

**EVALUATION REPORT OF
BUTLER MANUFACTURING COMPANY
'BUTLERIB II WALL PANEL'**

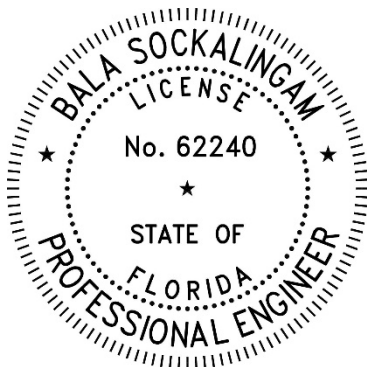
**FLORIDA BUILDING CODE 8TH EDITION (2023)
FLORIDA PRODUCT APPROVAL
FL 12493.1-R6
PANEL WALLS
SIDING**

**Prepared For:
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**This report consists of
Evaluation Report (2 Pages including cover)
Design Procedure (4 Pages)
Installation Details (1 Pages)**

**Report No. C2707-5
Date: 8.12.2023**



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

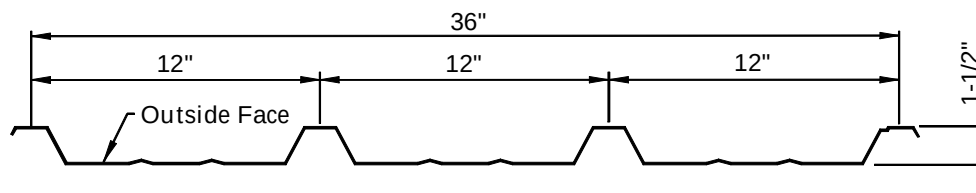
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Manufacturer:	Butler Manufacturing Company
Product Name:	Butlerib II
Panel Description:	36" wide coverage with (4) 1-1/2" high ribs
Materials:	Min. 26 ga., 50 ksi steel Galvanized coated steel (ASTM A653) or Galvalume coated steel (ASTM A792) as per FBC 2023 Section 1405.2.
Support Description:	Min. 16 ga., 55 ksi steel section.
Design Uplift Pressure:	The allowable uniform loads shown on Page 4 of the Design Procedure were determined in accordance with FBC 2023 Section 1404.5 and 2210.1 and AISI S100-16(2020) w/S2-20. Panel fasteners, supports, frames and support connections must be designed to resist all loads.
Panel Attachment:	Corrosion resistant Scrubolt™ with washer for punched supports or #12-14 x 1-1/4" long self-drilling screws with washer for unpunched supports. Alternate fasteners are shown on Page 3 of the Design Procedure.
At panel ends	6" o.c. across panel width
At intermediate	12" o.c. across panel width
Sidelap Attachment:	1/4"-14 x 3/4" long corrosion resistant self-drilling screws with washer at max. 30" o.c. Alternate fasteners are shown on Page 3 of the Design Procedure.
Code Compliance:	The product described herein has demonstrated compliance with FBC 2023 Section 1404.5.
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 maximum support spacing listed herein shall not be exceeded. The design pressure for reduced support spacing may be computed using rational analysis prepared by a Florida Professional Engineer or based on Butler load span table. This evaluation report is not applicable in High Velocity Hurricane Zone.

	DESIGN PROCEDURES		Section: DP 22.4-FPA
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A. PANEL CROSS SECTION



Panels are rolled using ASTM A 653 or A 792 material, for Grade see Table B1. For complete material specifications and material weights refer to Material Specifications Document MS-05-01.

B. PANEL DESIGN

All applicable panel design properties calculated according to AISI Standard S-100

B1. Panel Section Properties

ref. AISI Section B

Panel Material	Design Thickness (in)	Weight (psf)	E (ksi)	F _y (ksi)	F _u (ksi)	Compression on Outside		Compression on Inside	
						S _x (in ³)	I (in ⁴)	S _x (in ³)	I (in ⁴)
26 Ga.	0.018	0.92	29500	50	65	0.053	0.063	0.055	0.043
24 Ga	0.023	1.17	29500	50	65	0.077	0.090	0.077	0.058

Notes:

- Design base metal thickness is exclusive of panel finishes.

B2. Flexural Strength (Resistance) kip-in./ ft. width of panel

ref. AISI F1, F3.1, F2.4.1

Nominal Gage	Outside of Panel in Compression, S _{xe} (+)				Inside of Panel in Compression, S _{xe} (-)			
	Nominal Strength M _n	Allowable Strength	Design Strength	Design Resistance	Nominal Strength M _n	Allowable Strength	Design Strength	Design Resistance
		(ASD)	(LRFD)	(LSD)		(ASD)	(LRFD)	(LSD)
26 Ga.	2.66	1.59	2.39	2.39	2.77	1.66	2.49	2.49
24 Ga	3.87	2.32	3.49	3.49	3.83	2.29	3.45	3.45

Notes:

- Tabulated values are for Allowable and Design Bending Strengths (Resistances) where:
 - Allowable Strength = M_n / Ω_b (ASD), kip-in.
 - Design Strength = $\phi_b M_n$ (LRFD & LSD), kip-in.
 - $\Omega_b = 1.67$ (ASD); $\phi_b = 0.90$ (LRFD); $\phi_b = 0.90$ (LSD-Canada)
- Nominal Bending Strength: $M_n = S_{xe} F_y$, kip-in.
- Load reductions or strength (resistance) increases for wind have not been included.

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B3. Shear Strength (Resistance) kips / ft. width of panel

ref. AISI Section G

Panel Nominal Gage	Nominal Strength	Allowable Strength	Design Strength	Design Resistance
	V_n	(ASD)	(LRFD)	(LSD)
26 Ga.	0.97	0.61	0.92	0.78
24 Ga	1.60	1.00	1.52	1.28

Notes:

- Tabulated values are for Allowable and Design Shear Strengths (Resistances) where:
 - Allowable Strength = V_n / Ω (ASD), kips per ft. width of panel
 - Design Strength (Resistance) = $\phi_v V_n$ (LRFD & LSD), kips per ft. width of panel
 - $\Omega_v = 1.6$ (ASD); $\phi_v = 0.95$ (LRFD); $\phi_v = 0.80$ (LSD-Canada)
- Nominal Shear Strength: V_n per AISI Section G, kips per ft. width of panel.
- Load reductions or strength (resistance) increases for wind have not been included

B4. Web Crippling Strength kips / ft. width of panel

ref. AISI G5

Panel Nominal Gage	End – One Flange Loading				Interior – One Flange Loading			
	Nominal ² Strength P_n	Allowable Strength	Design Strength	Design Resistance	Nominal ² Strength P_n	Allowable Strength	Design Strength	Design Resistance
		ASD	LRFD	LSD		ASD	LRFD	LSD
26	0.315	0.185	0.283	0.252	0.492	0.281	0.418	0.369
24	0.493	0.290	0.443	0.394	0.776	0.443	0.660	0.582

Notes:

- Tabulated values are for Allowable and Design Web Crippling Strengths (Resistances) where:
 - Allowable Strength = P_n / Ω_w (ASD), kips per ft. width of panel
 - Design Strength (Resistance) = $\phi_w P_n$ (LRFD & LSD), kips per ft. width of panel
 - End Loading: $\Omega_w = 1.7$ (ASD); $\phi_w = 0.90$ (LRFD); $\phi_w = 0.80$ (LSD-Canada)
 - Interior Loading: $\Omega_w = 1.75$ (ASD); $\phi_w = 0.85$ (LRFD); $\phi_w = 0.75$ (LSD-Canada)
- Nominal Web Crippling Strength: P_n per AISI G5, kips per ft. width of panel.
- Load reductions or strength (resistance) increases for wind have not been included.

C. Fastener Options

ref. [DP 3.7.BM](#)

The following two tables show the various fasteners available for Butlerib® wall panels. The "X" symbols indicate recommended fasteners for use with Butlerib wall panels. Blank spaces in the tables indicate that particular condition is not recommended.

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Standard Fasteners (unless specified)

Location	Fastener Description and Part Number				Blanket Insulation Thickness					Punched	Un- punched
					0"	1 1/2"	2"	3"	4"		
					Maximum Insulation Density						
					N.A	1.0 #	0.75 #	0.6 #	0.6 #		
Panel to Structural	7/8", Scrubolt™, T-45, TORX SB 097361	X	X	X				X			
	1 1/2", Scrubolt, T-45, TORX LSB 097362				X	X		X			
	1 1/4", S.D.S., T-30, TORX MPS 097365				X				X		
Panel to Panel	3/4", S.D.S., T-30, TORX SDS 097364	X	X	X	X	X		N.A.	N.A.		

Optional Fasteners (as specified)

Location	Fastener Description and Part Number	Blanket Insulation Thickness					Punched	Un- punched
		0"	1 1/2"	2"	3"	4"		
		Maximum Insulation Density						
		N.A	1.0 #	0.75 #	0.6 #	0.6 #		
Panel to Structural	7/8" Scrubolt, Galv. Hex Head 097196	X	X	X			X	
	1 1/4" Scrubolt, Galv. Hex Head 096932				X	X	X	
	1 1/4" S.D.S., Galv. Hex Head **097230	X	X	X	X	X		X
	7/8" Scrubolt, S.S. Hex Head 095984	X	X	X			X	
	1 1/4" Scrubolt, S.S. Hex Head 097104				X	X	X	
	1 1/4" S.D.S., S.S. Hex Head 097373	X	X	X	X	X		X
	Lock-Rivet™, Black Washer (short) 096295	X	X	X			X	
	Lock-Rivet, Blue Washer (long) 096582				X		X	
Panel to Panel	7/8" S.D.S., Galv. Hex Head 097357	X	X	X	X	X	N.A.	N.A.
	7/8" S.D.S., S.S. Hex Head 097374	X	X	X	X	X	N.A.	N.A.
	Lock-Rivet, Black Washer (short) 096295	X	X	X	X	X	N.A.	N.A.

D. Panel Deflections

ref. [DP 6.2](#)

For pressure loading, panel deflections are obtained by using $I_x (+)$. For suction loading, panel deflections are obtained by using $I_x (-)$.

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E. Load Table

Panel Material	Allowable Uniform Load (psf)									
	Span = 3.0'		Span = 4.0'		Span = 5.0'		Span = 6.0'		Span = 7.5'	
	P	S	P	S	P	S	P	S	P	S
26 Ga	85	109	64	80	51	52	35	34	20	19
24 Ga	134	135	101	101	75	75	49	49	29	29

Notes:

1. P = Pressure on outside of panel, S = Suction on outside of panel
2. Tabulated values are Allowable Strength Design (ASD) format in accordance with the 2016 AISI Specification considering bending, shear, web crippling, combined bending and shear, and fastener pullover from panel. Panel pullover based on hex-head self-drilling screw.
3. Panel allowable loads are limited by L/60 deflection.
4. All values shown are for 3 or more spans.

Document and Revision History

REV. #	DATE	DESCRIPTION
0	12/8/17	For Florida Product Approval, Removed section E
1	09/2020	Renumbered to align with DP. Updated for 2020 FBC and product approvals
1a	09/2020	Minor Corrections to 26 ga panel
2	08/2023	Removed code-year from AISI reference