CREEK
TECHNICAL SERVICES, LLC

Registry No. 29824
17520 Edinburgh Drive
Tampa, FL 33647
(813) 480-3421

EVALUATION REPORT

FLORIDA BUILDING CODE, 7TH EDITION (2020)

Issued January 19, 2021

Manufacturer: WORTHOUSE INC.
3100 Arapahoe Ave, Suite 104
Boulder, CO 80303
(844) 749-2555
www.worthouse.com

Manufacturing: Poland

Quality Assurance: UL LLC (QUA9625)

SCOPE

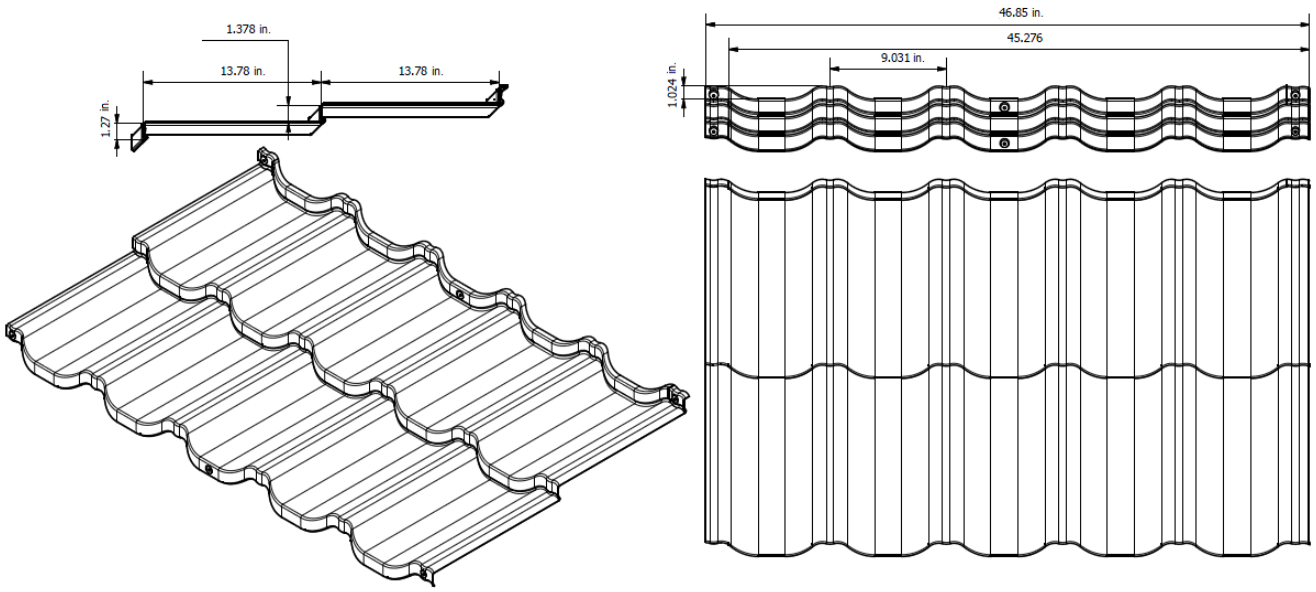
Category: Roofing
Subcategory: Metal Roofing
Code Edition: Florida Building Code, 7th Edition (2020) including High-Velocity Hurricane Zones (HVHZ)
Code Sections: 1504.3.1, 1504.3.2, 1504.6, 1518.9, 1523.6.5.2.4
Properties: Wind Resistance

REFERENCES

Entity	Report No.	Standard	Year
PRI Construction Materials Technologies (TST5878)	BDMT-001-02-01	UL 1897	2012
		UL 580	2006
		TAS 125	2003
PRI Construction Materials Technologies (TST5878)	BDMT-001-02-02	UL 1897	2012
		UL 580	2006
		TAS 125	2003
PRI Construction Materials Technologies (TST5878)	BDMT-002-02-01	TAS 100	1995
PRI Construction Materials Technologies (TST5878)	BDMT-004-02-01	TAS 100	1995
PRI Construction Materials Technologies (TST5878)	BDMT-005-02-01	ASTM G 155	2013
		TAS 110	2000
PRI Construction Materials Technologies (TST5878)	BDMT-006-02-01	ASTM B 117	2016
		TAS 100	2000

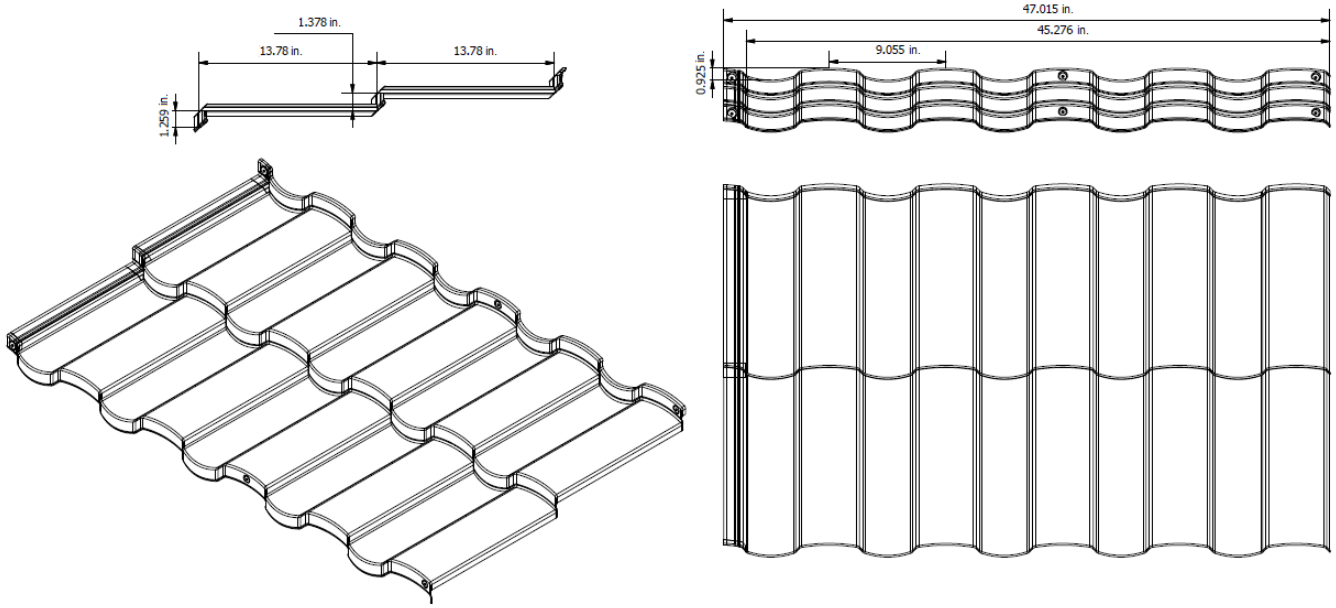
PRODUCT DESCRIPTIONS

Panel: Supre Panel
Description: Through fastened preformed panels; Maximum 45.28-inch coverage
Material: Minimum 26 ga. painted steel (F_y = min. 46 ksi);
Shall conform with FBC Section 1507.4.3



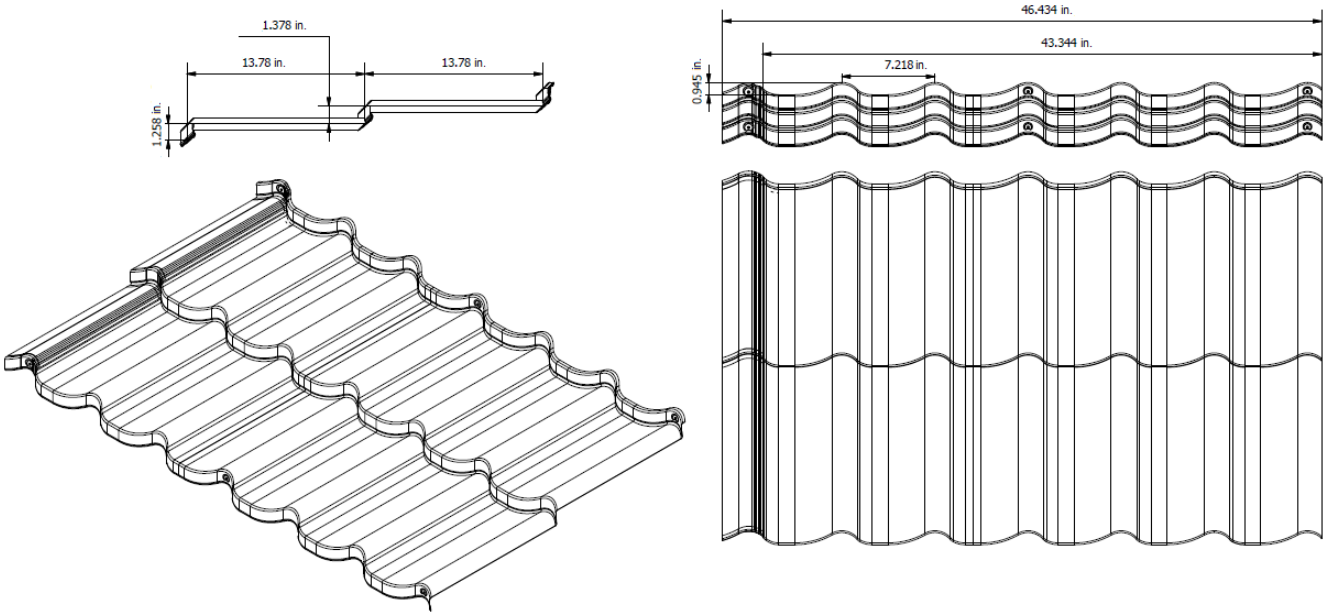
Supre Panel Dimensions

Panel: Dura Panel
Description: Through fastened preformed panels; Maximum 45.28-inch coverage
Material: Minimum 26 ga. painted steel (F_y = min. 46 ksi);
Shall conform with FBC Section 1507.4.3



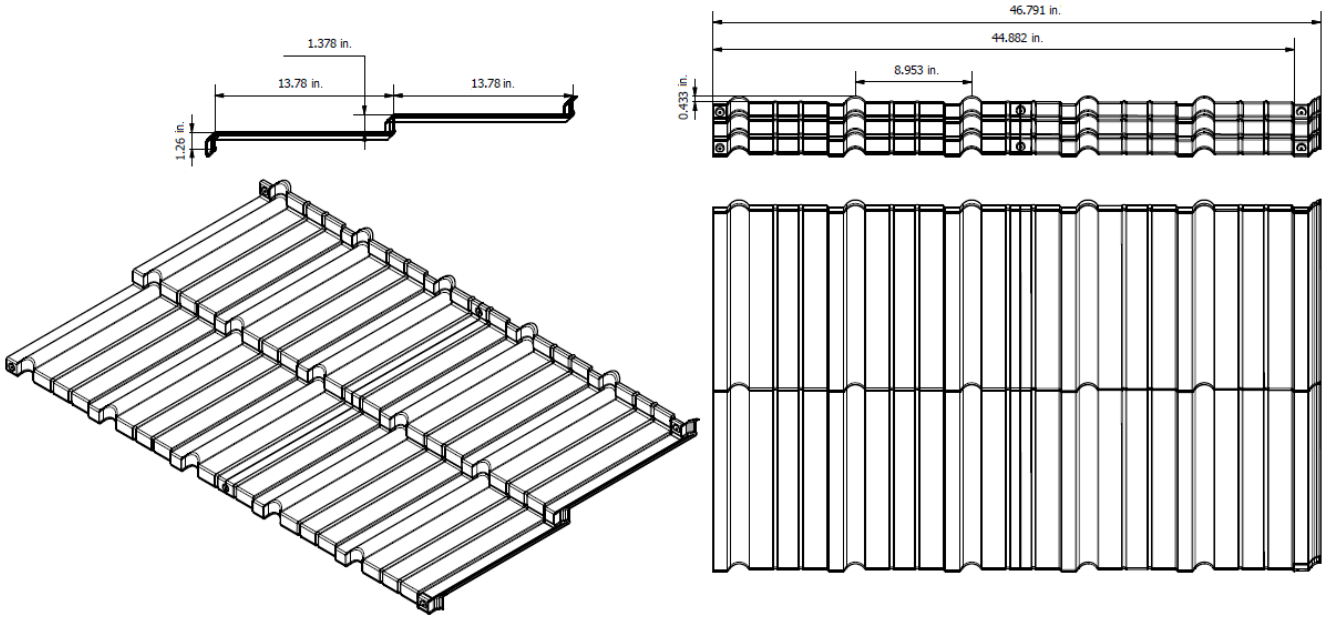
Dura Panel Dimensions

Panel: Eura Panel
Description: Through fastened preformed panels; Maximum 43.34-inch coverage
Material: Minimum 26 ga. painted steel (F_y = min. 46 ksi);
Shall conform with FBC Section 1507.4.3



Eura Panel Dimensions

Panel: Ulta Panel
Description: Through fastened preformed panels; Maximum 44.88-inch coverage
Material: Minimum 26 ga. painted steel (F_y = min. 46 ksi);
Shall conform with FBC Section 1507.4.3



Ulta Panel Dimensions

APPROVED ASSEMBLIES

System 1A: Direct-to-Deck	
Slope:	Shall be in accordance with the FBC.
Roof Deck:	Solid or closely fitted min. 15/32 in. plywood sheathing for new and existing construction at max. 24 in. span; In the HVHZ, new construction shall be min. 19/32 in. plywood at max. 24 in. span; Designed by others in accordance with FBC requirements.
Underlayment:	Installed in accordance with FBC requirements. In the HVHZ, the minimum underlayment shall be ASTM D 226, Type II installed in accordance with Sections 1518.2 and 1518.4 or any approved underlayment for use in the HVHZ. In the HVHZ, at the rake and eave, underlayment shall be wrapped over the eave and down the fascia prior to installing the drip edge metal. In the HVHZ, the valley pan shall be sealed to the underlayment on each edge with a continuous 3/4-inch wide bead of a*pproved* sealant.
Attachment:	4.8mm x 35mm HWH screws with 14 mm O.D. sealing washers attached at a rate of **"10 screws per panel"** for Supre, Dura and Ulta Panels or **"12 screws per panel"** for Eura Panel (see Appendix A for fastening patterns); Panel laps stitched with 4.8mm x 19mm HWH screws with 14mm O.D. sealing washers at the preformed locations; Fasteners shall penetrate the deck a minimum 3/8-inch and shall be corrosion resistant in accordance with section 1507.4.4 and 1506.6.
Maximum Design Pressures:	**-67.5 psf** *Pressure calculated using 2:1 margin of safety per 1504.9*

Maximum Mean Roof Heights for Gable/Hip Roofs
Slopes 2:12 – 12:12

Exposure	[9]Basic Wind Speed (mph)								
	≤120	130	140	150	160	170	180	190	200
Zone 1									
B	60 ft	60 ft	60 ft	60 ft	60 ft	52 ft	35 ft	23 ft	16 ft
C	60 ft	60 ft	60 ft	42 ft	22 ft	NA	NA	NA	NA
D	60 ft	60 ft	37 ft	17 ft	NA	NA	NA	NA	NA
Zone 2 (includes 2e, 2n, and 2r) – Perimeter									
B	60 ft	60 ft	54 ft	33 ft	21 ft	NA	NA	NA	NA
C	58 ft	27 ft	NA	NA	NA	NA	NA	NA	NA
D	25 ft	NA	NA	NA	NA	NA	NA	NA	NA
Zone 3 (includes 3e and 3r) – Corner									
B	60 ft	49 ft	29 ft	18 ft	NA	NA	NA	NA	NA
C	25 ft	NA	NA	NA	NA	NA	NA	NA	NA
D	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: 1) Exposure category for the structure location shall be as defined in the Florida Building Code 2) Limitations are based on an effective wind area of $10ft^2$ or less 3) Topographic factors such as escarpments or hills are not included in the above assessment 4) Applicable for Enclosed Buildings without overhangs 5) NA = "Not Allowed" 6) K_d = 0.85 7) Projects with mean roof heights of greater than 60 ft shall be evaluated by a licensed design professional 8) See page 8 for details for dimensions and locales of Zone 1, 2, and 3 9) V_{ult} is shown in the tables above. Design wind loads are calculated using $V_{asd} = V_{ult}\sqrt{0.6}$ per 1609.3.1.

System 1B: Direct-to-Deck	
Slope:	Shall be in accordance with the FBC.
Roof Deck:	Solid or closely fitted min. 15/32 in. plywood sheathing for new and existing construction at max. 24 in. span; In the HVHZ, new construction shall be min. 19/32 in. plywood at max. 24 in. span; Designed by others in accordance with FBC requirements.
Underlayment:	Installed in accordance with FBC requirements. In the HVHZ, the minimum underlayment shall be ASTM D 226, Type II installed in accordance with Sections 1518.2 and 1518.4 or any approved underlayment for use in the HVHZ. In the HVHZ, at the rake and eave, underlayment shall be wrapped over the eave and down the fascia prior to installing the drip edge metal. In the HVHZ, the valley pan shall be sealed to the underlayment on each edge with a continuous 3/4-inch wide bead of a*pproved* sealant.
Attachment:	4.8mm x 35mm HWH screws with 14 mm O.D. sealing washers attached at a rate of **"20 screws per panel"** for Supre, Dura and Ulta Panel or **"24 screws per panel"** for Eura Panel (see Appendix A for fastening patterns); Panel laps stitched with 4.8mm x 19mm HWH screws with 14mm O.D. sealing washers at the preformed locations. Fasteners shall penetrate the deck a minimum 3/8-inch and shall be corrosion resistant in accordance with section 1507.4.4 and 1506.6.
Maximum Design Pressures:	**-97.5 psf** *Pressure calculated using 2:1 margin of safety per 1504.9*

Maximum Mean Roof Heights for Gable/Hip Roofs
Slopes 2:12 – 12:12

Exposure	[9]Basic Wind Speed (mph)								
	≤120	130	140	150	160	170	180	190	200
Zone 1									
B	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft
C	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	42 ft	25 ft	15 ft
D	60 ft	60 ft	60 ft	60 ft	60 ft	33 ft	17 ft	NA	NA
Zone 2 (includes 2e, 2n, and 2r) – Perimeter									
B	60 ft	60 ft	60 ft	60 ft	60 ft	50 ft	33 ft	23 ft	16 ft
C	60 ft	60 ft	60 ft	40 ft	21 ft	NA	NA	NA	NA
D	60 ft	60 ft	35 ft	16 ft	NA	NA	NA	NA	NA
Zone 3 (includes 3e and 3r) – Corner									
B	60 ft	60 ft	60 ft	60 ft	42 ft	27 ft	18 ft	NA	NA
C	60 ft	60 ft	33 ft	17 ft	NA	NA	NA	NA	NA
D	60 ft	31 ft	NA	NA	NA	NA	NA	NA	NA

Notes: 1) Exposure category for the structure location shall be as defined in the Florida Building Code 2) Limitations are based on an effective wind area of $10ft^2$ or less 3) Topographic factors such as escarpments or hills are not included in the above assessment 4) Applicable for Enclosed Buildings without overhangs 5) NA = "Not Allowed" 6) $K_d = 0.85$ 7) Projects with mean roof heights of greater than 60 ft shall be evaluated by a licensed design professional 8) See page 8 for details for dimensions and locales of Zone 1, 2, and 3 9) V_{ult} is shown in the tables above. Design wind loads are calculated using $V_{asd} = V_{ult}\sqrt{0.6}$ per 1609.3.1.

System 2A: Batten/Counter Batten	
Slope:	Shall be in accordance with the FBC.
Roof Deck:	Solid or closely fitted min. 15/32 in. plywood sheathing for new and existing construction at max. 24 in. span; In the HVHZ, new construction shall be min. 19/32 in. plywood at max. 24 in. span; Designed by others in accordance with FBC requirements.
Underlayment:	Installed in accordance with FBC requirements. In the HVHZ, the minimum underlayment shall be ASTM D 226, Type II installed in accordance with Sections 1518.2 and 1518.4 or any approved underlayment for use in the HVHZ. In the HVHZ, at the rake and eave, underlayment shall be wrapped over the eave and down the fascia prior to installing the drip edge metal.
Counter Batten:	1x4 No. 2 SYP lumber laid maximum 24-inch o.c. over the plywood deck trusses/rafters and perpendicular to the eave
Batten:	2x4 No. 2 SYP lumber installed 14-inch o.c. and perpendicular to the counter batten. Two (2) 3.5" x #10 stainless steel deck screws installed at each batten/counter batten intersection through plywood deck into the wood trusses/rafters.
Attachment:	4.8mm x 35mm HWH screws with 14 mm O.D. sealing washers attached at a rate of **"5 screws per panel"** for Supre, Dura and Ulta Panels or **"6 screws per panel"** for Eura Panel (see Appendix A for fastening patterns); Panel laps stitched with 4.8mm x 19mm HWH screws with 14mm O.D. sealing washers at the preformed locations. Fasteners shall penetrate the deck a minimum 3/8-inch and shall be corrosion resistant in accordance with section 1507.4.4 and section 1506.6.
Maximum Design Pressures:	**-116.25 psf** *Pressure calculated using 2:1 margin of safety per 1504.9*

Maximum Mean Roof Heights for Gable/Hip Roofs
Slopes 2:12 - 12:12

Exposure	[9]Basic Wind Speed (mph)								
	≤120	130	140	150	160	170	180	190	200
Zone 1									
B	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft
C	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	58 ft	36 ft
D	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	47 ft	25 ft	NA
Zone 2 (includes 2e, 2n, and 2r) – Perimeter									
B	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	42 ft	29 ft
C	60 ft	60 ft	60 ft	60 ft	49 ft	28 ft	16 ft	NA	NA
D	60 ft	60 ft	60 ft	44 ft	21 ft	NA	NA	NA	NA
Zone 3 (includes 3e and 3r) – Corner									
B	60 ft	60 ft	60 ft	60 ft	60 ft	50 ft	34 ft	23 ft	16 ft
C	60 ft	60 ft	60 ft	40 ft	21 ft	NA	NA	NA	NA
D	60 ft	60 ft	36 ft	16 ft	NA	NA	NA	NA	NA

Notes: 1) Exposure category for the structure location shall be as defined in the Florida Building Code 2) Limitations are based on an effective wind area of $10ft^2$ or less 3) Topographic factors such as escarpments or hills are not included in the above assessment 4) Applicable for Enclosed Buildings without overhangs 5) NA = "Not Allowed" 6) $K_d = 0.85$ 7) Projects with mean roof heights of greater than 60 ft shall be evaluated by a licensed design professional 8) See page 8 for details for dimensions and locales of Zone 1, 2, and 3 9) V_{ult} is shown in the tables above. Design wind loads are calculated using $V_{asd} = V_{ult}\sqrt{0.6}$ per 1609.3.1.

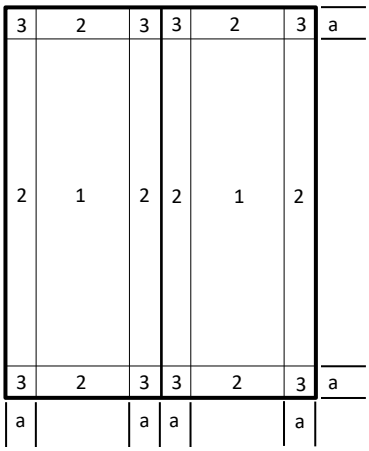
System 2B: Batten/Counter Batten	
Slope:	Shall be in accordance with the FBC.
Roof Deck:	Solid or closely fitted min. 15/32 in. plywood sheathing for new and existing construction at max. 24 in. span; In the HVHZ, new construction shall be min. 19/32 in. plywood at max. 24 in. span; Designed by others in accordance with FBC requirements.
Underlayment:	Installed in accordance with FBC requirements. In the HVHZ, the minimum underlayment shall be ASTM D 226, Type II installed in accordance with Sections 1518.2 and 1518.4 or any approved underlayment for use in the HVHZ. In the HVHZ, at the rake and eave, underlayment shall be wrapped over the eave and down the fascia prior to installing the drip edge metal.
Counter Batten:	1x4 No. 2 SYP lumber laid maximum 24-inch o.c. over the plywood deck trusses/rafters and perpendicular to the eave
Batten:	2x4 No. 2 SYP lumber installed 14-inch o.c. and perpendicular to the counter batten. Two (2) 3.5" x #10 stainless steel deck screws installed at each batten/counter batten intersection through plywood deck into the wood trusses/rafters.
Attachment:	4.8mm x 35mm HWH screws with 14 mm O.D. sealing washers attached at a rate of **"10 screws per panel"** for Supre, Dura and Ulta Panels or **"12 screws per panel"** for Eura Panel (see Appendix A for fastening patterns); Panel laps stitched with 4.8mm x 19mm HWH screws with 14mm O.D. sealing washers at the preformed locations. Fasteners shall penetrate the deck a minimum 3/8-inch and shall be corrosion resistant in accordance with section 1507.4.4 and Section 1506.6.
Maximum Design Pressures:	**-157.5 psf** *Pressure calculated using 2:1 margin of safety per 1504.9*

Maximum Mean Roof Heights for Gable/Hip Roofs
Slopes 2:12 – 12:12

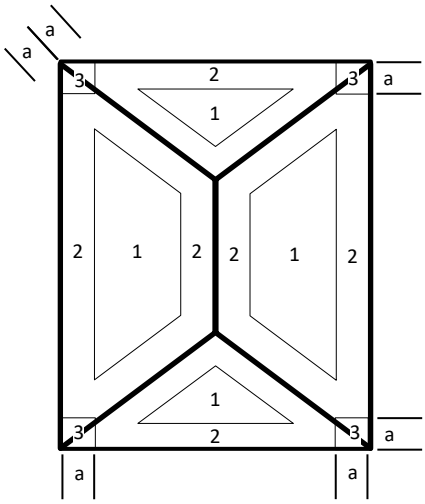
Exposure	[9]Basic Wind Speed (mph)								
	≤120	130	140	150	160	170	180	190	200
Zone 1									
B	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft
C	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft
D	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft
Zone 2 (includes 2e, 2n, and 2r) – Perimeter									
B	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft
C	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	41 ft	25 ft
D	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	31 ft	16 ft	NA
Zone 3 (includes 3e and 3r) – Corner									
B	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	60 ft	47 ft
C	60 ft	60 ft	60 ft	60 ft	60 ft	52 ft	30 ft	18 ft	NA
D	60 ft	60 ft	60 ft	60 ft	44 ft	22 ft	NA	NA	NA

Notes: 1) Exposure category for the structure location shall be as defined in the Florida Building Code 2) Limitations are based on an effective wind area of $10ft^2$ or less 3) Topographic factors such as escarpments or hills are not included in the above assessment 4) Applicable for Enclosed Buildings without overhangs 5) NA = "Not Allowed" 6) $K_d = 0.85$ 7) Projects with mean roof heights of greater than 60 ft shall be evaluated by a licensed design professional 8) See page 8 for details for dimensions and locales of Zone 1, 2, and 3 9) V_{ult} is shown in the tables above. Design wind loads are calculated using $V_{asd} = V_{ult}\sqrt{0.6}$ per 1609.3.1.

Gable



Hip



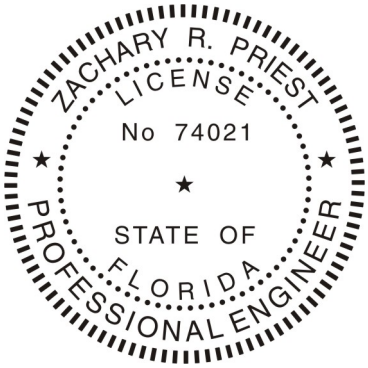
Dimension “a” shall be 10% of the least horizontal dimension or (0.4 x *Mean Roof Height)*, whichever is smaller, but not less than either 4% of the least horizontal dimension or 3ft.

LIMITATIONS

1. Fire classification is not within the scope of this evaluation.
2. The roof deck and the roof deck attachment shall be designed by others to meet the minimum design loads established for components and cladding and in accordance with FBC requirements.
3. Reroofing shall be in accordance with FBC Section 1511 outside the HVHZ and Section 1521 inside the HVHZ.
4. Installation of the evaluated products shall comply with this report, the FBC and the manufacturer’s published application instructions. Where discrepancies exist between these sources, the more restrictive and FBC compliant installation detail shall prevail.
5. All products listed in this report shall be manufactured under a quality assurance program in compliance with Rule 61G20-3.

COMPLIANCE STATEMENT

The products evaluated herein by Zachary R. Priest, P.E. have demonstrated compliance with the Florida Building Code, 7th Edition (2020) including High-Velocity Hurricane Zones (HVHZ) as evidenced in the referenced documents submitted by the named manufacturer.



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-05'00'

Zachary R. Priest, P.E.
Florida Registration No. 74021
Organization No. ANE9641

CERTIFICATION OF INDEPENDENCE

CREEK Technical Services, LLC does not have, nor will it acquire, a financial interest in any company manufacturing or distributing products under this evaluation.

CREEK Technical Services, LLC is not owned, operated, or controlled by any company manufacturing or distributing products under this evaluation.

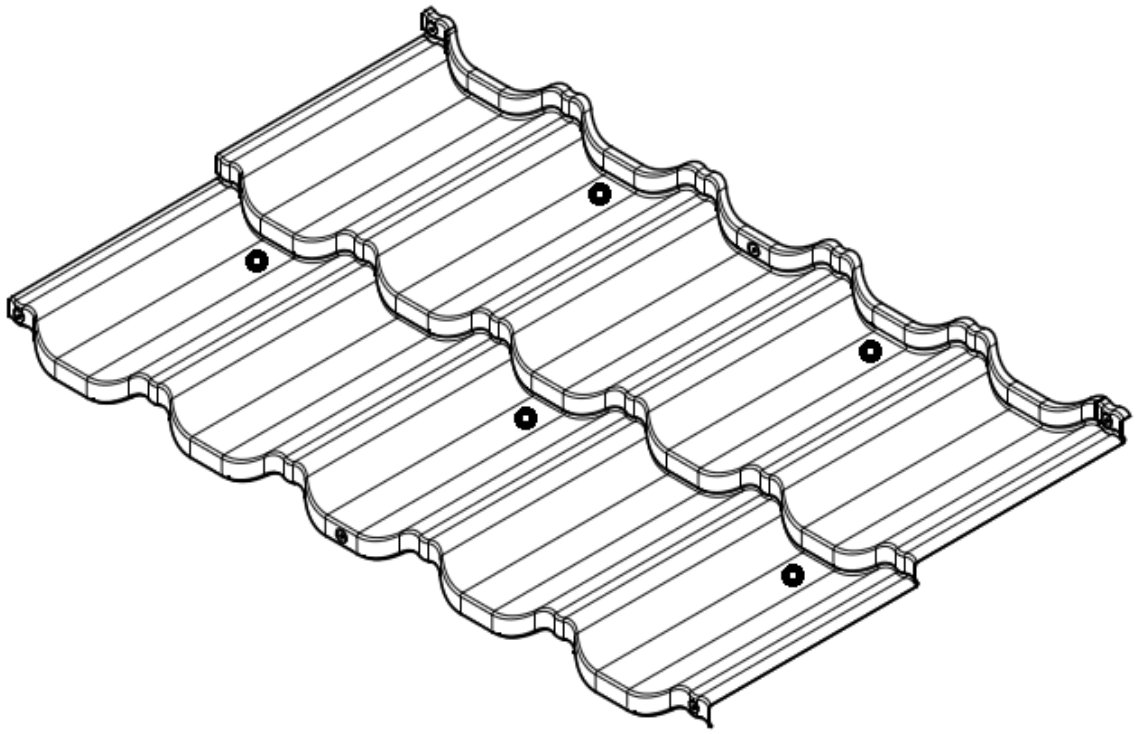
Zachary R. Priest, P.E. does not have, nor will acquire, a financial interest in any company manufacturing or distributing products under this evaluation.

Zachary R. Priest, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.

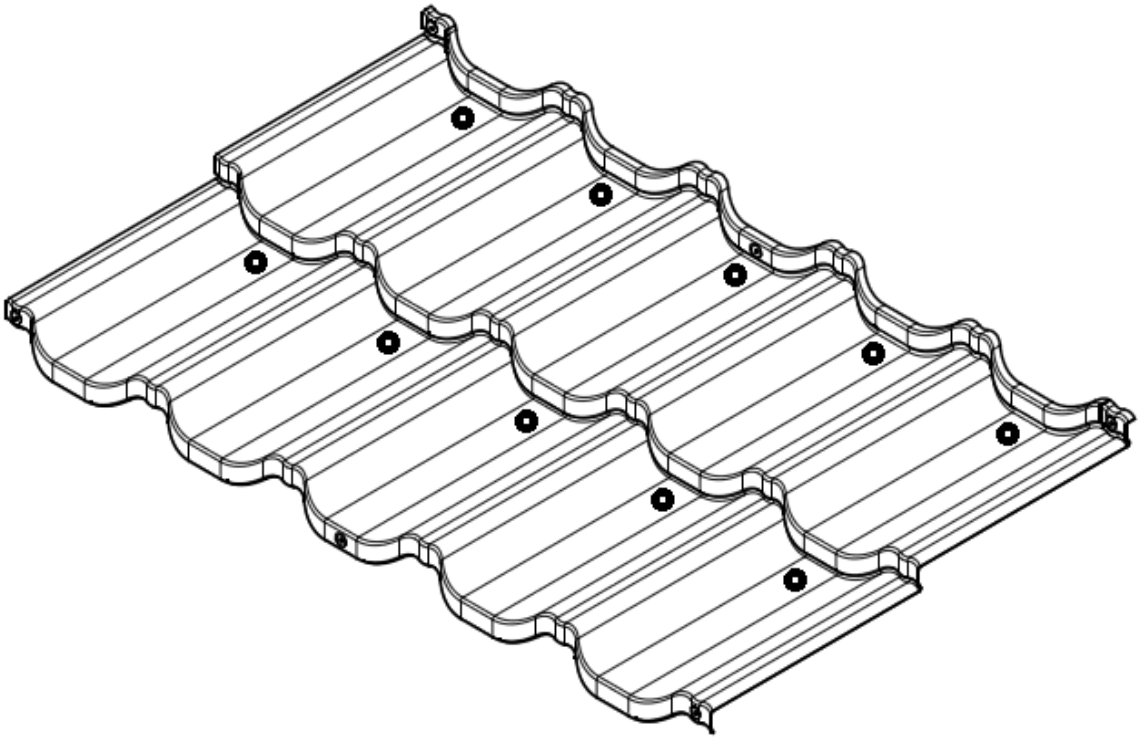
APPENDICES

APPENDIX A – Fastening Patterns (6 pages)

Supre Panel Fastening Patterns

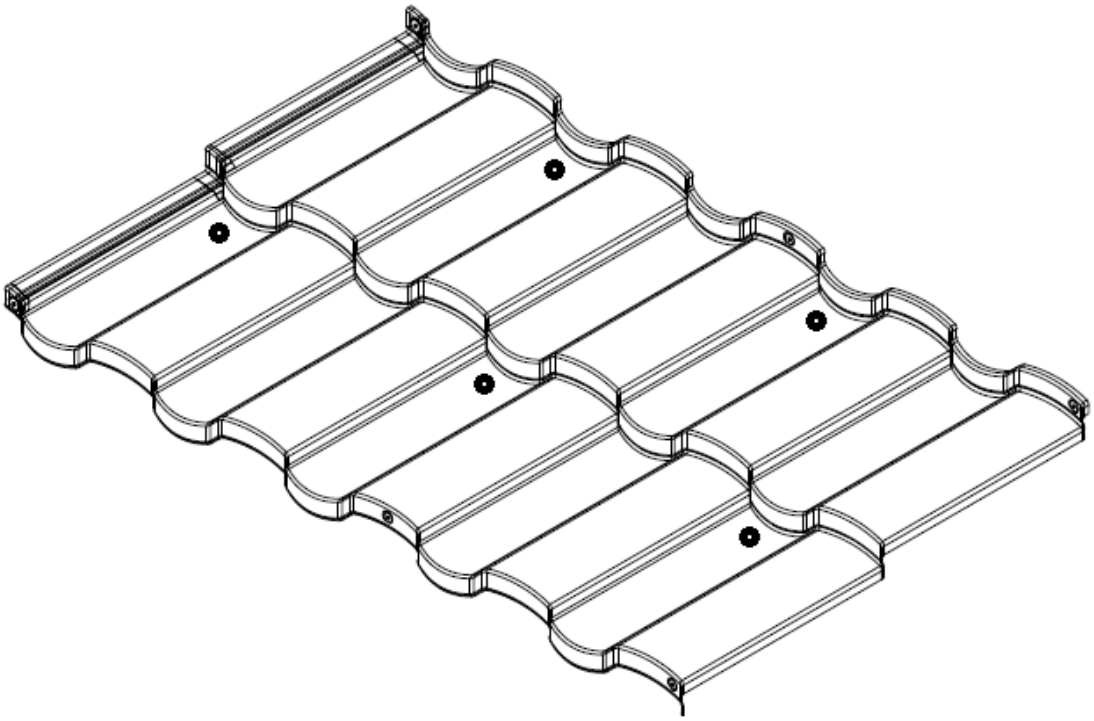


"5 screws per panel"

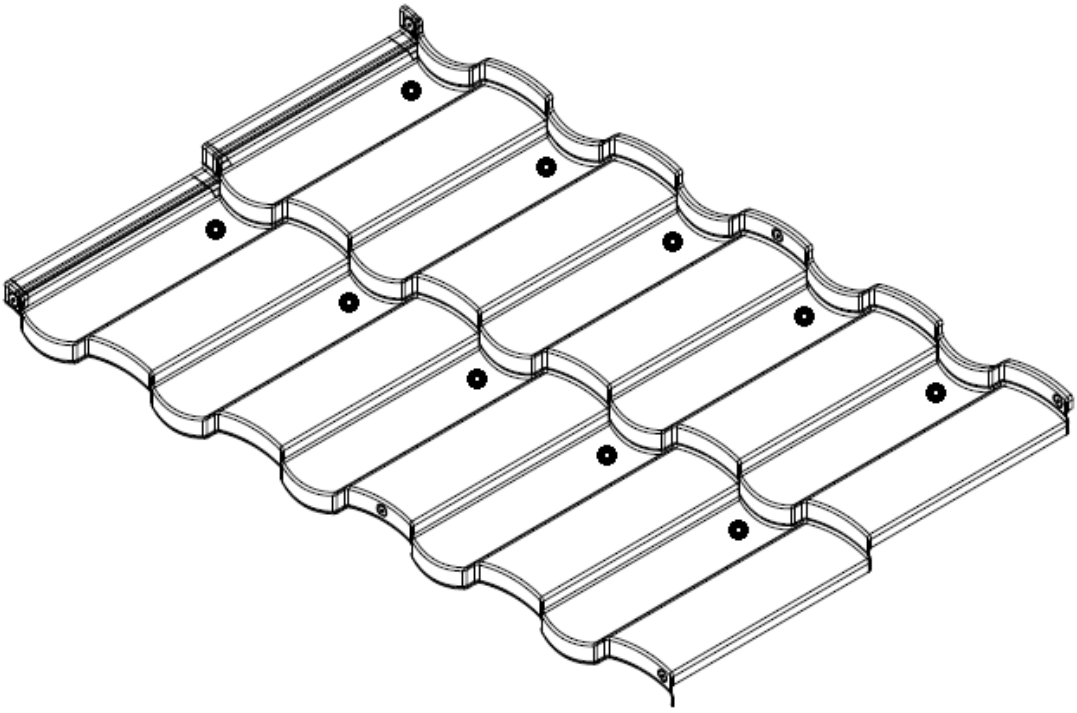


"10 screws per panel" with one (1) fastener at each indicated location.
"20 screws per panel" with two (2) fasteners at each indicated location (1-inch apart).

Dura Panel Fastening Patterns

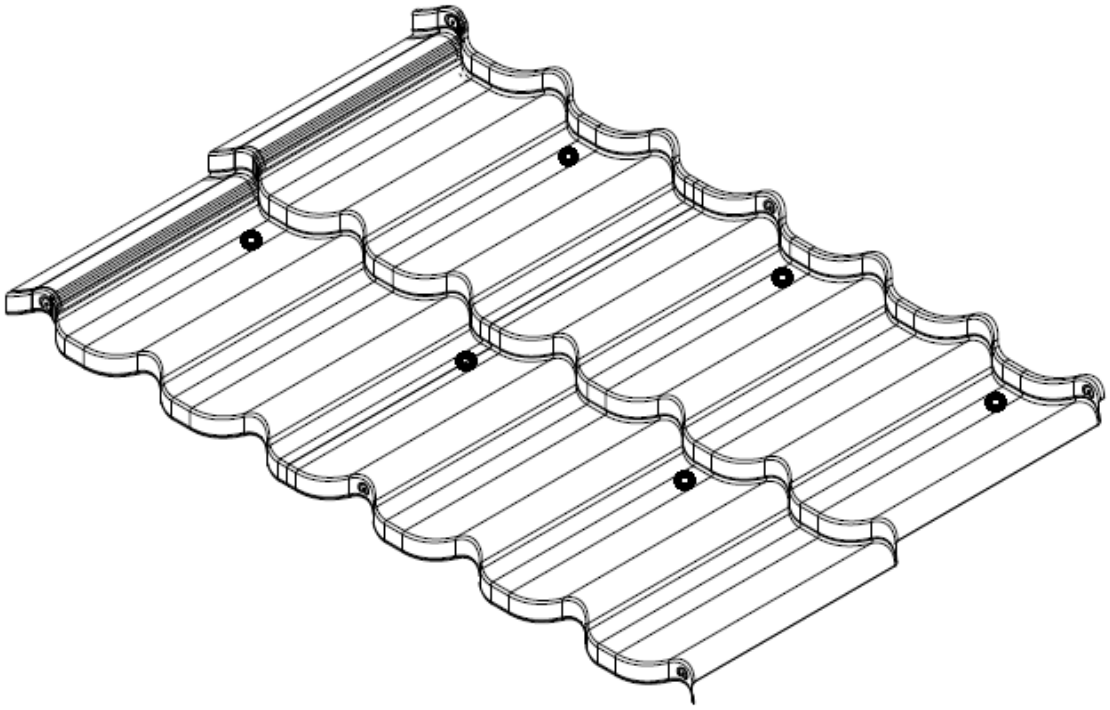


"5 screws per panel"

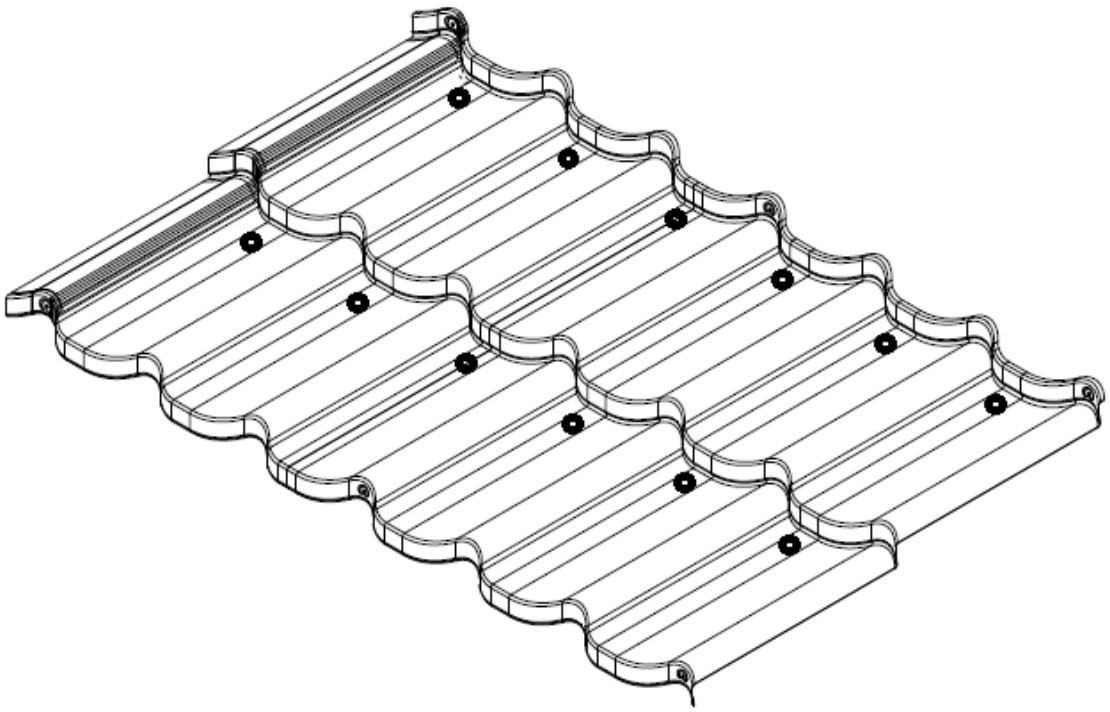


"10 screws per panel" with one (1) fastener at each indicated location.
"20 screws per panel" with two (2) fasteners at each indicated location (1-inch apart).

Eura Panel Fastening Patterns

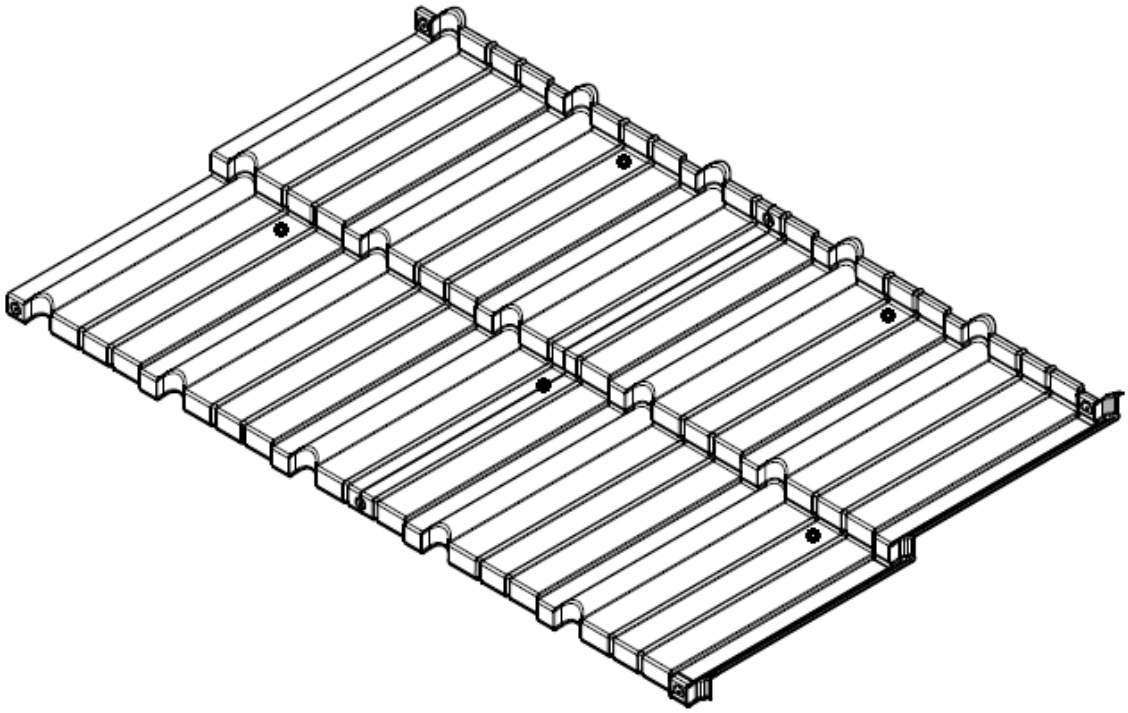


"6 screws per panel"

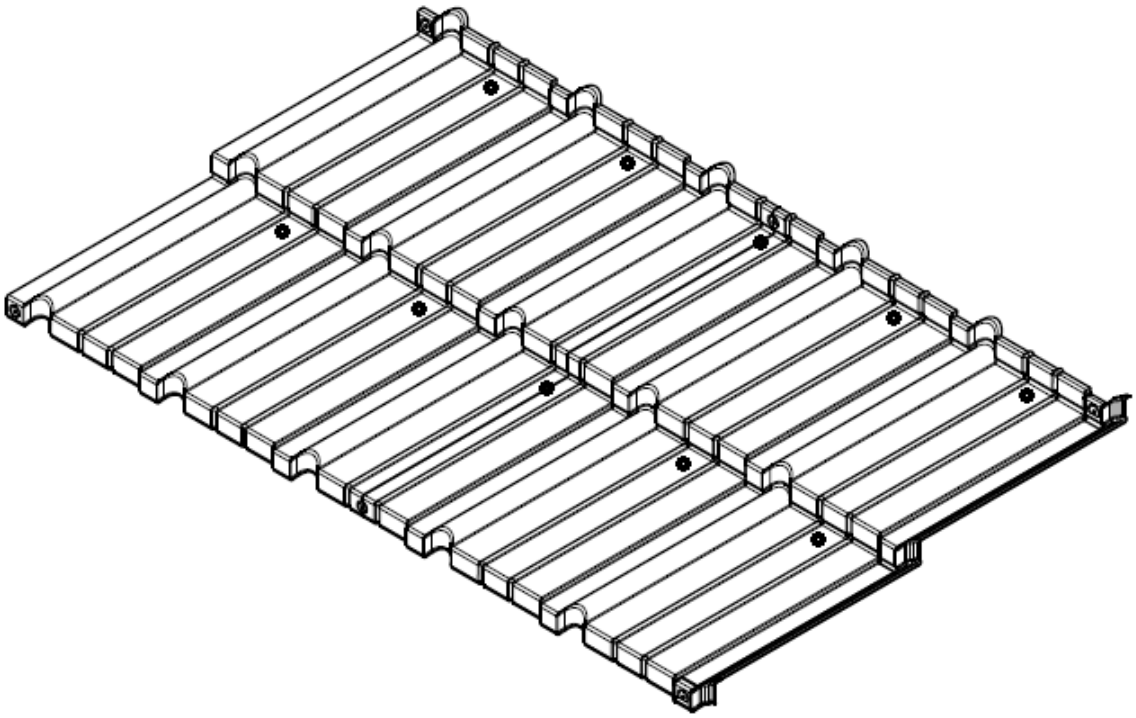


"12 screws per panel" with one (1) fastener at each indicated location.
"24 screws per panel" with two (2) fasteners at each indicated location (1-inch apart).

Ulta Panel Fastening Patterns

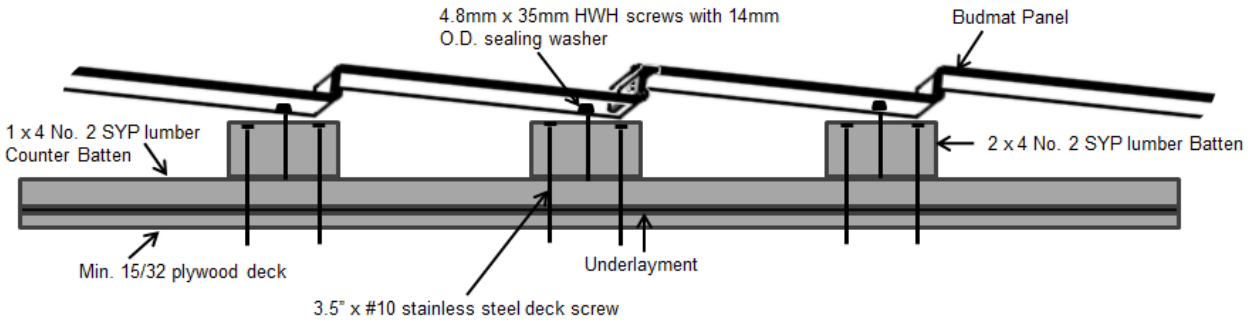


"5 screws per panel"

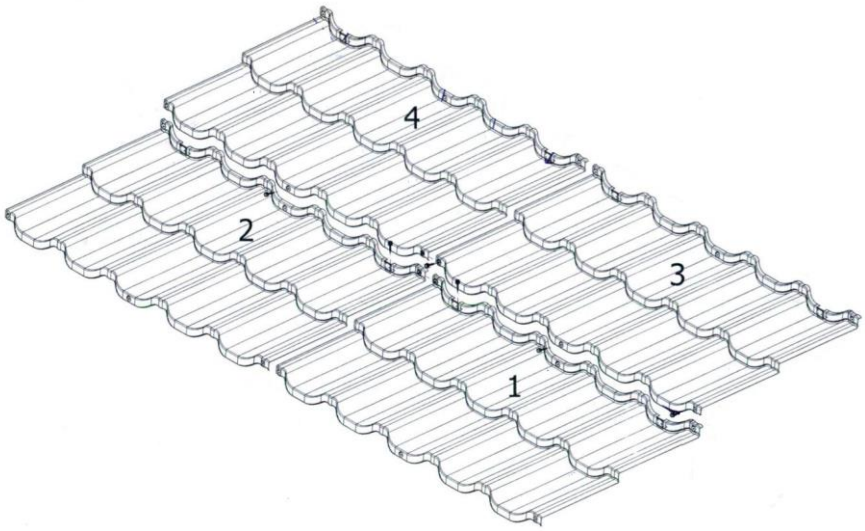


"10 screws per panel" with one (1) fastener at each indicated location.
"20 screws per panel" with two (2) fasteners at each indicated location (1-inch apart).

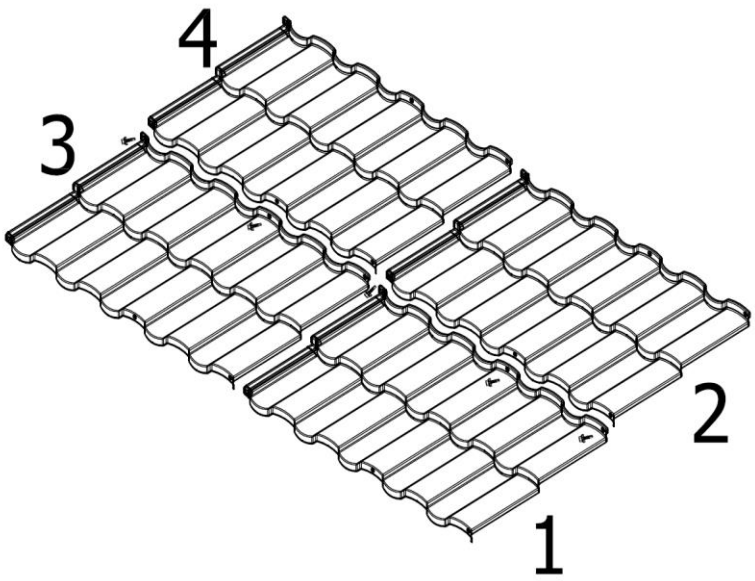
Batten/Counter Batten Fastening Patterns



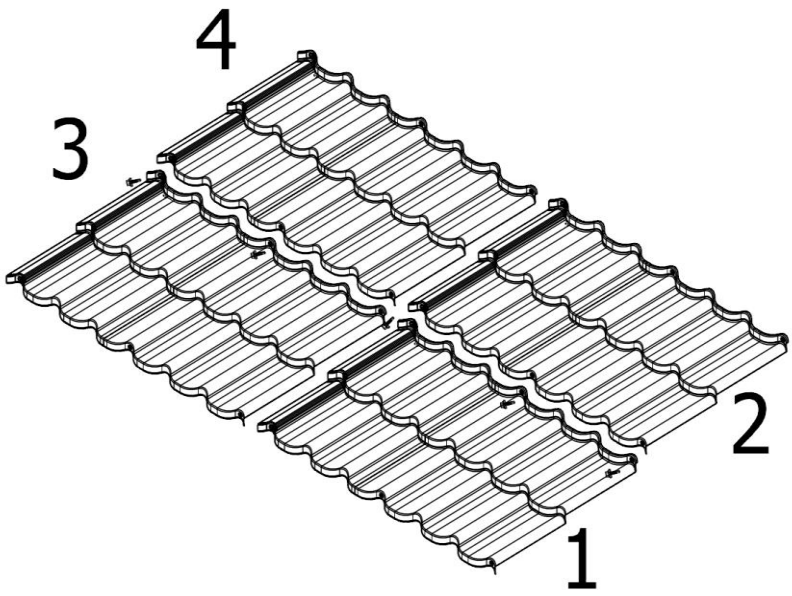
Supre Panel to Panel Connection



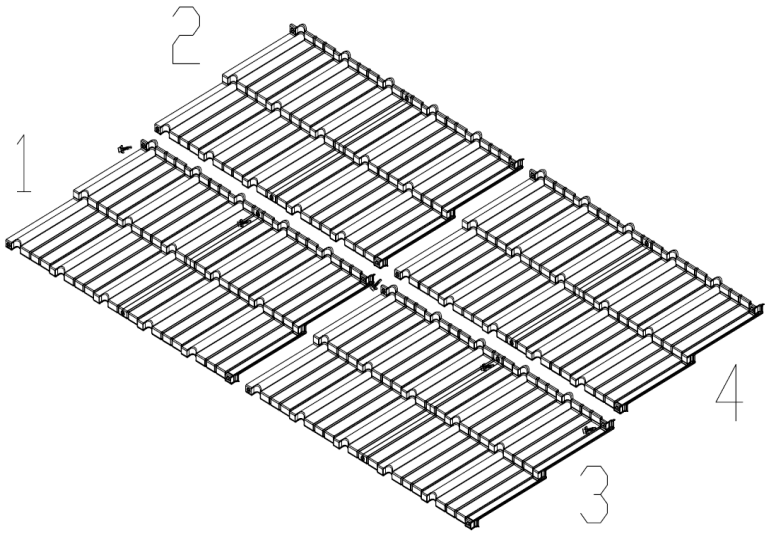
Dura Panel to Panel Connection



Eura Panel to Panel Connection



Ulta Panel to Panel Connection



END OF REPORT