FLORIDA BUILDING CODE
ENGINEERING EVALUATION REPORT

Date	2023-10-06
Expiry Date	2026-12-31
Report Number	0093-3-2-5951
Client Name	FastPlank Inc.
Address	101-4441 76th Ave SE, Calgary, AB T2C 2G8

Subject

FastPlank Systems aluminum exterior wall cladding

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 product(s) described herein have been evaluated to the 2023 Florida Building Code (FBC) and Residential Code (FBC-R).

CSI DIVISION: 07 00 00 THERMAL AND MOISTURE PROTECTION
SUBDIVISION: 07 46 16 Aluminum Siding

FBC CATEGORY: Panel Walls
SUB-CATEGORY: Siding

CODE SECTIONS AND STANDARDS:

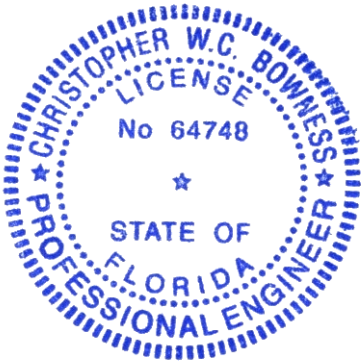
FBC Section	Description	Referenced Standard or Code Section[1]	Year
703.5.1	Non-Combustibility Tests	ASTM E136 ASTM E84	2019 2018b
1403.2	Exterior Walls, Weather Protection	ASTM E331	2009
1403.3	Exterior Walls, Structural	FBC Ch 16	-
1404.5.1	Aluminum Siding	AAMA 1402	2009
1405.1	Installation of Wall Coverings, General (HVHZ)	TAS 202, 203	1994
1405.2	Installation of Wall Coverings, Weather Protection	Table 1405.1	-
1609.1.1	Determination of Wind Loads	ASCE 7	2022
1609.1.3	Testing to Allowable or Nominal Loads	ASCE 7	2022
1620.3	High-Velocity Hurricane Zones-Wind Loads	ASCE 7	2022
1625.2	Load Tests, Testing Method (HVHZ)	TAS 202	1994
1625.4	Fatigue Load Testing (HVHZ)	TAS 203	1994
1626.2	Large Missile Impact Test	TAS 201, 203	1994
1709.2	Load Test Procedures Specified	ASTM E330 (Ch 35)	2014
2022.1	Aluminum General	AA ADM 1	2020

FBC-R Section	Description	Referenced Standard or Code Section[1]	Year
R202	Noncombustible Material (Def.)	ASTM E136	2016
R703.1.1	Water Resistance	ASTM E331	2009
R703.1.2	Wind Resistance	ASTM E330	2014
R703.1.2	Wind Resistance	Tables R301.2(2) & R301.2(3)	-
R703.3	Siding Minimum Attachment and Minimum Thickness	Table R703.3(1)	-
R703.3.1	Wind Limitations	Tables R703.3.1, R301.2(2) & R301.2(3)	-
R4401.1	High Velocity Hurricane Zone – Exterior Wall Coverings (HVHZ)	FBC Ch 14	-

1. Only the applicable reference standards and code sections sited 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 FastPlank Systems aluminum exterior wall cladding, installed as described in this report, has demonstrated compliance with the listed sections of the 2023 Florida Building Code (FBC) and Residential Code (FBC-R) inclusive of the requirements for High Velocity Hurricane Zone (HVHZ). Design and performance information can be found in the Product Evaluation section of this report.

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



Christopher Bowness, P.Eng., P.E.	2023-10-06	12-31-2026
	Issue Date	Expiry Date

EVALUATION REPORT TERMS

1. 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.
2. 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

1. Boca Engineering Co., it's 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.
2. Boca Engineering Co. is not owned, operated, or controlled by any company manufacturing or distributing products that they evaluate.

Contents

Product Evaluation

1.0 PRODUCT DESCRIPTION:

Fastplank Systems are aluminum siding planks with fastening clips and trim accessories, serving as an exterior wall covering. Planks are extruded 3/64-inch thick aluminum with a V-Notch™ profile, available in widths of 4-inch or 6-inch and 16-ft lengths. The plank exterior surface is typically finished with a powder-coat paint in a variety of colors.

2.0 INSTALLATION

2.1.1 Siding planks shall be installed in accordance with the Florida Building Code, manufacturer's published instructions and this report, subject to the Limitations in Section 3.

2.1.2 Wall framing construction and water resistive barrier for which the cladding are to be installed over shall be designed and installed in accordance with the Florida Building Code.

2.1.3 ASSEMBLY INSTALLATION DETAILS WITH DESIGN WIND PRESSURE
See attachment 1 of this report, Tables 1.1 - 2.3 and assembly diagrams.

3.0 CODE SECTIONS REVIEW:

FBC Section	Description
703.5.1	**Non-Combustibility Tests** FastPlank siding planks uncoated have been tested to and met the definition criteria as non-combustible in accordance with ASTM E136. FastPlank siding planks coated with the typical paint exterior surface finish which measures less than the ¼-inch maximum thickness, has a flame spread index not greater than 50 when tested in accordance with ASTM E84 resulting within the definition as noncombustible material.
1403.2	**Exterior Walls, Weather Protection** A representative wall construction assembly with FastPlank 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 FBC 1403.2 Exception 2. The tested assembly meets the criteria and conforms to this code section.
1403.3	**Exterior Walls, Structural** The structural design loads described in this report are in accordance with Ch 16 of the FBC.

1404.5.1 **Aluminum Siding**
FastPlank siding has been tested and conforms to the requirements of AAMA 1402. The allowable design pressures published in this report have incorporated the modification stated in FBC 1404.5.1.

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.

1405.2 **Installation of Wall Coverings, Weather Protection**
FastPlank siding plank nominal thickness of 0.0469-inches exceeds the minimum thickness for aluminum siding (0.019-inches) listed in Table 1405.2. The proprietary corrosion-resistant fastening system has been tested to the code-level environmental loading criteria.

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.

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 **High-Velocity Hurricane Zones-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 with exception to buildings in exposure category B, which are considered to be in exposure category C for HVHZ applications.

1625.2 **Load Tests, Testing Method (HVHZ)**
A representative test assembly for HVHZ applications was tested to FBC standard TAS 202.

1625.4 **Fatigue Load Testing (HVHZ)**
The representative test assembly for HVHZ applications was tested to FBC standard TAS 203 following the load sequencing of FBC 1625.4.

1626.2 **Large Missile Impact Test**
The representative test assembly for HVHZ applications was tested to FBC standards TAS 201 and TAS 203 for large missile impact and complied with the criteria of FBC 1626.2. Wood-based structural sheathing of 7/16-inch thickness was installed in the test assembly, providing for a tested alternative solution substitution to FBC 1626.4 and 2322.3 specified minimum 19/32-inch (15 mm) CD exposure 1 plywood sheathing which does not require impact testing.

1709.2	**Load Test Procedures Specified** The load test procedure and load factors in FBC referenced standards ASTM E330 (non-HVHZ) and TAS 202 (HVHZ) were used.
2022.1	**Aluminum General** Design of structural components using aluminum material complies with AA ADM 1.

FBC-R Section	**Description**
R202	**Definitions - Noncombustible Material** FastPlank siding planks uncoated have been tested to and met the definition criteria as non-combustible in accordance with passing ASTM E136. Also see this report commentary to FBC 703.5.1 and 703.5.2. FastPlank
R703.1.1	**Water Resistance** Same as this report commentary to FBC 1403.2.
R703.1.2	**Wind Resistance** The load test procedure and load factors in FBC referenced standard ASTM E330 were used to determine allowable wind pressure.
R703.1.2	**Wind Resistance** Allowable wind pressure values published in this report may be used with Tables R301.2(2) and R301.2(3) for walls using an effective wind area of 10 square feet.
Table R703.3(1)	**Siding Minimum Attachment and Minimum Thickness** FastPlank siding plank nominal thickness of 0.0469-inches exceeds the minimum thickness for aluminum siding (0.019-inches) listed in Table R703.3(1). The proprietary corrosion-resistant fastening system has been tested to the code-level environmental loading criteria.
R703.3.1	**Wind Limitations** Where wind pressure exceeds 30 psf, see published allowable pressures in this report and further commentary to sections R703.1.2 and R703.3(1).
R4401.1	**High Velocity Hurricane Zone – Exterior Wall Coverings (HVHZ)** Refers user to FBC Ch 14. See this report commentary to FBC 1405.1.

3.1 SUPPLEMENTAL TESTING:

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

AAMA 508-21	**Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems** A Fastplank installation has been tested to and meets the criteria of AAMA 508-21, as further detailed in BOCA report 0093-17-1.

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 FastPlank siding, 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 FBC 1404.2 or R703.2, and flashing per FBC 1405.4 or R703.4.
4. Screws supplied with the siding planks are Ruspert coated corrosion-resistant in accordance with FBC 1405.17. The supplied screws must be used to install the siding planks and trim accessories.
5. 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.
6. FastPlank siding used in HVHZ light-framed wall construction shall be installed over minimum 7/16-inch CD exposure 1 plywood or product approved wood-based structural sheathing in accordance with FBC 2322.3, and framing shall be in accordance with the HVHZ sections of FBC Ch 22 or 23.
7. Scope of evaluation does not include siding applications where interior or exterior wall Fire Resistance rating is required.
8. 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.
9. Components of the wall assembly other the exterior cladding may be combustible and must comply with the requirements of the applicable FBC code sections.

5.0 FIRE CLASSIFICATION:

Summary of fire performance classifications found by testing to code referenced standards:
ASTM E136: Unfinished plank meets definition of non-combustible.
ASTM E84: Flame Spread Index (FSI): < 25, Smoke Developed Index (SDI): < 450, Class A

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:

Calgary, AB

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.	Issued Date
Intertek	IAS TL-274	ASTM E136	104572653COQ-003	2021-04-27
Intertek	IAS TL-274	ASTM E84	104572653COQ-004	2021-03-18
Intertek	IAS TL-274	ASTM E331	104634983COQ-002A	2021-07-23
Intertek	IAS TL-274	AAMA 1402	104352869COQ-003B	2021-09-23
Intertek	IAS TL-274	TAS 201/202/203	104352869COQ-003A	2021-10-14
Intertek	IAS TL-274	ASTM E330	104352097COQ-002	2021-05-06
Intertek	IAS TL-274	ASTM E330	104352869COQ-022A	2021-08-10
Boca Eng.	Note 2	Structural Calculations	0093-4-1	2022-01-24
Boca Eng.	Note 2	ASTM E330	0093-5-1	2022-05-10
Boca Eng.	Note 2	ASTM E330	0093-11-2	2023-06-19
Boca Eng.	Note 2	AAMA 508	0093-17-1	2023-07-18
Intertek	IAS TL-144	ASTM B117	L2210.01-106-31 R0	2021-09-15
Intertek	IAS TL-144	AAMA 508-21	105139889COQ-012	2023-05-25
Intertek	IAS AA-647	Quality Assurance	Spec ID 68062	2023-10-06

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**. Fastplank Siding Physical Properties*

Property	Standard	Result			Requirement		Compliance
Material Properties per AAMA 1402-09 Specification							
Impact Resistance	AAMA 1402 Test Method #2	No visible rupture			No visible rupture		Pass
Aluminum Sheet	-	6063-T6 aluminum			Report grade		Pass
Salt Spray Resistance, mm 1000 hrs of exposure	ASTM B117	Front	0.0	No corrosion, blisters or other deleterious effects	≤ 1.5		Pass
		Back	0.0		≤ 1.5		
Humidity Resistance	FTMS 141a	Front	No blisters		No blisters		Pass
		Back	No blisters		No blisters		
Film Adhesion	ASTM D3359	Front	No removal of coating		No removal of coating		Pass
		Back	No removal of coating		No removal of coating		
Film Hardness	AAMA 1402 Test Method #6 1.5	H			≥	HB	Pass
Accelerated Exposure	ASTM D822	No loss of adhesion			No loss of adhesion		Pass
Forming Test	AAMA 1402 Test Method #6 1.7	No crazing on bends and no removal of film			No crazing on bends and no removal of film		Pass
Dry Film Thickness, mil	ASTM D1400	Front	5.55		As reported		As reported
		Back	0.99		As reported		As reported
Impact Test	AAMA 1402 Test Method #6 1.9	No removal of film			No removal of film		Pass
Gloss Determination	ASTM D523	60°	10.1		As reported		As reported
		85°	10.1		As reported		As reported
Material Properties per 2023 FBC							
Non-Combustibility	ASTM E136	No flaming from the test specimen after 30s and temperature doesn't rise more than 30°C			No flaming from the test specimen after 30s and temperature doesn't rise more than 30°C		Pass
Flame Spread Index	ASTM E84	5			≤	25 (Class A)	Pass
Smoke Developed Index	ASTM E84	110			≤	450	Pass

General Material Properties					
Tensile Strength (psi)	ASTM E8	Yield	26,171 psi	Report Value	Pass
		Ult.	30,298 psi		
		MOE	8.6 x 10^6 psi		
Corrosion Resistance of Coated Surface, Mean Creepage (mm)	ASTM D1654	Front	0 mm	Absence of rust, blistering, adhesion loss, after 1000 hrs of ASTM B117 Salt Fog exposure	Pass
		Back	0 mm		
		No visible deleterious effects			
Wall Assembly Tests, Regional Codes[1]					
HVHZ Impact Test Procedures	TAS 201	Absence of through penetration from large missile impact		Absence of through penetration from large missile impact	Pass
HVHZ Maximum Deflection and Permanent Deformation	TAS 202	100 psf (ASD) maximum design pressure		1.5x Design pressure without failure	Pass
Florida HVHZ Recovery Over Maximum Deflection (%)	TAS 203	100 psf (ASD) maximum design pressure		≥ 90	Pass
Flame Penetration and Glowing Combustion	SFM 12-7A-1	Absence of flame penetration and glowing combustion		Absence of flame penetration and glowing combustion at 60-min duration	Pass
Wall Assembly Tests, Performance Values[1]					
Avg. Ultimate Wind Resistance (psf)	ASTM E330	Allowable (ASD) values of 44 – 141 psf, dependant on assembly details and installation conditions			
Avg. Ultimate Wind Speed Resistance (mph)	ASCE 7	123 – 210 mph at heights of 15 – 60 ft, dependant on assembly details and installation conditions			
Water Penetration Resistance	ASTM E331	No leakage observed after 2-hr pressurized rain exposure, assembly test per FBC 1403.2			

1. Wall assembly tests results are dependant on plank models, installation components and environmental conditions consistent with tested details. See Fastplank's document library of Engineering and Certifications reports for further details.

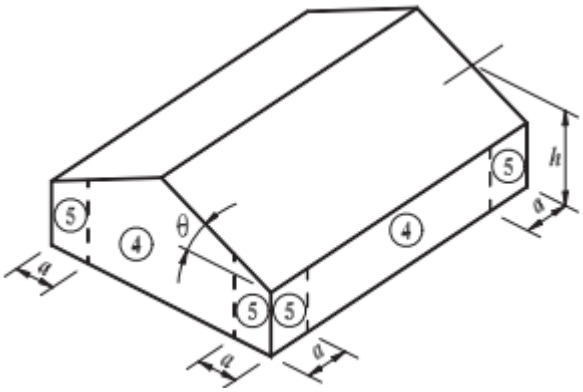
ATTACHMENT 2: FASTPLANK SIDING WIND PRESSURE ASSEMBLY TABLES & DIAGRAMS (11 PAGES)

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

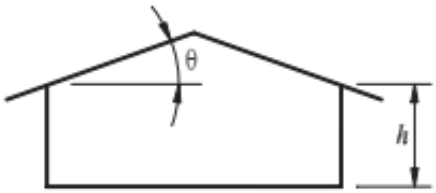
Wind speed conversion tables have been prepared following design methodology of ASCE7-22, Ch. 30.3, for low-rise buildings with maximum height of 60 ft, for enclosed buildings with topographic and elevation factors set to unity. These settings are typical of many installations, and consistent with the prescriptive approach used in FBC-R Table R301.2(2). All conditions must be consistent with Table Notes 1-19 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 wind uplift tables may be used by a licensed design professional to calculate ultimate wind speed and/or allowable height for the given 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 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 θ = 0° 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 θ ≤ 10°.

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 and 3*

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 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. See Attachment 4 of the report for further discussion.
2) Further assembly details per Tables 2.1 and 2.2 and additional details in the assembly diagrams of this report to be followed.
3) A straight configuration consists of vertically aligned clips at each plank with horizontal spacing as stated.
4) A staggered configuration consists of vertically aligned clips of every second plank with the clip starting locations alternating between the first and second plank rows to create a staggered appearance.
5) Wood framing minimum nom 2x4 species SPF No. 2 or better. Members may be substituted with i) any larger section dimension of the same material, and/or, ii) any species/grade of 0.42 specific gravity or greater.
6) Steel framing minimum dimensions 1-5/8 x 3-5/8, with minimum yield strength of 33 ksi and 18 ga (43 mil) thickness. The framing members may be substituted with i) any larger section dimension of the same material, and/or, ii) any greater yield strength and/or gauge thickness.
7) Fasteners supplied with FastPlank siding must be used.
8) Plywood Sheathing: Min. 15/32, 0.42 SG, 4-ply Exposure 1, complying with NIST DOC PS 2. Plywood sheathing may be substituted with thicker profile of up to nominal 1-inch, and any specific gravity greater than 0.42.
9) OSB Sheathing: Min. 7/16, Exposure 1, complying with NIST DOC PS 2. OSB sheathing may be substituted with thicker profile of up to nominal 1-inch.
10) Gypsum Sheathing must comply with ASTM C1396 and be rated by the manufacturer for exterior use; gypsum thickness may not be increased.
11) Allowable pressure (psf) (ASD) non-HVHZ represents tested assembly ultimate pressure divided by safety factor of 2.
12) Allowable pressure (psf) (ASD) for assemblies in HVHZ determined in accordance with TAS 202 and 203.
13) 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: GCp = -1.4 (Zone 5) and -1.1 (Zone 4), GCpi = 0.18, Kzt = 1, Kd = 0.85, Ke = 1, Iw = 1.0.
14) Wind speed conversion corresponds to the maximum Zone 4 and 5 pressure with effective area of 10 ft^2. Table wind speeds are only valid under the design conditions stated. For other site conditions and/or building dimensions, designers can use the published Allowable Pressure (psf) (ASD) to determine allowable wind speeds with FBC-R Table R301.2(2) or calculations to FBC Ch 16.
15) Wind exposure categories as defined in ASCE7-22, section 26.7.
16) Interpolation not permitted. For heights in between those listed, use next highest height column.
17) NA indicates that the installation condition is not acceptable within the design limits of the table.
18) Allowable wind pressure (ASD), as defined in ASCE 7-22 2.4.1 as 0.6W. To convert to Factored Design Resistance Pressure (psf) (LRFD), multiply Allowable Pressure (psf) (ASD) by 1.67.
19) Per FBC 2023 1620.3, all HVHZ buildings and structures shall be considered to be in Exposure Category C, unless Category D applies, as defined in Section 26.7 of ASCE 7.
20) 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 of architect of record for the project of installation.

Table 2.1: Wind Assembly Details with FastPlank P44V and P46V planks – 2023 FBC Non-HVHZ Applications
Height Limit of 10 ft, Bending Defection Limit of L/180[1]

Assembly Number[2]	Configuration[3,4]	Fastener Substrate	Min. Framing[5,6]	Fastener[7]	Min. Sheathing[8,9,10]	Max. Design Pressure (kPa)[11,13]
1	Clips @ 32" O.C. straight	Stud	2x4 SPF No. 2 wood studs @ 16" o.c.	#10 - 1-1/2" screw	7/16" OSB	44
2	Clips @ 32" O.C. straight	Sheathing	2x4 SPF No. 2 wood studs @ 16" o.c.	#10 - 1-1/2" screw	7/16" OSB	44
3	Clips @ 32" O.C. straight	Sheathing	2x4 SPF No. 2 wood studs @ 16" o.c.	#10 - 1-1/2" screw	5/8" Plywood	69
4	Clips @ 32" O.C. staggered	Stud	2x4 SPF No. 2 wood studs @ 16" o.c.	#10 - 1-1/2" screw	7/16" OSB + 5/8" Ext. Gypsum	70
5	Clips @ 32" O.C. staggered	Stud	2x4 SPF No. 2 wood studs @ 16" o.c.	#10 - 1-1/2" screw	7/16" OSB	83
6	Clips @ 16" O.C. straight	Stud	2x6 SPF No. 2 wood studs @ 16" o.c.	#10 - 1-1/2" screw	7/16" OSB	116

7	Clips @ 32" O.C. staggered	Stud	1-5/8 x 3-5/8 33 ksi 18 ga. steel stud @ 16" o.c.	#12 - 1-1/2" screw	1/2" Ext. Gypsum	69
8	Clips @ 32" O.C. staggered	Stud	1-5/8 x 3-5/8 33 ksi 18 ga. steel stud @ 16" o.c.	#12 - 1-1/2" screw	7/16" OSB	70

Table 2.2: Wind Assembly Details with FastPlank P24V and P26V planks Wall Height Limit of 10 ft, Bending Deflection Limit of L/180[1]

Assembly Number[2]	Configuration[3,4]	Fastener Substrate	Min. Framing[5,6]	Fastener[7]	Min. Sheathing[8,9,10]	Max. Design Pressure (kPa)[11,13]
9	Clips @ 32" O.C. Straight	Studs only	Nominal 2x SPF No. 2 wood @ 16" o.c.	#10 x 1-3/4 in. screw	7/16 in. OSB	90
10	Clips @ 32" O.C. Straight	Studs only	Nominal 2x SPF No. 2 wood @ 16" o.c.	#10 x 2-1/4 in. screw	7/16 in. OSB + 5/8 in. Ext. Gyp	90
11	Clips @ 32" O.C. Staggered	Studs only	Nominal 2x, 33 ksi,18 ga steel @ 16" o.c.	#12 x 1-1/2 in. screw	1/2 in. Ext. Gypsum	90
12	Clips @ 32" O.C. Straight	Studs only	Nominal 2x, 33 ksi,18 ga steel @ 16" o.c.	#12 x 1-1/2 in. screw	7/16 in. OSB	90

Table 3: Maximum Wind Speeds of Wall Cladding Installed at Various Building Heights and Exposure Categories - 2023 FBC Non-HVHZ[1,13]

Assembly Number.[18]	Allowable Pressure (psf) (ASD)[11,13]	Exposure Category[15]	ZONE 5 (CORNER) Maximum Wind Speed V_{ult} (mph)[14,17] Building Height (ft)[16]							ZONE 4 (FIELD) Maximum Wind Speed V_{ult} (mph)[14,17] Building Height (ft)[16]						
			15	20	25	30	40	50	60	15	20	25	30	40	50	60
1,2	44	B	193	185	180	175	170	164	160	210	206	200	194	189	183	178
		C	158	154	151	148	143	140	137	176	171	167	164	159	155	153
		D	144	141	138	136	132	130	128	160	156	153	151	147	144	142
3,7	69	B	210	210	210	210	210	206	201	210	210	210	210	210	210	210
		C	198	193	189	185	179	175	172	210	210	210	205	199	195	191
		D	180	176	173	170	166	162	160	200	196	192	189	184	180	178
4,8	70	B	210	210	210	210	210	207	202	210	210	210	210	210	210	210
		C	200	194	190	186	181	176	173	210	210	210	207	201	196	193
		D	182	177	174	171	167	163	161	202	197	193	190	185	182	179
5	83	B	210	210	210	210	210	210	210	210	210	210	210	210	210	210
		C	210	210	207	203	197	192	189	210	210	210	210	210	210	210
		D	198	193	190	186	182	178	175	210	210	210	207	202	198	195
6	116	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	210	210	207	210	210	210	210	210	210	210
9,10,11,12	90	B	210	210	210	210	210	210	210	210	210	210	210	210	210	210
		C	210	210	210	210	205	200	196	210	210	210	210	210	210	210
		D	206	201	197	194	189	185	182	210	210	210	210	210	206	203

See pages 10-11 for User's Guide and Table Notes 1-20.

Table 4.1: HVHZ Wind Assembly Details with FastPlank P44V and P46V planks – 2023 FBC HVHZ Applications Wall Height Limit of 10 ft, Bending Deflection Limit of L/180[1]

Assembly Number[2]	Configuration	Fastener Substrate	Min. Framing[5,6]	Fastener[7]	Min. Sheathing[8,9,10]	Max. Design Pressure (kPa)[12,13]
13	Clips @ 32" O.C.	Studs only	Nominal 2x SPF No. 2 wood @ 16" o.c.	#10 x 1-3/4 in. screw	7/16 in. Plywood	70
14	Clips @ 32" O.C.	Studs only	Nominal 2x, 33 ksi, 18 ga steel @ 16" o.c.	#12 x 1-1/2 in. screw	7/16 in. Plywood	70

Table 4.2: HVHZ Wind Assembly Details with FastPlank P24V and P26V planks – 2023 FBC HVHZ Applications
Wall Height Limit of 10 ft, Bending Deflection Limit of L/180[1]

Assembly Number[2]	Configuration	Fastener Substrate	Min. Framing[5,6]	Fastener[7]	Min. Sheathing[8,9,10]	Max. Design Pressure (kPa)[12,13]
15	Clips @ 32" O.C.	Studs only	Nominal 2x SPF No. 2 wood @ 16" o.c.	#10 x 1-3/4 in. screw	7/16 in. Plywood	90
16	Clips @ 32" O.C.	Studs only	Nominal 2x, 33 ksi, 18 ga steel @ 16" o.c.	#12 x 1-1/2 in. screw	7/16 in. Plywood	90

Table 5: Maximum Wind Speeds of Wall Cladding Installed at Various Building Heights and Exposure Categories - 2023 FBC HVHZ[1,13]

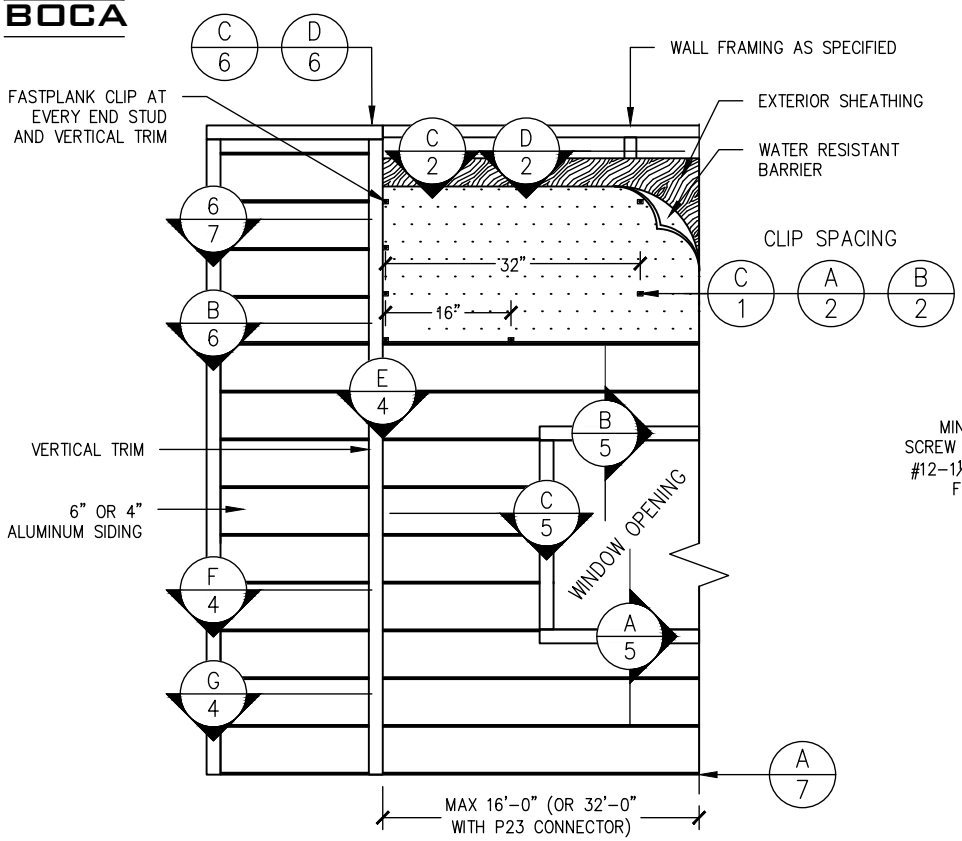
Assembly Number.[18]	Allowable Pressure (psf) (ASD)[12,13]	Exposure Category[15,19]	ZONE 5 (CORNER) Maximum Wind Speed V_{ult} (mph)[14,17] Building Height (ft)[16]							ZONE 4 (FIELD) Maximum Wind Speed V_{ult} (mph)[14,17] Building Height (ft)[16]						
			15	20	25	30	40	50	60	15	20	25	30	40	50	60
13,14	70	B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		C	200	194	190	186	181	176	173	210	210	210	207	201	196	193
		D	182	177	174	171	167	163	161	202	197	193	190	185	182	179
15,16	90	B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		C	210	210	210	210	205	200	196	210	210	210	210	210	210	210
		D	206	201	197	194	189	185	182	210	210	210	210	210	206	203

See pages 10-11 for User's Guide and Table Notes 1-20.

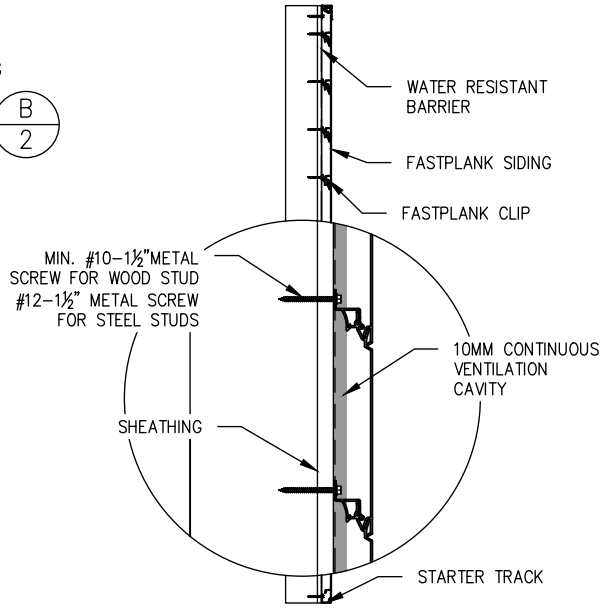
ATTACHMENT 3: ASSEMBLY DIAGRAMS

Begins next page.

FASTPLANK SIDING



A 1 WALL ELEVATION
NOT-TO-SCALE



B 1 FASTPLANK ELEVATION
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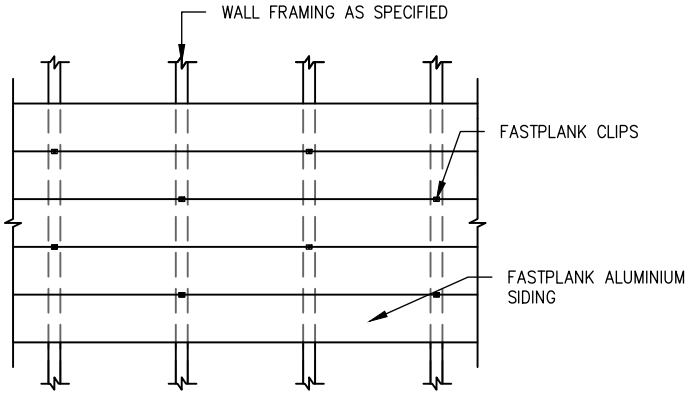

C 1 CLIPS AT 32" O.C STAGGERED
NOT-TO-SCALE

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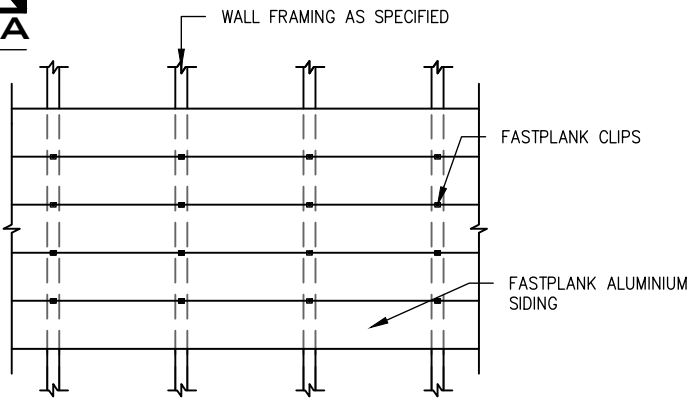
ENGAGE BUILDINGS PRODUCTS FASTPLANK SYSTEMS	FASTPLANK SYSTEMS ALUMINUM EXTERIOR WALL CLADDING	FASTPLANK SYSTEMS ASSEMBLY DETAILS	5951-SK1 DWG SHEET 1 OF 7	CB
			DATE: OCTOBER 06, 2023	DRN SS
				CHK CB

FASTPLANK SIDING



A/2 CLIPS AT 16" O.C STRAIGHT
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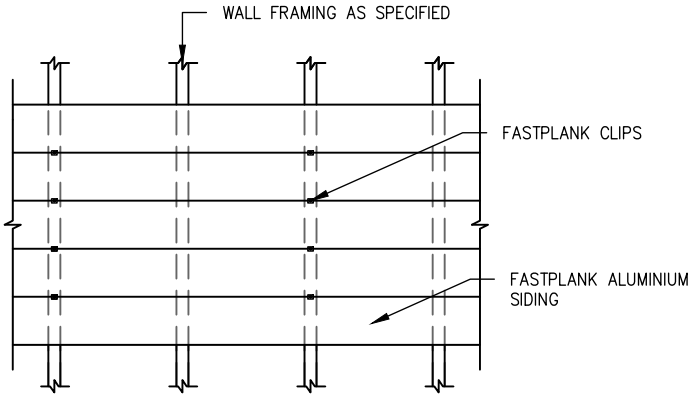
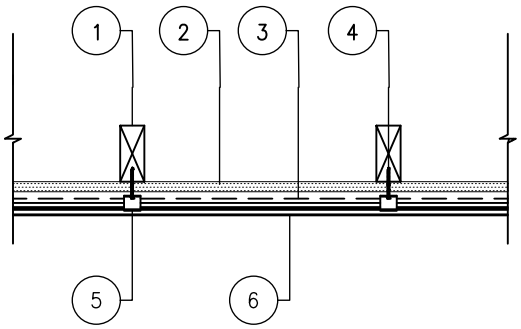
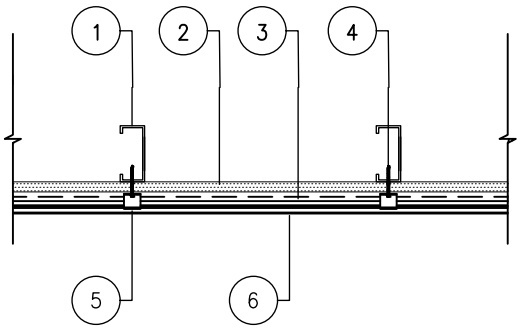


B/2 CLIPS AT 32" O.C STRAIGHT
NOT-TO-SCALE



C/2 FASTPLANK OVER WOOD STUDS
NOT-TO-SCALE

LIGHT-FRAMED STUD WALL INSTALLATION INTERIOR TO EXTERIOR	
1	MIN. 2x4 SPF No.2 WOOD STUDS @ 16" O.C.
2	MIN. 7/16" OSB SHEATHING
3	WATER RESISTIVE BARRIER TO CODE
4	MIN. #10 1-½" WOOD SCREWS @ EACH CLIP
5	FASTPLANK CLIP PER EVALUATION REPORT
6	FASTPLANK SIDING



D/2 FASTPLANK OVER STEEL STUDS
NOT-TO-SCALE

LIGHT-FRAMED STUD WALL INSTALLATION INTERIOR TO EXTERIOR	
1	MIN. 2x4 18Ga 33ksi STEEL STUDS @ 16" O.C.
2	MIN. ½" EXT. GYPSUM SHEATHING
3	WATER RESISTIVE BARRIER TO CODE BY OTHERS
4	MIN. #12 1-½" METAL SCREWS @ EACH CLIP
5	FASTPLANK CLIP PER EVALUATION REPORT
6	FASTPLANK SIDING

NOTE:
1. INTERIOR FINISH AND INSULATION TO CODE BY OTHERS, NOT SHOWN FOR CLARITY.
2. FLASHING AT ALL PENETRATIONS TO CODE BY OTHERS, NOT SHOWN FOR CLARITY.

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REV	DATE	ISSUE	APP
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ENGAGE BUILDINGS PRODUCTS FASTPLANK SYSTEMS	FASTPLANK SYSTEMS ALUMINUM EXTERIOR WALL CLADDING	FASTPLANK SYSTEMS ASSEMBLY DETAILS	5951-SK1 DWG SHEET 2 OF 7	CB / SS / CB
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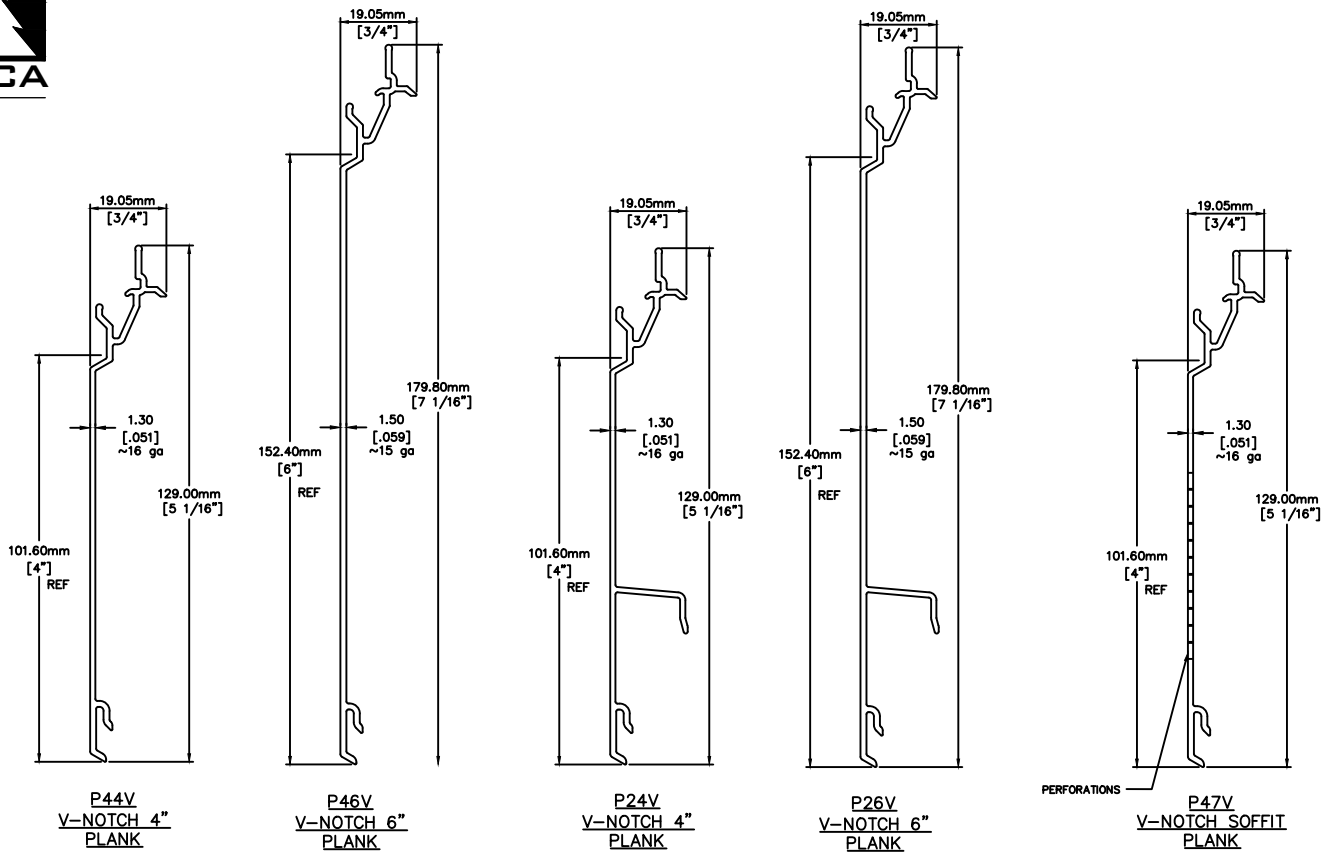
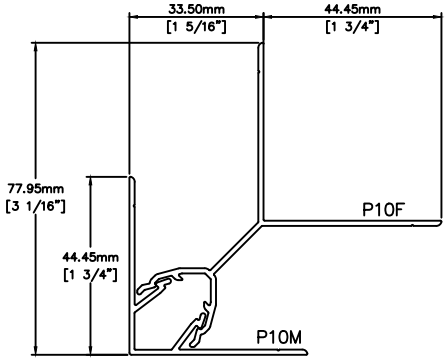
BOCA ENGINEERING CO.
www.bocaengineering.com
(250) 477-7777 203-1001 Cloverdale Ave., Victoria BC V8X 4C9 info@bocaengineering.com

FASTPLANK SIDING



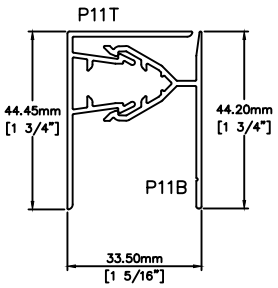
A/3 FASTPLANK V-NOTCH SIDING PLANKS
NOT-TO-SCALE

P10



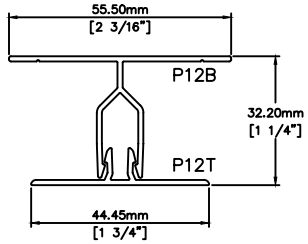
B/3 INSIDE/OUTSIDE CORNER
NOT-TO-SCALE

P11



C/3 J-TRIM CLIP
NOT-TO-SCALE

P12



D/3 VERTICAL TRIM
NOT-TO-SCALE

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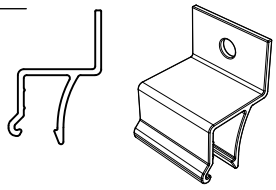
			DATE: OCTOBER 06, 2023	DRN SS
				CHK CB

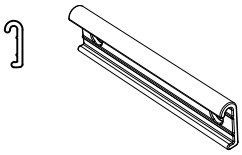
FASTPLANK SIDING

P22



A/4 FASTPLANK CLIP
NOT-TO-SCALE

P23



B/4 FASTPLANK CONNECTOR
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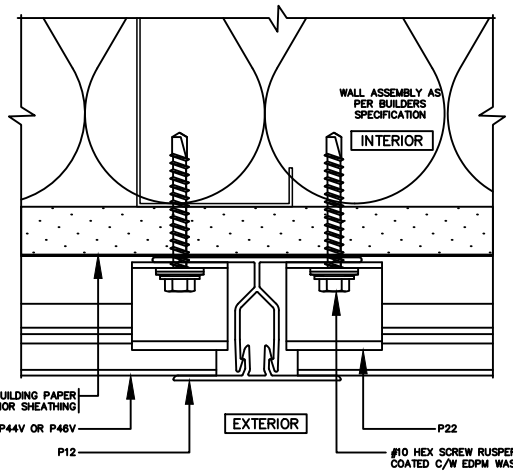
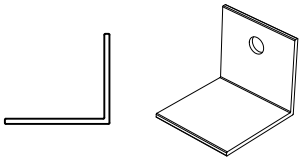


E/4 2-PC VERTICAL TRIM
NOT-TO-SCALE

P41

P30



C/4 SPACER
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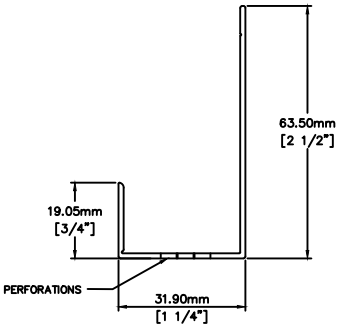

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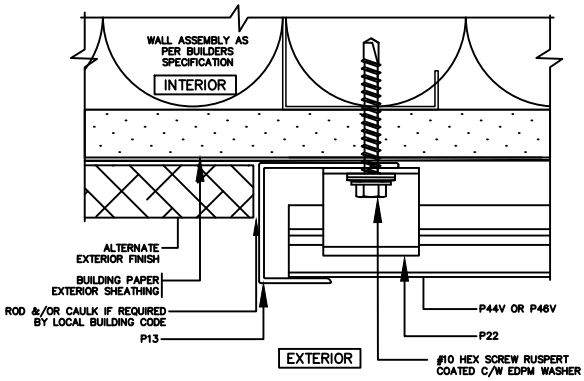

F/4 GENERAL J VERTICAL TERMINATION
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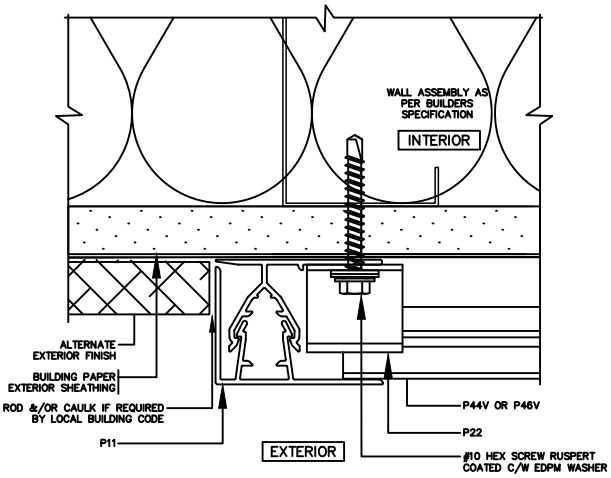

G/4 2-PC J VERTICAL TERMINATION
NOT-TO-SCALE

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0	2023/10/06	FOR PUBLICATION	CB

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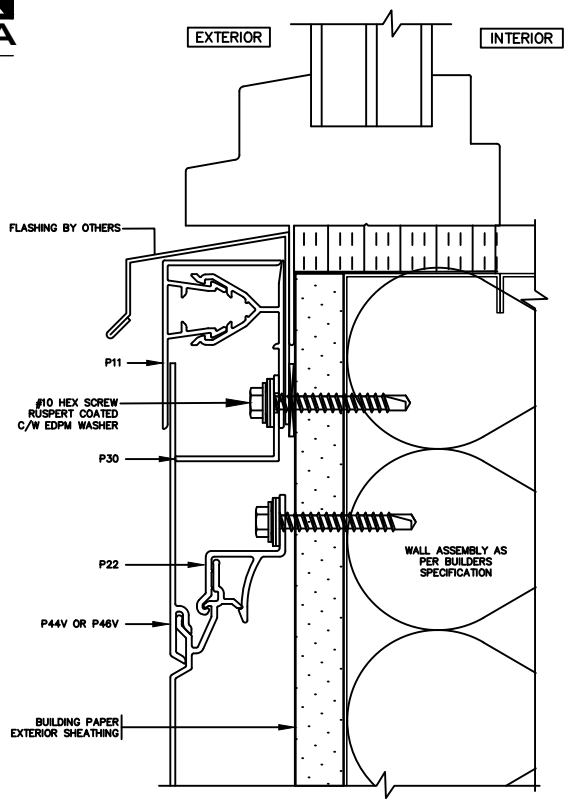
ENGAGE BUILDINGS PRODUCTS FASTPLANK SYSTEMS	FASTPLANK SYSTEMS ALUMINUM EXTERIOR WALL CLADDING	FASTPLANK SYSTEMS ASSEMBLY DETAILS	5951-SK1 DWG SHEET 4 OF 7	CB / SS / CB
			DATE: OCTOBER 06, 2023	

FASTPLANK SIDING
OPENINGS AND END OF WALL DETAILS



A/5 2–PC J TRIM WINDOW SILL
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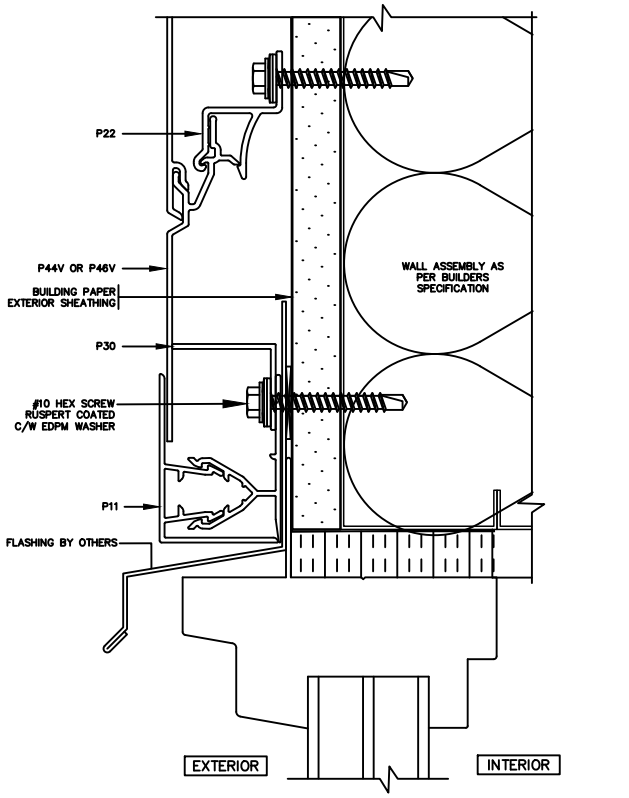

B/5 2–PC J TRIM WINDOW HEAD
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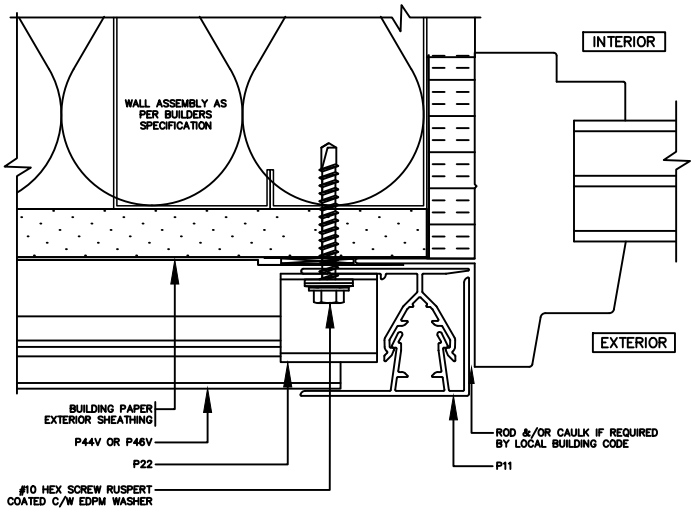

C/5 2–PC J TRIM WINDOW JAMB
NOT–TO–SCALE

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REV	DATE	ISSUE	APP
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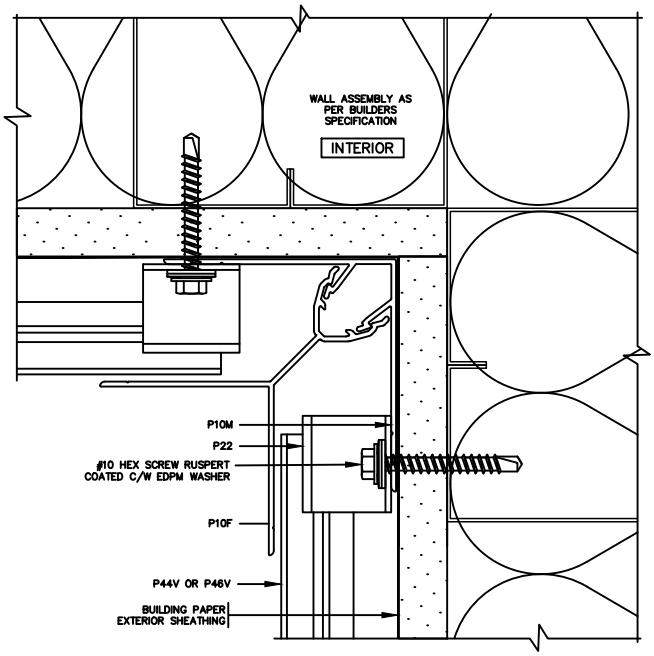
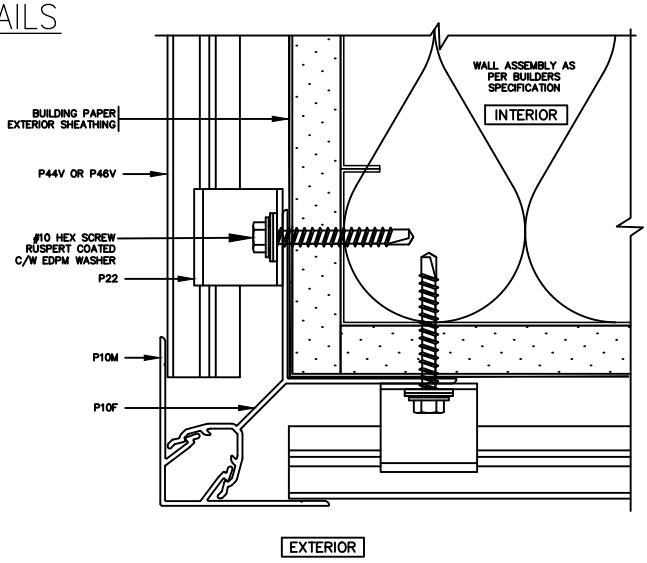
ENGAGE BUILDINGS PRODUCTS FASTPLANK SYSTEMS	FASTPLANK SYSTEMS ALUMINUM EXTERIOR WALL CLADDING	FASTPLANK SYSTEMS ASSEMBLY DETAILS	5951–SK1 DWG SHEET 5 OF 7	CB
			DATE: OCTOBER 06, 2023	DRN SS
				CHK CB

FASTPLANK SIDING
OPENINGS AND END OF WALL DETAILS



A 6 INSIDE CORNER TRIM DETAIL

NOT-TO-SCALE



B 6 OUTSIDE CORNER TRIM DETAIL

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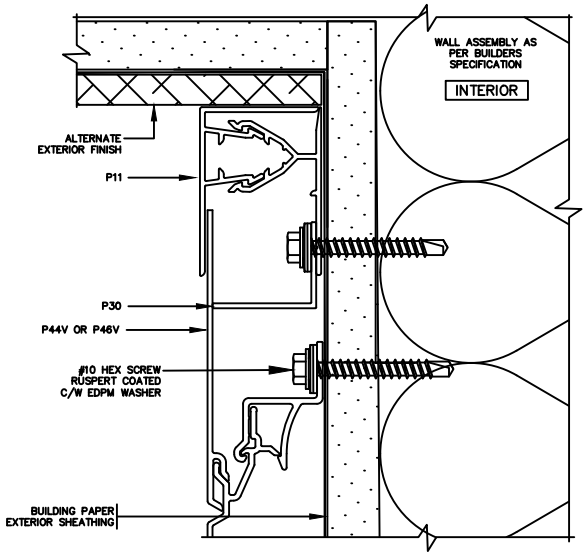
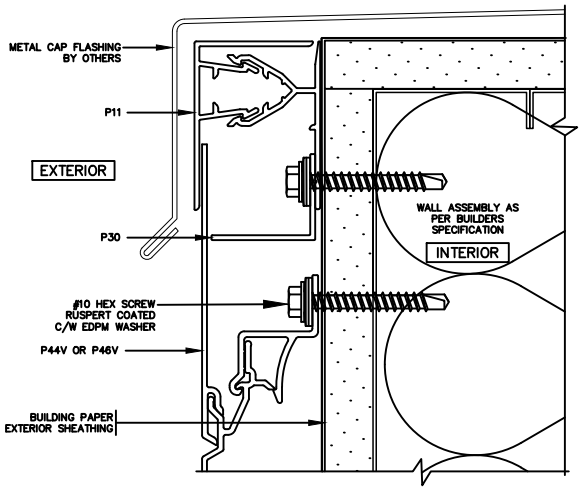


C 6 2-PC J SOFFIT TERMINATION

NOT-TO-SCALE



D 6 2-PC J PARAPET TERMINATION

NOT-TO-SCALE

DRAWING FOR ENGINEERING EVALUATION REPORT – NOT FOR USE AS CONSTRUCTION DESIGN DOCUMENTS

REV	DATE	ISSUE	APP
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			DATE: OCTOBER 06, 2023	DRN SS
				CHK CB

FASTPLANK SIDING
OPENINGS AND END OF WALL DETAILS

LEGEND AND SYMBOLS

A / 1 — DETAIL NUMBER — SHEET DRAWN

A / 1 — SECTION NUMBER — SHEET DRAWN

TESTING AND CODE COMPLIANCE

1. THE PRODUCT ASSEMBLY SHOWN HAS BEEN EVALUATED ACCORDING TO THE 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

1. FOR COMPLETE INSTALLATION DETAILS SEE TECHNICAL PRODUCT DATA ON PRODUCT MANUFACTURER'S WEBSITE.
2. 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 JOB ENGINEER OR ARCHITECT PREPARED SITE-SPECIFIC DOCUMENTS SHALL BE USED.

SHEATHING

1. WOOD-BASED STRUCTURAL SHEATHING:
   - 1.1. PLYWOOD – US DOC PS1-09 OR PS2-10 U.N.O
   - 1.2. OSB – US DOC PS2-10 U.N.O..
2. GYPSUM SHEATHING: ASTM C1396, EXTERIOR TYPE.

FASTENERS

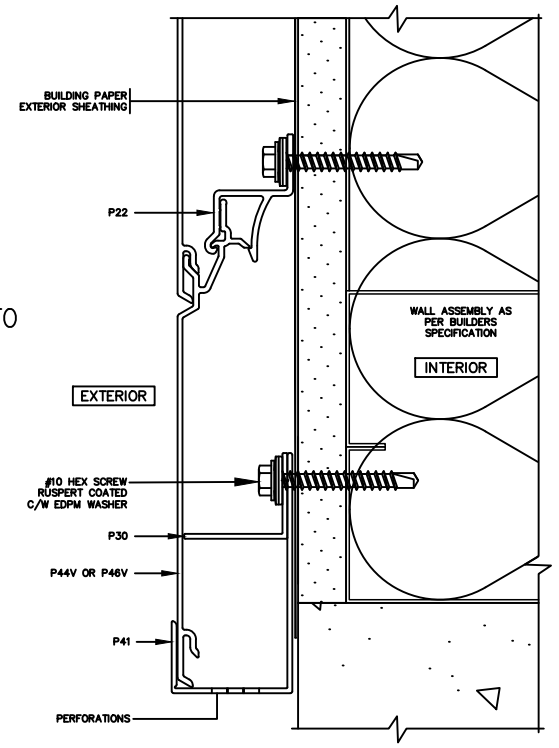
1. WOOD SCREWS TO CONFORM TO ASME B18.6.1.
2. METAL SCREWS TO CONFORM TO ASTM C1513.
3. ALL FASTENERS WITH CORROSION-RESISTANT GALVANIZED COATING COATING.

FRAMING

1. METAL FRAMING MEMBERS MINIMUM 18 GAUGE U.NO., 33ksi, COMPLIANCE WITH ANSI S100-16.
2. WOOD FRAMING MIN. 2x6 S.G. 0.42, COMPLIANCE WITH US DOC PS20-05

ALUMINUM

1. ALUMINUM TO CONFORM WITH AA ADM 1



A / 7 PERFORATED STARTER J TRIM

NOT-TO-SCALE

DRAWING FOR ENGINEERING EVALUATION REPORT – NOT FOR USE AS CONSTRUCTION DESIGN DOCUMENTS

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			DATE: OCTOBER 06, 2023	DRN SS
				CHK CB

ATTACHMENT 4: DISCUSSION OF TESTING AND DESIGN EVALUATION PROCEDURE

ASCE7 and the FBC 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. AA ADM 1 Chapter L, Deflections, and Appendix 1, Testing, provide objective statements that allow for a design by testing approach, affording the design professional and testing laboratory to determine the appropriate reference national standards to use to set testing procedures and deflection limits. The code clearly defines the loading criteria for exterior cladding.

The failure mode in all tests performed was disengagement of the aluminum planks from the fastening clips, followed by bending past yield of the plank members. Following ADM 1, App. 1, the test load factors are set to meet or exceed the ASD safety factors (Ω) set within the standard for the respective loading/stress conditions of the aluminum components. The fastening screws are steel, therefore safety factors from AISC 360 are applied to these components. The respective minimum test load factors become:

Components	Stress Type	Ω ASD Safety Factor	Ref. Standard /Section
Aluminum Clips	Bending (rupture)	1.95	ADM 1, F.1
Aluminum Panel	Bending (rupture)	1.95	ADM 1, F.1
Steel Fasteners	Tension	2.0	AISC 360, J3.7

By review of the table, it is shown that the appropriate system test factor is 2.0 to the service-level design loads.

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 32 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.

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