.649	1.400	1.203	0.484	0.658
	50	20/18	0.0358 / 0.0474	1.786	1.461	1.428	0.524	0.761
	50	18/20	0.0474 / 0.0358	2.020	1.873	1.463	0.784	0.837
	50	18/18	0.0474 / 0.0474	2.194	2.028	1.729	0.804	0.982
	50	18/16	0.0474 / 0.0598	2.348	2.165	1.980	0.787	1.026
	50	16/18	0.0598 / 0.0474	2.595	2.524	2.040	1.088	1.212
NW32 Cellular	50	16/16	0.0598 / 0.0598	2.782	2.704	2.311	1.111	1.260
	50	22	0.0295	0.761	0.629	0.718	0.335	0.361
	50	20	0.0358	0.925	0.813	0.900	0.438	0.470
	50	18	0.0474	1.221	1.161	1.218	0.649	0.680
	50	16	0.0598	1.537	1.520	1.537	0.874	0.900
	NW32 Interlocking Acoustical	50	22	0.0295	0.755	0.622	0.732	0.331
50		20	0.0358	0.915	0.803	0.906	0.432	0.490
50		18	0.0474	1.208	1.147	1.208	0.640	0.691
50		16	0.0598	1.519	1.502	1.519	0.862	0.898
NW32 Cellular Acoustical	50	20/20	0.0358 / 0.0358	1.529	1.306	1.200	0.487	0.658
	50	20/18	0.0358 / 0.0474	1.660	1.409	1.389	0.484	0.759
	50	18/20	0.0474 / 0.0358	1.874	1.741	1.462	0.766	0.837
	50	18/18	0.0474 / 0.0474	2.034	1.885	1.695	0.786	0.980
	50	18/16	0.0474 / 0.0598	2.179	2.015	1.890	0.803	1.018
	50	16/18	0.0598 / 0.0474	2.406	2.342	2.009	1.063	1.210
NW32 Cellular Acoustical	50	16/16	0.0598 / 0.0598	2.577	2.508	2.221	1.086	1.252
	80	22	0.0295	0.783	0.633	0.730	0.342	0.351
	80	20	0.0358	0.951	0.811	0.915	0.443	0.482
	80	18	0.0474	1.256	1.168	1.248	0.648	0.692
	80	16	0.0598	1.581	1.542	1.581	0.893	0.920
	NW32 Interlocking	80	22	0.0295	0.777	0.627	0.745	0.338
80		20	0.0358	0.941	0.801	0.925	0.437	0.503
80		18	0.0474	1.242	1.154	1.242	0.640	0.708
80		16	0.0598	1.562	1.523	1.562	0.880	0.928
NW32 Cellular	80	20/20	0.0358 / 0.0358	1.649	1.316	1.166	0.452	0.632
	80	20/18	0.0358 / 0.0474	1.786	1.386	1.394	0.485	0.754
	80	18/20	0.0474 / 0.0358	2.020	1.833	1.428	0.758	0.808
	80	18/18	0.0474 / 0.0474	2.194	1.983	1.695	0.741	0.973
	80	18/16	0.0474 / 0.0598	2.348	2.115	1.934	0.737	1.017
	80	16/18	0.0598 / 0.0474	2.595	2.483	2.004	1.051	1.202
NW32 Cellular	80	16/16	0.0598 / 0.0598	2.782	2.658	2.260	1.073	1.251
	80	22	0.0295	0.761	0.613	0.706	0.324	0.341
	80	20	0.0358	0.925	0.787	0.887	0.422	0.457
	80	18	0.0474	1.221	1.137	1.213	0.624	0.661
	80	16	0.0598	1.537	1.501	1.537	0.866	0.882
	NW32 Interlocking Acoustical	80	22	0.0295	0.755	0.606	0.722	0.320
80		20	0.0358	0.915	0.777	0.899	0.417	0.478
80		18	0.0474	1.208	1.123	1.207	0.616	0.677
80		16	0.0598	1.519	1.483	1.519	0.854	0.891
NW32 Cellular Acoustical	80	20/20	0.0358 / 0.0358	1.529	1.269	1.165	0.454	0.632
	80	20/18	0.0358 / 0.0474	1.660	1.323	1.367	0.452	0.753
	80	18/20	0.0474 / 0.0358	1.874	1.705	1.428	0.741	0.808
	80	18/18	0.0474 / 0.0474	2.034	1.845	1.673	0.760	0.973
	80	18/16	0.0474 / 0.0598	2.179	1.971	1.861	0.743	1.011
	80	16/18	0.0598 / 0.0474	2.406	2.304	1.986	1.027	1.202
NW32 Cellular Acoustical	80	16/16	0.0598 / 0.0598	2.577	2.467	2.189	1.049	1.247

For SI dimensions: 1 inch = 25.4 mm; 1 foot = 304.8 mm; 1 ksi = 6.89 MPa

¹ The design thickness is the minimum uncoated based-metal thickness of the deck panel.

² When F_y = 80 ksi, effective properties are based on design yield strength equal to 75 percent of F_y = 80 ksi.

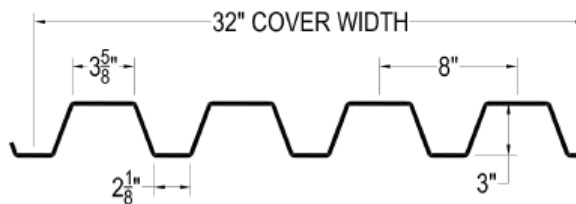
³ Effective properties are net values.

TABLE 2—ACOUSTICAL PERFORATION PROPERTIES

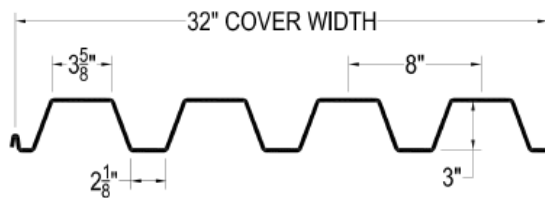
DECK TYPE	WIDTH OF PERFORATED BAND IN WEBS OF NON-CELLULAR DECKS OR IN LINER PANEL OF CELLULAR DECKS (in.)	NUMBER OF PERFORATED BANDS PER DECK PANEL	PERFORATION PATTERN
NW32 Acoustical & NW32 Interlocking Acoustical	2.031	8	
NW32 Cellular Acoustical	5.406	4	

For SI dimensions: 1 inch = 25.4 mm

NW32 & NW32 ACOUSTICAL



NW32 INTERLOCKING & NW32 INTERLOCKING ACOUSTICAL



NW32 CELLULAR & NW32 CELLULAR ACOUSTICAL

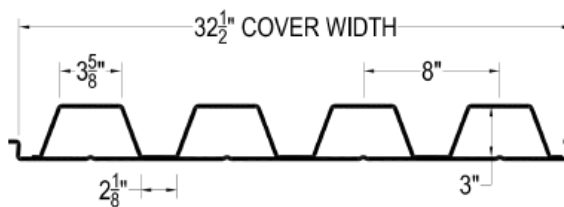


FIGURE 1 - STEEL DECK PROFILES
(DIMENSIONS SHOWN ARE NOMINAL)

For SI dimensions: 1 inch = 25.4 mm

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REPORT HOLDER:

NEW MILLENNIUM BUILDING SYSTEMS, LLC

EVALUATION SUBJECT:

NW32 COLD-FORMED STEEL DECK PANELS

1.0 REPORT PURPOSE AND SCOPE**Purpose:**

The purpose of this evaluation report supplement is to indicate that the New Millennium NW32 cold-formed steel deck panels, described in ICC-ES evaluation report ESR-4655, have also been evaluated for compliance with the code noted below.

Applicable code edition:

2019 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of State Architect (DSA), see Sections 2.1 and 2.2 below.

2.0 CONCLUSIONS

The New Millennium NW32 cold-formed steel deck panels, described in Sections 2.0 through 7.0 of the evaluation report ESR-4655, comply with CBC Chapter 22, provided the design and installation are in accordance with the 2018 *International Building Code*® provisions noted in the evaluation report and the additional requirements of the CBC Chapters 16 and 17, as applicable.

2.1 OSHPD: The applicable OSHPD Sections of the CBC are beyond the scope of this supplement.

2.2 DSA: The applicable DSA Sections of the CBC are beyond the scope of this supplement.

This supplement expires concurrently with the evaluation report, reissued August 2023.