

**EVALUATION REPORT OF
METAL SALES MANUFACTURING CORPORATION
'EMPIRE SERIES™ EM1 CF WALL PANELS'**

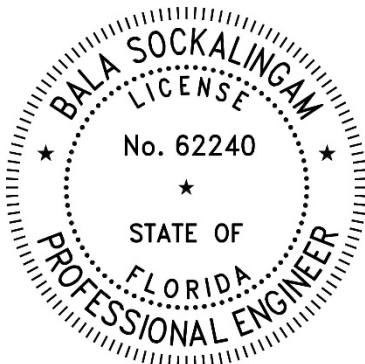
**FLORIDA BUILDING CODE 8TH EDITION (2023)
FLORIDA PRODUCT APPROVAL
FL 34027.3-R1
PANEL WALLS
SIDING**

**Prepared For:
Metal Sales Manufacturing Corporation
7800 Highway 60
Sellersburg, IN 47172
Telephone: (502) 855-4300
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**Prepared By:
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Tulsa, OK 74106
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**This report consists of
Evaluation Report (3 Pages including cover)
Installation Details (2 Pages)
Load Span Tables (2 Pages)**

**Report No. C2674-3
Date: 7.22.2023**



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.

Manufacturer: Metal Sales Manufacturing Corporation

Product Name: Empire Series™ EM1 Concealed Fastened Wall Panels

Panel Description: EM1-1212 panel consists of a 1" high, 2.67" wide symmetrical rib spaced at 12" o.c. The coverage width is 12".

EM1-1653 panel consists of three 1" high, 2.67" wide symmetrical ribs spaced at 5.33" o.c. The coverage width is 16".

EM1-124 panel consists of three 1" high, 2.67" wide symmetrical ribs spaced at 4" o.c. The coverage width is 12".

EM1-168 panel consists of two 1" high, 2.67" wide symmetrical ribs spaced at 8" o.c. The coverage width is 16".

Materials: Min. 24 ga., 50 ksi steel Galvanized coated steel (ASTM A653) or Galvalume coated steel (ASTM A792) or painted steel (ASTM A755) as per FBC 2023 Section 1405.2.

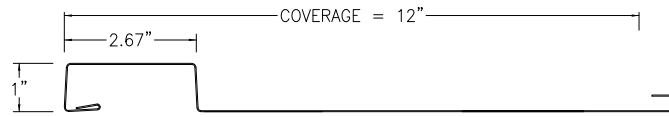
Supports or Sheathings: Min. 16 ga., min 50 ksi steel section with min 2.5" flange width or min. nominal 1" x 4" dimensional lumber, designed by others. In lieu of open supports, min. 7/16" thick OSB sheathing or min. 15/32" thick plywood sheathing fastened to steel or wood supports at maximum 24" o.c. Sheathing and support connections must be designed to resist all loads and installed as per FBC 2023. Vapor barrier must be installed over sheathing in accordance with manufacturer's installation procedure.

Allowable Loads: Allowable inward and outward loads are shown on the load span tables for min. 24 ga. EM1-1212, EM1-1653, EM1-124 and EM1-168 panels fastened with low concealed fastened clips. Maximum panel span is 6'.

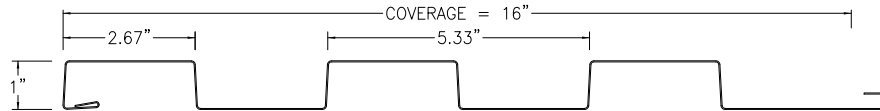
The allowable loads were determined with a factor of safety of 2 from ASTM E1592 testing and are applicable for the panel and panel to clip connection. Clip fasteners in min 16 ga. steel supports were designed with a factor of safety of 3. Clip fasteners in wood supports or substrates were designed with a factor of safety of 5 and duration factor of 1.6.

Panel Attachment: 16 ga. low concealed fastened clips (4" long, 1.75" wide and 0.75" high). Fastened to min 16 ga. supports with (2) #12-14 x 1.25" long self-drilling screw per clip or to OSB sheathing, plywood sheathing or dimensional lumber supports with (2) #12-11 x 1.5" long low profile wood screws per clip. Clips and fasteners are corrosion resistant.

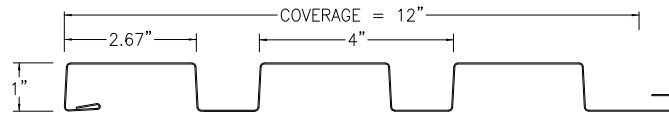
- Test Standards: Wall assembly tested in accordance with ASTM E1592-05(2017) 'Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference'.
- Code Compliance: The product described herein has demonstrated compliance with FBC 2023 Section 1404.5.
- 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 clip spacing listed herein shall not be exceeded. The design pressure for reduced clip spacing may be computed using rational analysis prepared by a Florida Professional Engineer or based on Metal Sales load span table. This evaluation report is not applicable in High Velocity Hurricane Zone.
- Supporting Documents: ASTM E1592 Test Reports
ENCON Technology Inc.
C2224-1, Reporting Date 6/13/2018
C2408-1, Reporting Date 1/8/2021
C2509-1, Reporting Date 10/14/2021



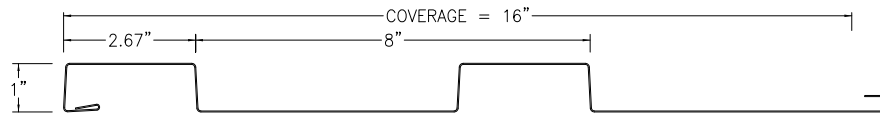
EM1-1212 PANEL PROFILE



EM1-1653 PANEL PROFILE



EM1-124 PANEL PROFILE

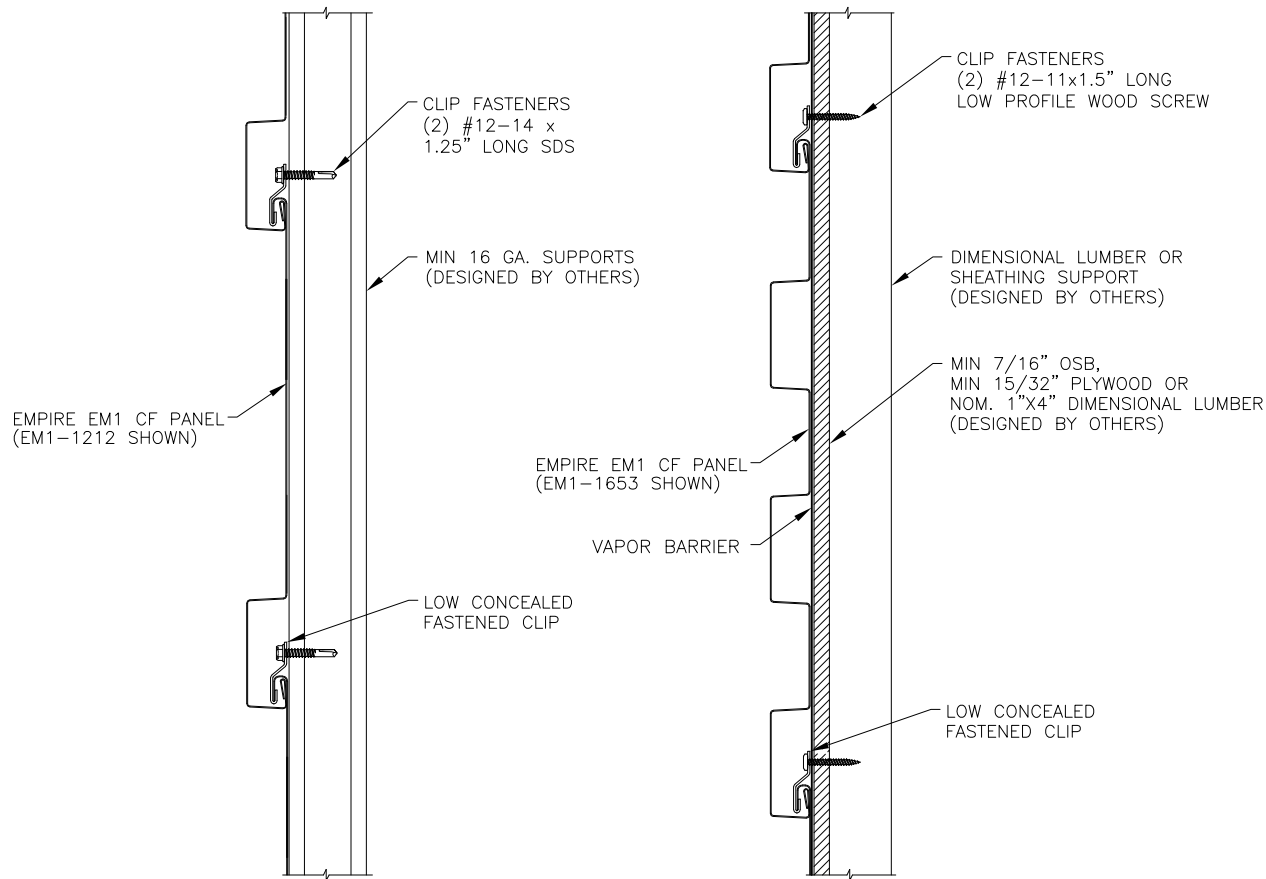


EM1-168 PANEL PROFILE

GENERAL NOTES:

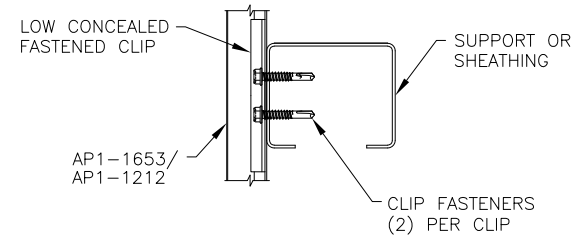
1. WALL PANEL HAS BEEN DESIGNED IN ACCORDANCE WITH THE FLORIDA BUILDING CODE (FBC).
2. WALL PANELS SHALL BE MIN. 24 GA. (t = 0.022"). MAX. EFFECTIVE COVERING WIDTH OF PANEL = 16".
3. THE WALL PANELS SHALL BE INSTALLED OVER STRUCTURE AS SPECIFIED ON THESE DRAWINGS.
4. REQUIRED DESIGN WIND LOADS SHALL BE DETERMINED FOR EACH PROJECT. THIS PANEL SYSTEM MAY NOT BE INSTALLED WHEN THE REQUIRED DESIGN WIND LOADS ARE GREATER THAN THE ALLOWABLE LOADS. WIND LOADS ARE GREATER THAN THE ALLOWABLE LOADS.
5. ALL FASTENERS MUST BE IN ACCORDANCE WITH THESE DRAWINGS & THE FLORIDA BUILDING CODE. IF A DIFFERENCE OCCURS BETWEEN THE MINIMUM REQUIREMENTS OF THESE DRAWINGS & THE CODE, THE CODE SHALL CONTROL.
6. SUPPORTS/SHEATHING MUST BE DESIGNED TO WITHSTAND WIND LOADS AS REQUIRED FOR EACH APPLICATION AND ARE THE RESPONSIBILITY OF OTHERS.
7. PANELS MAY SPAN BETWEEN VERTICAL SUPPORTS AS SHOWN (WALL APPLICATION WITH PANELS ORIENTED HORIZONTALLY) OR BETWEEN HORIZONTAL SUPPORTS (WALL APPLICATION WITH PANELS ORIENTED VERTICALLY).

DRAWN BY: B.S.		CHECKED BY: D.S.	
PLOT:		DATE: 7/16/2023	
NO.	REVISION	DESCRIPTION	DATE
EMPIRE SERIES EM1 CF WALL PANELS			
MANUFACTURER			
METAL SALES MANUFACTURING CORP.			
7800 HIGHWAY 60 SELLERSBURG, IN 47172 502-855-4300			
CONSULTANTS			
BALA SOCKALINGAM, PH.D., P.E.			
1216 N LANSING AVE, SUITE C TULSA, OK 74106 PHONE: 918-492-5992 FAX: 866-366-1543			
DRAWING NO.		REV.	
2674-3			
SHEET NO.			
1 OF 2			



PANEL SIDELAP

TYPICAL PANEL INSTALLATION X-SECTION



CLIP SECTION VIEW

DRAWN BY: B.S.		CHECKED BY: D.S.	
PLOT:		DATE: 7/16/2023	
NO.	REVISION	DESCRIPTION	DATE
DRAWING TITLE EMPIRE SERIES EM1 CF WALL PANELS			
CONSULTANTS BALA SOCKALINGAM, PH.D., P.E.			
MANUFACTURER METAL SALES MANUFACTURING CORP.			
1216 N LANSING AVE, SUITE C TULSA, OK 74106 PHONE: 918-492-5992 FAX: 866-366-1543			
7800 HIGHWAY 60 SELLERSBURG, IN 47172 502-855-4300			
DRAWING NO. 2674-3		REV.	
SHEET NO. 2		OF 2	

METAL SALES MANUFACTURING CORPORATION
EM1-1212 Panel
Allowable Loads for Min 24 Ga. Panels

Clip spacing along length (in)	Allowable Inward Load (psf) All Supports/ Sheathings	Allowable Outward Loads (psf)		
		Supports/Sheathings		
		16 ga. Support	7/16" OSB	15/32" Plywood/ Dim. Lumber
24	120	81.8	68.0	81.8
27	106.7	72.7	60.5	72.7
30	96.0	65.4	54.4	65.4
33	87.3	59.5	49.5	59.5
36	80.0	54.5	45.4	54.5
39	73.8	50.3	41.9	50.3
42	68.6	46.7	38.9	46.7
45	60.2	43.6	36.3	43.6
48	52.9	40.9	34.0	40.9
51	46.8	38.5	32.0	38.5
54	41.8	36.4	30.2	36.4
57	37.5	34.4	28.6	34.4
60	33.8	32.7	27.2	32.7
63	30.7	31.2	25.9	31.2
66	28.0	29.7	24.7	29.7
69	25.6	28.3	23.7	28.3
72	23.5	24.7	22.7	24.7

Notes:

1. The bold numbers indicate allowable loads calculated from test data with safety factor of 2.
2. The coverage width is 12" for EM1-1212.
3. The panels are fastened to min. 16 ga. supports with low concealed fastened clip and (2) #12-14 SDS.
4. The panels are fastened to min. 7/16" OSB, 15/32" Plywood or min. nominal 1" x 4" Dimensional Lumber supports with standard clip with (2) #12-11 low profile wood screws.
5. For wood substrates, the clips should be staggered to equally load all supports.
6. Panels must be installed as per Evaluation Report FL 34027.3 and Metal Sales current installation procedure.
7. Two or more spans condition.

METAL SALES MANUFACTURING CORPORATION
EM1-1653, EM1-168 or EM1-124 Panel
Allowable Loads for Min 24 Ga. Panels

Clip spacing along length (in)	Allowable Inward Load (psf) All Supports/ Sheathings	Allowable Outward Loads (psf)		
		Supports/Sheathings		
		16 ga. Support	7/16" OSB	15/32" Plywood/ Dim. Lumber
24	120	70.0	51.0	70.0
27	106.7	62.2	45.4	62.2
30	96.0	56.0	40.8	56.0
33	87.3	50.9	37.1	50.9
36	80.0	46.7	34.0	46.7
39	73.8	43.1	31.4	43.1
42	68.6	40.0	29.2	40.0
45	60.2	37.3	27.2	37.3
48	52.9	35.0	25.5	35.0
51	46.8	32.9	24.0	32.9
54	41.8	31.1	22.7	31.1
57	37.5	29.5	21.5	29.5
60	33.8	28.0	20.4	28.0
63	30.7	26.7	19.4	26.7
66	28.0	25.5	18.6	25.5
69	25.6	24.1	17.7	24.1
72	23.5	21.0	17.0	21.0

Notes:

1. The bold numbers indicate allowable loads calculated from test data with safety factor of 2.
2. The coverage width is 12" for EM1-124 and 16" for EM1-1653 and EM1-168, respectively.
3. The panels are fastened to min. 16 ga. supports with low concealed fastened clip and (2) #12-14 SDS.
4. The panels are fastened to min. 7/16" OSB, 15/32" Plywood or min. nominal 1" x 4" Dimensional Lumber supports with standard clip with (2) #12-11 low profile wood screws.
5. For wood substrates, the clips should be staggered to equally load all supports.
6. Panels must be installed as per Evaluation Report FL 34027.3 and Metal Sales current installation procedure.
7. Three or more spans condition.