

**EVALUATION REPORT OF
NUCOR BUILDING SYSTEMS
'R-PANEL'**

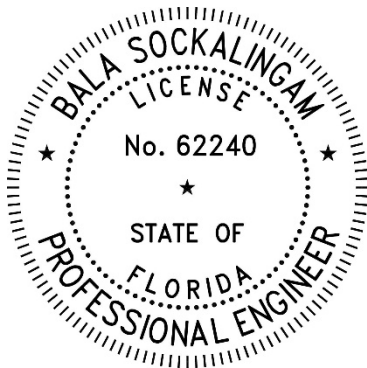
**FLORIDA BUILDING CODE 8TH EDITION (2023)
FLORIDA PRODUCT APPROVAL
FL 4891.3-R10
STRUCTURAL COMPONENTS
ROOF DECK**

**Prepared For:
Nucor Building Systems
200 Whetstone Road
Swansea, SC 29160
Telephone: (803) 568-2100
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**Prepared By:
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**This report consists of
Evaluation Report (3 Pages including cover)
Installation Details (1 Page)
Load Span Tables (8 Pages)**

**Report No. C2727-6
Date: 9.20.2023**



This item has been digitally signed and sealed by Bala Sockalingam, PE, on the date indicated.

Printed copies of this document are not considered signed and sealed and this signature must be verified on any electronic copies.

**2023.09.20
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Manufacturer:	Nucor Building Systems
Manufacturing Locations:	200 Whetstone Road, Swansea, SC 29160 600 Apache Trail, Terrell, TX 75160 124 Kirby Drive, Portland, TN 37148
Product Name:	R-Panel
Panel Description:	36" wide coverage with (4) 1.25" high ribs
Materials:	Min 26 ga. with galvanized coated steel (ASTM A653) or Galvalume coated steel (ASTM A792) or painted steel (ASTM A755) as per FBC 2023 Section 1405.2. Yield Stress 50 or 80 ksi.
Support Description:	Min 16 ga., min 50 ksi steel section. (Must be designed by others)
Slope:	1/2:12 or greater in accordance with FBC 2023 Section 1507.4.2. Requires applied lap sealant for roof slopes less than 3:12.
Design Pressures:	The allowable uniform inward and uplift loads shown on the load span tables were determined in accordance with FBC 2023 Section 1504.3.2 and 2210.1 and AISI S100-16(2020) w/S2-20. Purlin, frames and support connections must be designed to resist all loads.
Support Attachment:	#12-14 x 1-1/4" long self-drilling hex-head screws with washer. Corrosion resistant as per FBC 2023 Section 1507.4.4.
At interior supports	at 12" o.c. across panel width
At panel ends & endlaps	at 7"-5"-7" o.c. across panel width
Sidelap Attachment:	1/4"-14 x 7/8" long self-drilling screws with washer at max. 20" o.c. Fasteners are corrosion resistant as per FBC 2023 Section 1507.4.4.
Test Standards:	Roof assembly tested in accordance with FM 4471 Section 5.4 'Resistance to Foot Traffic'.
Code Compliance:	The product described herein has demonstrated compliance with FBC 2023 Section 1507.4.
Product Limitations:	Design wind loads shall be determined for each project in accordance with FBC 2023 Section 1609 or ASCE 7-22 using allowable stress design. The design pressure for reduced support spacing may be computed using rational analysis prepared by a Florida Professional Engineer or based on Nucor's load span tables. This evaluation report is not applicable in High Velocity Hurricane Zone. Fire classification is not within the scope of this Evaluation Report. Refer to FBC 2023 Section 1505 and current approved roofing materials directory or

ASTM E108/UL790 report from an accredited laboratory for fire ratings of this product.

Supporting Documents: FM 4471 Test Report
FM Approvals
Project ID 3032053, Reporting Date 5/5/2008

Nucor Building Systems

ROOF SHEETING



R-Panel Profile [24 Gage, $F_y = 50$ ksi]

Panel Material Information					Panel Properties per foot of panel width				
					I_x (Gross) (in. ⁴)	Top in Comp.		Bottom in Comp.	
Panel Gage	Thickness (in.)	Yield (Ksi)	Tensile (Ksi)	Panel Wt. (Psf)		S_x (eff.) (in. ³)	M_a (Kip-in.)	S_x (eff.) (in. ³)	M_a (Kip-in.)
24	0.0222	50	65	1.08	0.0633	0.0582	1.7427	0.0595	1.7810

Gravity Loading and Wind Pressure (psf): Panel: (Stress, Deflection, and Web Crippling)

Span (Ft)	Simple Span			2 Equal Spans			3 Equal Spans		
	Stress	Deflection		Stress	Deflection		Stress	Deflection	
		L/60	L/240		L/60	L/240		L/60	L/240
1.0	446	n/c	n/c	274	n/c	n/c	300	n/c	n/c
1.5	297	n/c	n/c	183	n/c	n/c	200	n/c	n/c
2.0	223	n/c	n/c	137	n/c	n/c	150	n/c	n/c
2.5	178	n/c	n/c	110	n/c	n/c	120	n/c	n/c
3.0	129	n/c	n/c	91	n/c	n/c	100	n/c	n/c
3.5	95	n/c	85	78	n/c	n/c	86	n/c	n/c
4.0	73	n/c	57	69	n/c	n/c	75	n/c	n/c
4.5	57	n/c	40	58	n/c	n/c	67	n/c	n/c
5.0	46	n/c	29	47	n/c	n/c	59	n/c	49
5.5	38	n/c	22	39	n/c	n/c	49	n/c	37

Uplift/Wind Suction (psf): Panel: (Stress and Deflection)

Span (Ft)	Simple Span			2 Equal Spans			3 Equal Spans		
	Stress	Deflection		Stress	Deflection		Stress	Deflection	
		L/60	L/240		L/60	L/240		L/60	L/240
1.0	-1187	n/c	n/c	-968	n/c	n/c	-1137	n/c	n/c
1.5	-528	n/c	n/c	-472	n/c	n/c	-570	n/c	n/c
2.0	-297	n/c	n/c	-276	n/c	n/c	-337	n/c	n/c
2.5	-190	n/c	n/c	-180	n/c	n/c	-221	n/c	n/c
3.0	-132	n/c	n/c	-126	n/c	n/c	-156	n/c	n/c
3.5	-97	n/c	-93	-93	n/c	n/c	-116	n/c	n/c
4.0	-74	n/c	-62	-72	n/c	n/c	-89	n/c	n/c
4.5	-59	n/c	-44	-57	n/c	n/c	-71	n/c	n/c
5.0	-47	n/c	-32	-46	n/c	n/c	-57	n/c	n/c
5.5	-39	n/c	-24	-38	n/c	n/c	-48	n/c	n/c

Table Notes:

- Section properties and allowables are calculated in accordance with North American Specification for the Design of Cold-Formed Steel Structural Members, 2016 Edition (Reaffirmed 2020), with Supplement 2, 2020 Edition.
- Panels must be installed as per Evaluation Report FL 4891.3 and Nucor Building's current installation procedure.

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Uplift/Wind Suction (psf): Fasteners: (Pull-out, Pull-Over, and Tensile Failure)

Span (Ft)	Secondary Member Thickness (in.)						
	0.060	0.067	0.075	0.089	0.099	0.105	0.120
1.0	-225	-252	-273	-273	-273	-273	-273
1.5	-150	-168	-182	-182	-182	-182	-182
2.0	-113	-126	-136	-136	-136	-136	-136
2.5	-90	-101	-109	-109	-109	-109	-109
3.0	-75	-84	-91	-91	-91	-91	-91
3.5	-64	-72	-78	-78	-78	-78	-78
4.0	-56	-63	-68	-68	-68	-68	-68
4.5	-50	-56	-61	-61	-61	-61	-61
5.0	-45	-50	-55	-55	-55	-55	-55
5.5	-41	-46	-50	-50	-50	-50	-50
n/c = value does not control (i.e., value is greater than controlling stress value)							

Table Notes:

1. Section properties and allowables are calculated in accordance with North American Specification for the Design of Cold-Formed Steel Structural Members, 2016 Edition (Reaffirmed 2020), with Supplement 2, 2020 Edition.
2. Panels must be installed as per Evaluation Report FL 4891.3 and Nucor Building's current installation procedure.

Nucor Building Systems

ROOF SHEETING



R-Panel Profile [24 Gage, $F_y = 80$ ksi]

Panel Material Information					Panel Properties per foot of panel width				
					I_x (Gross) (in. ⁴)	Top in Comp.		Bottom in Comp.	
Panel Gage	Thickness (in.)	Yield (Ksi)	Tensile (Ksi)	Panel Wt. (Psf)		S_x (eff.) (in. ³)	M_a (Kip-in.)	S_x (eff.) (in. ³)	M_a (Kip-in.)
24	0.0222	80	82	1.08	0.0633	0.0543	1.9520	0.0588	2.1133

Gravity Loading and Wind Pressure (psf): Panel: (Stress, Deflection, and Web Crippling)

Span (Ft)	Simple Span			2 Equal Spans			3 Equal Spans		
	Stress	Deflection		Stress	Deflection		Stress	Deflection	
		L/60	L/240		L/60	L/240		L/60	L/240
1.0	535	n/c	n/c	329	n/c	n/c	360	n/c	n/c
1.5	357	n/c	n/c	219	n/c	n/c	240	n/c	n/c
2.0	268	n/c	n/c	165	n/c	n/c	180	n/c	n/c
2.5	208	n/c	n/c	132	n/c	n/c	144	n/c	n/c
3.0	145	n/c	130	110	n/c	n/c	120	n/c	n/c
3.5	106	n/c	82	94	n/c	n/c	103	n/c	n/c
4.0	81	n/c	55	82	n/c	n/c	90	n/c	n/c
4.5	64	n/c	39	68	n/c	n/c	80	n/c	65
5.0	52	n/c	28	56	n/c	n/c	69	n/c	48
5.5	43	n/c	21	46	n/c	46	57	n/c	36

Uplift/Wind Suction (psf): Panel: (Stress and Deflection)

Span (Ft)	Simple Span			2 Equal Spans			3 Equal Spans		
	Stress	Deflection		Stress	Deflection		Stress	Deflection	
		L/60	L/240		L/60	L/240		L/60	L/240
1.0	-1409	n/c	n/c	-1026	n/c	n/c	-1188	n/c	n/c
1.5	-626	n/c	n/c	-513	n/c	n/c	-614	n/c	n/c
2.0	-352	n/c	n/c	-303	n/c	n/c	-368	n/c	n/c
2.5	-225	n/c	n/c	-199	n/c	n/c	-244	n/c	n/c
3.0	-157	n/c	-147	-140	n/c	n/c	-173	n/c	n/c
3.5	-115	n/c	-92	-104	n/c	n/c	-128	n/c	n/c
4.0	-88	n/c	-62	-80	n/c	n/c	-99	n/c	n/c
4.5	-70	n/c	-44	-63	n/c	n/c	-79	n/c	n/c
5.0	-56	n/c	-32	-51	n/c	n/c	-64	n/c	n/c
5.5	-47	n/c	-24	-43	n/c	n/c	-53	n/c	-51

Table Notes:

1. Section properties and allowables are calculated in accordance with North American Specification for the Design of Cold-Formed Steel Structural Members, 2016 Edition (Reaffirmed 2020), with Supplement 2, 2020 Edition.
2. Panels must be installed as per Evaluation Report FL 4891.3 and Nucor Building's current installation procedure.

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Uplift/Wind Suction (psf): Fasteners: (Pull-out, Pull-Over, and Tensile Failure)

Span (Ft)	Secondary Member Thickness (in.)						
	0.060	0.067	0.075	0.089	0.099	0.105	0.120
1.0	-225	-252	-273	-273	-273	-273	-273
1.5	-150	-168	-182	-182	-182	-182	-182
2.0	-113	-126	-136	-136	-136	-136	-136
2.5	-90	-101	-109	-109	-109	-109	-109
3.0	-75	-84	-91	-91	-91	-91	-91
3.5	-64	-72	-78	-78	-78	-78	-78
4.0	-56	-63	-68	-68	-68	-68	-68
4.5	-50	-56	-61	-61	-61	-61	-61
5.0	-45	-50	-55	-55	-55	-55	-55
5.5	-41	-46	-50	-50	-50	-50	-50
n/c = value does not control (i.e., value is greater than controlling stress value)							

Table Notes:

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2. Panels must be installed as per Evaluation Report FL 4891.3 and Nucor Building's current installation procedure.

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ROOF SHEETING



R-Panel Profile [26 Gage, $F_y = 50$ ksi]

Panel Material Information					Panel Properties per foot of panel width				
					I_x (Gross) (in. ⁴)	Top in Comp.		Bottom in Comp.	
Panel Gage	Thickness (in.)	Yield (Ksi)	Tensile (Ksi)	Panel Wt. (Psf)		S_x (eff.) (in. ³)	M_a (Kip-in.)	S_x (eff.) (in. ³)	M_a (Kip-in.)
26	0.0177	50	65	0.86	0.0493	0.0400	1.1987	0.0468	1.4017

Gravity Loading and Wind Pressure (psf): Panel: (Stress, Deflection, and Web Crippling)

Span (Ft)	Simple Span			2 Equal Spans			3 Equal Spans		
	Stress	Deflection		Stress	Deflection		Stress	Deflection	
		L/60	L/240		L/60	L/240		L/60	L/240
1.0	295	n/c	n/c	180	n/c	n/c	197	n/c	n/c
1.5	196	n/c	n/c	120	n/c	n/c	131	n/c	n/c
2.0	147	n/c	n/c	90	n/c	n/c	98	n/c	n/c
2.5	118	n/c	n/c	72	n/c	n/c	79	n/c	n/c
3.0	89	n/c	n/c	60	n/c	n/c	66	n/c	n/c
3.5	65	n/c	60	51	n/c	n/c	56	n/c	n/c
4.0	50	n/c	40	45	n/c	n/c	49	n/c	n/c
4.5	39	n/c	28	40	n/c	n/c	44	n/c	n/c
5.0	32	n/c	21	36	n/c	n/c	39	n/c	35
5.5	26	n/c	15	31	n/c	n/c	36	n/c	27

Uplift/Wind Suction (psf): Panel: (Stress and Deflection)

Span (Ft)	Simple Span			2 Equal Spans			3 Equal Spans		
	Stress	Deflection		Stress	Deflection		Stress	Deflection	
		L/60	L/240		L/60	L/240		L/60	L/240
1.0	-934	n/c	n/c	-653	n/c	n/c	-763	n/c	n/c
1.5	-415	n/c	n/c	-321	n/c	n/c	-387	n/c	n/c
2.0	-234	n/c	n/c	-188	n/c	n/c	-230	n/c	n/c
2.5	-150	n/c	n/c	-123	n/c	n/c	-151	n/c	n/c
3.0	-104	n/c	n/c	-86	n/c	n/c	-107	n/c	n/c
3.5	-76	n/c	-71	-64	n/c	n/c	-79	n/c	n/c
4.0	-58	n/c	-47	-49	n/c	n/c	-61	n/c	n/c
4.5	-46	n/c	-33	-39	n/c	n/c	-48	n/c	n/c
5.0	-37	n/c	-24	-32	n/c	n/c	-39	n/c	n/c
5.5	-31	n/c	-18	-26	n/c	n/c	-33	n/c	n/c

Table Notes:

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2. Panels must be installed as per Evaluation Report FL 4891.3 and Nucor Building's current installation procedure.

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Uplift/Wind Suction (psf): Fasteners: (Pull-out, Pull-Over, and Tensile Failure)

Span (Ft)	Secondary Member Thickness (in.)						
	0.060	0.067	0.075	0.089	0.099	0.105	0.120
1.0	-217	-217	-217	-217	-217	-217	-217
1.5	-145	-145	-145	-145	-145	-145	-145
2.0	-109	-109	-109	-109	-109	-109	-109
2.5	-87	-87	-87	-87	-87	-87	-87
3.0	-72	-72	-72	-72	-72	-72	-72
3.5	-62	-62	-62	-62	-62	-62	-62
4.0	-54	-54	-54	-54	-54	-54	-54
4.5	-48	-48	-48	-48	-48	-48	-48
5.0	-43	-43	-43	-43	-43	-43	-43
5.5	-40	-40	-40	-40	-40	-40	-40
n/c = value does not control (i.e., value is greater than controlling stress value)							

Table Notes:

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ROOF SHEETING



R-Panel Profile [26 Gage, $F_y = 80$ ksi]

Panel Material Information					Panel Properties per foot of panel width				
					I_x (Gross) (in. ⁴)	Top in Comp.		Bottom in Comp.	
Panel Gage	Thickness (in.)	Yield (Ksi)	Tensile (Ksi)	Panel Wt. (Psf)		S_x (eff.) (in. ³)	M_a (Kip-in.)	S_x (eff.) (in. ³)	M_a (Kip-in.)
26	0.0177	80	82	0.86	0.0490	0.0378	1.3590	0.0462	1.6593

Gravity Loading and Wind Pressure (psf): Panel: (Stress, Deflection, and Web Crippling)

Span (Ft)	Simple Span			2 Equal Spans			3 Equal Spans		
	Stress	Deflection		Stress	Deflection		Stress	Deflection	
		L/60	L/240		L/60	L/240		L/60	L/240
1.0	354	n/c	n/c	216	n/c	n/c	236	n/c	n/c
1.5	236	n/c	n/c	144	n/c	n/c	158	n/c	n/c
2.0	177	n/c	n/c	108	n/c	n/c	118	n/c	n/c
2.5	141	n/c	n/c	86	n/c	n/c	95	n/c	n/c
3.0	101	n/c	94	72	n/c	n/c	79	n/c	n/c
3.5	74	n/c	59	62	n/c	n/c	68	n/c	n/c
4.0	57	n/c	40	54	n/c	n/c	59	n/c	n/c
4.5	45	n/c	28	48	n/c	n/c	53	n/c	48
5.0	36	n/c	20	43	n/c	n/c	47	n/c	35
5.5	30	n/c	15	36	n/c	34	43	n/c	26

Uplift/Wind Suction (psf): Panel: (Stress and Deflection)

Span (Ft)	Simple Span			2 Equal Spans			3 Equal Spans		
	Stress	Deflection		Stress	Deflection		Stress	Deflection	
		L/60	L/240		L/60	L/240		L/60	L/240
1.0	-1106	n/c	n/c	-651	n/c	n/c	-739	n/c	n/c
1.5	-492	n/c	n/c	-338	n/c	n/c	-398	n/c	n/c
2.0	-277	n/c	n/c	-204	n/c	n/c	-245	n/c	n/c
2.5	-177	n/c	n/c	-135	n/c	n/c	-164	n/c	n/c
3.0	-123	n/c	-111	-96	n/c	n/c	-117	n/c	n/c
3.5	-90	n/c	-70	-71	n/c	n/c	-88	n/c	n/c
4.0	-69	n/c	-47	-55	n/c	n/c	-68	n/c	n/c
4.5	-55	n/c	-33	-44	n/c	n/c	-54	n/c	n/c
5.0	-44	n/c	-24	-36	n/c	n/c	-44	n/c	n/c
5.5	-37	n/c	-18	-29	n/c	n/c	-37	n/c	n/c

Table Notes:

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Uplift/Wind Suction (psf): Fasteners: (Pull-out, Pull-Over, and Tensile Failure)

Span (Ft)	Secondary Member Thickness (in.)						
	0.060	0.067	0.075	0.089	0.099	0.105	0.120
1.0	-217	-217	-217	-217	-217	-217	-217
1.5	-145	-145	-145	-145	-145	-145	-145
2.0	-109	-109	-109	-109	-109	-109	-109
2.5	-87	-87	-87	-87	-87	-87	-87
3.0	-72	-72	-72	-72	-72	-72	-72
3.5	-62	-62	-62	-62	-62	-62	-62
4.0	-54	-54	-54	-54	-54	-54	-54
4.5	-48	-48	-48	-48	-48	-48	-48
5.0	-43	-43	-43	-43	-43	-43	-43
5.5	-40	-40	-40	-40	-40	-40	-40
n/c = value does not control (i.e., value is greater than controlling stress value)							

Table Notes:

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