APPROVAL REPORT

Project No:	3051337
Supplements Project No.:	N/A
Class:	4451
Product Name:	2.0D, 2.0D Acoustic, 3.5D, and 3.5D Acoustic Steel Roof Decks
Name of Listing Company:	Nucor Vulcraft Group
Address of Listing Company:	1601 W Omaha Ave PO Box 729 Norfolk NE 68702-0729 United States
Customer ID:	1000000591
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11/3/2015
Date of Approval

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1 INTRODUCTION

1.1 Nucor Vulcraft Group requested Approval examination of their 2.0D, 2.0D Acoustic, 3.5D, and 3.5D Acoustic steel roof 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. Formulations, drawings and specifications are on file at FM Approvals.

2 DESCRIPTION

2.1 The Nucor Vulcraft Group 2.0D and 2.0D Acoustic steel roof decks are available in thicknesses of 22 ga., 20 ga., 18 ga., and 16 ga. [0.0295 in. (0.75 mm), 0.0358 in. (0.91 mm), 0.0474 in. (1.20 mm), and 0.0598 in. (1.52 mm) thick]. They are 2.0 in. (51 mm) deep with 6.125 in. (156 mm) on center module spacings. The ribs of the 2.0D Acoustic steel roof deck is perforated with 0.154 in. (3.9 mm) diameter holes spaced 5/16 in. (7.9 mm) on center staggered. The steel deck is rolled from coil steel meeting the requirements of ASTM A653 minimum grade 40, having a minimum yield strength of 40 ksi (276 MPa) and a minimum tensile strength of 52 ksi (358 MPa). The manufactured width of the deck is 24.5 in. (622 mm) and is supplied in various lengths. The minimum delivered uncoated steel thickness of the deck shall never be less than 95% of the design thickness.

2.2 The Nucor Vulcraft Group 3.5D and 3.5D Acoustic steel roof decks are available in thicknesses of 20 ga., 18 ga., and 16 ga. [0.0358 in. (0.91 mm), 0.0474 in. (1.20 mm), and 0.0598 in. (1.52 mm) thick]. They are 3.5 in. (89 mm) deep with 8 in. (203 mm) on center module spacings. The ribs of the 3.5D Acoustic steel roof deck is perforated with 5/32 in. (4 mm) diameter holes spaced 5/16 in. (7.9 mm) on center staggered. The steel deck is rolled from coil steel meeting the requirements of ASTM A653 minimum grade 40, having a minimum yield strength of 40 ksi (276 MPa) and a minimum tensile strength of 52 ksi (358 MPa). The manufactured width of the deck is 25 in. (635 mm) and is supplied in various lengths. The minimum delivered uncoated steel thickness of the deck shall never be less than 95% of the design thickness.

2.3 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 Sections 2.1 – 2.2, 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. See Table 1 below for details.

Table 1

FM Standard 4451 Performance Requirement	**Submissions Required / Waivers**
Allowable Live Load Deflection	Calculations included
Combustibility From Below the Roof Deck	Testing included for acoustical steel deck
Combination pull out / pull over resistance of fasteners (Testing)	Waived[1]
Pull over resistance of fasteners (Calculation)	Waived[1]
Combination pull off / pull over resistance of arc spot welds	Calculations included
Side lap fastener and side lap crimping and interlocking resistance	Waived[1] for side lap fasteners
Fastener pull out resistance for above deck components	Not required
Steel Deck Bending Stresses Under Service Wind Loads	Calculations 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)	Not requested
Foot Traffic Resistance of Insulation	Testing included
Bearing Capacity of Insulation	Testing included
Corrosion Resistance Test (Optional Test)	Not required
Drivability Evaluation of Fasteners	Waived[1]

[1] All fasteners are Approved by the OEM, no new fasteners included.

3.3 FM Approvals Calorimeter Fire Tests

3.3.1 The fire tests from below the roof deck were conducted using the FM Approvals Construction Materials Calorimeter which measures the maximum rate of fuel contribution by the sample roof, also expressed as maximum heat release rate (HRR); e.g., for a Class 1 rating, the assembly must exhibit a HRR no greater than 410 Btu/ft^2/min (77.6 kW/m^2) in any 3 minute time frame during the 30 minute fire exposure.

3.3.2 One 4-1/2 x 5 ft. (1.4 x 1.5 m) sample was prepared. The components and sequence of installation were as follows:

Sample 1: 18 gauge Nucor Vulcraft 2.0D Acoustical steel deck.
5.5 x 2.0 in. (140 x 51 mm), 0.6 lb/ft^3 (9.6 kg/m^3) fiberglass blanket insulation loose laid in the bottom ribs of the steel deck.
0.5 in. (12.7 mm) Georgia-Pacific Gypsum LLC Dens Deck Prime loose laid.

1.5 in. (38.1 mm) polyisocyanurate insulation board mechanically fastened to steel deck.
4-ply Type IV glass felt adhered with hot asphalt at 25 lb/sq (0.38 kg/m^2) with 60 lb/sq (2.9 kg/m^3) flood coat of hot asphalt.

3.3.3 The Calorimeter sample was evaluated for fuel contribution rate. The rate and the Class 1 limits are shown below:

Maximum Average Rate of Fuel Contribution
for Various Time Intervals
Btu/ft^2/min (kW/m^2)

Time Interval	3 min	5 min	10 min	Average
Class 1 Standard	410 (77.6)	390 (73.8)	360 (68.1)	285 (53.9)
Sample No. 1	90 (17.0)	89 (16.8)	89 (16.8)	77 (14.6)

3.4 Foot Traffic Resistance of Insulation

3.4.1 Testing was conducted to evaluate the ability of the insulation to resist simulated foot traffic without damage when spanning the rib opening of the deck.

3.4.2 A 3 in. (76 mm) round plate was centered on the 12 in. (305 mm) square horizontal test panel and positioned over the center rib opening. A 200 lb. (91 kg) load was imposed on the plate and then removed. This cycle was repeated four additional times. Penetration and residual readings were taken after each cycle without removing the plate. The insulation board was inspected for damage at the plate interface after the last cycle.

3.4.3 There must be no breaking of the insulation board due to the wide rib opening of the deck.

3.4.4 Three (3) samples were prepared. The components and sequence of installation were as follows:

Sample No. 1: Nucor Vulcraft Group 3.5D Dovetail steel deck
0.5 in. (13 mm) Georgia-Pacific Gypsum LLC Dens Deck

Sample No. 2: Nucor Vulcraft Group 3.5D Dovetail steel deck
1.5 in. (38 mm) Firestone Building Products Co., LLC ISO 95+ GL

Sample No. 3: Nucor Vulcraft Group 3.5D Dovetail steel deck
1.5 in. (38 mm) Rmax Operating LLC Multi-Max FA-3

3.4.5 The insulation samples did not break under the simulated foot traffic load.

3.5 Bearing Capacity of Insulation

3.5.1 Testing was conducted to evaluate the ability of the insulation to resist simulated foot traffic without damage when two adjoining pieces of insulation form a joint on the narrow top flange of the steel deck.

3.5.2 A 3 in. (76 mm) square plate was centered on the 12 in. (305 mm) long insulation joint placed over the narrow top flange of the steel deck. A 200 lb. (91 kg) load was imposed on the plate and then removed. This cycle was repeated four additional times. Penetration and residual readings were taken after each cycle without removing

the plate. The insulation board was inspected for damage at the plate interface after the last cycle.

3.5.3 There must be no fracture of the insulation board due to the narrow top flange of the deck.

3.5.4 Three (3) samples were prepared. The components and sequence of installation were as follows:

Sample No. 1: Nucor Vulcraft Group 2.0D Dovetail steel deck
0.5 in. (13 mm) Georgia-Pacific Gypsum LLC Dens Deck

Sample No. 2: Nucor Vulcraft Group 2.0D Dovetail steel deck
1.5 in. (38 mm) Firestone Building Products Co., LLC ISO 95+ GL

Sample No. 3: Nucor Vulcraft Group 2.0D Dovetail steel deck
1.5 in. (38 mm) Rmax Operating LLC Multi-Max FA-3

3.5.5 The insulation samples did not break under the simulated bearing capacity load.

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 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 facilities at the following locations 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

1601 W. Omaha Avenue Norfolk, NE 68702	1501 W. Darlington Street Florence, SC 29501	6610 County Road 60 St. Joe, IN 46785
175 CR 2345 Grapeland, TX 75844	7205 Gault Avenue North Ft. Payne, AL 35967	5362 Railroad Street Chemung, NY 14825

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 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 2.0D, 2.0D Acoustic, 3.5D, and 3.5D Acoustic steel roof decks and is on file at FM Approvals.

Document Title	Issue Date
Surveillance Audit Manual	April 2015

9 CONCLUSIONS

9.1 Test results from this program indicates that the Nucor Vulcraft Group 2.0D, 3.5D, 2.0D Acoustic, and 3.5D Acoustic steel roof decks with a minimum yield strength of 40 ksi (276 MPa) and a minimum tensile strength of 52 ksi (358 MPa) meet the Approval requirements of FM Approval Standard 4451 for use as a component in Class 1-60, Class 1-75, and Class 1-90 wind uplift rated insulated steel deck roof constructions when installed as described in RoofNav, an on-line resource of FM Approvals..

9.1.1 Nucor Vulcraft Group 2.0D, 3.5D, 2.0D Acoustic, or 3.5D Acoustic steel roof deck is secured to the building structural supports with FM Approved steel deck fasteners spaced at the maximum center to center span as determined by the lesser of the values shown in the tables as follows or as specified within listings of the FM Approved steel deck fastener. The side laps are secured using fasteners FM Approved for securing steel deck laps. An FM Approved fully or partially adhered roof covering or mechanically attached roof covering when the in-row fastener spacing is less than or equal to one-half of the deck span is applied per proprietary listings. Above deck component fastener

spacing is reduced as described in the following table to accommodate the rib modules. Refer to the use of steel roof decks and fasteners throughout listings for details and limitations. Meets maximum Class 1-90 or per proprietary listings.

FM Approved above deck component fastener row on center spacing, mm (in.)	**Above deck component fastener in-row on center modified spacing used in conjunction with Nucor Vulcraft Group 2.0D, 3.5D, 2.0D Acoustic, and 3.5D Acoustic steel roof decks, in. (mm)**
6 (152)	Not Applicable (the specified RoofNav assembly is not suitable for use with this steel deck)
12 (305)	6.125 (156) for 2.0D/2.0D Acoustic; 8 (203) for 3.5D/3.5D Acoustic
18 (457)	12.25 (311) for 2. 0D/2.0D Acoustic; 16 (406) for 3.5D/3.5D Acoustic

9.1.1.1 Nucor Vulcraft Group 2.0D steel roof deck is secured to the building structural supports spaced at the maximum center to center spans shown in the tables as follows.

Nucor Vulcraft Group 2.0D 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])	109	2769	109	2769	109	2769
20 (0.0358 [0.91])	120	3048	120	3048	120	3048
18 (0.0474 [1.2])	139	3531	139	3531	139	3531
16 (0.0598 [1.52])	156	3962	156	3962	156	3962
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])	128	3251	128	3251	122	3099
20 (0.0358 [0.91])	142	3607	142	3607	138	3505
18 (0.0474 [1.2])	164	4166	164	4166	163	4140
16 (0.0598 [1.52])	184	4674	184	4674	184	4674
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])	128	3251	128	3251	128	3251
20 (0.0358 [0.91])	142	3607	142	3607	142	3607
18 (0.0474 [1.2])	164	4166	164	4166	164	4166
16 (0.0598 [1.52])	184	4674	184	4674	184	4674

9.1.1.2 Nucor Vulcraft Group 3.5D steel roof deck is secured to the building structural supports spaced at the maximum center to center spans shown in the tables as follows.

Nucor Vulcraft Group 3.5D steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	238	6045	231	5867	209	5309
18 (0.0474 [1.2])	277	7036	277	7036	252	6401
16 (0.0598 [1.52])	310	7874	310	7874	289	7341
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	240	6096	212	5385	192	4877
18 (0.0474 [1.2])	299	7595	263	6680	238	6045
16 (0.0598 [1.52])	354	8992	310	7874	279	7087
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	269	6833	237	6020	215	5461
18 (0.0474 [1.2])	326	8280	294	7468	266	6756
16 (0.0598 [1.52])	365	9271	346	8788	312	7925

9.1.1.3 Nucor Vulcraft Group 2.0D Acoustic is secured to the building structural supports spaced at the maximum center to center spans shown in the following tables. Nominal 0.6 lb/ft^3 (9.6 kg/m^3) fiberglass insulation, 5.5 in. (140 mm) wide by 2.0 in. (51 mm) thick is placed in the steel deck bottom ribs. When an asphaltic roof cover is used, minimum 0.5 in. (13 mm) Dens Deck thermal barrier is placed over the steel deck. Minimum 1.5 in. (38 mm) thick polyisocyanurate insulation boards are placed over the deck or thermal barrier when present and fastened per proprietary listings.

Nucor Vulcraft Group 2.0D Acoustic 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])	106	2692	106	2692	106	2692
20 (0.0358 [0.91])	117	2972	117	2972	117	2972
18 (0.0474 [1.2])	136	3454	136	3454	136	3454
16 (0.0598 [1.52])	152	3861	152	3861	152	3861
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])	125	3175	125	3175	119	3023
20 (0.0358 [0.91])	138	3505	138	3505	135	3429
18 (0.0474 [1.2])	160	4064	160	4064	159	4039
16 (0.0598 [1.52])	179	4547	179	4547	179	4547
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])	125	3175	125	3175	125	3175
20 (0.0358 [0.91])	138	3505	138	3505	138	3505
18 (0.0474 [1.2])	160	4064	160	4064	160	4064
16 (0.0598 [1.52])	179	4547	179	4547	179	4547

9.1.1.4 Nucor Vulcraft Group 3.5D Acoustic is secured to the building structural supports spaced at the maximum center to center spans shown in the following tables. Nominal 0.6 lb/ft^3 (9.6 kg/m^3) fiberglass insulation, 6.0 in. (154 mm) wide by 3.5 in. (89 mm) thick is placed in the steel deck bottom ribs. When an asphaltic roof cover is used, minimum 0.5 in. (13 mm) Dens Deck thermal barrier is placed over the steel deck. Minimum 1.5 in. (38 mm) thick polyisocyanurate insulation boards are placed over the deck or thermal barrier when present and fastened per proprietary listings.

Nucor Vulcraft Group 3.5D Acoustic steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	232	5893	225	5715	204	5182
18 (0.0474 [1.2])	270	6858	270	6858	246	6248
16 (0.0598 [1.52])	302	7671	302	7671	281	7137
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	234	5944	207	5258	187	4750
18 (0.0474 [1.2])	292	7417	256	6502	232	5893
16 (0.0598 [1.52])	345	8763	302	7671	272	6909
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	262	6655	231	5867	209	5309
18 (0.0474 [1.2])	318	8077	287	7290	259	6579
16 (0.0598 [1.52])	356	9042	338	8585	304	7722

9.1.2 Nucor Vulcraft Group 2.0D, 3.5D, 2.0D Acoustic, or 3.5D Acoustic steel roof deck is secured to the building structural supports with puddle welds spaced at the maximum center to center span shown in the tables as follows. Puddle welds, sized and spaced as noted in the following tables, are fabricated using a minimum weld electrode of strength of 60 ksi (414 MPa) located at bottom ribs and at supports where deck sides lap. The side laps are secured using fasteners FM Approved for securing steel deck laps. An FM Approved fully or partially adhered roof covering or mechanically attached roof covering when the in-row fastener spacing is less than or equal to one-half of the deck span is applied per proprietary listings. Above deck component fastener spacing is reduced as described in the following table. Refer to the use of steel roof decks and fasteners throughout listings for details and limitations. Meets maximum Class 1-90 or per proprietary listings.

FM Approved above deck component fastener row on center spacing, mm (in.)	**Above deck component fastener in-row on center modified spacing used in conjunction with Nucor Vulcraft Group 2.0D, 3.5D, 2.0D Acoustic, and 3.5D Acoustic steel roof decks, in. (mm)**
6 (152)	Not Applicable (the specified RoofNav assembly is not suitable for use with this steel deck)
12 (305)	6.125 (156) for 2.0D/2.0D Acoustic; 8 (203) for 3.5D/3.5D Acoustic
18 (457)	12.25 (311) for 2. 0D/2.0D Acoustic; 16 (406) for 3.5D/3.5D Acoustic

9.1.2.1 Nucor Vulcraft Group 2.0D steel roof deck is secured to the building structural supports at the maximum center to center spans as noted in the tables below.

0.5” (13 mm) Diameter Puddle Welds, 6.125 in. (156 mm) Spacing

Nucor Vulcraft Group 2.0D 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])	109	2769	-	-	-	-
20 (0.0358 [0.91])	120	3048	-	-	-	-
18 (0.0474 [1.2])	139	3531	-	-	-	-
16 (0.0598 [1.52])	156	3962	-	-	-	-
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])	128	3251	-	-	-	-
20 (0.0358 [0.91])	142	3607	-	-	-	-
18 (0.0474 [1.2])	164	4166	-	-	-	-
16 (0.0598 [1.52])	184	4674	-	-	-	-
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])	128	3251	-	-	-	-
20 (0.0358 [0.91])	142	3607	-	-	-	-
18 (0.0474 [1.2])	164	4166	-	-	-	-
16 (0.0598 [1.52])	184	4674	-	-	-	-

0.625” (16 mm) Diameter Puddle Welds, 6.125 in. (156 mm) Spacing

Nucor Vulcraft Group 2.0D 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])	109	2769	109	2769	109	2769
20 (0.0358 [0.91])	120	3048	120	3048	120	3048
18 (0.0474 [1.2])	139	3531	139	3531	139	3531
16 (0.0598 [1.52])	156	3962	156	3962	156	3962
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])	128	3251	128	3251	108	2743
20 (0.0358 [0.91])	142	3607	142	3607	131	3327
18 (0.0474 [1.2])	164	4166	164	4166	163	4140
16 (0.0598 [1.52])	184	4674	184	4674	184	4674
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])	128	3251	128	3251	128	3251
20 (0.0358 [0.91])	142	3607	142	3607	142	3607
18 (0.0474 [1.2])	164	4166	164	4166	164	4166
16 (0.0598 [1.52])	184	4674	184	4674	184	4674

0.75” (19 mm) Diameter Puddle Welds, 6.125 in. (156 mm) Spacing

Nucor Vulcraft Group 2.0D 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])	109	2769	109	2769	109	2769
20 (0.0358 [0.91])	120	3048	120	3048	120	3048
18 (0.0474 [1.2])	139	3531	139	3531	139	3531
16 (0.0598 [1.52])	156	3962	156	3962	156	3962
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])	128	3251	128	3251	122	3099
20 (0.0358 [0.91])	142	3607	142	3607	138	3505
18 (0.0474 [1.2])	164	4166	164	4166	163	4140
16 (0.0598 [1.52])	184	4674	184	4674	184	4674
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])	128	3251	128	3251	128	3251
20 (0.0358 [0.91])	142	3607	142	3607	142	3607
18 (0.0474 [1.2])	164	4166	164	4166	164	4166
16 (0.0598 [1.52])	184	4674	184	4674	184	4674

0.875” (22 mm) Diameter Puddle Welds, 6.125 in. (156 mm) Spacing

Nucor Vulcraft Group 2.0D 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])	109	2769	109	2769	109	2769
20 (0.0358 [0.91])	120	3048	120	3048	120	3048
18 (0.0474 [1.2])	139	3531	139	3531	139	3531
16 (0.0598 [1.52])	156	3962	156	3962	156	3962
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])	128	3251	128	3251	122	3099
20 (0.0358 [0.91])	142	3607	142	3607	138	3505
18 (0.0474 [1.2])	164	4166	164	4166	163	4140
16 (0.0598 [1.52])	184	4674	184	4674	184	4674
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])	128	3251	128	3251	128	3251
20 (0.0358 [0.91])	142	3607	142	3607	142	3607
18 (0.0474 [1.2])	164	4166	164	4166	164	4166
16 (0.0598 [1.52])	184	4674	184	4674	184	4674

0.5” (13 mm) Diameter Puddle Welds, 12.25 in. (311 mm) Spacing

Nucor Vulcraft Group 2.0D 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])	109	2769	-	-	-	-
20 (0.0358 [0.91])	120	3048	-	-	-	-
18 (0.0474 [1.2])	139	3531	-	-	-	-
16 (0.0598 [1.52])	156	3962	-	-	-	-
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])	65	1651	-	-	-	-
20 (0.0358 [0.91])	80	2032	-	-	-	-
18 (0.0474 [1.2])	106	2692	-	-	-	-
16 (0.0598 [1.52])	100	2540	-	-	-	-
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])	82	2083	-	-	-	-
20 (0.0358 [0.91])	100	2540	-	-	-	-
18 (0.0474 [1.2])	133	3378	-	-	-	-
16 (0.0598 [1.52])	125	3175	-	-	-	-

0.625” (16 mm) Diameter Puddle Welds, 12.25 in. (311 mm) Spacing

Nucor Vulcraft Group 2.0D 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])	109	2769	109	2769	109	2769
20 (0.0358 [0.91])	120	3048	120	3048	120	3048
18 (0.0474 [1.2])	139	3531	139	3531	139	3531
16 (0.0598 [1.52])	156	3962	156	3962	156	3962
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])	83	2108	65	1651	54	1372
20 (0.0358 [0.91])	101	2565	79	2007	65	1651
18 (0.0474 [1.2])	136	3454	106	2692	87	2210
16 (0.0598 [1.52])	174	4420	134	3404	109	2769
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])	104	2642	82	2083	67	1702
20 (0.0358 [0.91])	127	3226	99	2515	82	2083
18 (0.0474 [1.2])	164	4166	133	3378	108	2743
16 (0.0598 [1.52])	184	4674	168	4267	137	3480

0.75” (19 mm) Diameter Puddle Welds, 12.25 in. (311 mm) Spacing

Nucor Vulcraft Group 2.0D 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])	109	2769	109	2769	109	2769
20 (0.0358 [0.91])	120	3048	120	3048	120	3048
18 (0.0474 [1.2])	139	3531	139	3531	139	3531
16 (0.0598 [1.52])	156	3962	156	3962	156	3962
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])	100	2540	79	2007	65	1651
20 (0.0358 [0.91])	123	3124	96	2438	79	2007
18 (0.0474 [1.2])	164	4166	129	3277	106	2692
16 (0.0598 [1.52])	184	4674	164	4166	134	3404
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])	126	3200	99	2515	81	2057
20 (0.0358 [0.91])	142	3607	121	3073	99	2515
18 (0.0474 [1.2])	164	4166	161	4089	132	3353
16 (0.0598 [1.52])	184	4674	184	4674	167	4242

0.875” (22 mm) Diameter Puddle Welds, 12.25 in. (311 mm) Spacing

Nucor Vulcraft Group 2.0D 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])	109	2769	109	2769	109	2769
20 (0.0358 [0.91])	120	3048	120	3048	120	3048
18 (0.0474 [1.2])	139	3531	139	3531	139	3531
16 (0.0598 [1.52])	156	3962	156	3962	156	3962
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])	118	2997	93	2362	76	1930
20 (0.0358 [0.91])	142	3607	113	2870	93	2362
18 (0.0474 [1.2])	164	4166	152	3861	124	3150
16 (0.0598 [1.52])	184	4674	184	4674	158	4013
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])	128	3251	116	2946	96	2438
20 (0.0358 [0.91])	142	3607	142	3607	117	2972
18 (0.0474 [1.2])	164	4166	164	4166	156	3962
16 (0.0598 [1.52])	184	4674	184	4674	184	4674

9.1.2.2 Nucor Vulcraft Group 3.5D steel roof deck is secured to the building structural supports at the maximum center to center spans as noted in the tables below.

0.5” (13 mm) Diameter Puddle Welds, 8 in. (203 mm) Spacing

Nucor Vulcraft Group 3.5D steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	238	6045	-	-	-	-
18 (0.0474 [1.2])	277	7036	-	-	-	-
16 (0.0598 [1.52])	310	7874	-	-	-	-
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	125	3175	-	-	-	-
18 (0.0474 [1.2])	169	4293	-	-	-	-
16 (0.0598 [1.52])	160	4064	-	-	-	-
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	157	3988	-	-	-	-
18 (0.0474 [1.2])	211	5359	-	-	-	-
16 (0.0598 [1.52])	200	5080	-	-	-	-

0.625” (16 mm) Diameter Puddle Welds, 8 in. (203 mm) Spacing

Nucor Vulcraft Group 3.5D steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	238	6045	231	5867	209	5309
18 (0.0474 [1.2])	277	7036	277	7036	252	6401
16 (0.0598 [1.52])	310	7874	310	7874	289	7341
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	159	4039	124	3150	102	2591
18 (0.0474 [1.2])	215	5461	167	4242	136	3454
16 (0.0598 [1.52])	278	7061	213	5410	172	4369
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	199	5055	155	3937	127	3226
18 (0.0474 [1.2])	269	6833	208	5283	170	4318
16 (0.0598 [1.52])	347	8814	266	6756	216	5486

0.75” (19 mm) Diameter Puddle Welds, 8 in. (203 mm) Spacing

Nucor Vulcraft Group 3.5D steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	238	6045	231	5867	209	5309
18 (0.0474 [1.2])	277	7036	277	7036	252	6401
16 (0.0598 [1.52])	310	7874	310	7874	289	7341
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	193	4902	151	3835	123	3124
18 (0.0474 [1.2])	262	6655	203	5156	165	4191
16 (0.0598 [1.52])	339	8611	260	6604	211	5359
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	241	6121	188	4775	154	3912
18 (0.0474 [1.2])	326	8280	254	6452	207	5258
16 (0.0598 [1.52])	365	9271	325	8255	263	6680

0.875” (22 mm) Diameter Puddle Welds, 8 in. (203 mm) Spacing

Nucor Vulcraft Group 3.5D steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	238	6045	231	5867	209	5309
18 (0.0474 [1.2])	277	7036	277	7036	252	6401
16 (0.0598 [1.52])	310	7874	310	7874	289	7341
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	227	5766	177	4496	145	3683
18 (0.0474 [1.2])	299	7595	239	6071	195	4953
16 (0.0598 [1.52])	354	8992	307	7798	249	6325
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	269	6833	221	5613	181	4597
18 (0.0474 [1.2])	326	8280	294	7468	244	6198
16 (0.0598 [1.52])	365	9271	346	8788	311	7899

9.1.2.3 Nucor Vulcraft Group 2.0D Acoustic steel roof deck is secured to the building structural supports at the maximum center to center spans as noted in the tables below. Nominal 0.6 lb/ft^3 (9.6 kg/m^3) fiberglass insulation, 5.5 in. (140 mm) wide by 2.0 in. (51 mm) thick is placed in the steel deck bottom ribs. When an asphaltic roof cover is used, minimum 0.5 in. (13 mm) Dens Deck thermal barrier is placed over the steel deck. Minimum 1.5 in. (38 mm) thick polyisocyanurate insulation boards are placed over the deck or thermal barrier when present and fastened per proprietary listings.

0.5” (13 mm) Diameter Puddle Welds, 6.125 in. (156 mm) Spacing

Nucor Vulcraft Group 2.0D Acoustic 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])	106	2692	-	-	-	-
20 (0.0358 [0.91])	117	2972	-	-	-	-
18 (0.0474 [1.2])	136	3454	-	-	-	-
16 (0.0598 [1.52])	152	3861	-	-	-	-
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])	125	3175	-	-	-	-
20 (0.0358 [0.91])	138	3505	-	-	-	-
18 (0.0474 [1.2])	160	4064	-	-	-	-
16 (0.0598 [1.52])	179	4547	-	-	-	-
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])	125	3175	-	-	-	-
20 (0.0358 [0.91])	138	3505	-	-	-	-
18 (0.0474 [1.2])	160	4064	-	-	-	-
16 (0.0598 [1.52])	179	4547	-	-	-	-

0.625” (16 mm) Diameter Puddle Welds, 6.125 in. (156 mm) Spacing

Nucor Vulcraft Group 2.0D Acoustic 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])	106	2692	106	2692	106	2692
20 (0.0358 [0.91])	117	2972	117	2972	117	2972
18 (0.0474 [1.2])	136	3454	136	3454	136	3454
16 (0.0598 [1.52])	152	3861	152	3861	152	3861
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])	125	3175	125	3175	108	2743
20 (0.0358 [0.91])	138	3505	138	3505	131	3327
18 (0.0474 [1.2])	160	4064	160	4064	159	4039
16 (0.0598 [1.52])	179	4547	179	4547	179	4547
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])	125	3175	125	3175	125	3175
20 (0.0358 [0.91])	138	3505	138	3505	138	3505
18 (0.0474 [1.2])	160	4064	160	4064	160	4064
16 (0.0598 [1.52])	179	4547	179	4547	179	4547

0.75” (19 mm) Diameter Puddle Welds, 6.125 in. (156 mm) Spacing

Nucor Vulcraft Group 2.0D Acoustic 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])	106	2692	106	2692	106	2692
20 (0.0358 [0.91])	117	2972	117	2972	117	2972
18 (0.0474 [1.2])	136	3454	136	3454	136	3454
16 (0.0598 [1.52])	152	3861	152	3861	152	3861
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])	125	3175	125	3175	119	3023
20 (0.0358 [0.91])	138	3505	138	3505	135	3429
18 (0.0474 [1.2])	160	4064	160	4064	159	4039
16 (0.0598 [1.52])	179	4547	179	4547	179	4547
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])	125	3175	125	3175	125	3175
20 (0.0358 [0.91])	138	3505	138	3505	138	3505
18 (0.0474 [1.2])	160	4064	160	4064	160	4064
16 (0.0598 [1.52])	179	4547	179	4547	179	4547

0.875” (22 mm) Diameter Puddle Welds, 6.125 in. (156 mm) Spacing

Nucor Vulcraft Group 2.0D Acoustic 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])	106	2692	106	2692	106	2692
20 (0.0358 [0.91])	117	2972	117	2972	117	2972
18 (0.0474 [1.2])	136	3454	136	3454	136	3454
16 (0.0598 [1.52])	152	3861	152	3861	152	3861
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])	125	3175	125	3175	119	3023
20 (0.0358 [0.91])	138	3505	138	3505	135	3429
18 (0.0474 [1.2])	160	4064	160	4064	159	4039
16 (0.0598 [1.52])	179	4547	179	4547	179	4547
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])	125	3175	125	3175	125	3175
20 (0.0358 [0.91])	138	3505	138	3505	138	3505
18 (0.0474 [1.2])	160	4064	160	4064	160	4064
16 (0.0598 [1.52])	179	4547	179	4547	179	4547

0.5” (13 mm) Diameter Puddle Welds, 12.25 in. (311 mm) Spacing

Nucor Vulcraft Group 2.0D Acoustic 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])	106	2692	-	-	-	-
20 (0.0358 [0.91])	117	2972	-	-	-	-
18 (0.0474 [1.2])	136	3454	-	-	-	-
16 (0.0598 [1.52])	152	3861	-	-	-	-
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])	65	1651	-	-	-	-
20 (0.0358 [0.91])	80	2032	-	-	-	-
18 (0.0474 [1.2])	106	2692	-	-	-	-
16 (0.0598 [1.52])	100	2540	-	-	-	-
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])	82	2083	-	-	-	-
20 (0.0358 [0.91])	100	2540	-	-	-	-
18 (0.0474 [1.2])	133	3378	-	-	-	-
16 (0.0598 [1.52])	125	3175	-	-	-	-

0.625” (16 mm) Diameter Puddle Welds, 12.25 in. (311 mm) Spacing

Nucor Vulcraft Group 2.0D Acoustic 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])	106	2692	106	2692	106	2692
20 (0.0358 [0.91])	117	2972	117	2972	117	2972
18 (0.0474 [1.2])	136	3454	136	3454	136	3454
16 (0.0598 [1.52])	152	3861	152	3861	152	3861
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])	83	2108	65	1651	54	1372
20 (0.0358 [0.91])	101	2565	79	2007	65	1651
18 (0.0474 [1.2])	136	3454	106	2692	87	2210
16 (0.0598 [1.52])	174	4420	134	3404	109	2769
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])	104	2642	82	2083	67	1702
20 (0.0358 [0.91])	127	3226	99	2515	82	2083
18 (0.0474 [1.2])	160	4064	133	3378	108	2743
16 (0.0598 [1.52])	179	4547	168	4267	137	3480

0.75” (19 mm) Diameter Puddle Welds, 12.25 in. (311 mm) Spacing

Nucor Vulcraft Group 2.0D Acoustic 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])	106	2692	106	2692	106	2692
20 (0.0358 [0.91])	117	2972	117	2972	117	2972
18 (0.0474 [1.2])	136	3454	136	3454	136	3454
16 (0.0598 [1.52])	152	3861	152	3861	152	3861
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])	100	2540	79	2007	65	1651
20 (0.0358 [0.91])	123	3124	96	2438	79	2007
18 (0.0474 [1.2])	160	4064	129	3277	106	2692
16 (0.0598 [1.52])	179	4547	164	4166	134	3404
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])	125	3175	99	2515	81	2057
20 (0.0358 [0.91])	138	3505	121	3073	99	2515
18 (0.0474 [1.2])	160	4064	160	4064	132	3353
16 (0.0598 [1.52])	179	4547	179	4547	167	4242

0.875” (22 mm) Diameter Puddle Welds, 12.25 in. (311 mm) Spacing

Nucor Vulcraft Group 2.0D Acoustic 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])	106	2692	106	2692	106	2692
20 (0.0358 [0.91])	117	2972	117	2972	117	2972
18 (0.0474 [1.2])	136	3454	136	3454	136	3454
16 (0.0598 [1.52])	152	3861	152	3861	152	3861
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])	118	2997	93	2362	76	1930
20 (0.0358 [0.91])	138	3505	113	2870	93	2362
18 (0.0474 [1.2])	160	4064	152	3861	124	3150
16 (0.0598 [1.52])	179	4547	179	4547	158	4013
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])	125	3175	116	2946	96	2438
20 (0.0358 [0.91])	138	3505	138	3505	117	2972
18 (0.0474 [1.2])	160	4064	160	4064	156	3962
16 (0.0598 [1.52])	179	4547	179	4547	179	4547

9.1.2.4 Nucor Vulcraft Group 3.5D Acoustic steel roof deck is secured to the building structural supports at the maximum center to center spans as noted in the tables below. Nominal

0.6 lb/ft^3 (9.6 kg/m^3) fiberglass insulation, 6.0 in. (154 mm) wide by 3.5 in. (89 mm) thick is placed in the steel deck bottom ribs. When an asphaltic roof cover is used, minimum 0.5 in. (13 mm) Dens Deck thermal barrier is placed over the steel deck. Minimum 1.5 in. (38 mm) thick polyisocyanurate insulation boards are placed over the deck or thermal barrier when present and fastened per proprietary listings.

0.5” (13 mm) Diameter Puddle Welds, 8 in. (203 mm) Spacing

Nucor Vulcraft Group 3.5D Acoustic steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	232	5893	-	-	-	-
18 (0.0474 [1.2])	270	6858	-	-	-	-
16 (0.0598 [1.52])	302	7671	-	-	-	-
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	125	3175	-	-	-	-
18 (0.0474 [1.2])	169	4293	-	-	-	-
16 (0.0598 [1.52])	160	4064	-	-	-	-
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	157	3988	-	-	-	-
18 (0.0474 [1.2])	211	5359	-	-	-	-
16 (0.0598 [1.52])	200	5080	-	-	-	-

0.625” (16 mm) Diameter Puddle Welds, 8 in. (203 mm) Spacing

Nucor Vulcraft Group 3.5D Acoustic steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	232	5893	225	5715	204	5182
18 (0.0474 [1.2])	270	6858	270	6858	246	6248
16 (0.0598 [1.52])	302	7671	302	7671	281	7137
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	159	4039	124	3150	102	2591
18 (0.0474 [1.2])	215	5461	167	4242	136	3454
16 (0.0598 [1.52])	278	7061	213	5410	172	4369
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	199	5055	155	3937	127	3226
18 (0.0474 [1.2])	269	6833	208	5283	170	4318
16 (0.0598 [1.52])	347	8814	266	6756	216	5486

0.75” (19 mm) Diameter Puddle Welds, 8 in. (203 mm) Spacing

Nucor Vulcraft Group 3.5D Acoustic steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	232	5893	225	5715	204	5182
18 (0.0474 [1.2])	270	6858	270	6858	246	6248
16 (0.0598 [1.52])	302	7671	302	7671	281	7137
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	193	4902	151	3835	123	3124
18 (0.0474 [1.2])	262	6655	203	5156	165	4191
16 (0.0598 [1.52])	339	8611	260	6604	211	5359
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	241	6121	188	4775	154	3912
18 (0.0474 [1.2])	318	8077	254	6452	207	5258
16 (0.0598 [1.52])	356	9042	325	8255	263	6680

0.875” (22 mm) Diameter Puddle Welds, 8 in. (203 mm) Spacing

Nucor Vulcraft Group 3.5D Acoustic steel deck						
Deck Design Thickness	Wind Rating - One Span					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	232	5893	225	5715	204	5182
18 (0.0474 [1.2])	270	6858	270	6858	246	6248
16 (0.0598 [1.52])	302	7671	302	7671	281	7137
Deck Design Thickness	Wind Rating - Two Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	227	5766	177	4496	145	3683
18 (0.0474 [1.2])	292	7417	239	6071	195	4953
16 (0.0598 [1.52])	345	8763	302	7671	249	6325
Deck Design Thickness	Wind Rating - Three or More Spans					
	1-60		1-75		1-90	
MSG (in. [mm])	in.	mm	in.	mm	in.	mm
20 (0.0358 [0.91])	262	6655	221	5613	181	4597
18 (0.0474 [1.2])	318	8077	287	7290	244	6198
16 (0.0598 [1.52])	356	9042	338	8585	304	7722

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: 3051337

ATTACHMENTS: N/A