



FLORIDA AND INTERNATIONAL BUILDING CODE ENGINEERING EVALUATION REPORT

Report Number	0098-9	Issue Date	2026-03-04
Client	Nichiha USA, Inc.	Issue Number	5-5876
Address	6465 E. Johns Crossing, Suite 250, Johns Creek, GA 30097	Expiry Date	2026-12-31

Subject

Nichiha Fiber Cement - AWP Panel and Sierra/Savannah Lap Siding – Exterior Wall Cladding and Soffit System

Evaluation Scope

This report is provided to assist registered design professionals and building officials in the United States with determining compliance to the performance objectives in the named building codes. The material(s) and system(s) described herein have been evaluated to the:

2024 International Building Code (IBC); **2024 International Residential Code (IRC);**
2023 Florida Building Code (FBC); **2023 Florida Residential Code (FBC-R).**

CSI DIVISION: 07 00 00 THERMAL AND MOISTURE PROTECTION
SUBDIVISION: 07 46 46 Fiber-Cement Siding

FBC CATEGORY: Panel Walls
SUB-CATEGORY: Siding

CODE SECTIONS AND STANDARDS

IBC Section	Description	Referenced Standard or Code Section ¹	Year
703.2	Fire-Resistance Ratings	ASTM E119	2020
1402.2	Weather Protection	ASTM E331	2000(16)
1402.3	Wind Resistance	IBC Ch 16	-
1403.9	Fiber-Cement Siding	ASTM C1186	2008(16)
1404.1.1	Soffits and Fascias	Section 1412	-
1404.2	Weather Protection	IBC Ch 16	-
1404.17.1	Fiber-cement Siding, Panel Siding	ASTM C1186	2008(16)
1404.17.2	Fiber-cement Siding, Lap Siding	ASTM C1186	2008(16)
1412.2	General Wind Requirements	IBC Ch 16	-
1412.4	Fiber-Cement Soffit Panels	ASTM C1186	2008(16)
1609.1.1	Determination of Wind Loads	ASCE 7	2022
1709.2	Load Test Procedures Specified	ASTM E330	2014(21)



IRC Section	Description	Referenced Standard or Code Section ¹	Year
R302	Fire Resistance Ratings	ASTM E119	2020
R703.1.1	Exterior Covering, Water Resistance	ASTM E331	2000(16)
R703.1.2	Exterior Covering, Wind Resistance	ASTM E330	2014(21)
R703.1.2	Exterior Covering, Wind Resistance	Tables R301.2.1(1) & R301.2.1(2)	-
Table R703.3(1)	Siding Minimum Attachment and Minimum Thickness	R703.10.1 & R703.10.2	-
R703.10.1	Fiber cement siding – Panel Siding	ASTM C1186	2008(16)
R703.10.2	Fiber cement siding – Lap Siding	ASTM C1186	2008(16)
R704.2.2	Fiber cement exterior soffit panels	ASTM C1186	2008(16)
R704.3.2	Fiber cement exterior soffit panels	Table R301.2.1(1)	-

1. Only the applicable reference standards and code sections cited in the main body text are listed. (-) indicates that the main body text covers the full explanation of the objective.

COMPLIANCE STATEMENT

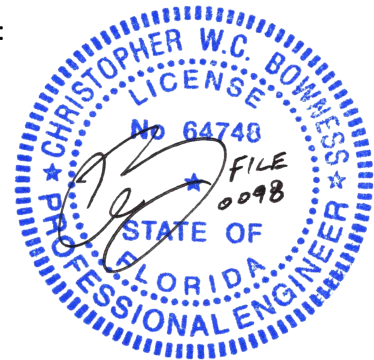
It is the opinion of Boca Engineering Co. that Nichiha Fiber Cement AWP Panel and Sierra/Savannah Lap Siding Cladding System, when installed as described in this report, has demonstrated compliance with the listed sections of the 2023 Florida Building Code (FBC), 2023 Florida Residential Code (FBC-R), 2024 International Building Code (IBC), and 2024 International Residential Code (IRC) inclusive of the requirements for High Velocity Hurricane Zone (HVHZ) and Non High Velocity Hurricane Zone (Non-HVHZ), through testing in accordance with the listed standards. Design and performance information can be found in the Product Evaluation section this report.

This report has been prepared and reviewed on behalf of Boca Engineering Co. by:

Christopher Bowness, P.Eng., P.E.

2026-03-04

Date



EVALUATION REPORT TERMS

- This report is a general evaluation of the building code section requirements as identified and applies only to the samples that were evaluated. It does not imply any endorsement or warranty, nor that the signatory Engineer is the Designer of Record of any construction project for which the information is used.
Rule 61G20-3 (17)(a) Definition: Evaluation report means a report based upon testing or comparative or rational analysis, or a combination thereof, from an approved product evaluation entity or a licensed Florida professional engineer or architect indicating that the product was evaluated to be in compliance with the Code or the intent of the Code and that the product complies with the Code or is, for the purpose intended, at least equivalent to that required by the Code.
- This Evaluation Report expires Dec. 31, 2026, open to renewal. Up to the renewal date, the report is valid until such time as the named product(s) changes, the Quality Assurance Agency changes, or provisions of the Code that relate to the product change.

CERTIFICATION OF INDEPENDENCE

- Boca Engineering Co., its employees and shareholders, do not have, nor do they intend to or will acquire, a financial interest in any company manufacturing or distributing products that they evaluate.
- Boca Engineering Co. is not owned, operated, or controlled by any company manufacturing or distributing products that they evaluate.



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Product Evaluation

1.0 PRODUCT DESCRIPTION

Nichiha exterior wall claddings are Fiber-cement panels manufactured from a pressed, stamped, and autoclaved mix of Portland cement, fly ash, silica, recycled rejects, and wood fiber bundles. The surface is pre-finished with a variety of colours and textures. Cladding panels and planks are installed on the exterior of buildings.

AWP PANEL SIDING

The AWP series panels are installed using corrosion-resistant metal clips supplied as part of the system, fastened to framing providing a 10 mm air-space rainscreen between the cladding and wall sheathing.

AWP PANEL SIDING WITH CORROSION-RESISTANT CHANNEL FASTENING CLIPS DIMENSIONS:

Dimension	Model Name	
	AWP 1818	AWP 3030
Height	17 ⁷ / ₈ in. (455 mm)	17 ⁷ / ₈ in. (455 mm)
Length	71 ⁹ / ₁₆ in. (1818 mm)	119 ⁵ / ₁₆ in. (3030 mm)
Thickness	5/8, 3/4, 7/8 in. (16, 18, 21 mm)	5/8 in. (16 mm)
Panel Orientation	Horizontal	Horizontal or Vertical

AWP INSTALLATION COMPONENTS SUPPLIED BY NICHIIHA

Ultimate Clip System:

1. Starter Track:
 - a. FA 700 (10mm rainscreen) – 10' (3030mm) (I) galvalume coated steel, for horizontal applications.
 - b. FA 710 (10mm rainscreen) – 10' (3030mm) (I) galvalume coated steel, for vertical applications.
2. Panel Clips: JEL 778 "Ultimate Clip II" (10mm rainscreen for most AWP) – Zinc-Aluminum-Magnesium alloy coated steel.



- a. JEL788 "Ultimate Clip II" (10mm rainscreen for import SandStone and VintageBrick only) - Zinc-Aluminum-Magnesium alloy coated steel.
- b. Joint Tab Attachments (included) – used at all AWP 1818 panel to panel vertical joints.
3. Corner Clips: JE 777C (10mm rainscreen for most AWP Manufactured Corners) -- Zinc-Aluminum-Magnesium alloy coated steel.
 - a. Corner Clips: JE 787C (10mm rainscreen for import SandStone and VintageBrick Manufactured Corners only) -- Zinc-Aluminum-Magnesium alloy coated steel.
4. Single Flange Sealant Backer – FHK 1015 R (10mm) – 6.5' (I) fluorine coated galvalume.
5. Double Flange Sealant Backer – FH 1015 R (10mm) – 10' (I) fluorine coated galvalume.
6. Corrugated Shim – FS 1005 (5mm), FS 1010 (10mm) – 4' (I).

SIERRA & SAVANNAH LAP SIDING

Lap siding are plank boards installed horizontally, overlapping, and fastened against sheathing to the wall framing, which may include vertical wood straps to form a 10 mm airspace rainscreen between the cladding and wall sheathing. Lap siding planks are installed with the long dimension oriented horizontally.

SIERRA & SAVANNAH LAP SIDING DIMENSIONS:

Dimension	Model Name	
	Sierra Shake	Savannah Smooth
Height	8 ⁷ / ₈ in. (225 mm)	6 ¹ / ₄ , 7 ¹ / ₄ , 8 ¹ / ₄ , in. (159, 186, 210 mm)
Length	9 ft. 4 in. (2845 mm)	9 ft. 4 in. (2865 mm)
Thickness	1/2 in. (12 mm)	1/2 in. (12 mm)
Overlap	1 1/4 in. (32 mm)	1 1/4 in. (32 mm)

1.1 MATERIAL PROPERTIES

The material properties can be found in *ATTACHMENT 1: MATERIAL PROPERTIES*.

2.0 INSTALLATION

The cladding systems as described in Section 1 shall be installed in accordance with the manufacturer's installation instructions, the 2023 Florida Building Code, and are subject to the Limitations stated within this report.

3.0 CODE SECTIONS REVIEW

<u>IBC Section</u>	<u>Description</u>
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703.2	Fire-Resistance Ratings See 5.0 <i>FIRE CLASSIFICATION</i> of this report.
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1402.2	Weather Protection A representative wall construction assembly with Nichiha siding installed on light-frame construction with a water-resistive barrier and flashing as described in this evaluation report has been tested to ASTM E331, under the conditions of IBC 1402.2 Exception 2. The tested assembly meets the criteria and conforms to this code section. In addition, as noted in this report section 3.1 SUPPLEMENTAL TESTING and BOCA report 0093-17, additional testing to AAMA 509 was conducted to prove the means of drainage for the cladding system.
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<u>IBC Section</u>	<u>Description</u>
1402.3	Wind Resistance The structural design loads described in this report are in accordance with Ch 16 of the IBC.
1403.9	Fiber-cement Siding Nichiha Siding has been tested, certified and are labeled as conforming with ASTM C1186 by an approved quality agency, see <i>5.0 FIRE CLASSIFICATION</i> and <i>ATTACHMENT 1: MATERIAL PROPERTIES</i> of this report.
1404.1.1	Soffits and Fascias The installation of soffits described in this report are in accordance with Section 1412 of the IBC.
1404.2	Weather Protection Nichiha Siding meets the minimum thickness requirements of 0.25-in. for fiber cement lap and panel siding.
1404.17.1	Installation of Wall Coverings, General, Fiber-cement Siding, Panel Siding General installation instructions comply with the provisions of this section. See this report commentary to 1403.9 for ASTM C1186 compliance statement.
1404.17.2	Installation of Wall Coverings, General, Fiber-cement Siding, Lap Siding General installation instructions comply with the provisions of this section. See this report commentary to 1403.9 for ASTM C1186 compliance statement.
1412.2	General Wind Requirements The structural design loads described in this report are in accordance with Ch 16 of the IBC using an effective wind area of 10 square feet.
1412.4	Fiber-Cement Soffit Panels See this report commentary to 1403.9 for ASTM C1186 compliance statement.
1609.1.1	Determination of Wind Loads Wind load pressure (psf) applied to the cladding for use with the design values published in this report are determined in accordance with Chapter 30 of ASCE 7-22. See in <i>ATTACHMENT 2: WIND PRESSURE AND WIND SPEED TABLES</i> .
1709.2	Load Test Procedures Specified In addition to the IBC reference standard ASTM E330 (non-HVHZ), the load test procedure and load factors in FBC-referenced standard TAS 202 (HVHZ) were also used.
<u>IRC Section</u>	<u>Description</u>
R302	Fire Resistance Ratings See <i>5.0 FIRE CLASSIFICATION</i> of this report.
R703.1.1	Exterior Covering, Water Resistance



IRC Section

Description

Same as this report commentary to IBC 1402.2.

R703.1.2

Wind Resistance

The load test procedure and load factors in IBC referenced standard ASTM E330 were used to determine allowable wind pressure.

Allowable wind pressure values published in this report may be used with Tables R301.2.1(1) and R301.2.1(2) for walls using an effective wind area of 10 square feet.

Table R703.3(1) Siding Minimum Attachment and Minimum Thickness

See this report commentary to R703.10.1 and R703.10.2 and *ATTACHMENT 1: MATERIAL PROPERTIES* for details.

R703.10.1

Fiber cement siding – Panel Siding

Nichiha AWP Siding has been tested according to ASTM C1186 and shall be installed with fasteners in compliance with Table R703.3(1).

R703.10.2

Fiber cement siding – Lap Siding

Nichiha Sierra/Savannah Lap Siding has been tested according to ASTM C1186 and shall be installed with a minimum overlap of 1-1/4-in. in accordance with manufacturers installation instructions.

R704.2.2

Fiber cement soffit panels

Same as this report commentary to IBC 1412.4.

R704.3.2

Fiber cement exterior soffit panels

General installation instructions comply with the provisions of this section. See this report commentary to 1403.9 for ASTM C1186 compliance statement.

3.1 SUPPLEMENTAL TESTING

Supplemental testing to national standards that are not directly referenced in the IBC, where the product performance results may be useful in demonstrating the objectives of the IBC:

AAMA 509-22

Voluntary Test and Classification Method for Drained and Back Ventilated Rain Screen Wall Cladding Systems

Representative assemblies have been tested and meets the criteria of AAMA 509-22 as further detailed in BOCA report 0098-22.

ASTM E2768-25

Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)

Nichiha AWP and Sierra/Savannah have been tested and meets the criteria of ASTM E2768, as further detailed in BOCA report 0098-14.

4.0 LIMITATIONS



1. This evaluation is for the base code requirements of the building system as addressed in this report. In some building applications, additional performance objectives may be required by Code which must be addressed in the building design for those specific cases.
2. Design calculations, drawings, and special inspections are to be furnished for building projects by registered professionals as required by the respective jurisdictional authorities and Codes.
3. Wall assemblies with Nichiha exterior wall claddings, to achieve the wall assembly water-resistance performance standards as stated in this report, must be constructed with the components of water-resistive barrier per IBC 1403.2 or IRC R703.2, and flashing per IBC 1404.4 or IRC R703.4.
4. Wall framing and sheathing to which the siding is attached must be designed and installed for the applicable wind pressure and other climate and occupancy loads as required by Code for the construction project. Where framing and sheathing details are provided in this report, they are representing the minimum tested or calculated materials for the required strength of attachment for the wall cladding. The wall framing structural design and performance is outside the scope of this report.
5. Nichiha exterior wall claddings have been tested to the published allowable pressures at the respective bending limitation of L/180 for wall heights up to 10 ft.
6. Water-resistive barrier is not required for exterior concrete or masonry wall construction.
7. Where wall construction is concrete or masonry, siding shall be fastened to wood/steel straps that are securely fastened to the solid wall to transfer all loads back to the primary structure.
8. Scope of evaluation does not include loads acting on Nichiha exterior wall claddings due to earthquakes.

5.0 FIRE CLASSIFICATION

Summary of fire performance classifications found by testing to code referenced standards:

AWP PANEL SIDING:

ASTM E84: Flame Spread Index (FSI): < 25, Smoke Developed Index (SDI): < 450, Class A

ASTM E119: Fire Resistance Rating: 1 hour listing by Intertek. Rating is exclusive to details published by the listing agency. Nichiha's fire rating design listing may be found at https://bpdirectory.intertek.com/pages/DLP_Search.aspx.

ASTM E2768: Maximum Flame Front After 30 minutes: < 10.5 ft.

SIERRA & SAVANNAH LAP SIDING:

ASTM E84: Flame Spread Index (FSI): < 25, Smoke Developed Index (SDI): < 450, Class A

ASTM E119: Fire Resistance Rating: 1 hour listing by Intertek. Rating is exclusive to details published by the listing agency. Nichiha's fire rating design listing may be found at https://bpdirectory.intertek.com/pages/DLP_Search.aspx.

ASTM E2768: Maximum Flame Front After 30 minutes: < 10.5 ft.

6.0 QUALITY ASSURANCE ENTITY

The products evaluated in this report are surveyed at the approved manufacturing locations with third-party quality assurance inspections and product certification labeling by Intertek.

7.0 MANUFACTURING PLANTS

The manufacturing plants of cladding materials covered in this evaluation report are located in: Iwaki, Fukushima, JPN; Handa-shi, Aichiken, JPN; Nagoya, Aichi, JPN; Narashino, Chiba, JPN; Shimonoseki, Yamaguchi, JPN. Macon, GA, USA.

8.0 LABELING

Labeling shall be in accordance with the requirements of the FBC, and the Accredited Quality Assurance Agency.

9.0 REFERENCE TESTING AND EVALUATION DOCUMENTS



Entity	Entity Accreditation ¹	Standards	Report No.	Issue Date	Product
Intertek	IAS TL 274	ASTM C1186	104715592COQ-010C	2022-04-14	AWP
PEI	IAS TL 178	ASTM C1186	2016-1872 (G)	2017-05-30	Sierra/Savannah
Intertek	IAS TL 274	ASTM E84	104715592COQ-010C	2022-04-14	AWP
Intertek	IAS TL 143	ASTM E84	103115936SAT-001A	2017-07-11	Sierra/Savannah
Intertek	IAS TL 338	ASTM E330	J4416.02-550-44	2019-09-13	AWP
Intertek	IAS TL 274	ASTM E330	103430554COQ-003J	2019-07-31	AWP & Sierra/Savannah
PEI	IAS TL 178	ASTM E330	2017-6082 (D)	2018-02-14	AWP
Intertek	IAS TL 274	AAMA 509	105863939COQ-003	2024-12-02	AWP
BOCA Eng.	Note 2	ASTM E331	0098-22	2025-12-31	AWP
BOCA Eng.	Note 2	ASTM E2768	0098-14	2025-12-31	AWP & Sierra/Savannah
SwRI	IAS TL 214	ASTM E119	01.23723.01.001	2018-07-24	AWP
Intertek	IAS TL 143	TAS 202/203	H7494.01-550-18 R2	2019-06-03	AWP Horizontal
Intertek	IAS TL 143	TAS 202/203	H7494.02-550-18 R2	2019-06-03	AWP Vertical
PEI	IAS TL 178	TAS 202/203	2016-1872 (H)	2017-05-22	Sierra/Savannah
Intertek	IAS AA-647	Quality Assurance	Spec Id: 45957	2026-03-04	AWP & Sierra/Savannah

1. Testing, certification, evaluation, and inspection agencies referenced have been verified to be accredited by the International Accreditation Service (www.iasonline.org) for the applicable scope, in good standing on the date of the evaluation, in accordance with ISO 17025 and ISO 17020 international standards for testing and inspection bodies.
2. Professional Engineer sealed report.



Attachments

ATTACHMENT 1: MATERIAL PROPERTIES

Table 1: AWP Panel Siding and Sierra/Savannah Lap Siding: ASTM C1186 Materials Properties

Property	Requirement	AWP Panel Siding Compliance / Result	Sierra/Savannah Compliance / Result
Dimensions			
Length Tolerance, in.	± 0.25	Pass	Pass
Width Tolerance, in.	± 0.09	Pass	Pass
Thickness Tolerance			
Within a sheet, %	15	Pass	N/A
Between samples, in.	± 0.05	Pass	Pass
Squareness Tolerance, in.	0.19	Pass	Pass
Edge Straightness Tolerance, in.	0.05	Pass	Pass
Density, lb/ft ³	As Reported	Pass / 77.8	Pass / 73.2
Flexural Strength, psi			
Dry	≥ 1450	Pass	Pass
Wet	≥ 1015	Pass	Pass
Moisture Movement, %			
Machine Direction	As Reported	Pass / 0.04	Pass / 0.06
Cross Direction	As Reported	Pass / 0.05	N/A
Water Absorption, %	As Reported	Pass / 17.5	Pass / 18.9
Moisture Content, %	As Reported	Pass / 5.1	Pass / 5.3
Water Tightness	No formation of water drops	Pass	Pass
Surface Burning Characteristics			
Flame Spread Index	0	Pass	Pass
Smoke Developed Index	≤ 5	Pass	Pass
Frost Resistance (Freeze/Thaw)			
Observation	No visible cracks or structural alteration	Pass	Pass
Flexural Strength, % of As Received	80	Pass	Pass
Warm Water Resistance			
Observation	No visible cracks or structural alteration	Pass	Pass
Flexural Strength	As Reported	Pass / 86%	Pass / 70%
Heat/Rain Resistance	No visible cracks or structural alteration	Pass	Pass

ATTACHMENT 2: WIND PRESSURE ASSEMBLY TABLES & WIND SPEED TABLES

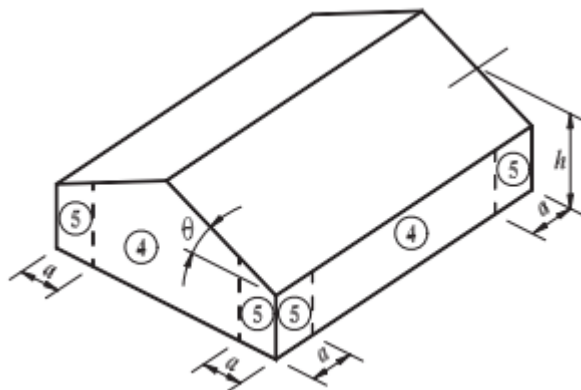
User's Guide to Nichiha Exterior Wall Cladding Wind Pressure and Wind Speed Tables:

The Nichiha cladding wind pressures and wind speed conversion tables have been developed to assist users in determining appropriate installation details for a range of wall construction components, building dimension plans, and site and environmental conditions.

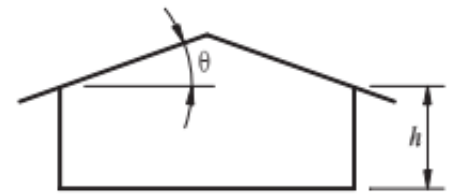
Wind speed conversion tables (Tables 4 - 5) have been prepared following design methodology of ASCE7-22 and ASCE7-16, Ch. 30.3, for low-rise buildings with maximum height of 60 ft, for enclosed buildings with topographic and elevation factors set to unity. These settings are typical of many installations, and consistent with the prescriptive approach used in the IBC. All conditions must be consistent with Tables 2 - 5 Notes and the details within the wind speed conversion tables to be considered valid. If the actual site, building dimension or climatic conditions (including the given variables) differ from those prescribed, the allowable pressure values may be used to calculate adjusted wind speed limits.

For building heights over 60 ft, the Allowable Pressure (ASD) values listed in the Tables 2 and 3 may be used by a licensed design professional to calculate ultimate wind speed and/or allowable height, for the given Nichiha cladding product installation detail and building project conditions.

At any building height, when the Allowable Pressure (ASD) has been pre-determined by the designer or building official, the user only needs to check that the installation detail in Tables 2 and 3 is shown as capable of that pressure or greater.



ORTHOGRAPHIC PROJECTION



ELEVATION

a = 10% of least horizontal dimension or $0.4h$, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m).

Exception: For buildings with $\theta = 0^\circ$ to 7° and a least horizontal dimension greater than 300 ft (90 m), dimension a shall be limited to a maximum of $0.8h$.

h = Mean roof height, in ft (m), except that eave height shall be used for $\theta \leq 10^\circ$.

θ = Angle of plane of roof from horizontal, in degrees.

Figure 1: Wind Pressure Diagrams as Represented in ASCE7-22
for use in conjunction with Tables 2-5.



Table 2: Non-HVHZ Wood/Steel Stud Assembly Configurations for AWP with Ultimate Clip II and Sierra/Savannah^{1,2}

Assembly Number	Panel Configuration	Min. Framing ^{3,12,19}	Max. Stud Spacing	Min. Sheathing/ Furring ¹⁴	Girt Attachment	Clip Fastener ^{9,15}	Clip/Fastener Spacing ²⁰	Fastener Substrate	Allowable Design Pressure (ASD) (psf) ^{16,17}	Referenced Drawings
AWP with Ultimate Clip II, 8-ft Wall Height Limit										
1	Horizontal	2x4 SPF No. 2	16 in	7/16 in. OSB	NA	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, 4 evenly spaced screws/ clip	Sheathing Only	37.2	A1, B1, C1
2	Horizontal	2x6 SPF No. 2	16 in	7/16 in. OSB	NA	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, 4 evenly spaced screws/ clip	Sheathing Only	86.5	A1, B1, C1
3	Horizontal	3-5/8 x 1-5/8 18 ga steel	16 in	1/2 in. Gyp w/ vert. 18 ga vertical z-girt @ 16 in. o.c. ¹⁸	#10 x 1-1/2 in. screw @ 16 in. o/c vert. ea. stud	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, one screw ea girt	Furring	58.0	A1, B1, C1
4 ²⁵	Horizontal	3-5/8 x 1-5/8 18 ga steel	24 in	1/2 in. Gyp ²⁶	NA	#10 x 1-1/2 in. screw	Continuous 24" cut clips, one screw ea stud	Stud	36.0	A1, B1, C1
AWP with Ultimate Clip II, 10-ft Wall Height Limit										
5	Horizontal	5-1/2 x 1-5/8 18 ga steel	16 in	1/2 in. Gyp ^{18,26}	#10 x 1-1/2 in. screw @ 16 in. o/c vert. ea. stud	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, one screw ea stud	Stud	72.5	A1, B1, C1
6	Horizontal	5-1/2 x 1-5/8 18 ga steel	16 in	1/2 in. Gyp w/ vert. 18 ga vertical z-girt @ 16 in. o.c. ¹⁸	#10 x 1-1/2 in. screw @ 16 in. o/c vert. ea. stud	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, one screw ea girt	Furring	72.5	A4, B4
7	Vertical	3-5/8 x 1-5/8 18 ga steel	16 in	7/16 in. OSB	NA	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, 4 evenly spaced screws/ clip	Sheathing Only	43.0	A2, B2, C2
8	Vertical	3-5/8 x 1-5/8 18 ga steel	16 in	7/16 in. OSB w/ vert. 18 ga vertical z-girt @ 18" o/c	#10 x 1-1/2 in. screw @ 8 in. o/c vert. in OSB	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, 4 evenly spaced screws/ clip	Furring	43.0	A3, B3, C3
9	Vertical	3-5/8 x 1-5/8 18 ga steel	16 in	1/2 in. Gyp w/ horiz. 18 ga horizontal z-girt @ 16 in. o.c. ¹⁸	#10 x 1-1/2 in. screw @ ea. stud	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, one screw ea girt	Furring	43.0	A3, B3, C3
10	Horizontal	Light-Weight CMU	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 4" o.c	#10 x 1-1/2" long Wood Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring	95	A7, B7, C7
		Medium-Weight CMU	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 6" o.c	#10 x 1-1/2" long Wood Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
		2500 psi Concrete	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 11.5" o.c	#10 x 1-1/2" long Wood Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
		Light-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 9.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
		Medium-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 12.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
		2500 psi Concrete	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 20.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
11	Vertical ²⁷	Light-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 17-7/8" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 9.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring	85	A8, B8, C8
		Medium-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 17-7/8" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 12.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		



		2500 psi Concrete	N/A	7/8" 18 ga Hat Channel vertical 17-7/8" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 20.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
Sierra Shake/ Savannah Smooth, 10-ft Wall Height Limit										
12	Sierra/ Savannah	2x4 SPF No. 2	16 in	7/16 in. OSB	NA	#8 x 1-5/8 in. screw	@ 8" o.c horiz. and 1" from top of plank (blind)	Sheathing only	37.4	A10, B10, C10
13	Sierra/ Savannah	3-5/8 x 1-5/8 18 ga steel	16 in	7/16 in. OSB ²⁶	NA	#8 x 1-5/8 in. screw	@ 16" o.c horiz. and 1" from top of plank (blind)	Stud	53.5	
14	Sierra/ Savannah	2x6 SPF No. 2	16 in	7/16 in. OSB	NA	#8 x 1-5/8 in. screw	@ 8" o.c horiz. and 1" from top of plank (blind)	Sheathing only	50.5	
15	Sierra/ Savannah	Light-Weight CMU	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 3.5" o.c	#7 x 2-1/4" long Wood Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring	110	A11, B11, C11
		Medium-Weight CMU	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 5.5" o.c	#7 x 2-1/4" long Wood Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
		2500 psi Concrete	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 10" o.c	#7 x 2-1/4" long Wood Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
		Light-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 7" o.c	#7 x 1-3/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
		Medium-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 11.5" o.c	#7 x 1-3/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
		2500 psi Concrete	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 21.5" o.c	#7 x 1-3/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
16	Sierra/ Savannah	Light-Weight CMU	N/A	2x4 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 7.5" o.c	#7 x 1-3/4" long Wood Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring	55	A11, B11, C11
		Medium-Weight CMU	N/A	2x4 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 11.5" o.c	#7 x 1-3/4" long Wood Screw	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		
		2500 psi Concrete	N/A	2x4 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 21.5" o.c	#7 x 1-3/4" long Wood Screw	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		
		Light-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 17.5" o.c	#7 x1- 1/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		
		Medium-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 23" o.c	#7 x 1-1/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		
		2500 psi Concrete	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 33.5" o.c	#7 x 1-1/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		
AWP Soffit Applications, 4-ft Overhang Limit										
17	AWP Soffit	2x4 SPF No. 2	24 in	2 layers 7/16 in. OSB	NA	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, 4 evenly spaced screws/ clip	Sheathing Only	64.0	C5, C6, D6
18	AWP Soffit	2x4 SPF No. 2	24 in	2x4 SPF No. 2 strapping spaced horiz. @ 9 in. o/c	NA	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, 4 evenly spaced screws/ clip	Strapping	64.0	A5, A6, D6
19	AWP Soffit	2x4 SPF No. 2	24 in	2x4 SPF No. 2 blocking spaced horiz. @ 9 in. o/c	NA	#10 x 1-1/2 in. screw	Max. 5" clip-to-clip clear spacing, 4 evenly spaced screws/ clip	Blocking	64.0	B5, B6, D6



Table 3: HVHZ Wood/Steel Stud Assembly Configurations for AWP with Ultimate Clip II and Sierra/Savannah^{1,2}

Assembly Number	Panel Configuration	Min. Framing ^{3,4,5,6,7,12}	Max. Stud Spacing	Min. Sheathing/ Furring ^{8,10}	Girt Attachment	Clip Fastener ^{9,13}	Clip/Fastener Spacing	Fastener Substrate	Allowable Design Pressure (ASD) (psf) ^{11,17}	Referenced DrawingS
AWP with Ultimate Clip II, 10-ft Wall Height Limit										
20	Horizontal	2x4 SPF No. 2	16 in.	5/8" plywood	N/A	#10 x 1-1/2 in. screw	Max 5" clip-to-clip clear spacing, one screw ea stud	Studs	95	A1, B1, C1
21	Horizontal	1-5/8x5-1/2 steel	16 in	5/8" plywood	N/A	#10 x 1-1/2 in. screw	Max 5" clip-to-clip clear spacing, one screw ea stud	Studs	95	
22	Vertical	2x4 SPF No. 2	16 in	5/8" plywood	N/A	#10 x 1-1/2 in. screw	Max 5" clip-to-clip clear spacing, 4 evenly spaced screws per clip	Sheathing	85	A2, B2, C2
23	Vertical	1-5/8x5-1/2 steel	16 in	5/8" plywood	N/A	#10 x 1-1/2 in. screw	Max 5" clip-to-clip clear spacing, 4 evenly spaced screws per clip	Sheathing	85	
24	Horizontal	Light-Weight CMU	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 4" o.c	#10 x 1-1/2" long Wood Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring	95	A7, B7, C7
		Medium-Weight CMU	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 6" o.c	#10 x 1-1/2" long Wood Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
		2500 psi Concrete	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 11.5" o.c	#10 x 1-1/2" long Wood Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
		Light-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 9.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
		Medium-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 12.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
		2500 psi Concrete	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 20.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
25	Vertical ²⁷	Light-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 17-7/8" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 9.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring	85	A8, B8, C8
		Medium-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 17-7/8" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 12.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
		2500 psi Concrete	N/A	7/8" 18 ga Hat Channel vertical 17-7/8" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 20.5" o.c	#10 x 3/4" long Sheet Metal Screws	Max 5" clip-to-clip clear spacing, one screw ea girt	Furring		
Sierra Shake/ Savannah Smooth, 10-ft Wall Height Limit										
26	Sierra/ Savannah	2x6 DF No. 2	16 in	5/8" plywood	N/A	#7 x 2-1/4" long Wood Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Studs	110	A10, B10, C10
27	Sierra/ Savannah	1-5/8x5-1/2 steel	16 in	5/8" plywood	N/A	#7 x 2-1/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Studs	110	
28	Sierra/ Savannah	2x6 DF No. 2	16 in	5/8" plywood	N/A	#7 x 2-1/4" long Wood Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Studs	55	
29	Sierra/ Savannah	1-5/8x5-1/2 steel	16 in	5/8" plywood	N/A	#7 x 2-1/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Studs	55	
30	Sierra/ Savannah	Light-Weight CMU	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 3.5" o.c	#7 x 2-1/4" long Wood Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring	110	A11, B11, C11



		Medium-Weight CMU	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 5.5" o.c	#7 x 2-1/4" long Wood Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
		2500 psi Concrete	N/A	2x2 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 10" o.c	#7 x 2-1/4" long Wood Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
		Light-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 7" o.c	#7 x 1-3/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
		Medium-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 11.5" o.c	#7 x 1-3/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
		2500 psi Concrete	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 21.5" o.c	#7 x 1-3/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from bottom of plank (face)	Furring		
31	Sierra/ Savannah	Light-Weight CMU	N/A	2x4 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 7.5" o.c	#7 x 1-3/4" long Wood Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring	55	A11, B11, C11
		Medium-Weight CMU	N/A	2x4 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 11.5" o.c	#7 x 1-3/4" long Wood Screw	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		
		2500 psi Concrete	N/A	2x4 SPF No.2 P.T wood vertical 16" o.c furring	(1) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 21.5" o.c	#7 x 1-3/4" long Wood Screw	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		
		Light-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 17.5" o.c	#7 x1- 1/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		
		Medium-Weight CMU	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 23" o.c	#7 x 1-1/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		
		2500 psi Concrete	N/A	7/8" 18 ga Hat Channel vertical 16" o.c furring	(2) ITW Buildex 3/16" dia. Tapcon, 1" embedment @ 33.5" o.c	#7 x 1-1/4" long Sheet Metal Screws	@ 16" o.c horiz. and 1" from top of plank (blind)	Furring		



Table 4: Maximum Wind Speeds of Wall Cladding Installed at Various Building Heights and Exposure Categories – Non-HVHZ^{1,2}

Assembly No.	Allowable Pressure (psf) (ASD) ^{16,17}	Exposure Category ²¹	ZONE 5 (CORNER)							ZONE 4 (FIELD)						
			Maximum Wind Speed V_{ult} (mph) ^{22,23}							Maximum Wind Speed V_{ult} (mph) ^{22,23}						
			Building Height (ft) ²⁴							Building Height (ft) ²⁴						
			15	20	25	30	40	50	60	15	20	25	30	40	50	60
1	37.2	B	178	171	165	161	156	151	147	198	189	184	178	173	168	164
		C	146	142	139	136	132	129	126	162	157	154	151	146	143	140
		D	132	129	127	125	122	119	117	147	144	141	139	135	132	130
2	86.5	B	210	210	210	210	210	210	210	210	210	210	210	210	210	210
		C	210	210	210	207	201	196	193	210	210	210	210	210	210	210
		D	202	197	193	190	185	182	179	210	210	210	210	206	202	199
3	58.0	B	210	210	206	200	195	189	184	210	210	210	210	210	210	204
		C	182	177	173	169	164	161	158	202	196	192	188	183	178	175
		D	165	161	158	156	152	149	147	184	179	176	173	169	165	163
4	36.0	B	175	168	163	158	154	149	145	194	186	181	175	171	165	161
		C	143	139	136	133	130	127	124	159	155	151	148	144	141	138
		D	130	127	125	123	120	117	115	145	141	139	136	133	130	128
5,6	72.5	B	210	210	210	210	210	210	206	210	210	210	210	210	210	210
		C	203	198	193	189	184	180	176	210	210	210	210	204	200	196
		D	185	180	177	174	170	166	164	205	200	197	193	189	185	182
7,8,9	43.0	B	191	183	178	173	168	162	158	210	204	197	192	186	180	176
		C	157	152	149	146	142	138	136	174	169	165	162	157	154	151
		D	142	139	136	134	131	128	126	158	154	152	149	145	142	140
10	95.0	B	210	210	210	210	210	210	210	210	210	210	210	210	210	210
		C	210	210	210	210	210	206	202	210	210	210	210	210	210	210
		D	210	206	203	199	194	190	187	210	210	210	210	210	210	208
11	85.0	B	210	210	210	210	210	210	210	210	210	210	210	210	210	210
		C	210	210	209	205	199	194	191	210	210	210	210	210	210	210
		D	200	195	192	188	184	180	177	210	210	210	209	204	200	197
12	37.4	B	178	171	166	161	157	151	148	198	190	184	179	174	168	164
		C	146	142	139	136	132	129	127	162	158	154	151	147	143	141
		D	133	130	127	125	122	119	118	147	144	141	139	135	133	131
13	53.5	B	210	205	198	192	187	181	177	210	210	210	210	208	201	196
		C	175	170	166	163	158	154	151	194	189	185	181	175	171	168
		D	159	155	152	150	146	143	141	176	172	169	166	162	159	156
14	50.5	B	207	199	193	187	182	176	172	210	210	210	208	202	196	191
		C	170	165	161	158	153	150	147	189	183	179	176	170	167	164
		D	154	151	148	145	142	139	137	171	167	164	161	157	154	152
15	110	B	210	210	210	210	210	210	210	210	210	210	210	210	210	210
		C	210	210	210	210	210	210	210	210	210	210	210	210	210	210
		D	210	210	210	210	209	205	202	210	210	210	210	210	210	210
16	55	B	210	207	201	195	190	184	179	210	210	210	210	210	204	199
		C	177	172	168	165	160	156	154	197	191	187	183	178	174	171
		D	161	157	154	152	148	145	143	179	175	171	168	164	161	159
17,18,19	64.0	B	210	210	210	210	205	198	193	210	210	210	210	210	210	210
		C	191	186	182	178	173	169	166	210	206	202	198	192	187	184
		D	174	169	166	164	159	156	154	193	188	185	182	177	174	171

Table 5: Maximum Wind Speeds of Wall Cladding Installed at Various Building Heights and Exposure Categories – HVHZ^{1,2}

Assembly No.	Allowable Pressure (psf) (ASD) ¹⁷	Exposure Category ²¹	ZONE 5 (CORNER)							ZONE 4 (FIELD)						
			Maximum Wind Speed V_{ult} (mph) ^{22,23}							Maximum Wind Speed V_{ult} (mph) ^{22,23}						
			Building Height (ft) ²⁴							Building Height (ft) ²⁴						
			15	20	25	30	40	50	60	15	20	25	30	40	50	60
20,21,24	95.0	C	210	210	210	210	210	206	202	210	210	210	210	210	210	210
		D	210	206	203	199	194	190	187	210	210	210	210	210	210	208
22,23,25	85.0	C	210	210	209	205	199	194	191	210	210	210	210	210	210	210
		D	200	195	192	188	184	180	177	210	210	210	209	204	200	197
26,27,30	110.0	C	210	210	210	210	210	210	210	210	210	210	210	210	210	210
		D	210	210	210	210	209	205	202	210	210	210	210	210	210	210
28,29,31	55.0	C	177	172	168	165	160	156	154	197	191	187	183	178	174	171
		D	161	157	154	152	148	145	143	179	175	171	168	164	161	159

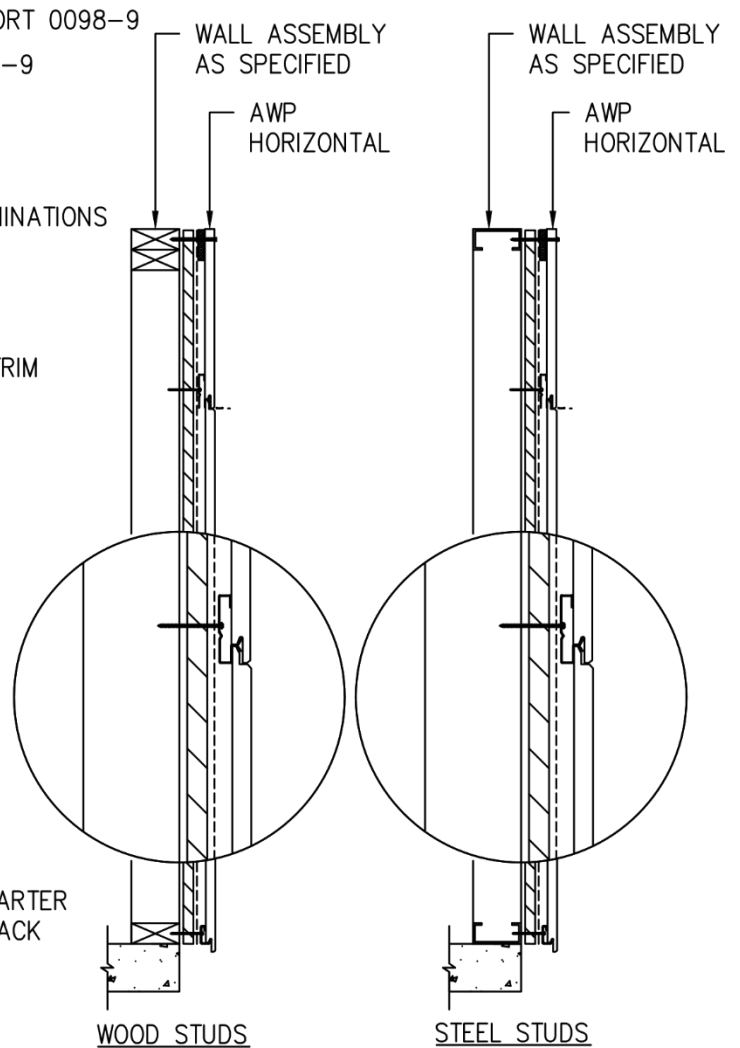
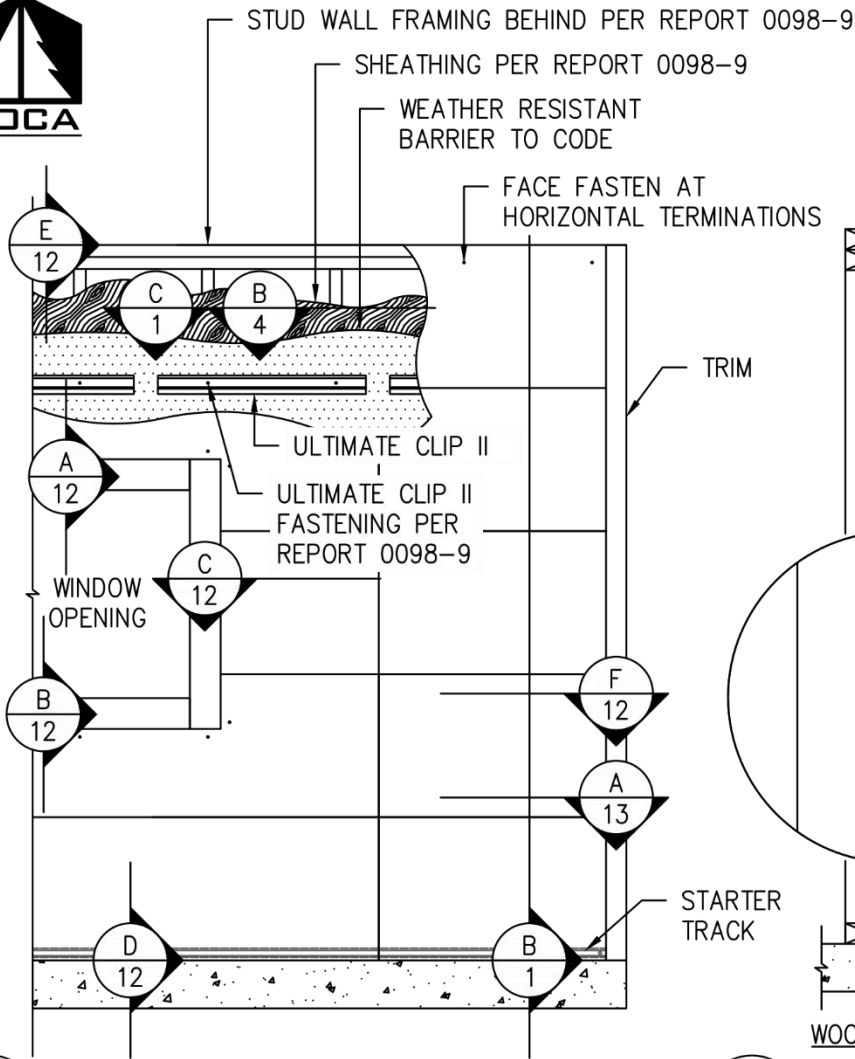


Tables 2-5 Notes:

1. The siding has been tested to the published allowable pressures at the respective bending limitation of L/180 for wall heights up to 8 ft or 10 ft. Where framing and sheathing details are provided in these tables, this represents only the minimum tested or calculated materials for the required strength of attachment of the wall cladding. Primary structural building loads and capacity of the building framing is outside the scope of this table and must be designed and installed for the applicable wind, climate and occupancy loads as required by Code for the construction project.
2. Further assembly details in ATTACHMENT 3: ASSEMBLY DRAWINGS of this report are to be followed.
3. 2x wood framing tested to support attachment of cladding at maximum design pressure, species may be substituted by any exceeding S.G. 0.42. Framing must be sized by engineer or architect of record to support all building loads and deflection limit.
4. 1-5/8x5-1/2 steel framing calculated to support attachment of cladding at maximum design pressure. Framing must be sized by engineer or architect of record to support all building loads and deflection limit.
5. Wall must be calculated to support attachment of cladding at maximum design pressure. CMU/Concrete must be designed by engineer or architect of record to support all building loads and deflection limit.
6. Light-Weight CMU defined as having an oven-dry density 85 pcf or greater and less than 105 pcf per ASTM C90.
7. Medium-Weight CMU defined as having an oven-dry density 105 pcf or greater and less than 125 pcf per ASTM C90.
8. Pressure treated wood furring may be substituted by any species exceeding Specific Gravity of 0.42.
9. All fasteners are to be corrosion resistant.
10. Plywood Sheathing: Min. 5/8-in Plywood, complying with NIST DOC PS 2. Sheathing may be substituted with thicker profile of up to nominal 1-inch, and any specific gravity greater than 0.42.
11. Allowable pressure (psf) (ASD) for assemblies in HVHZ determined in accordance with TAS 202 and 203.
12. The structural framing and sheathing shall be designed and anchored to provide lateral bracing and properly transfer all loads to the structure. Framing design and installation is the responsibility of the engineer or architect of record for the project of installation.
13. For the Sierra Shake plank size of 8-7/8" fastening into CMU or concrete wall, and allowable design pressure of 110 psf, size #8 screws are needed.
14. 7/16 OSB to comply with US DOC PS 2. May be substituted with min. 15/32 plywood complying with US DOC PS 1 or PS 2. Wood sheathing may be substituted with thicker profile.
15. Screws are to comply with ASME B18.6.1.
16. The maximum design pressure is the ASD allowable service pressure taken from average tested assembly values of the ultimate negative test pressure divided by 2 (walls) or 2.5 (soffits), or the test pressure at L/180 deflection multiplied by a wind load service level factor of 0.75.
17. To convert to Factored Design Resistance Pressure (psf) (LRFD), multiply Allowable Pressure (psf) (ASD) by 1.67.
18. Assemblies tested with no sheathing; minimum sheathing may be required per Code.
19. Min. Z-girt is 1.5Z x 1.25, 18 ga, 33 ksi yield. May be substituted with larger size.
20. AWP 3030 has four clips per panel. AWP 1818 has 2.5 clips per panel.
21. Wind exposure categories as defined in ASCE7-22, section 26.7.
22. Wind speed conversion corresponds to the maximum Zone 4 and 5 pressure with effective area of 10 ft². Table wind speeds are only valid under the design conditions stated.
23. Table limiting heights and wind velocity values are for low-rise buildings of maximum 60 ft height, developed in accordance with ASCE7-22, Table 30.3-1. Design input values: $G_{Cp} = -1.4$ (Zone 5) and -1.1 (Zone 4), $G_{Cpi} = 0.18$, $K_{zt} = 1$, $K_d = 0.85$, $K_e = 1$, $I_w = 1.0$.
24. Interpolation not permitted. For heights in between those listed, use next highest height column.
25. Assembly details taken from issued TECHNICAL BULLETIN "AWP and 24" o.c. Framing" by Nichiha on August 22, 2019.
26. 7/16-in OSB and 1/2-in Gyp interchangeable when clips attaches to stud directly.
27. Minimum 18 ga steel horizontal hat channel at all starter track locations and vertical z-furring 17-7/8" o.c at panel joints required for vertical AWP assemblies.

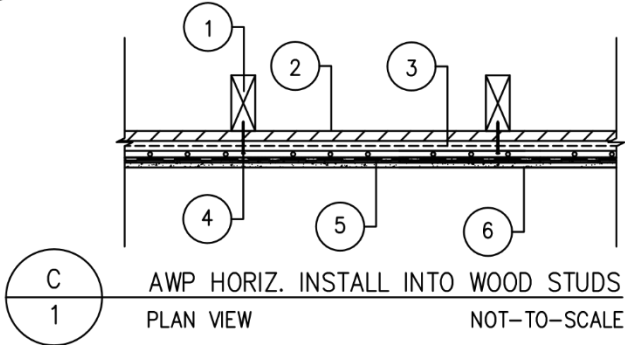
ATTACHMENT 3: ASSEMBLY DIAGRAMS

Begins next page.



A 1 AWP HORIZ. INSTALL INTO WOOD OR STEEL STUDS
ELEVATION VIEW NOT-TO-SCALE

B 1 AWP HORIZ. INSTALL INTO WOOD OR STEEL STUDS
SECTION VIEW NOT-TO-SCALE



C 1 AWP HORIZ. INSTALL INTO WOOD STUDS
PLAN VIEW NOT-TO-SCALE

LIGHT-FRAMED STUD WALL INSTALLATION INTERIOR TO EXTERIOR	
1	WOOD/STEEL STUDS AS SPECIFIED PER EVALUATION REPORT
2	PLYWOOD SHEATHING PER EVALUATION REPORT
3	WEATHER RESISTANT BARRIER TO CODE
4	CLIP FASTENING PER EVALUATION REPORT
5	ULTIMATE CLIP II WITH FASTENERS PER REPORT ASSEMBLIES
6	AWP HORIZONTAL CLADDING

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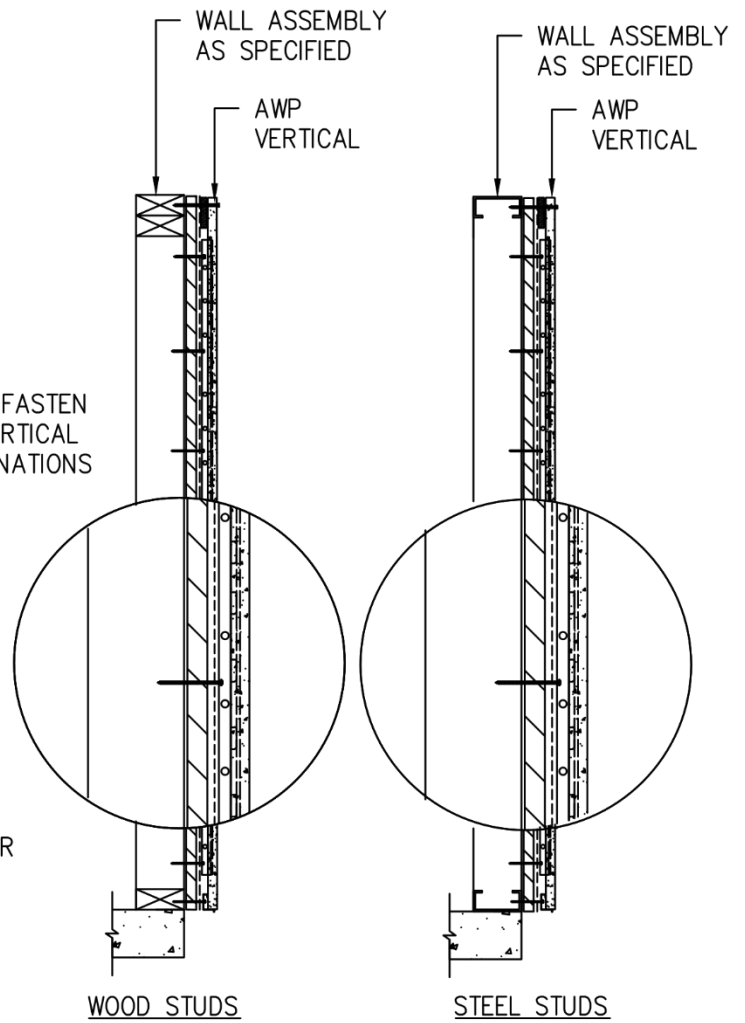
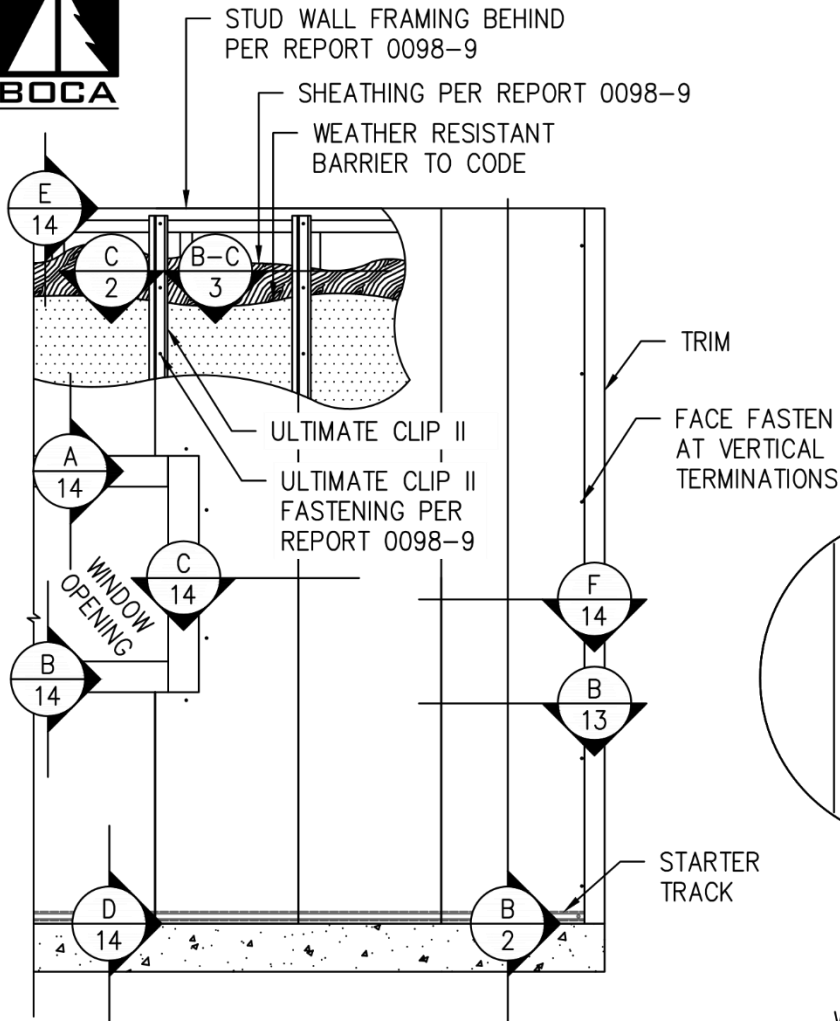
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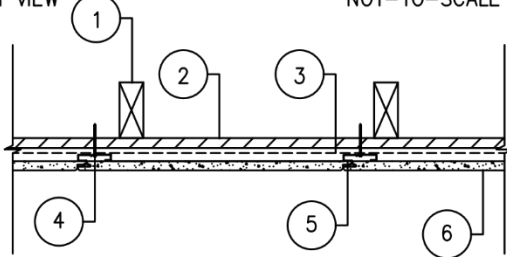
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A
2
AWP VERT. INSTALL INTO WOOD OR STEEL STUDS
ELEVATION VIEW NOT-TO-SCALE

B
2
AWP VERT. INSTALL INTO WOOD OR STEEL STUDS
SECTION VIEW NOT-TO-SCALE



C
2
AWP VERT. INSTALL INTO WOOD OR STEEL STUDS
PLAN VIEW NOT-TO-SCALE

LIGHT-FRAMED STUD WALL INSTALLATION INTERIOR TO EXTERIOR

1	WOOD/STEEL STUDS AS SPECIFIED PER EVALUATION REPORT
2	PLYWOOD SHEATHING PER EVALUATION REPORT
3	WEATHER RESISTANT BARRIER TO CODE
4	CLIP FASTENING PER EVALUATION REPORT
5	ULTIMATE CLIP II WITH FASTENERS PER REPORT ASSEMBLIES
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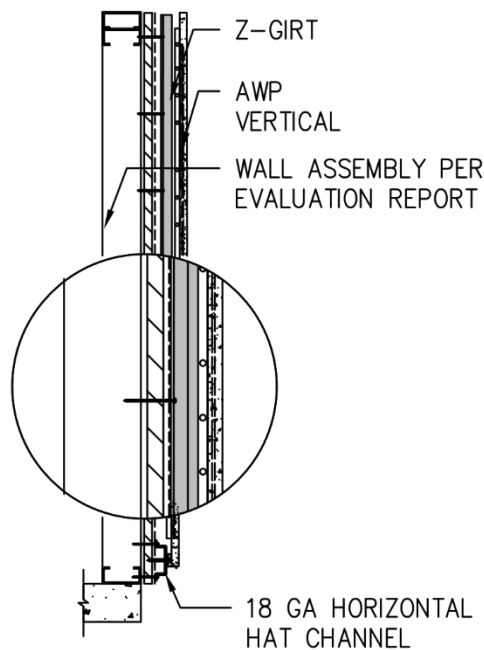
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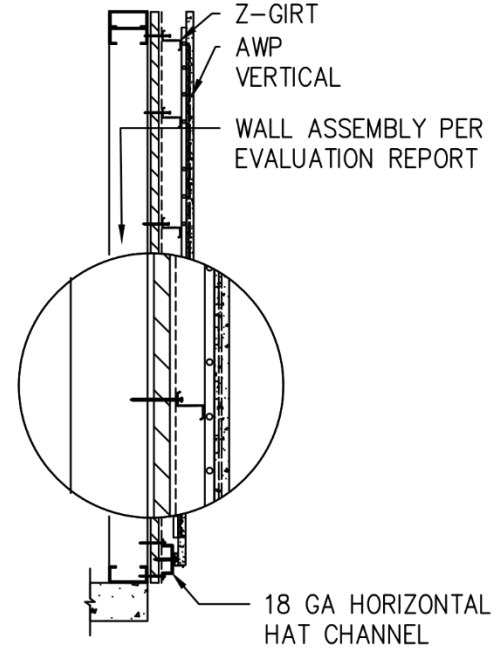
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STEEL STUDS W/ VERT. Z-GIRT

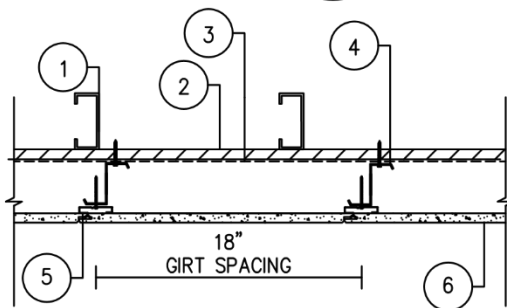
A
3

AWP PANEL VERT. INSTALLATION W/ Z-GIRT
SECTION VIEW



STEEL STUDS W/ HORZ. Z-GIRT

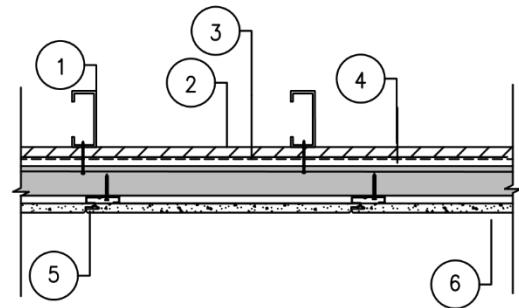
NOT-TO-SCALE



B
3

AWP PANEL VERT. W/ VERT. Z-GIRT
PLAN VIEW

NOT-TO-SCALE



C
3

AWP PANEL VERT. W/ HORZ. Z-GIRT
PLAN VIEW

NOT-TO-SCALE

LIGHT-FRAMED STUD WALL INSTALLATION INTERIOR TO EXTERIOR

1	STEEL STUDS AS SPECIFIED PER EVALUATION REPORT
2	SHEATHING PER EVALUATION REPORT
3	WEATHER RESISTANT BARRIER TO CODE
4	Z-GIRT PER EVALUATION REPORT
5	ULTIMATE CLIP II WITH FASTENERS PER REPORT ASSEMBLIES
6	AWP VERTICAL CLADDING

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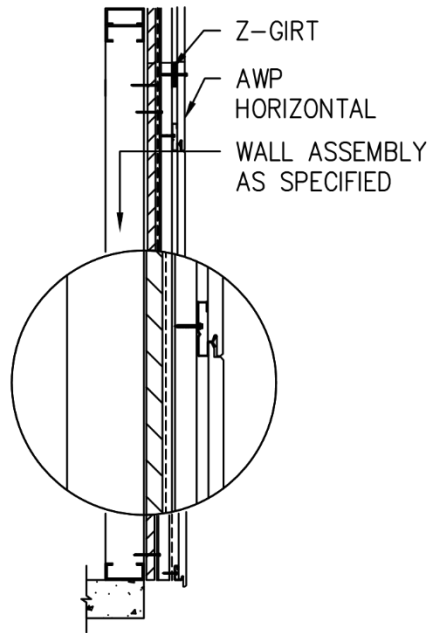
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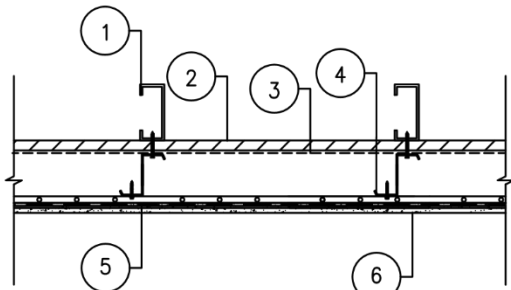
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STEEL STUDS W/ VERT. Z-GIRT

A	AWP PANEL HORIZ. INSTALLATION W/ Z-GIRT
4	SECTION VIEW NOT-TO-SCALE



B	AWP HORIZ. INSTALLATION - STEEL STUDS/Z-GIRT
4	PLAN VIEW NOT-TO-SCALE

LIGHT-FRAMED STUD WALL INSTALLATION INTERIOR TO EXTERIOR	
1	STEEL STUDS AS SPECIFIED PER EVALUATION REPORT
2	SHEATHING PER EVALUATION REPORT
3	WEATHER RESISTANT BARRIER TO CODE
4	Z-GIRT PER EVALUATION REPORT
5	ULTIMATE CLIP II WITH FASTENERS PER REPORT ASSEMBLIES
6	AWP HORIZONTAL CLADDING

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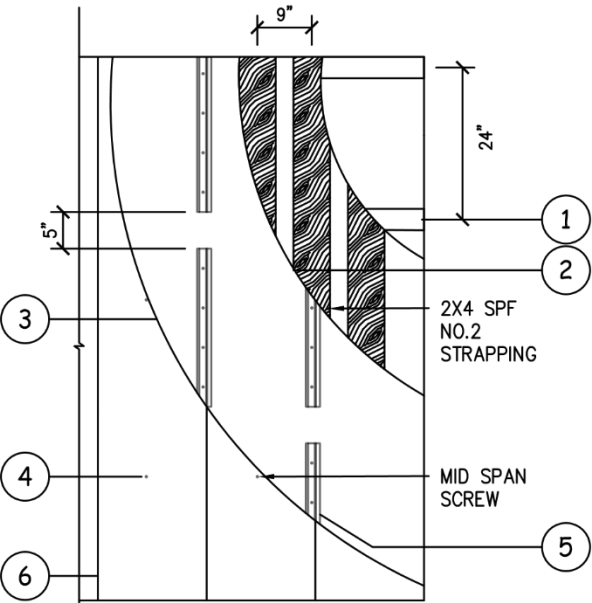
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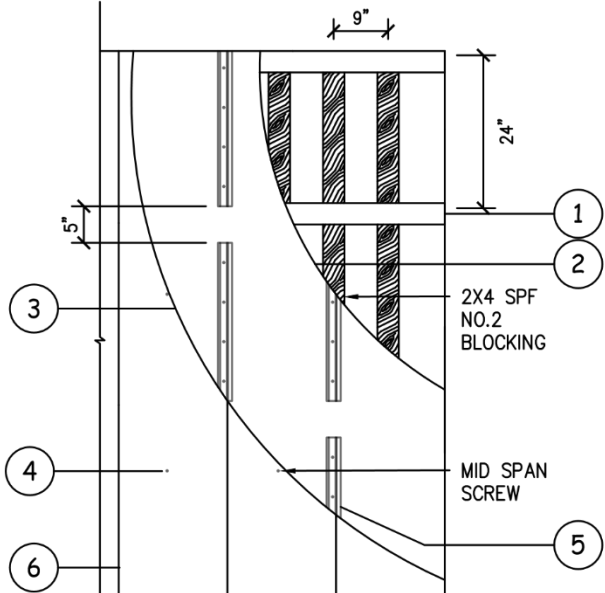




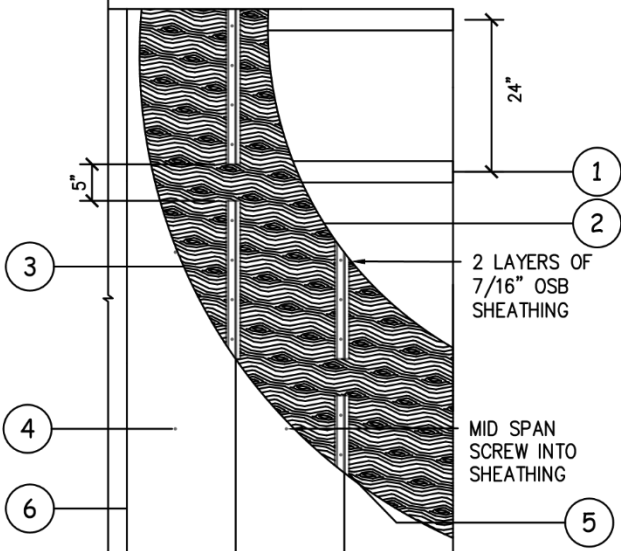
AWP SOFFITS	
1	MIN. 2X4 ROOF FRAMING MAX 24" O.C.
2	FASTENER SUBSTRATE (SEE DETAIL)
3	SHEATHING (OPTIONAL IN DETAIL A/5 & B/5)
4	NO.10 X 1-1/2" SCREW
5	ULTIMATE CLIP II WITH FASTENERS PER REPORT ASSEMBLIES
6	AWP SOFFITS



A
5 AWP SOFFIT w/ 2X4 STRAPPING
UNDERSIDE VIEW | NOT-TO-SCALE



B
5 AWP SOFFIT w/ BLOCKING
UNDERSIDE VIEW | NOT-TO-SCALE



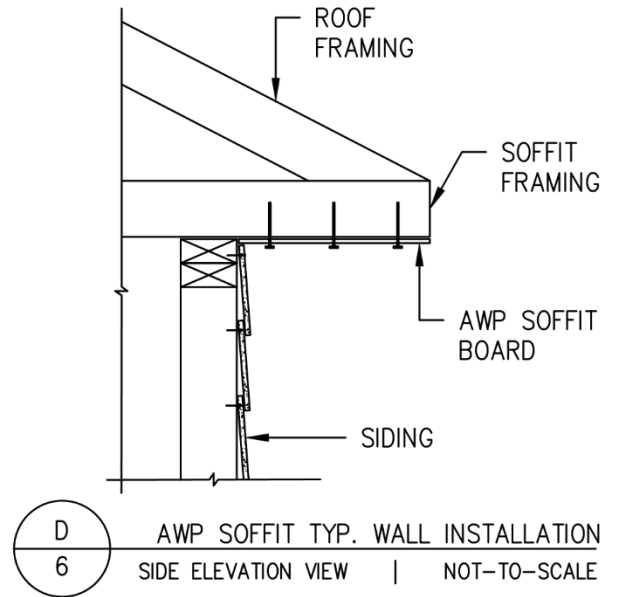
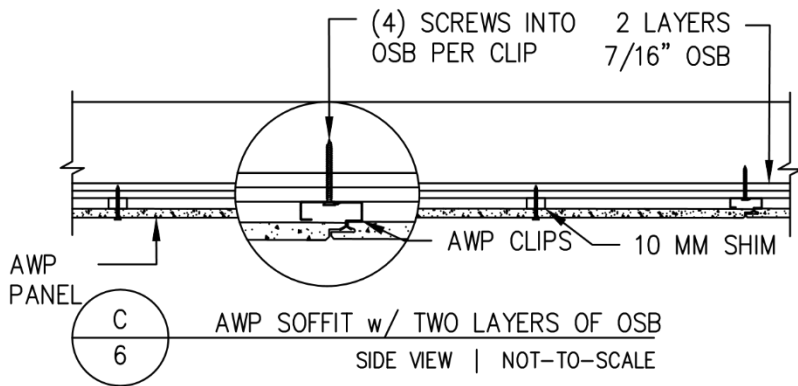
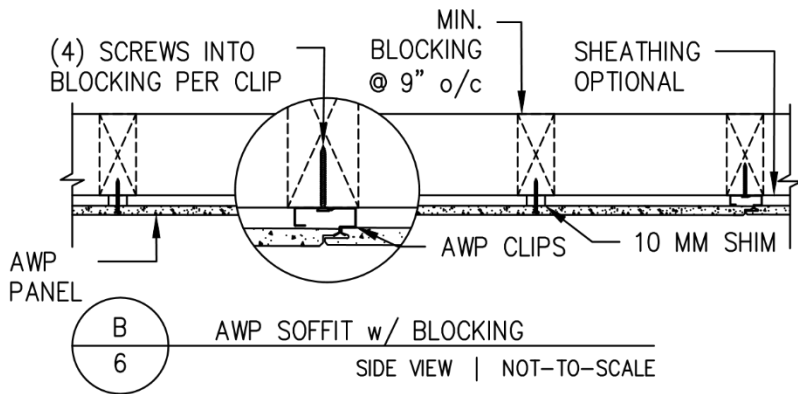
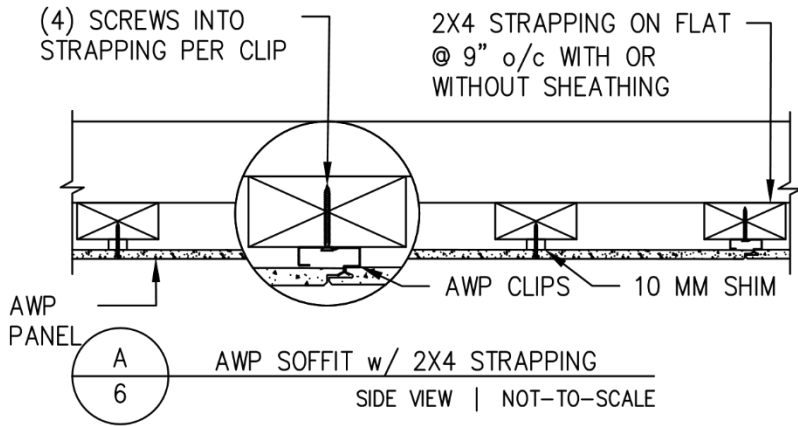
C
5 AWP SOFFIT w/ TWO LAYERS OF OSB
UNDERSIDE VIEW | NOT-TO-SCALE

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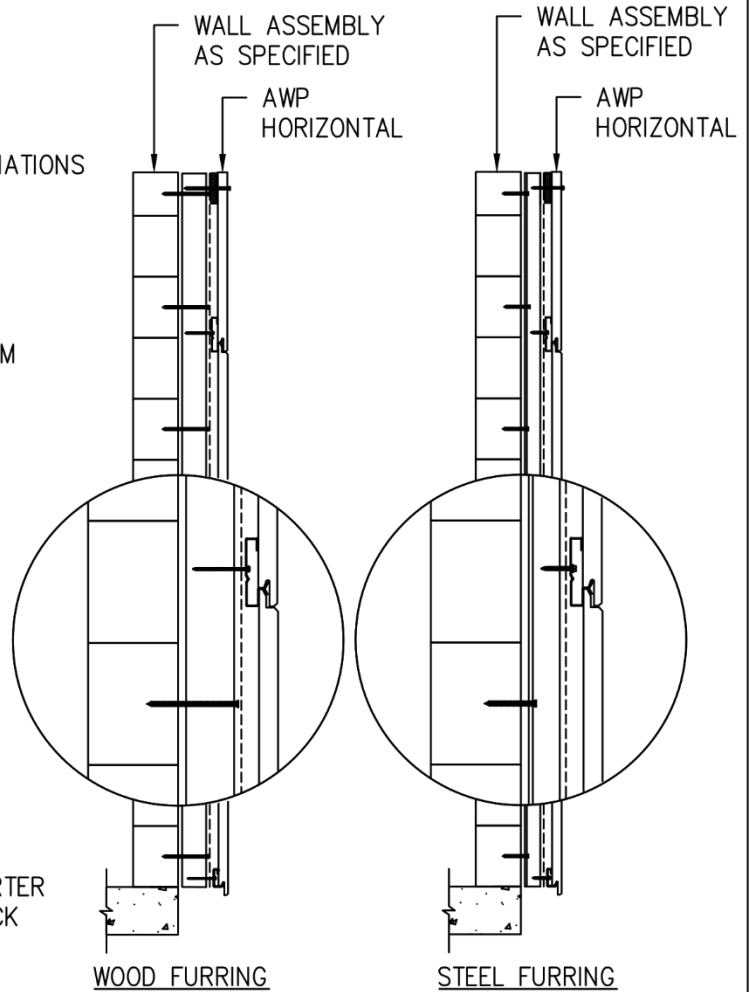
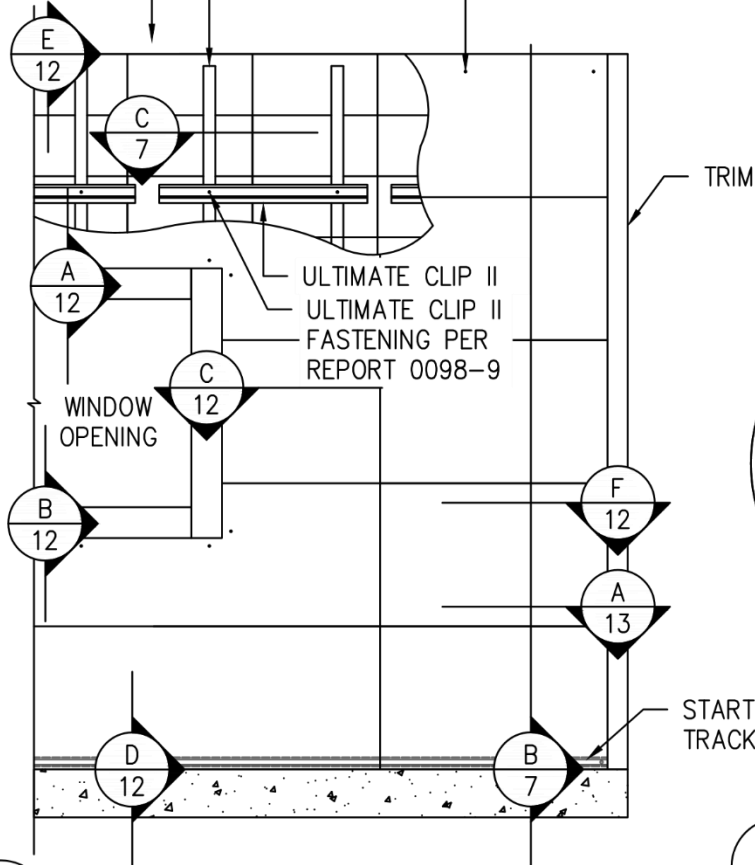
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CMU OR CONCRETE WALL
BEHIND PER REPORT 0098-9

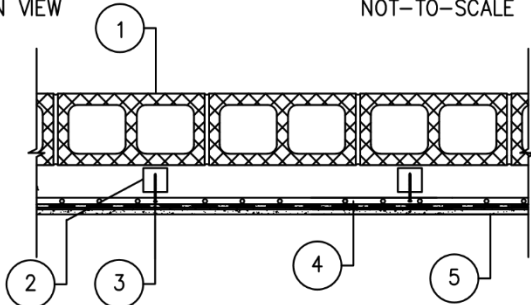
FURRING PER REPORT 0098-9

FACE FASTEN AT
HORIZONTAL TERMINATIONS



A 7 AWP HORIZ. INSTALL INTO FURRING AND CONCRETE
ELEVATION VIEW NOT-TO-SCALE

B 7 AWP HORIZ. INSTALL INTO FURRING AND CONCRETE
SECTION VIEW NOT-TO-SCALE



C 7 AWP HORIZ. INSTALL INTO WOOD FURRING AND CONCRETE/CMU
PLAN VIEW NOT-TO-SCALE

CMU/CONCRETE WALL INSTALLATION INTERIOR TO EXTERIOR	
1	CMU/CONCRETE WALL PER EVALUATION REPORT
2	WOOD/STEEL FURRING PER EVALUATION REPORT
3	CLIP FASTENING PER EVALUATION REPORT
4	ULTIMATE CLIP II WITH FASTENERS PER REPORT ASSEMBLIES
5	AWP HORIZONTAL CLADDING

NOTE:

1. FURRING FASTENING NOT SHOWN FOR CLARITY.

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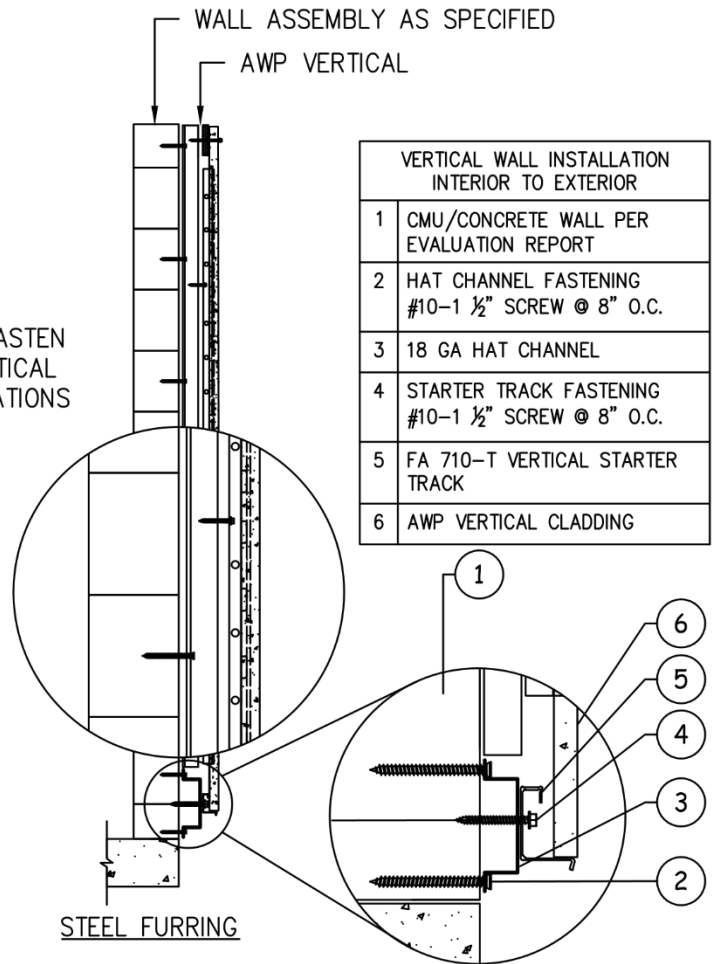
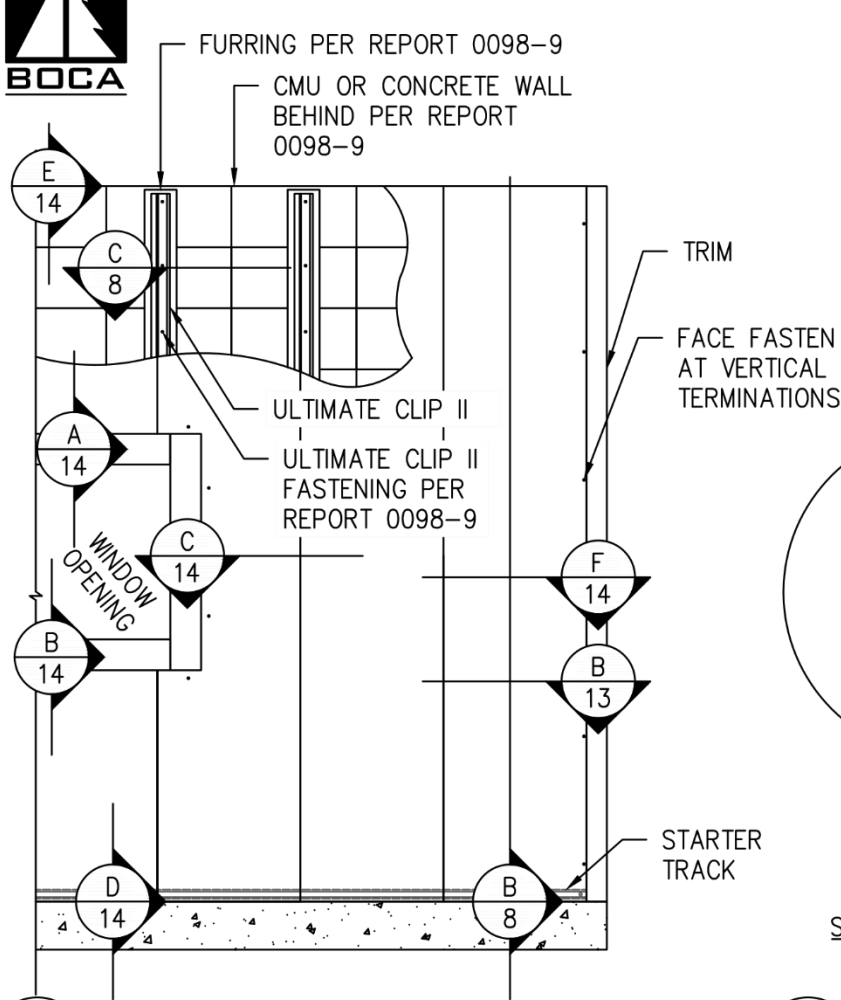
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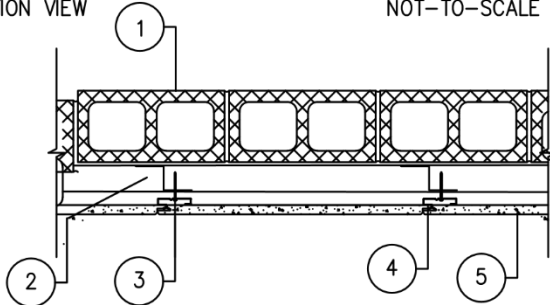
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VERTICAL WALL INSTALLATION INTERIOR TO EXTERIOR	
1	CMU/CONCRETE WALL PER EVALUATION REPORT
2	HAT CHANNEL FASTENING #10-1 1/2" SCREW @ 8" O.C.
3	18 GA HAT CHANNEL
4	STARTER TRACK FASTENING #10-1 1/2" SCREW @ 8" O.C.
5	FA 710-T VERTICAL STARTER TRACK
6	AWP VERTICAL CLADDING

A 8 AWP VERT. INSTALL INTO FURRING AND CONCRETE ELEVATION VIEW NOT-TO-SCALE

B 8 AWP VERT. INSTALL INTO FURRING AND CONCRETE SECTION VIEW NOT-TO-SCALE



C 8 AWP VERT. INSTALL INTO STEEL FURRING AND CONCRETE/CMU PLAN VIEW NOT-TO-SCALE

CMU/CONCRETE WALL INSTALLATION INTERIOR TO EXTERIOR	
1	CMU/CONCRETE WALL PER EVALUATION REPORT
2	STEEL FURRING PER EVALUATION REPORT
3	CLIP FASTENING PER EVALUATION REPORT
4	ULTIMATE CLIP II WITH FASTENERS PER REPORT ASSEMBLIES
5	AWP VERTICAL CLADDING

NOTE:
1. FURRING FASTENING NOT SHOWN FOR CLARITY

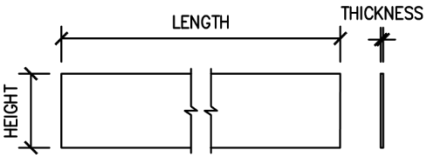
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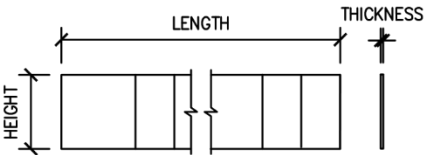


LENGTH (IN.)	HEIGHT (IN.)	THICKNESS (IN.)
112"	6 $\frac{1}{4}$ ", 7 $\frac{1}{4}$ ", 8 $\frac{1}{4}$ "	$\frac{1}{2}$ "



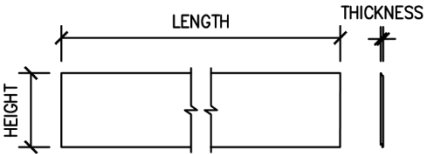
A
9 SAVANNAH SMOOTH SIDING DIMENSIONS
NOT-TO-SCALE

LENGTH (IN.)	HEIGHT (IN.)	THICKNESS (IN.)
112"	8 $\frac{7}{8}$ "	$\frac{1}{2}$ "



B
9 SIERRA SHAKE SIDING DIMENSIONS
NOT-TO-SCALE

LENGTH (IN.)	HEIGHT (IN.)	THICKNESS (IN.)
71 $\frac{15}{16}$ ", 119 $\frac{5}{16}$ "	17 $\frac{7}{8}$ "	$\frac{5}{8}$ "



C
9 AWP SIDING DIMENSIONS
NOT-TO-SCALE

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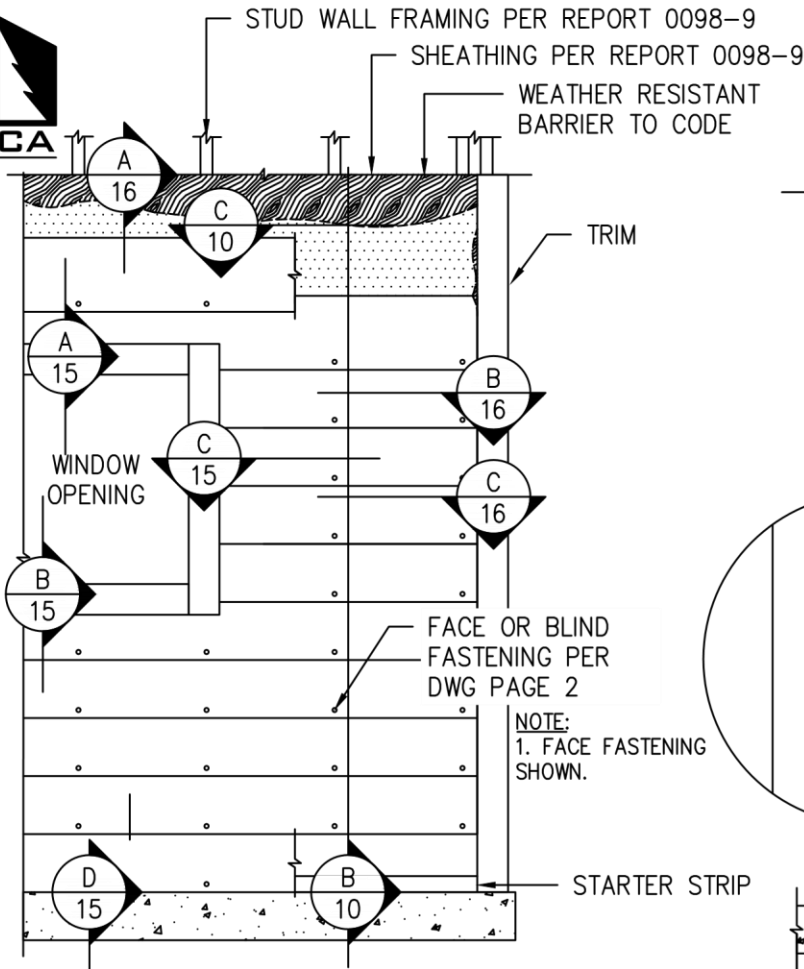
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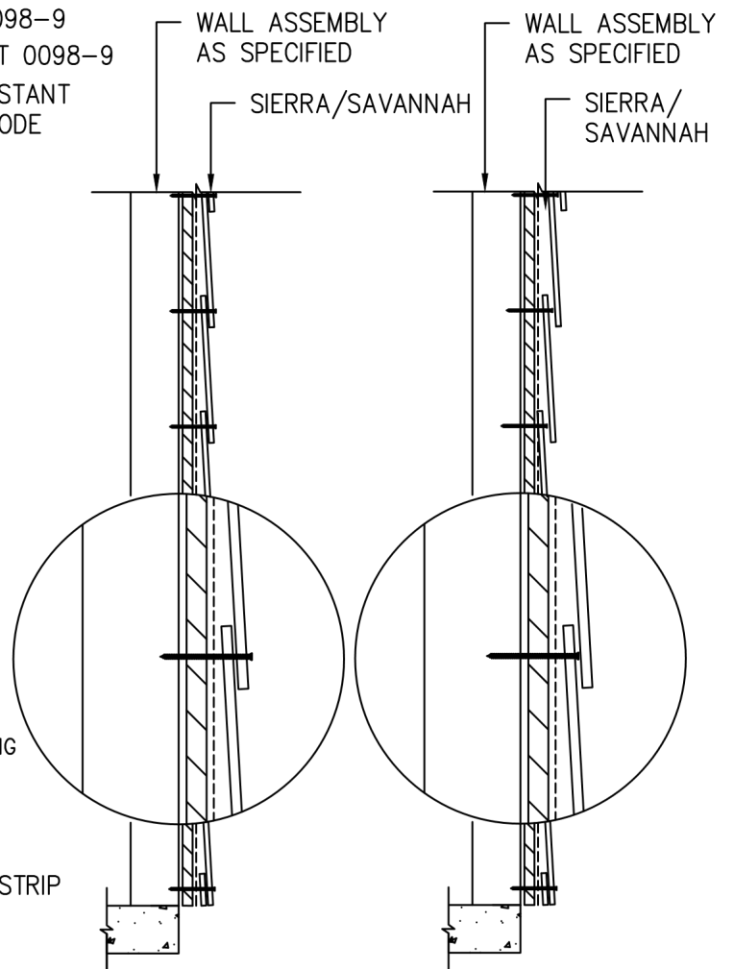
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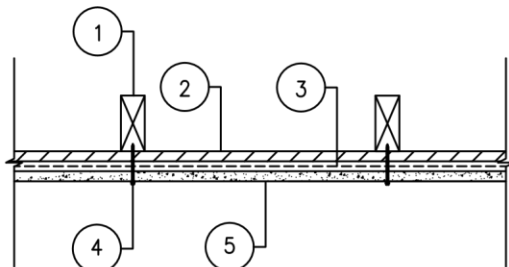
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A
10 SIERRA/SAVANNAH INSTALL INTO WOOD OR STEEL STUDS
ELEVATION VIEW NOT-TO-SCALE



B
10 SIERRA/SAVANNAH INSTALL INTO WOOD OR STEEL STUDS
SECTION VIEW NOT-TO-SCALE



C
10 SIERRA/SAVANNAH INSTALL INTO WOOD STUDS
PLAN VIEW NOT-TO-SCALE

LIGHT-FRAMED STUD WALL INSTALLATION INTERIOR TO EXTERIOR

1	WOOD/STEEL STUDS PER EVALUATION REPORT
2	PLYWOOD SHEATHING PER EVALUATION REPORT
3	WEATHER RESISTANT BARRIER TO CODE
4	SIDING FASTENING PER EVALUATION REPORT
5	SIERRA/SAVANNAH LAP SIDING

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		DRN. CC
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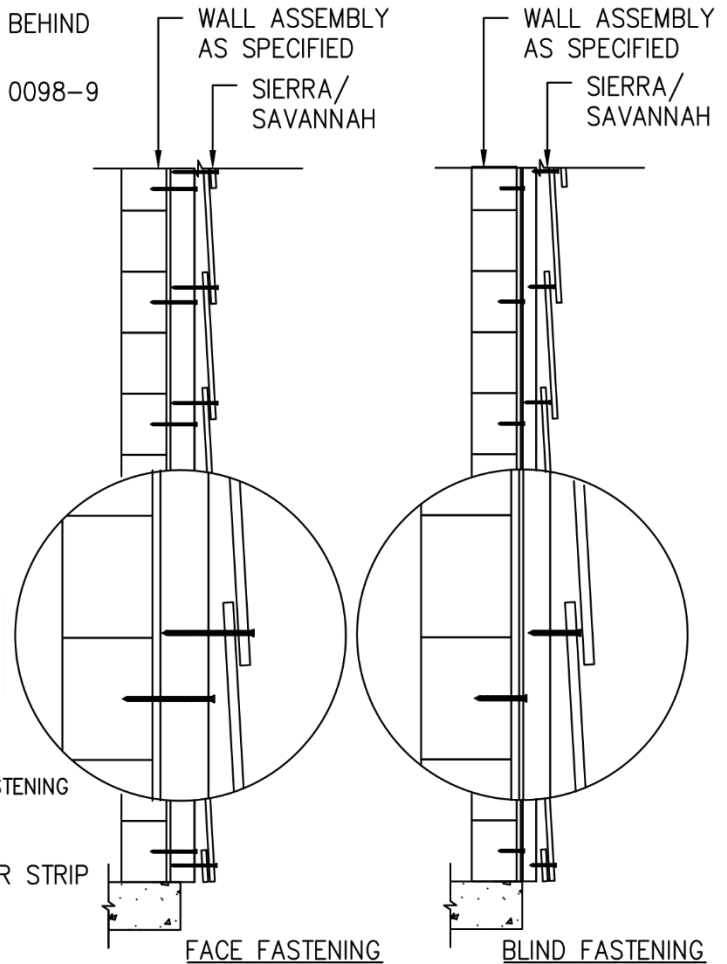
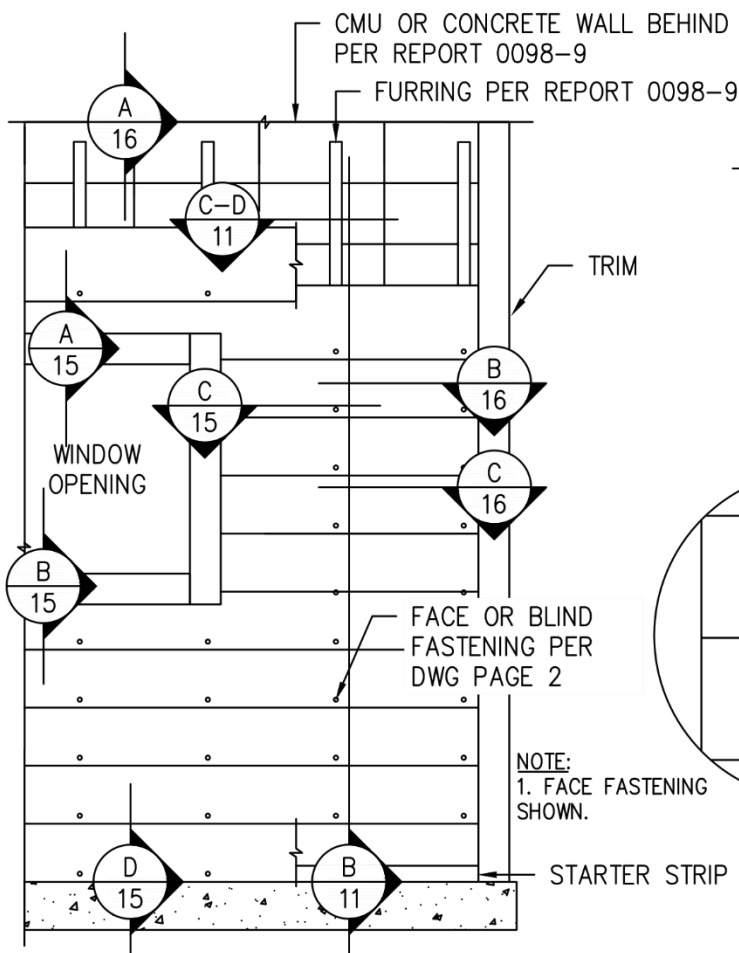
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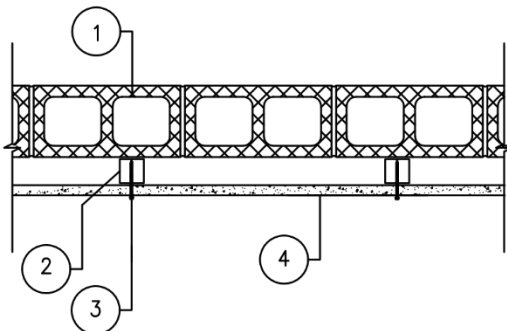
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2026-03-04



A
11
SIERRA/SAVANNAH INSTALL INTO CMU OR CONCRETE WALL
ELEVATION VIEW
NOT-TO-SCALE



B
11
SIERRA/SAVANNAH INSTALL INTO CMU OR CONCRETE WALL
SECTION VIEW
NOT-TO-SCALE

CMU/CONCRETE WALL INSTALLATION INTERIOR TO EXTERIOR	
1	CMU OR CONCRETE WALL PER EVALUATION REPORT
2	WOOD/STEEL FURRING PER EVALUATION REPORT
3	SIDING FASTENING PER EVALUATION REPORT
4	SIERRA/SAVANNAH LAP SIDING

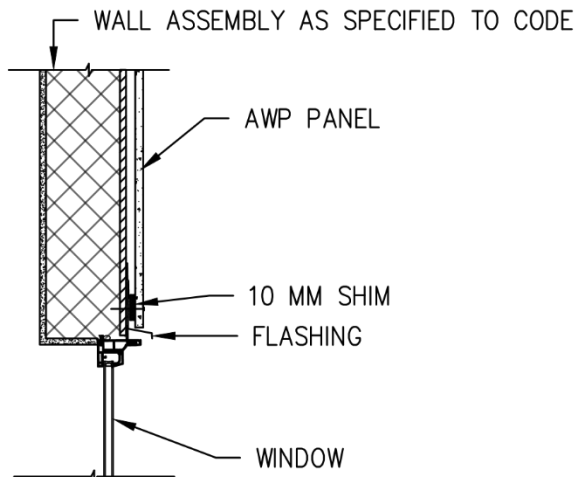
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SIERRA/SAVANNAH INSTALL INTO WOOD FURRING AND CONCRETE
PLAN VIEW
NOT-TO-SCALE

NOTE:
1. FURRING FASTENING NOT SHOWN FOR CLARITY

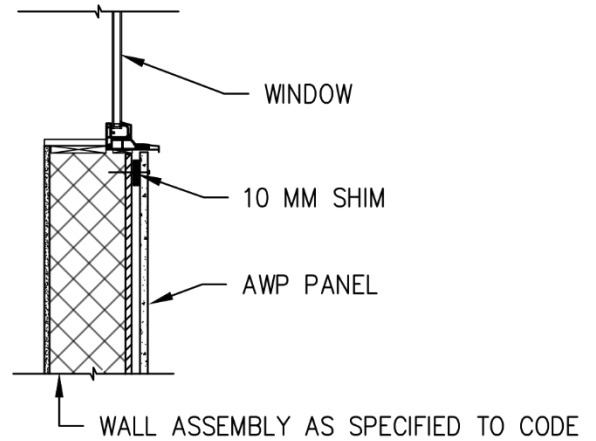
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DRAWING NO.		SHEET NO.		SCALE	DES.	DRN.	CHK.
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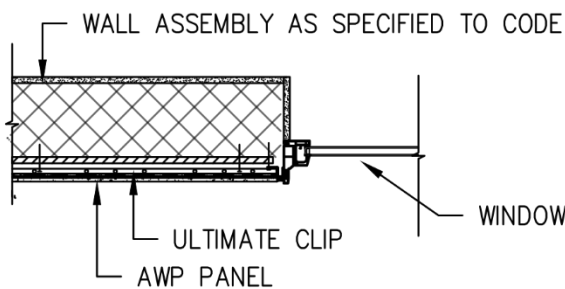
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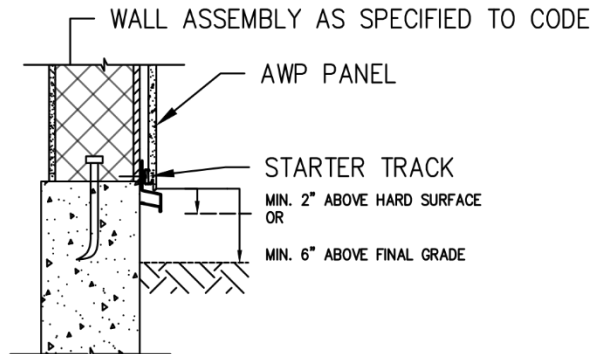
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AWP HORIZ. INSTALL WINDOW HEAD
SECTION VIEW NOT-TO-SCALE



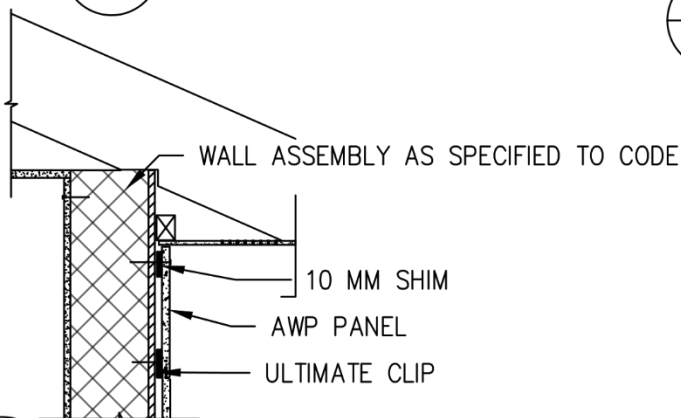
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AWP HORIZ. INSTALL WINDOW SILL
SECTION VIEW NOT-TO-SCALE



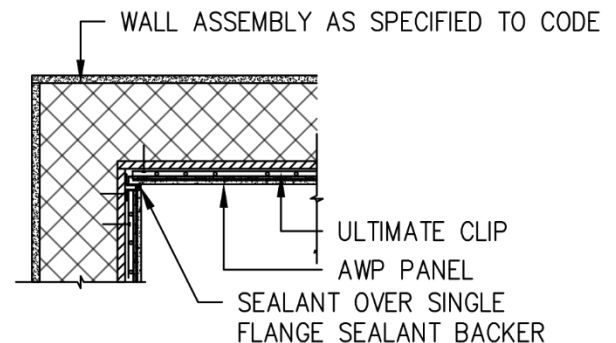
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AWP HORIZ. INSTALL WINDOW JAMB
PLAN VIEW NOT-TO-SCALE



D
12
AWP HORIZ. INSTALL BOTTOM OF WALL TERMINATION
SECTION VIEW NOT-TO-SCALE



E
12
AWP HORIZ. INSTALL TOP OF WALL TERMINATION
SECTION VIEW NOT-TO-SCALE

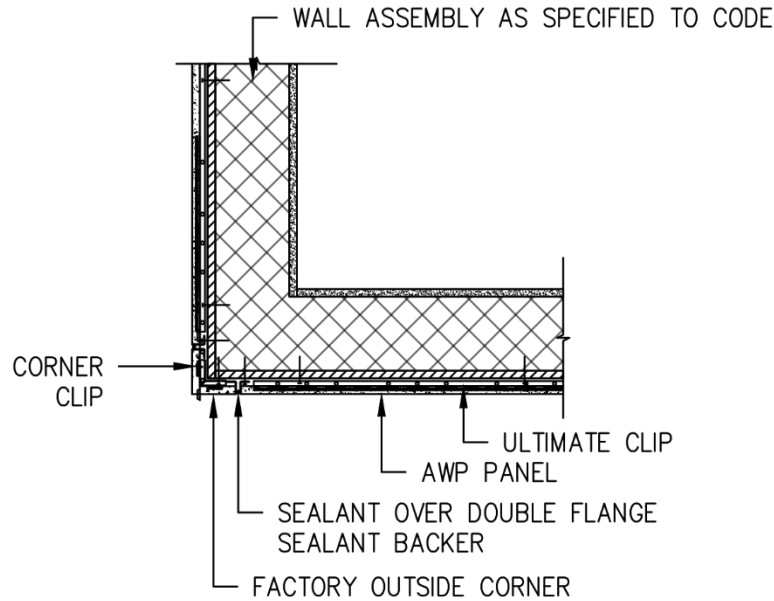


F
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AWP HORIZ. INSTALL INSIDE CORNER DETAIL
PLAN VIEW NOT-TO-SCALE

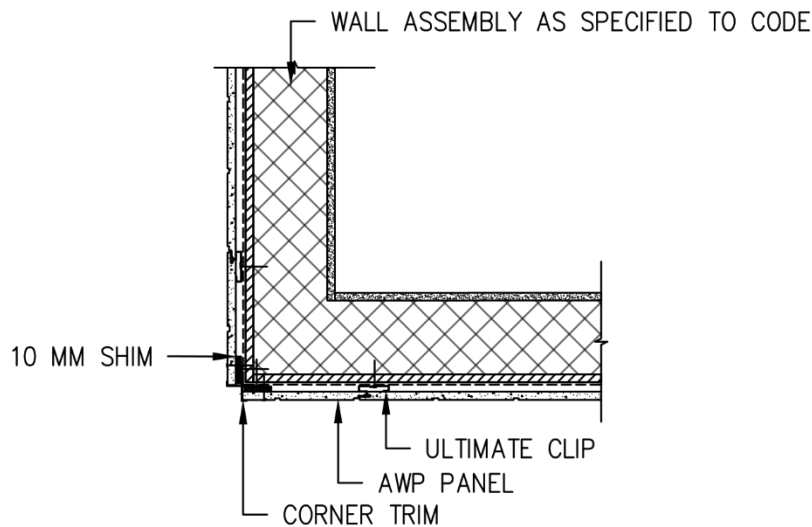
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DESIGN DOCUMENTS



A
13
AWP HORIZ. INSTALL OUTSIDE CORNER DETAIL
PLAN VIEW
NOT-TO-SCALE



B
13
AWP VERT. INSTALL OUTSIDE CORNER DETAIL
PLAN VIEW
NOT-TO-SCALE

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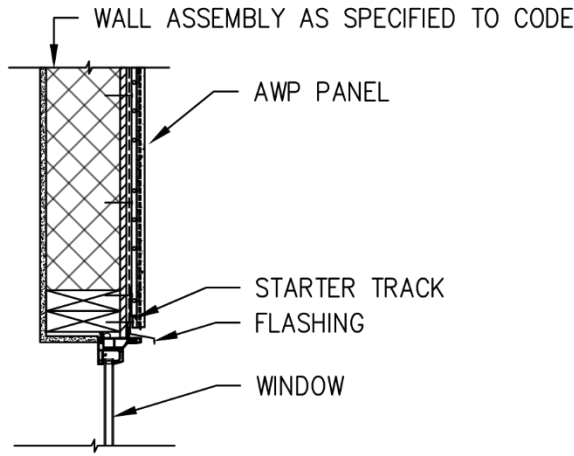
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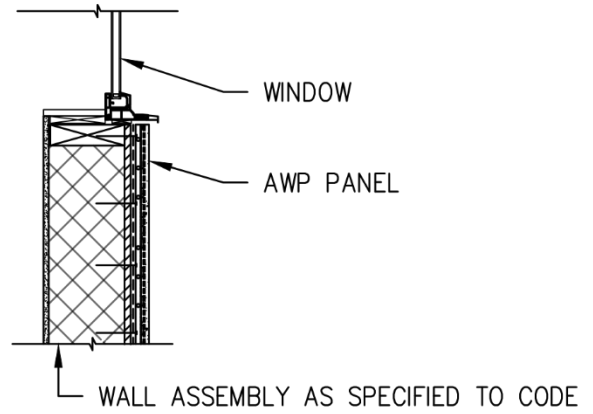
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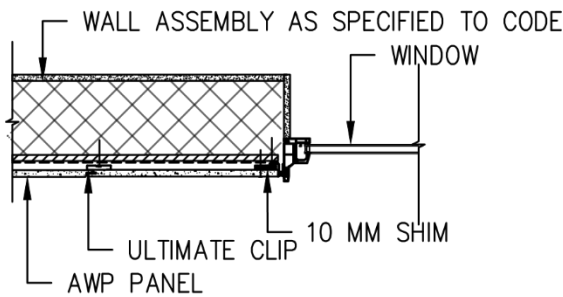
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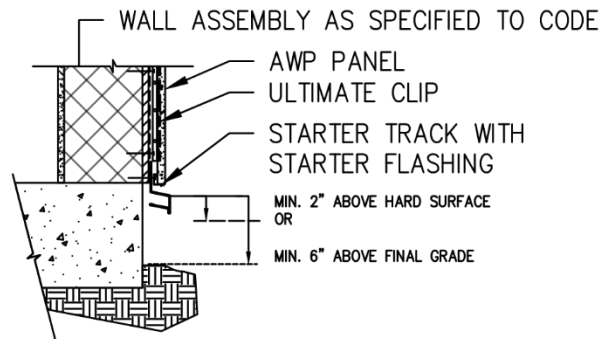
A
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AWP VERT. INSTALL WINDOW HEAD
SECTION VIEW NOT-TO-SCALE



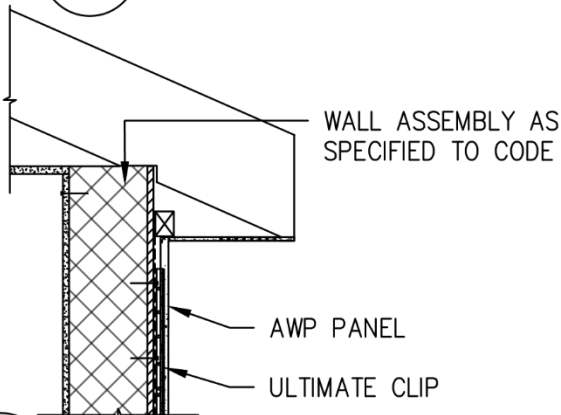
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AWP VERT. INSTALL WINDOW SILL
SECTION VIEW NOT-TO-SCALE



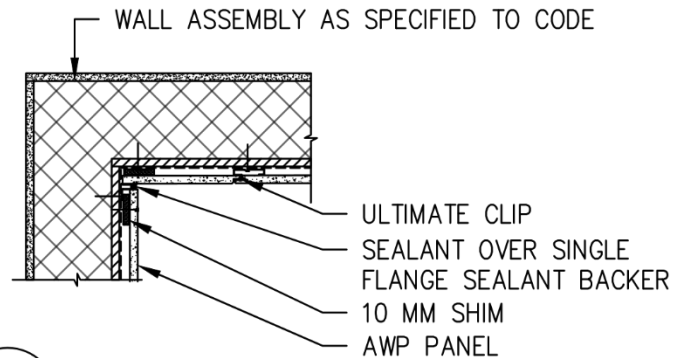
C
14
AWP VERT. INSTALL WINDOW JAMB
PLAN VIEW NOT-TO-SCALE



D
14
AWP VERT. INSTALL BOTTOM OF WALL TERMINATION
SECTION VIEW NOT-TO-SCALE



E
14
AWP VERT. INSTALL TOP OF WALL TERMINATION
SECTION VIEW NOT-TO-SCALE



F
14
AWP VERT. INSTALL INSIDE CORNER DETAIL
PLAN VIEW NOT-TO-SCALE

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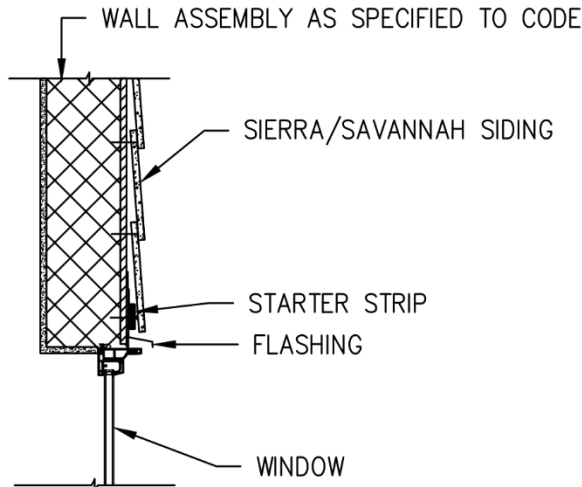
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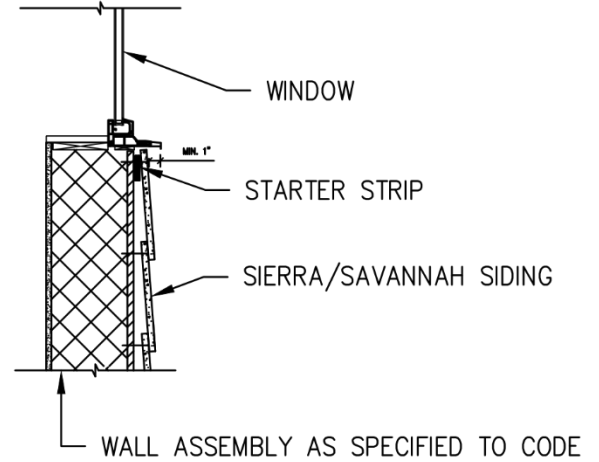
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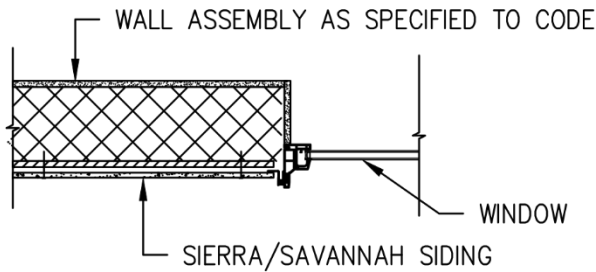
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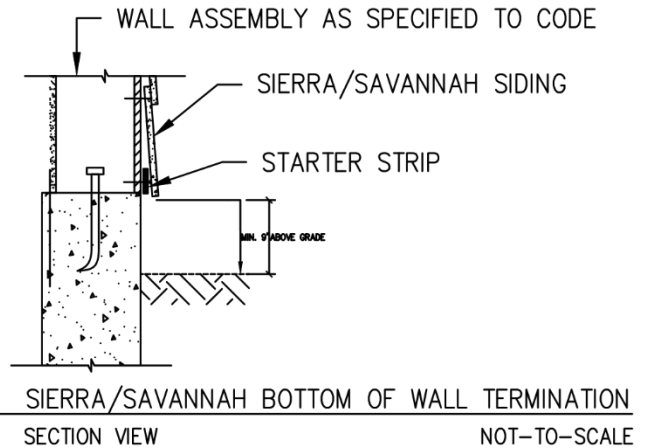
A
15
SIERRA/SAVANNAH WINDOW HEAD
SECTION VIEW NOT-TO-SCALE



B
15
SIERRA/SAVANNAH WINDOW SILL
SECTION VIEW NOT-TO-SCALE



C
15
SIERRA/SAVANNAH WINDOW JAMB
PLAN VIEW NOT-TO-SCALE



D
15
SIERRA/SAVANNAH BOTTOM OF WALL TERMINATION
SECTION VIEW NOT-TO-SCALE

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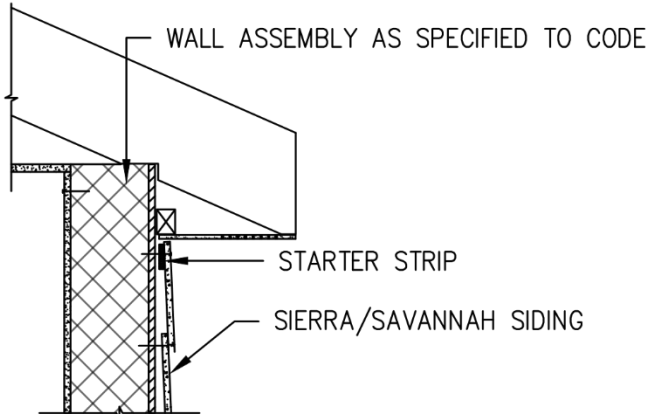
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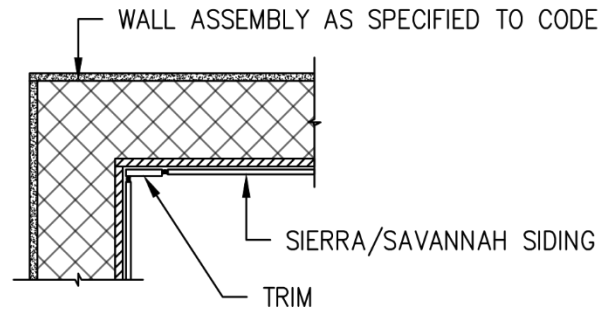
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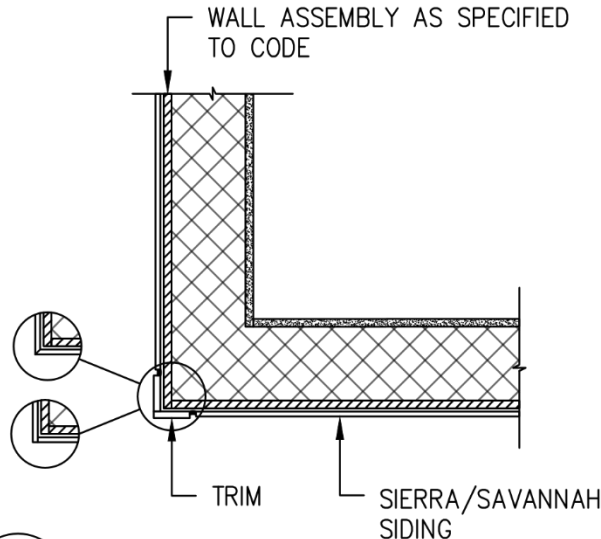
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A
16
SIERRA/SAVANNAH TOP OF WALL TERMINATION
SECTION VIEW
NOT-TO-SCALE



B
16
SIERRA/SAVANNAH INSIDE CORNER DETAIL
PLAN VIEW
NOT-TO-SCALE



C
16
SIERRA/SAVANNAH OUTSIDE CORNER DETAIL
PLAN VIEW
NOT-TO-SCALE

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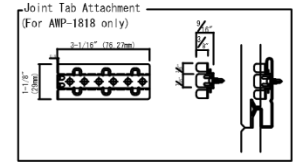
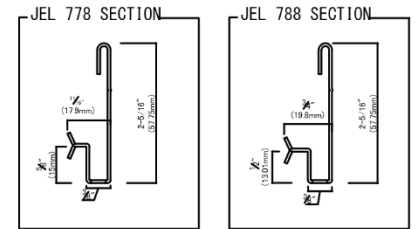
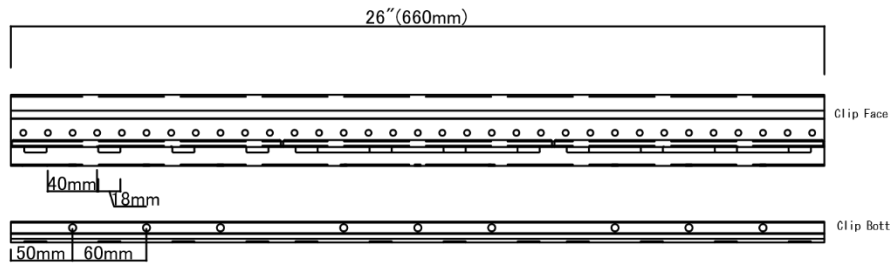
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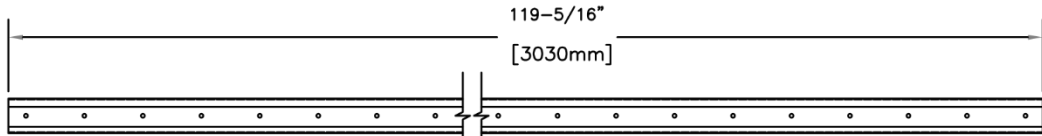
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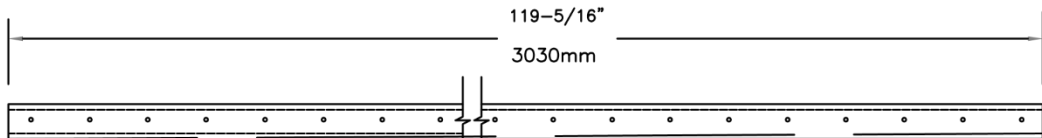
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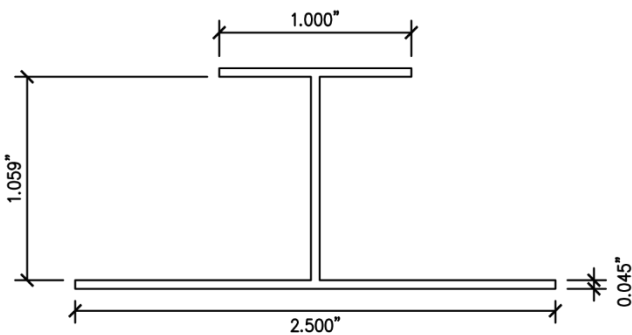
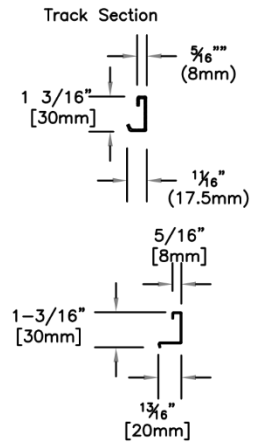
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17 AWP CLIPS – JEL778 AND JEL788
NOT-TO-SCALE



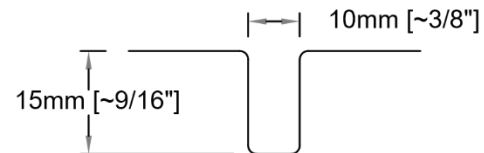
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17 ULTIMATE HORIZONTAL STARTER TRACK – FA700
NOT-TO-SCALE



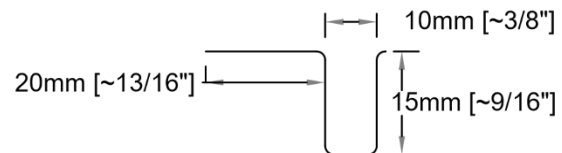
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17 ULTIMATE VERTICAL STARTER TRACK – FA710T
NOT-TO-SCALE



D
17 H-MOLD
NOT-TO-SCALE



E
17 DOUBLE FLANGE SEALANT BACKER – FH1015R
NOT-TO-SCALE



F
17 SINGLE FLANGE SEALANT BACKER – FHK1015R
NOT-TO-SCALE

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DESIGN LOADS	
LIVE	SEE EVALUATION REPORT
SNOW	
WIND	
SEISMIC	
TEMPERATURE	

ABBREVIATIONS

CONT	CONTINUOUS	O.C.	ON CENTER
EA	EACH	P.T.	PRESSURE TREATED
E/W	EACH WAY	S.G.	SPECIFIC GRAVITY
EXT.	EXTERIOR	SPEC.	SPECIFICATION
INT.	INTERIOR	NO.	TYPICAL
MAX	MAXIMUM	U.N.O.	UNLESS NOTED OTHERWISE
MIN	MINIMUM	W/	WITH
NO.	NUMBER		

LEGEND AND SYMBOLS

TESTING AND CODE COMPLIANCE

1. THE PRODUCT ASSEMBLY SHOWN HAS BEEN EVALUATED ACCORDING TO TEST STANDARDS AS OUTLINED IN THE EVALUATION REPORT.
2. THE STRUCTURAL FRAMING AND SHEATHING SHALL BE DESIGNED AND ANCHORED TO PROVIDE LATERAL BRACING AND PROPERLY TRANSFER ALL LOADS TO THE STRUCTURE. FRAMING DESIGN AND INSTALLATION IS THE RESPONSIBILITY OF THE ENGINEER OR ARCHITECT OF RECORD FOR THE PROJECT OF INSTALLATION.
3. THESE DRAWINGS APPLY TO THE TESTING ASSEMBLY ONLY AND DO NOT IMPLY THAT THE SIGNATORY ENGINEER IS THE DESIGNER OF RECORD FOR ANY FUTURE CONSTRUCTION ON WHICH THEY ARE USED.
4. SOME NON-STRUCTURAL COMPONENTS NOT SHOWN AND DO NOT IMPACT STRENGTH FOR ATTACHMENT. TO BE INSTALLED PER CODE AND MAY INCLUDE: FLASHING, INTERIOR INSULATION, INTERIOR FINISH.

INSTALLATION

THE INSTALLATION DETAILS DESCRIBED ARE OF THE LABORATORY TESTED ASSEMBLY AND MAY NOT REFLECT ACTUAL CONDITIONS FOR A SPECIFIC SITE. IF SITE CONDITIONS DEVIATE FROM THE REQUIREMENTS DETAILED HEREIN, THE LICENSED ENGINEER OR ARCHITECT PREPARED SITE-SPECIFIC DOCUMENTS SHALL BE USED.

SHEATHING

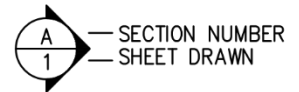
WOOD-BASED STRUCTURAL SHEATHING TO CONFORM TO US DOC PS1 OR PS2 U.N.O

FASTENERS

1. WOOD SCREWS: ASME B18.6.1
2. METAL SCREWS: AISI S240, ASTM C1513
3. ALL FASTENERS CORROSION-RESISTANT OR STAINLESS STEEL

FRAMING/WALL

1. WOOD FRAMING: MIN. 2x4 S.G. 0.42, COMPLIANCE WITH US PRODUCT STANDARD PS 20
2. METAL FRAMING: MIN. 18 GAUGE U.N.O., $F_y = 33\text{ksi}$, COMPLIANCE WITH AISI S100
3. CMU WALL: LIGHT-WEIGHT OR MEDIUM-WEIGHT, COMPLIANCE WITH ASTM C90
4. CONCRETE WALL: MIN. 2500 PSI, COMPLIANCE WITH ACI 318



FIBER CEMENT

1. FIBER CEMENT CLADDING, COMPLIANCE WITH ASTM C1186 GRADE A TYPE 2



AWP CLIPS

1. SHEET METAL: $\frac{3}{16}$ " THICK, $F_y = 27.5\text{ksi}$, COMPLIANCE WITH ASTM A568
2. ZAM CORROSION RESISTANCE COATING, COMPLIANCE ASTM A1046

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					ISSUE		APP	
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ATTACHMENT 4: DISCUSSION OF TESTING AND DESIGN EVALUATION PROCEDURE

Testing

ASCE7 and the IBC provide guidance information of how to undertake a testing and engineering design analysis to make determining conclusions to the Code requirements covered in this report. IRC R703.1.2 specifies that exterior siding wind pressure resistance is to be determined by testing to ASTM E330, that all applicable failure modes including bending rupture of the siding, fastener withdrawal and fastener head pull-through shall be considered, and that use of the design capacity of the wall covering assembly is permitted. IBC Ch 17 and Ch 35 also reference the ASTM E330 standard. The code clearly defines the loading criteria for exterior cladding.

The failure mode in all tests performed was fiber-cement panel shear breakage at the edges and some steel clip bending was observed. Test load factors are set to meet or exceed the ASD safety factors (Ω) set within the respective code-referenced standard for the respective loading/stress conditions of the components (when one exists). The fastening screws and clips are steel, therefore safety factors from AISC 360 are applied to these components. Where multiple failure modes may occur in system testing with a variety of materials that may or may not possess a national standard with published safety factors for the stress modes at play, it is convenient to choose a system safety factor based on comparing the available safety factors for components and using industry practice knowledge available for system testing. ASTM E330 wind pressure testing of exterior siding systems typically employs a safety factor of 2 on the average failure loads when the lesser test value of the average of three assembly tests is no less than 15% of the average. Fiber-cement standard ASTM C1186 does not publish recommended safety factors to apply to bending and shear stresses in fiber-cement. The respective minimum test load factors become:

Components	Stress Type	Ω ASD Safety Factor	Ref. Standard /Section
Steel Clips	Bending (rupture)	1.67	AISC 360, F1
Steel Fasteners	Tension (rupture)	2.0	AISC 360, J3.7
Fiber-Cement System failure	Shear, Bending	2.0	ASTM E330 (common practice)

By review of the table, it is shown that the appropriate system test factor is 2.0 to the service-level design loads. The average test load of sets of three were used and verified that they lesser test value was no less than 15% of the average.

Wall Framing Component Strength of Attachments

The maximum design wind pressures published in the report are exclusive to the tested strength of the cladding materials and the connection strength in to the wall framing. In many cases the actual design wind pressure would be less than the capacity of the cladding system. In any such and all cases in a building design, the actual design pressure imparted by the cladding in to the building framing (and all other forces imparted in to the framing) should be used to design the building framing members.

There are many variables that would be considered in the building frame design. The minimum framing members specified in this report to accept the cladding attachment forces would not necessarily adequately serve the overall building design loads and deflection limits. This is why the design tables and diagrams in the report advise that design capacity of “the building framing is outside the scope of this report and must be designed and installed for the applicable wind, climate and occupancy loads” of the building project. The variables in the framing design, including but not limited to the height of walls, whether they are vertical load-bearing or non-bearing, and the contribution of other climate loads along with the wind force transferred through the cladding, must all be taken in to account when specifying the structural components that the cladding will attach in to.



Deflection Limits

The bending deflection limits set for this design evaluation are $L/180$ for the deflection of the wall frame, and $L/60$ for the differential movement of the cladding member relative to the wall frame. With these deflection limits tested at the maximum wall height of 10 ft and cladding anchorage spans of 16 or 18 inches, the cladding panels were found to not dislodge or distort and return to the set position after releasing the service-level design loads as published. In-plane lateral deflection limits of the system were not assessed.



ATTACHMENT 5: FLORIDA TO INTERNATIONAL CODE CROSS-REFERENCES

Table 6: 2023 FBC to 2024 IBC Cross-referenced Sections

2023 FBC Section	2024 IBC Section	Description	Referenced Standard or Code Section	Year	IBC Comparison to FBC
703.2	703.2	Fire-Resistance Ratings	ASTM E119	2018b	Article content same as IBC
1403.2	1402.2	Weather Protection	ASTM E331	2000(R16)	Article content same as IBC
1403.3	1402.3	Wind Resistance	FBC Ch 16	-	Article content same as IBC
1404.10	1403.9	Fiber-cement Siding	ASTM C1186	2008(R16)	Article content same as IBC
1405.1	NA	Installation of Wall Coverings, General (HVHZ)	TAS 202, 203	1994	Section added in FBC
1405.2	1404.2	Weather Protection	FBC Ch 16	-	Article content same as IBC
1405.16.1	1404.17.1	Fiber-cement Siding, Panel Siding	ASTM C1186	2008(R16)	Article content same as IBC
1405.16.2	1404.17.2	Fiber-cement Siding, Lap Siding	ASTM C1186	2008(R16)	Article content same as IBC
1410.2	1412.2	General Wind Requirements	FBC Ch 16	-	Article content same as IBC
1410.4	1412.4	Fiber-Cement Soffit Panels	ASTM C1186	2008(R16)	Article content same as IBC
1609.1.1	1609.1.1	Determination of Wind Loads	ASCE 7	2022	Article content same as IBC
1609.1.3	NA	Testing to Allowable or Nominal Loads	ASCE 7	2022	Section added in FBC
1620.3	NA	Wind Loads (HVHZ)	ASCE 7	2022	Section added in FBC
1625.2	NA	Load Tests, Testing Method (HVHZ)	TAS 202	1994	Section added in FBC
1625.4	NA	Fatigue Load Testing (HVHZ)	TAS 203	1994	Section added in FBC
1626.2	NA	Large Missile Impact Tests for Wind-Borne Debris (HVHZ)	TAS 201, 203	1994	Section added in FBC
1626.4	NA	Construction Assemblies Deemed to Comply with Section 1626 (HVHZ)	FBC Ch 22, 23	-	Section added in FBC
1709.2	1709.2	Load Test Procedures Specified	ASTM E330 (TAS 202)	2014	Article content same as IBC

Table 7: 2023 FBC-R to 2024 IRC Cross-referenced Sections

2023 FBC-R Section	2024 IRC Section	Description	Referenced Standard or Code Section	Year	IRC Comparison to FBC-R
R302	R302	Fire-Resistance Ratings	ASTM E119	2018b	Article content same as IBC
R703.1.1	R703.1.1	Exterior Covering, Water Resistance	ASTM E331	2000(R16)	Article content same as IBC
R703.1.2	R703.1.2	Exterior Covering, Wind Resistance	ASTM E330 (TAS 202)	2014	Article content same as IBC
R703.1.2	R703.1.2	Exterior Covering, Wind Resistance	Tables R301.2(2) & R301.2(3)	-	Article content same as IBC
Table R703.3(1)	Table R703.3(1)	Siding Minimum Attachment and Minimum Thickness	R703.10.1 & R703.10.2	-	Article content same as IBC
R703.10.1	R703.10.1	Fiber cement siding – Panel Siding	ASTM C1186	2008(R16)	Article content same as IBC
R703.10.2	R703.10.2	Fiber cement siding – Lap Siding	ASTM C1186	2008(R16)	Article content same as IBC



R704.2.2	R704.2.2	Fiber cement exterior soffit panels	ASTM C1186	2008(R16)	Article content same as IBC
R4401.1	NA	High Velocity Hurricane Zone – Exterior Wall Coverings (HVHZ)	FBC Ch 14	-	Section added in FBC

2023 FBC Supplementary Code Section Review

<u>FBC Section</u>	<u>Description</u>
1405.1	Installation of Wall Coverings, General (HVHZ) General installation instructions comply with the provisions of this section, and HVHZ assemblies comply with TAS 202 and 203, see this report commentary to FBC 1625 & 1626.
1609.1.3	Testing to Allowable or Nominal Loads The ASD conversion factor of tested allowable loads has been applied in accordance with this code section.
1620.3	Wind Loads (HVHZ) Wind load pressure (psf) applied to the cladding for use with the design values published in this report are determined in accordance with Chapter 30 of ASCE 7. Buildings in exposure category B, are considered to be in exposure category C for HVHZ applications.
1625.2	Load Tests, Testing Method (HVHZ) The representative test assemblies for HVHZ applications were tested to FBC standard TAS 202 and achieved an allowable pressure rating as described in <i>ATTACHMENT 2: WIND PRESSURE AND WIND SPEED TABLES</i> .
1625.4	Fatigue Load Testing (HVHZ) The representative test assemblies for HVHZ applications were tested to FBC standard TAS 203 following the load sequencing of FBC 1625.4. See in <i>ATTACHMENT 2: WIND PRESSURE AND WIND SPEED TABLES</i> .
1626.2	Large Missile Impact Tests for Wind-Borne Debris (HVHZ) The representative test assembly for HVHZ application was tested in accordance with TAS 203 and the assembly exercises the provisions in FBC 1626.4.
1626.4	Construction Assemblies Deemed to Comply with Section 1626 (HVHZ) Exterior wall sheathing of wall assemblies with Nichiha Siding in the HVHZ is specified as a minimum of 5/8-inch CD exposure 1 plywood with an approved water-resistant barrier, and are found to satisfy this code section and TAS 203.
<u>FBC-R Section</u>	<u>Description</u>
R4401.1	High Velocity Hurricane Zone – Exterior Wall Coverings (HVHZ) Refers user to FBC Ch 14. See this report commentary to FBC 1405.1.



2023 FBC Supplementary Limitations Section

1. Nichiha exterior wall claddings used in light-framed wall construction, HVHZ, shall be installed over minimum 19/32-inch (15 mm) CD exposure 1 plywood, and framing shall be in accordance with the HVHZ sections of FBC Ch 22 or 23.
2. Clearance between exterior wall coverings and final earth grade on the exterior of a building shall not be less than 6 inches, in accordance with FBC 1403.8.

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