

Evaluation Report

"X-12" Wall Panel

Wall Panel Assembly

Manufacturer:

Morin – a Kingspan Group Company

685 Middle Street

Bristol, CT 06010

for

Florida Product Approval

FL 16454.1 R4

Florida Building Code 8th Edition (2023)

Method: 1 - D

Category: Panel Walls

Sub - Category: Siding

Product: "X-12" Wall Panel

Material: Steel

Thickness: 24 gauge (min.)

Support: Wood

This item has been digitally signed and sealed by James L. Buckner, P.E., on this date below. Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.

Prepared by:

James L. Buckner, P.E., SECB

Florida Professional Engineer # 31242

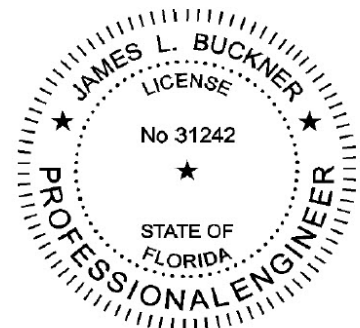
Florida Evaluation ANE ID: 1916

Project Manager: Diana Galloway

Report No. 23-558-X12-S4W-ER

(Revises 20-268-X12-S4W-ER, FL 16454.1 R3)

Date: 12/20/2023



James L. Buckner, P.E.
FL31242

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Date: 2023.12.20
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1. Product

- 1.1 **Manufacturer:** Morin – a Kingspan Group Company
685 Middle Street
Bristol, CT 06010
(860) 857-0900
- 1.2 **Product:** Steel Wall Panel
- 1.3 **Product Name:** “X-12”

2. Evaluation Scope:

- 2.1 **Compliance with the following**
2.1.1 Florida Building Code 8th Edition (2023)
2.1.2 Florida Building Code 8th Edition (2023), High Velocity Hurricane Zone (HVHZ)
- 2.2 **Evaluation Method:**
Florida Product Approval Rule 61G20-3.005 (2) (b)
- 2.3 **Evaluation Classification:**
Category: Panel Walls
Sub Category: Siding
- 2.4 **Properties Evaluated**
Wind Resistance Properties
Uniform Static Air Pressure per TAS 202
Air Infiltration per TAS 202
Water Penetration per TAS 202
Cyclic Wind Pressure per TAS 203
Missile Impact
Large Missile Impact per TAS 201
- 2.5 **Limits of Evaluation:**
This product assembly evaluation is limited to compliance with section 2.1 to section 2.4 of this report.

3.0 Evaluated Uses:

Morin’s “X-12” Metal Wall Panel is used as an exterior wall cladding system.

4.0 Product Assembly Description:

- 4.1 **General:**
Morin’s “X-12” metal wall panels are corrugated steel wall panels with concealed clip and fasteners and a common joint design for multiple panel integration. Panels are installed horizontally or vertically to wood sheathing.

5.0 General Assembly as Evaluated:

Wall Panel
Panel Clips
Fasteners
Wood Sheathing

6.0 Evaluated Support Description:

Design of support system is outside the scope of this evaluation and shall be designed by others in accordance with current FBC and have been evaluated based on the following minimum characteristics:

- 6.1 Support Description: Plywood supported by steel studs (By Others)
- 6.2 Plywood Thickness: 15/32" min.
- 6.3 Stud Description: 16 gauge horizontal studs (By Others)
- 6.4 Stud Yield Strength: 33 ksi min.
- 6.5 Stud Spacing: 16" o.c.
- 6.6 Support to Stud Fastener: #12 - 14 x 1-1/4"
- 6.7 Fastener Spacing: 12" o.c.

7.0 Performance:

7.1 Wind Resistance:

TABLE "A" ALLOWABLE LOADS		
	Positive	Negative
Design Pressure (PSF):	+112	-112
Clip Spacing:	24" (2'- 0")	24" (2'- 0")
# Fasteners per Clip:	2	2

Notes:

- 1- Allowable design pressure(s) for allowable stress design with 1.5 to 1 margin of safety applied to the test loads.
- 2- Diaphragm and axial load capacity is outside the scope of this evaluation.
- 3- Negative design pressures (Inward), Positive pressures (Outward).

7.2 Impact Resistance:

- Type: Large Missile Impact
- Standard: TAS 201
- Results: PASS

8.0 Performance Standards:

The following test protocols was performed to demonstrate compliance with the intent of the code:

- 8.1 TAS 201-94, Impact Test Procedure
- 8.2 TAS 202-94, Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure Loading
- 8.3 TAS 203-94, Criteria for Testing Products Subject to Cyclic Wind Pressure Loading

9.0 Code Compliance:

- 9.1 The product(s) described herein have demonstrated compliance with the performance standards listed above as referenced in:
Florida Building Code 8th Edition (2023), including HVHZ.

10.0 Limitations and Conditions of Use:

10.1 Scope of "Limitations and Conditions of Use" for this evaluation:

This evaluation report for "State Approval" contains technical documentation, specifications and installation method(s) which include "Limitations and Conditions of Use" throughout the report in accordance with Rule 61G20-3.005. Per Rule 61G20-3.004, the Florida Building Commission is the authority to approve products under "State Approval".

10.2 Option for application outside "Limitations and Conditions of Use"

Rule 61G20-3.005(1)(e) allows engineering analysis for "project specific approval by the local authorities having jurisdiction in accordance with the alternate methods and materials authorized in the Code". Any modification of the product as evaluated in this report and approved by the Florida Building Commission is outside the scope of this evaluation and will be the responsibility of others.

10.3 This report is a building code product evaluation per FLPE rule (FAC) 61G15-36 to comply with Florida product approval rule (FAC) 61G20-3. This evaluation report is part of the Florida Building Commission approval for the listed code related criteria. This report by James Buckner, P.E. and CBUCK Engineering is not a design certification of code compliance construction submittal documentation, per FBC section 107, for any individual structure, site specific or permit design.

10.4 Walls shall have a minimum water-resistant barrier equivalent to one layer of #15 asphalt felt Complying with ASTM D 226, Type I in accordance with FBC, Section 1404.2.

10.5 Design of support system is outside the scope of this report. Support shall be structural framing members complying with the code and shall be designed by others.

10.6 This evaluation is limited to the wall panel, wall panel fasteners and its attachment to the support. The structural properties and design of all other items are outside the scope of this evaluation and should be submitted to the permitting jurisdiction for review and approval.

10.7 The engineer of record or architect shall verify that the supporting structure is capable of resisting the superimposed loads from the wall panel system and that the supporting structure is capable of providing lateral stability to carry the wind loads to the building foundation.

10.8 All metal components and fasteners shall be corrosion resistant in accordance with applicable sections of FBC, including but limited to FBC Section 1405.17 and Chapter 22 for steel.

10.9 Fire Classification is outside the scope of Rule 61G20-3, and is therefore not included in this evaluation.

10.10 This report approves the use of this product assembly as described in this report for use in the High Velocity Hurricane Zone code section. (Dade & Broward Counties)

11.0 Quality Assurance:

The manufacturer has demonstrated compliance of products in accordance with the Florida Building Code and Rule 61G20-3.005 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity through Farabaugh Testing & Engineering (FBC Organization ID# QUA 7733).

12.0 System/Components

12.1 Wall Panel:

Product Name:	"X-12"
Material:	Steel
Thickness:	24-gauge min.
Panel Width:	12" (max.) Coverage
Rib Height:	7/8"
Yield Strength:	40 ksi min.

12.2 Wall Panel Clips:

Product Name:	"Integrity Series Clip"
Type:	One-piece, fixed clip
Material:	Steel
Thickness:	18-gauge min.
Dimensions:	2-1/2" (long)
Yield Strength:	40 ksi min.

12.3 Fasteners:

Type:	Pancake Head self-drilling wood screws
Size:	#12 – 10 x 1"
Standard:	HVHZ Approved

13.0 Installation Method:

Install per the following:

- Attach wall panel to wood sheathing with two screws per Section 12.3, fastened through panel clips per Section 12.2 (every 24 in.) and at every panel end (every 12 in.)
- Fasteners shall penetrate or embed into support by 3/16 in. minimum.
- Panels may be installed vertically or horizontally.

The Morin's "X-12" Metal Panel System shall be installed in compliance with the installation method listed in this report and applicable code sections of FBC 8th Edition (2023). The installation method described herein is in accordance with the scope of this evaluation report. Refer to manufacturer's installation instructions as a supplemental guide for attachment.

(Refer to installation method at the end of this evaluation report.)

14.0 Evaluation Reference Data:

14.1 TAS 201-94, 202-94, 203-94 Test Report

Farabaugh Testing & Engineering (FBC Organization ID# TST 1654)
Project No. T239-13, Date: 8/26/13

14.2 Quality Assurance

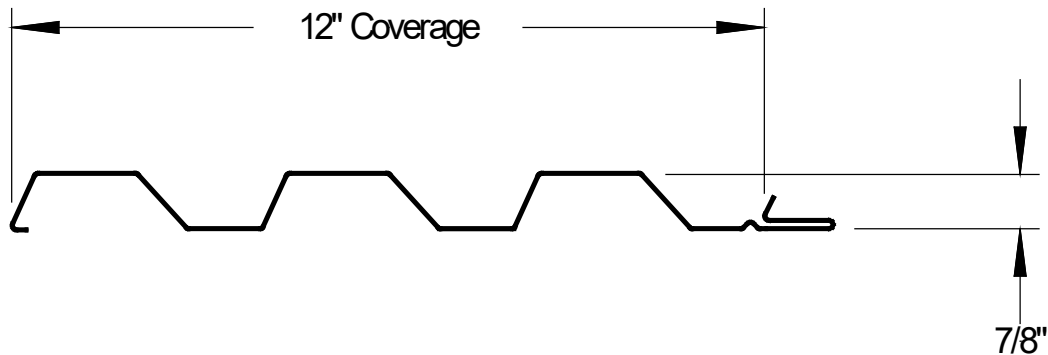
Farabaugh Testing & Engineering (FBC Organization ID# QUA 7733)

14.3 Certification of Independence

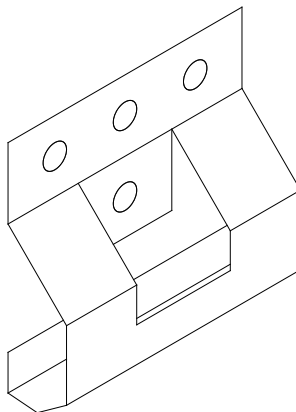
By James L. Buckner, P.E. @ CBUCK Engineering
(FBC Organization # ANE 1916)

**Installation Method
Morin - A Kingspan Group Company
"X-12" Steel Wall Panel**

Drawings

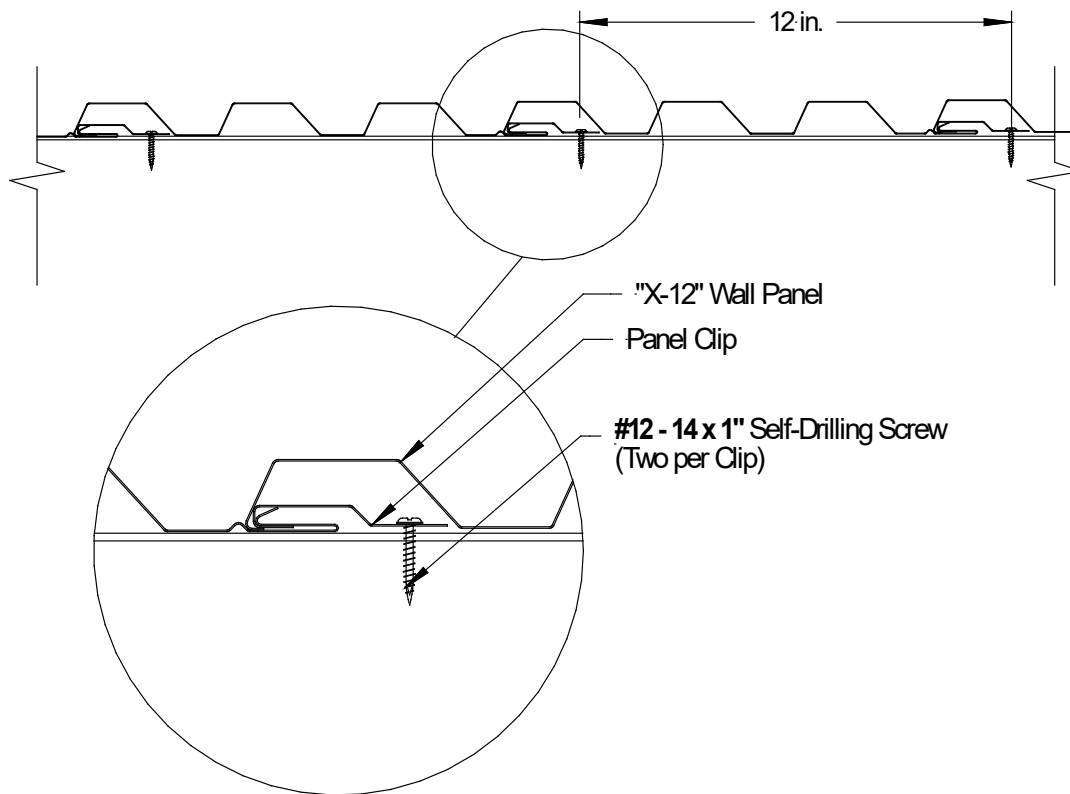


**"X-12" Panel
Typical Panel Profile View**



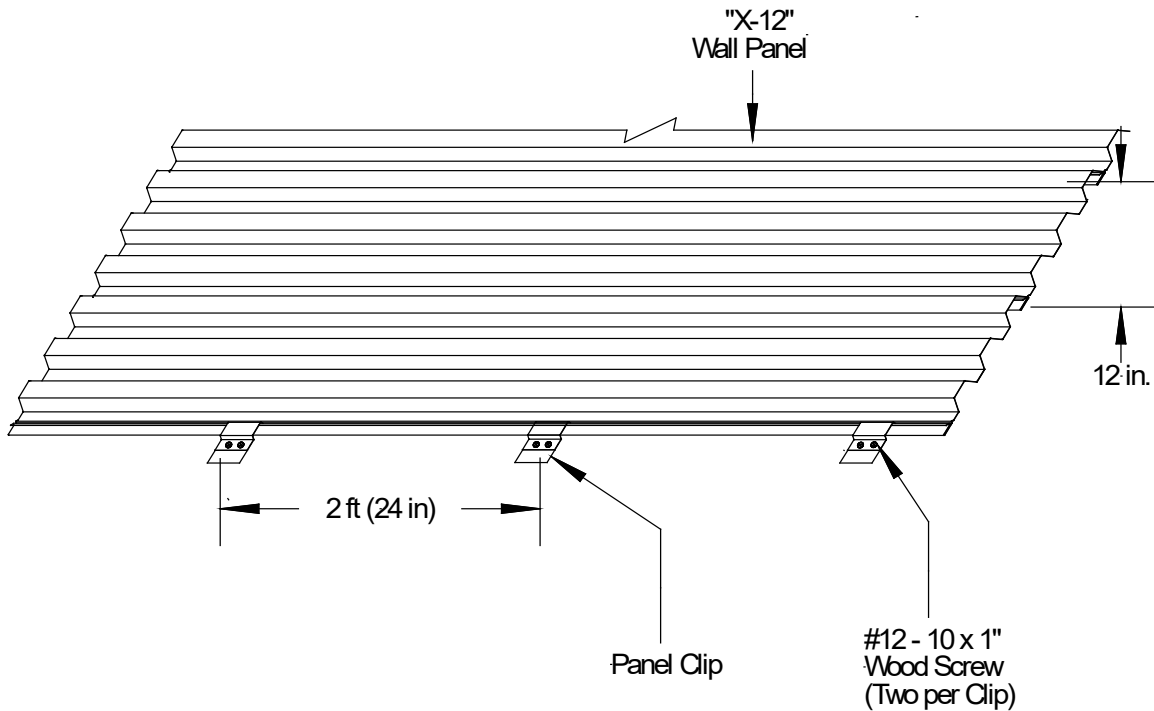
**Integrity Series Clip
Typical Panel Clip**

Installation Method
Morin - A Kingspan Group Company
"X-12" Steel Wall Panel



Assembly Side View
Typical Section At Support

Installation Method Morin - A Kingspan Group Company "X-12" Steel Wall Panel



NOTES:

1. SUPPLEMENTAL ATTACHMENT DETAILS DESIGNED BY OTHERS
2. REFER TO MANUFACTURER FOR FASTENER, CAULKING SPECIFICATIONS & SUPPLEMENTAL ATTACHMENT DETAILS

**Typical Elevation View
Outside Of Wall Assembly**

(Panels May Be Installed Horizontally or Vertically)

TABLE "A"		
ALLOWABLE LOADS		
	Positive	Negative
Design Pressure (PSF):	+112	-112
Clip Spacing:	24" (2'- 0")	24" (2'- 0")
# Fasteners per Clip:	2	2