

UL Evaluation Report

UL ER38141-01

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UL Category Code: ULEZ

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DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION
Sub-level 2: 07 40 00 - Roofing and Siding Panels
Sub-level 3: 07 41 00 - Roof Panels
Sub-level 4: 07 41 13 – Metal Roof Panels

COMPANY:

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1. SUBJECT:

BOND 7, CLASSIC, GALLO, I-PANEL, I-SHAKE, I-SHINGLE, I-SLATE, MISTRAL, RIVIERA, ROMANA, SHAKE, AND VIKSEN METAL ROOFING PANELS

2. SCOPE OF EVALUATION:

- 2018, 2015, 2012, 2009, and 2006 *International Building Code*® (IBC)
- 2018, 2015, 2012, 2009, and 2006 *International Residential Code*® (IRC)
- ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated January 2019
- ICC-ES Acceptance Criteria for Metal Roof Coverings (AC166), Approved October 2012 (Editorially revised January 2018)



The products were evaluated for the following properties:

- Roofing Systems for Exterior Fire Exposure (ANSI/UL 790, ASTM E108)
- Roof Deck Construction (ANSI/UL 580)
- Wind Uplift Resistance (ANSI/UL 1897)
- Corrosion Resistance (ASTM B117)
- Weathering Performance (ASTM G155)
- Wind Driven Rain Resistance (TAS 100)

3. REFERENCED DOCUMENTS

- ICC-ES:
 - ICC-ES Acceptance Criteria for Metal Roof Coverings (AC166), Approved October 2012 (Editorially revised January 2018)
 - ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated January 2019
- ANSI/UL:
 - ANSI/UL 580-2006, Standard for Tests for Uplift Resistance of Roof Assemblies with revisions through October 2013
 - ANSI/UL 1897-2012, Uplift Tests for Roof Covering Systems with revisions through September 2015
 - ANSI/UL 790, Standard Test Methods for Fire Tests of Roof Coverings, Eighth Edition (ASTM E108-16), dated April 22, 2004 including revisions through October 19, 2018
- ASTM:
 - ASTM A653/A653M-15, *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*
 - ASTM B117-11, *Standard Practice for Operating Salt Spray (Fog) Apparatus*
 - ASTM G155-13, *Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials*
- Florida Building Code:
 - Test Protocols for the High Velocity Hurricane Zone (HVHZ) Testing Application Standard (TAS) No.100-95: *Test Procedure for Wind and Wind Driven Rain Resistance of Discontinuous Roof Systems*

4. USES

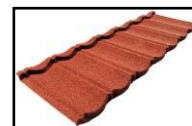
Varitile metal roofing panels are used as roof covering materials in Class A roofing systems when installed in accordance with this report and the manufacturer's published installation instructions.

5. PRODUCT DESCRIPTION

The Varitile metal roofing panels described in this report are either coated or painted metal formed from ASTM A653 hot-dip G90 sheet steel. The panels are manufactured in different profile shapes and have a base metal thickness not less than 26 gauge [0.0179 inches (0.4275 mm)]. The panels are metal roof coverings complying with Section 1507.4 of the 2018, 2015, 2012, 2009, and 2006 IBC and Section R905.10 of the 2018, 2015, 2012, 2009, and 2006 IRC. The individual profile descriptions are listed below.

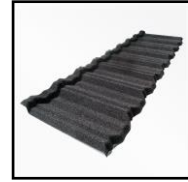
5.1 Bond 7

Bond 7 metal roofing panels are nominally 52.36 inches long (1329.94 mm) by 16.34 inches (415.04 mm) wide, having an exposure area of 50 inches long (1270 mm) by 14.57 in (370.08 mm) wide. Each panel is nominally 6.61 lbs (3.0 kg) with an installed weight of 131 lbs per square (6.4 kg/m²). Bond 7 panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 1](#).



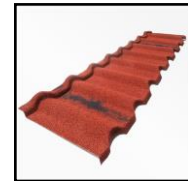
5.2 Classic

Classic metal roofing panels are nominally 52.36 inches long (1329.94 mm) by 16.34 inches (415.04 mm) wide, having and exposure area of 49.8 inches long (1264.92 mm) by 14.57 inches (370.08 mm) wide. Each panel is nominally 6.61 lbs (3.0 kg) with an installed weight of 131 lbs per square (6.4 kg/m²). Classic panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 2](#).



5.3 Gallo

Gallo metal roofing panels are nominally 51.77 inches long (1314.96 mm) by 16.46 inches (418.08 mm) wide, having and exposure area of 49.61 inches long (1260.09 mm) by 14.57 in (370.08 mm) wide. Each panel is nominally 6.61 lbs (3.0 kg) with an installed weight of 140 lbs per square (6.84 kg/m²). Gallo panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 3](#).



5.4 I-Panel

I-Panel metal roofing panels are nominally 52.36 inches long (1330 mm) by 16.69 inches (424 mm) wide, having and exposure area of 48.54 inches long (1233 mm) by 14.61 in (371 mm) wide. Each panel is nominally 7.25 lbs (3.29 kg) with an installed weight of 146 lbs per square (7.13 kg/m²). I-Panel panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 4](#).



5.5 I-Shake

I-Shake metal roofing panels are nominally 52.36 inches long (1330 mm) by 16.69 inches (424 mm) wide, having and exposure area of 48.54 inches long (1233 mm) by 14.61 in (371 mm) wide. Each panel is nominally 7.25 lbs (3.29 kg) with an installed weight of 146 lbs per square (7.13 kg/m²). I-Shake panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 5](#).



5.6 I-Shingle

I-Shingle metal roofing panels are nominally 52.36 inches long (1330 mm) by 16.69 inches (424 mm) wide, having and exposure area of 48.54 inches long (1233 mm) by 14.61 in (371 mm) wide. Each panel is nominally 7.25 lbs (3.29 kg) with an installed weight of 146 lbs per square (7.13 kg/m²). I-Shingle panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 6](#).



5.7 I-Slate

I-Slate metal roofing panels are nominally 52.36 inches long (1330 mm) by 16.69 inches (424 mm) wide, having and exposure area of 48.54 inches long (1233 mm) by 14.61 in (371 mm) wide. Each panel is nominally 7.25 lbs (3.29 kg) with an installed weight of 146 lbs per square (7.13 kg/m²). I-Slate panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 7](#).



5.8 Mistral

Mistral metal roofing panels are nominally 51.38 inches long (1305.05 mm) by 16.34 inches (415.03 mm) wide, having and exposure area of 48.82 inches long (1240.03 mm) by 14.57 in (370.08 mm) wide. Each panel is nominally 6.61 lbs (3.0 kg) with an installed weight of 134 lbs per square (6.54 kg/m²). Mistral panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 8](#).



5.9 Riviera

Riviera metal roofing panels are nominally 50.71 inches long (1288.03 mm) by 16.34 inches (415.04 mm) wide, having an exposure area of 47.76 inches long (1213.10 mm) by 14.57 in (370.08 mm) wide. Each panel is nominally 7.03 lbs (3.19 kg) with an installed weight of 99 lbs per square (4.83 kg/m²). Riviera panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 9](#).



5.10 Romana

Romana metal roofing panels are nominally 45.47 inches long (1154.94 mm) by 16.34 inches (415.04 mm) wide, having an exposure area of 42.91 inches long (1089.91 mm) by 14.57 in (370.08 mm) wide. Each panel is nominally 6.61 lbs (3.0 kg) with an installed weight of 152 lbs per square (7.42 kg/m²). Romana panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 10](#).



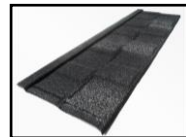
5.11 Shake

Shake metal roofing panels are nominally 52.36 inches long (1329.94 mm) by 16.34 inches (415.03 mm) wide, having an exposure area of 49.80 inches long (1264.92 mm) by 14.57 in (370.08 mm) wide. Each panel is nominally 6.61 lbs (3.0 kg) with an installed weight of 134 lbs per square (6.54 kg/m²). Shake panels may be used in assemblies having a slope of 2:12 and greater. See [Detail Sequence 11](#).



5.12 Viksen

Viksen metal roofing panels are nominally 52.17 inches long (1325.12 mm) by 16.14 inches (409.96 mm) wide, having an exposure area of 49.61 inches long (1260.09 mm) by 14.57 in (370.08 mm) wide. Each panel is nominally 6.61 lbs (3.0 kg) with an installed weight of 132 lbs per square (6.44 kg/m²). Viksen panels may be used in assemblies having a slope of 3-1/2:12 and greater. See [Detail Sequence 12](#).



Fire Classification: Varitile metal roofing panels covered under this report have been tested for fire classifications Class A in accordance with ANSI/UL 790 (ASTM E108) and qualify for use under Section 1505.1 of the 2018, 2015, 2012, 2009 and 2006 IBC and Section R902.1 of the 2018, 2015, 2012, 2009 and 2006 IRC. Refer to [Table 1](#).

Wind Resistance: Roofing assemblies shall be designed to resist the design wind load pressures for components and cladding in accordance with Section 1609.5 and Section 1504.3 of the 2018, 2015, 2012, 2009 and 2006 IBC and Section R905.1 of the 2018, 2015, 2012, 2009 and 2006 IRC.

Wind Uplift Resistance: The Varitile Bond 7, Classic, Gallo, I-Panel, Mistral, Riviera, Romana, Shake, and Viksen metal roofing panels covered under this report have been tested for wind uplift resistance in accordance with ANSI/UL 580/1897 complying with Section 1504.3.1 of the 2018, 2015, 2012, 2009, and 2006 IBC. Refer to [Table 1](#).

Wind Driven Rain Resistance: Varitile Classic and Romana metal roofing panels covered under this report have been tested for wind driven rain resistance in accordance with Test Application Standard (TAS) 100. [Table 2](#) provides additional installation details for trim and edge treatments.

Physical Properties: Varitile metal roofing panels covered under this report have been tested for the following performance requirements for metal panel roof systems.

- **Accelerated Weathering:** Varitile metal roofing panels covered under this report have passed the criteria for accelerated weathering in accordance with Section 1504.6 of the IBC.
- **Corrosion Resistance:** Varitile metal roofing panels complying with Section 1507.4.3 of the 2018, 2015, 2012, 2009, and 2006 IBC and Section 905.10.3 of the 2018, 2015, 2012, 2009, and 2006 IRC covered under this report have been tested for resistance to corrosion in accordance with ASTM A653.

6. INSTALLATION

6.1 General

Varitile metal roofing panels must be installed in accordance with Section 1507.4 of the 2018, 2015, 2012, 2009 and 2006 IBC or Section R905.10 of the 2018, 2015, 2012, 2009 and 2006 IRC, except as noted in this report, and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at all times on the jobsite during installation. The metal roofing panels must be attached to the decked sheathing in a manner that will secure the panels in place.

6.2 Slope

Products covered in this report are intended for roof decks having greater than 2:12 slope. Installation of Varitile metal roofing panels covered in this report are to be installed in accordance with Section 1507.4.2 of the 2018, 2015, 2012, 2009, and 2006 IBC and Section R905.10.2 of the 2018, 2015, 2012, 2009, and 2006 IRC.

6.3 Roof Deck

Roof decking is to be as described in Section 1507.4.1 of the 2018, 2015, 2012, 2009, 2006 IBC and Section R905.10.1 of the 2018, 2015, 2012, 2009, and 2006 IRC. The minimum required sheathing is to be ¹⁵/₃₂-inch plywood decking, or ⁷/₁₆-inch OSB. The sheathing must be structurally sound and adequately fastened to resist wind loads for components and cladding as specified in Section 1609 of the 2018, 2015, 2012, 2009, and 2006 IBC and Section R301.6 of the 2012, 2009, and 2006 IRC.

6.4 Battens and Counter Battens

Wood battens must be nominal 2X2 standard grade Douglas Fir-Larch or better. Steel battens must be minimum 26 gauge [0.0179 inches (0.4275 mm)] hat-shaped sections with a minimum 1-¹/₂inch (38 mm) height. Counter-battens must be nominal 1X4 standard grade Douglas Fir-Larch or better. Battens and Counter Battens must be adequately fastened to resist wind loads.

6.5 Underlayment

Underlayment must comply with Section 1507.4.5 of the 2018, 2015, 2012, 2009 and 2006 IBC and specified in Section R905.10.5 of the 2018, 2015, 2012, 2009 and 2006 IRC, as applicable.

6.6 Flashing

Flashing materials are to be installed in accordance with Section 1503.2 of the 2018, 2015, 2012, 2009, and 2006 IBC and Section R903.2 of the 2018, 2015, 2012, 2009, and 2006 IRC, as applicable.

6.7 Roofing Panels

Installation of the metal roofing panels must begin at the eave edge with a starter row. An overlaying offset row is then installed to cover the starter row nail heads. Subsequent courses to be installed in accordance with the manufacturer's instructions.

6.8 Hips and Ridges

Hips and ridges must be installed in accordance with Varitile, Inc.'s published installation instructions for exposure dimension and fastener type.

6.9 Fasteners

Fasteners supplied by Varitile are minimum 2.25 inch long ring-shanked nails. The nails have heads of 0.236 inch in diameter with 0.113-inch diameter shanks. Attachment of the roof panels must be in accordance with Section 1507.4.4 of the 2018, 2015, 2012, 2009, and 2006 IBC and Section R905.10.4 of the 2018, 2015, 2009 and 2006 IRC, as applicable.

6.10 Reroofing

Existing roof covering materials are to be completely removed, and any structurally unstable sheathing materials are to be removed and replaced prior to installation of the Varitile metal roofing panels. Installation is to be performed for new construction as described in Section 6 of this report.

7. CONDITIONS OF USE

7.1 General

The metal roofing panels described in this report comply with, or are suitable alternatives to, what is specified in those codes listed in Section 2 of this report, subject to the following conditions:

- 7.2** Materials and methods of installation must comply with this report and the manufacturer's published installation instructions. In the event of a conflict between the installation instructions and this report, this report governs.
- 7.3** Only Varitile specified fasteners shall be used in the installation of the roof covering system.
- 7.4** See the UL Product iQ™ database for Prepared Roof Covering Materials, Formed or Molded Metal, Fiber-Cement, Plastic or Fire-retardant-treated Wood ([TFXX](#)), File R38141 and Roof-covering Materials, Impact Resistance ([TGAM](#)), File R38141.
- 7.5** Wind uplift pressures on any roof area, including edges and corner zones shall not exceed the allowable wind pressure for the roof covering installed in that particular area. The allowable wind uplift pressure for the roof assembly shall be based on a minimum factor of safety of 2.0. A safety factor of 2.0 must be applied to the rating for uplift resistance. The allowable wind uplift pressure is for the roof system only. The deck and framing to which the roofing system is attached shall be designed for the applicable components and cladding wind loads in accordance with the applicable code.
- 7.6** The metal roofing panels covered under this report are produced under the UL LLC Listing/Classification and Follow-Up Service Program, which includes audits in accordance with quality elements of ICC-ES Acceptance Criteria for Quality Documentation, AC10.

8. SUPPORTING EVIDENCE

- 8.1** Data in accordance with ICC-ES Acceptance Criteria for Metal Roof Coverings (AC166), Approved October 2012 (Editorially revised January 2018).
- 8.2** Manufacturer's descriptive product literature, including installation instructions.
- 8.3** Documentation of quality system elements described in ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated January 2019.
- 8.4** UL Certification reports in accordance with ANSI/UL 790 and UL 2218. See UL Product Certification Categories (TFXX) and (TGAM), respectively.
- 8.5** Test reports in accordance with ANSI/UL 1897.

9. IDENTIFICATION

Varitile metal roofing panels described in this evaluation report are identified by a marking bearing the report holder's name (Varitile, Inc.) and address, the product name, the UL Certification Mark, and the evaluation report number UL ER38141-01. The validity of the evaluation report is contingent upon this identification appearing on the product or UL Classification Mark certificate.

10. USE OF UL EVALUATION REPORT

- 10.1** The approval of building products, materials, or systems is the responsibility of the applicable authorities having jurisdiction.
- 10.2** UL Evaluation Reports shall not be used in any manner that implies an endorsement of the product, material or system by UL.
- 10.3** The status of this report, as well as a complete directory of UL Evaluation Reports may be found at UL.com via the UL Product iQ™ database:

[UL Evaluation Reports](#)

TABLE 1: COMBUSTIBLE WIND UPLIFT ASSEMBLIES^{1, 2}

System Number	Barrier Product Configuration	Batten ³ Attachment	Panel Attachment	Wind Uplift		Fire Rating (Unlimited Incline)
				Tested Pressure (psf)	Maximum Design Pressure ⁴	
Bond 7⁵				ANSI/UL 1897		ANSI/UL 790
1	Minimum ½ inch thick gypsum wallboard, ¼ inch thick G-P Gypsum DensDeck, USG Securock glass mat board, CertainTeed Gypsum GlasRoc, or two layers GAF VersaShield	(1) #10X3-½ inch bugle head screw 24 inches oc into framing, (1) #9X2-½ inch bugle head screw 24 inches oc mid-span between framing members	(5) 11.5 ga, 2-¼ inch coated fasteners into panel nose and through preceding course into the batten	-150	-75	Class A
2		(2) #10X3-½ inch bugle head screw 24 inches oc into framing, (1) #9X2-½ inch bugle head screw 24 inches oc mid-span between framing members	(7) 11.5 ga, 2-¼ inch coated fasteners into panel nose and through preceding course into the batten	-270	-135	

¹APA stamped minimum 15/32-inch CDX plywood deck fastened on all edges and at mid-span to framing 6 inches oc with 2-3/8 inch #8d annular ring shank nails.

²ASTM D226 Type II underlayment attached to deck with 32 GA, 1-5/8 inch tin caps having 12 GA 1-1/4 inch nails at 6 inches on center in the laps and two additional field rows spaced 12 inches on center.

³Battens are to be minimum nominal 2X2 Douglas Fir-Larch or better, or minimum 26 GA steel, 1-½ inch wide hats.

⁴The maximum design wind uplift pressure utilizes a safety factor of 2 to the maximum tested load achieved without failure.

⁵Adjacent panel overlap approximately 2-½ inches.

TABLE 1: COMBUSTIBLE WIND UPLIFT ASSEMBLIES^{1, 2} (CONTINUED)

System Number	Barrier Product Configuration	Batten ³ Attachment	Panel Attachment	Wind Uplift		Fire Rating (Unlimited Incline)
				Tested Pressure (psf)	Maximum Design Pressure ⁴	
Classic, Shake⁵				ANSI/UL 1897		ANSI/UL 790
3	Minimum 1/2 inch thick gypsum wallboard, 1/4 inch thick G-P Gypsum DensDeck, USG Securock glass mat board, CertainTeed Gypsum GlasRoc, or two layers GAF VersaShield	(1) #10X3-1/2 inch bugle head screw 24 inches oc into framing, (1) #9X2-1/2 inch bugle head screw 24 inches oc mid-span between framing members	(5) 11.5 ga, 2-1/4 inch coated fasteners into panel nose and through preceding course into the batten	-172.5	-86.25	Class A
4		(2) #10X3-1/2 inch bugle head screw 24 inches oc into framing, (1) #9X2-1/2 inch bugle head screw 24 inches oc mid-span between framing members	(7) 11.5 ga, 2-1/4 inch coated fasteners into panel nose and through preceding course into the batten	-225	-112.5	

¹APA stamped minimum 15/32-inch CDX plywood deck fastened on all edges and at mid-span to framing 6 inches oc with 2-3/8 inch #8d annular ring shank nails.

²ASTM D226 Type II underlayment attached to deck with 32 GA, 1-5/8 inch tin caps having 12 GA 1-1/4 inch nails at 6 inches on center in the laps and two additional field rows spaced 12 inches on center.

³Battens are to be minimum nominal 2X2 Douglas Fir-Larch or better, or minimum 26 GA steel, 1-1/2 inch wide hats.

⁴The maximum design wind uplift pressure utilizes a safety factor of 2 to the maximum tested load achieved without failure.

⁵Adjacent panel overlap approximately 2-1/2 inches.

TABLE 1: COMBUSTIBLE WIND UPLIFT ASSEMBLIES^{1, 2} (CONTINUED)

System Number	Barrier Product Configuration	Batten ³ Attachment	Panel Attachment	Wind Uplift		Fire Rating (Unlimited Incline)
				Tested Pressure (psf)	Maximum Design Pressure ⁴	
I-Panel, I-Shake, I-Shingle, I-Slate				ANSI/UL 1897		ANSI/UL 790
5	Minimum ½ inch thick gypsum wallboard, ¼ inch thick G-P Gypsum DensDeck, USG Securock glass mat board, CertainTeed Gypsum GlasRoc, or two layers GAF VersaShield	N/A	(10) #10 X 1-1/2 inch HWH dual thread fasteners with ½ inch washers 5 inches oc between edge fasteners 2 inches from either end	-195	-97.5	Class A
Romana⁵				ANSI/UL 1897		ANSI/UL 790
6	Minimum ½ inch thick gypsum wallboard, ¼ inch thick G-P Gypsum DensDeck, USG Securock glass mat board, CertainTeed Gypsum GlasRoc, or two layers GAF VersaShield	(1) #10X3-½ inch bugle head screw 24 inches oc into framing, (1) #9X2-½ inch bugle head screw 24 inches oc mid-span between framing members	(6) 11.5 ga. 2-1/4 inch coated fasteners into panel nose and through preceding course into the batten	-210	-105	Class A
7		(2) #10X3-½ inch bugle head screw 24 inches oc into framing, (1) #9X2-½ inch bugle head screw 24 inches oc mid-span between framing members		-345	-172.5	

¹APA stamped minimum 15/32-inch CDX plywood deck fastened on all edges and at mid-span to framing 6 inches oc with 2-3/8 inch #8d annular ring shank nails.

²ASTM D226 Type II underlayment attached to deck with 32 GA, 1-5/8 inch tin caps having 12 GA 1-1/4 inch nails at 6 inches on center in the laps and two additional field rows spaced 12 inches on center.

³Battens are to be minimum nominal 2X2 Douglas Fir-Larch or better, or minimum 26 GA steel, 1-1/2 inch wide hats, 14- ½ inches oc.

⁴The maximum design wind uplift pressure utilizes a safety factor of 2 to the maximum tested load achieved without failure.

⁵Adjacent panel overlap approximately 3-1/8 inches.

TABLE 1: COMBUSTIBLE WIND UPLIFT ASSEMBLIES^{1, 2} (CONTINUED)

System Number	Barrier Product Configuration	Batten ³ Attachment	Panel Attachment	Wind Uplift		Fire Rating (Unlimited Incline)
				Tested Pressure (psf)	Maximum Design Pressure ⁴	
Gallo, Mistral, Viksen⁵				ANSI/UL 1897		ANSI/UL 790
8	Minimum ½ inch thick gypsum wallboard, ¼ inch thick G-P Gypsum DensDeck, USG Securock glass mat board, CertainTeed Gypsum GlasRoc, or two layers GAF VersaShield	(1) #10X3-½ inch bugle head screw 24 inches oc into framing, (1) #9X2-½ inch bugle head screw 24 inches oc mid-span between framing members	(5) 11.5 ga. 2- ¹ / ₄ inch coated fasteners into panel nose and through preceding course into the batten	-172.5	-86.25	Class A
9		(2) #10X3-½ inch bugle head screw 24 inches oc into framing, (1) #9X2-½ inch bugle head screw 24 inches oc mid-span between framing members	(6) 11.5 ga. 2- ¹ / ₄ inch coated fasteners into panel nose and through preceding course into the batten	-285	-142.5	
Riviera				ANSI/UL 1897		ANSI/UL 790
10	Minimum ½ inch thick gypsum wallboard, ¼ inch thick G-P Gypsum DensDeck, USG Securock glass mat board, CertainTeed Gypsum GlasRoc, or two layers GAF VersaShield	(2) #10X3-½ inch bugle head screw 24 inches oc into framing, (1) #9X2-½ inch bugle head screw 24 inches oc mid-span between framing members	(7) 11.5 ga. 2- ¹ / ₄ inch coated fasteners into panel nose and through preceding course into the batten	-270	-135	Class A

¹APA stamped minimum ¹⁵/₃₂-inch CDX plywood deck fastened on all edges and at mid-span to framing 6 inches oc with 2-³/₈ inch #8d annular ring shank nails.

²ASTM D226 Type II underlayment attached to deck with 32 GA, 1-⁵/₈ inch tin caps having 12 GA 1-¹/₄ inch nails at 6 inches on center in the laps and two additional field rows spaced 12 inches on center.

³Battens are to be minimum nominal 2X2 Douglas Fir-Larch or better, or minimum 26 GA steel, 1-½ inch wide hats, 14-½ inches oc.

⁴The maximum design wind uplift pressure utilizes a safety factor of 2 to the maximum tested load achieved without failure.

⁵Adjacent panel overlap approximately 3-¹/₈ inches.

TABLE 2: WIND DRIVEN RAIN RESISTANCE¹

Roof Location/Detail	Component Description	Component Attachment	Wind Driven Rain Resistance (HVHZ)
Classic			TAS 100
Drip Edge²	Minimum 26 ga. G90 Steel having 2-³/₄ inch vertical face and 3 inch fastening flange	12 ga. 1-¹/₄ inch ring shank nails 4 inch oc 1 inch from the exterior edge	Pass
Eave³	Stone coated trim having 3-¹/₂ inch vertical face and 1 inch fastening flange	11.5 ga. 2-¹/₄ inch coated fasteners 6 inch oc into batten	
Rake^{4, 5, 6, 7}	Stone coated barrel shaped trim	(2) 11.5 ga. 2-¹/₄ inch coated fasteners per barrel; (1) on top into counter batten and (1) on side into fascia	
Valley⁸	Stone coated valley trim having 6-inch open valley having ¹/₂-inch side returns	11.5 ga. 2-¹/₄ inch coated fasteners at batten intersections	

¹Deck, underlayment, batten, and roof covering materials and installation methods must comply with [Table 1](#). Minimum slope is 2:12.

²Drip edge metal is to be installed with 4-inch overlaps at end joints.

³Nominal 2-¹/₄ inch square foam closure material used to seal between top side of stone coated trim and roof cover.

⁴Nominal 2X2 wood counter-batten applied parallel to rake edge and atop battens.

⁵Metal roof cover material bent over counter-batten.

⁶ASTM C920 elastomeric sealant used to seal any fasteners and gaps at detail intersections.

⁷Barrel trim applied having 14-¹/₂ inch exposure with 1-¹/₂ inch overlaps.

⁸Metal panels bent 1-¹/₂-inch to valley pan.

TABLE 2: WIND DRIVEN RAIN RESISTANCE¹ (CONTINUED)

Roof Location/Detail	Component Description	Component Attachment	Wind Driven Rain Resistance (HVHZ)
Romana			TAS 100
Drip Edge²	Minimum 26 ga. G90 Steel having 2-³/₄ inch vertical face and 3 inch fastening flange	12 ga. 1-¹/₄ inch ring shank nails 4 inch oc 1 inch from the exterior edge	Pass
Eave 1³	Stone coated trim having 3-¹/₂ inch vertical face and 20-¹/₂ inch fastening flange	11.5 ga. 2-¹/₄ inch coated fasteners 6 inch oc into batten	
Eave 2⁴	Stone coated eave closure to fit Romana panel profile at eave	11.5 ga. 2-¹/₄ inch coated fasteners 12 inch oc into fascia	
Rake 1⁴	Stone coated barge board cover as transition from roof cover profile to rake edge	(2) 11.5 ga. 2-¹/₄ inch coated fasteners 12 inch oc; (1) through flange into sheathing and (1) in vertical face into fascia	
Rake 2⁵	Stone coated rake barrel trim	(2) 11.5 ga. 2-¹/₄ inch coated fasteners per barrel; (1) on top into barge board and (1) on side into fascia	
Valley^{4, 6}	Stone coated, 5V closed valley trim having 1 inch side returns	11.5 ga. 2-¹/₄ inch coated fasteners 24 inch oc into fascia	

¹Deck, underlayment, batten, and roof covering materials and installation methods must comply with [Table 1](#). Minimum slope is 2:12.

²Drip edge metal is to be installed with 4-inch overlaps at end joints.

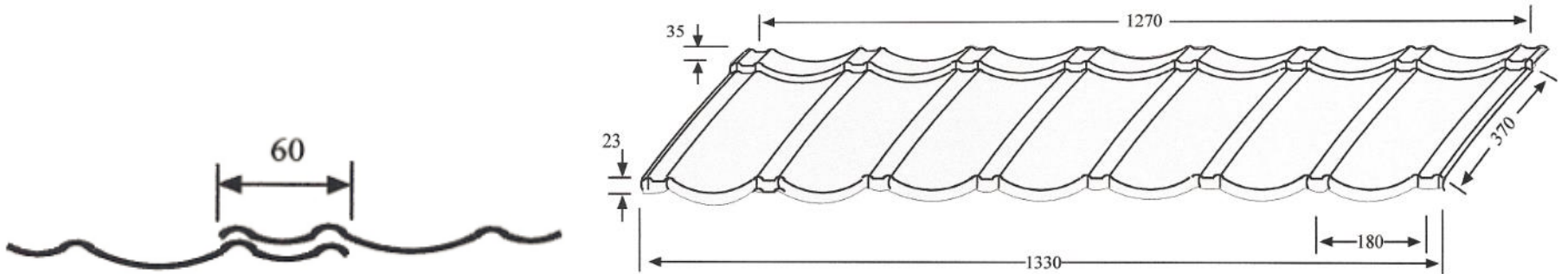
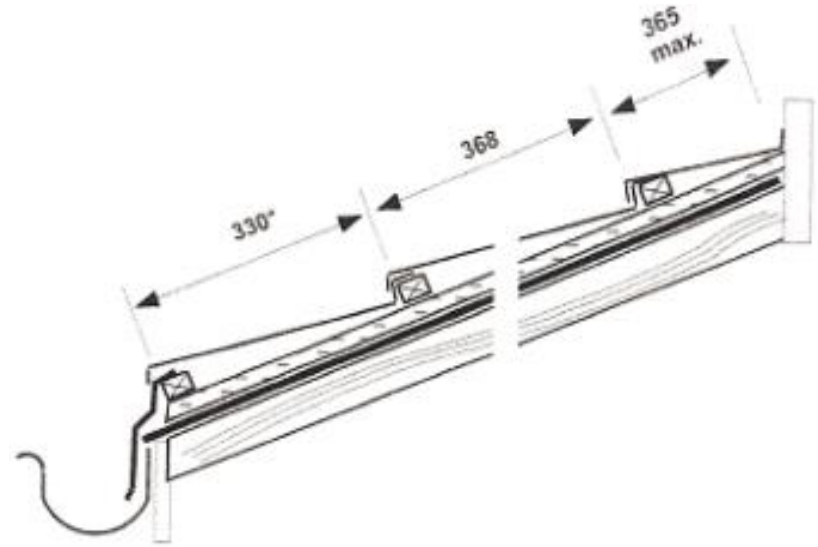
³Eave trim installed atop underlayment and beneath first batten.

⁴Sealant meeting requirements of ASTM C920 used to seal fasteners and gaps at detail intersections.

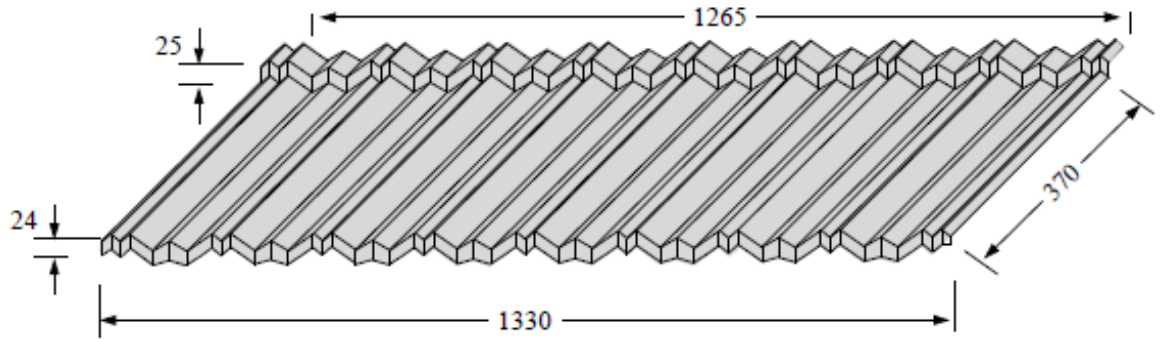
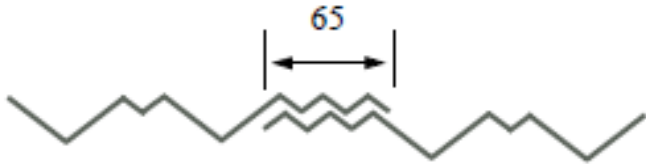
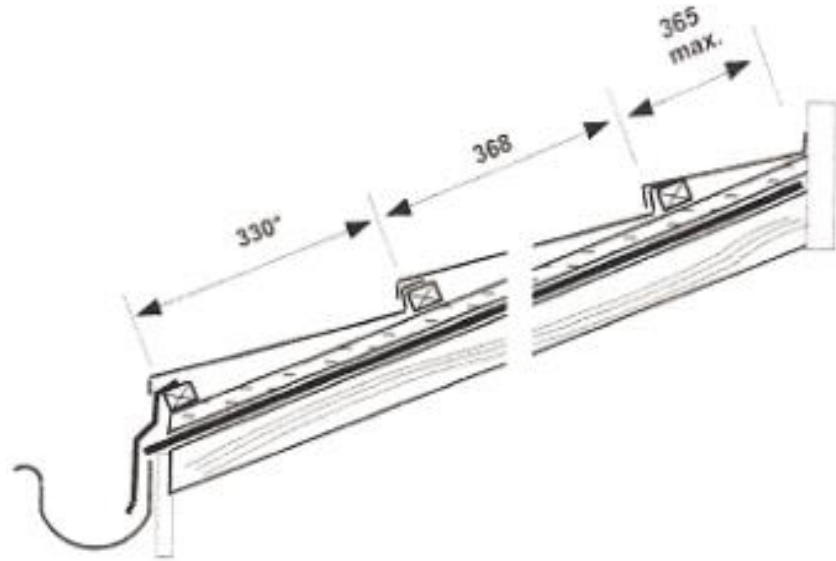
⁵Barrel trim applied having 14-¹/₂ inch exposure with 1-¹/₂ inch overlaps.

⁶Metal panels cut to align with valley centerline in a closed valley fashion.

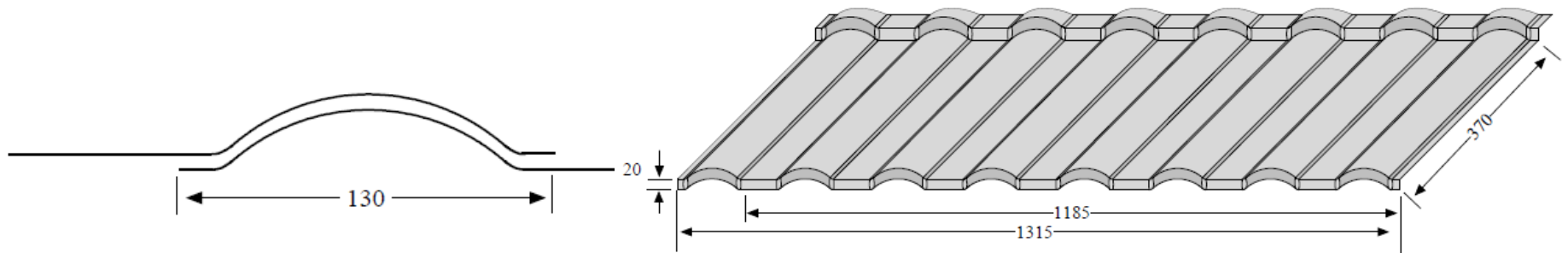
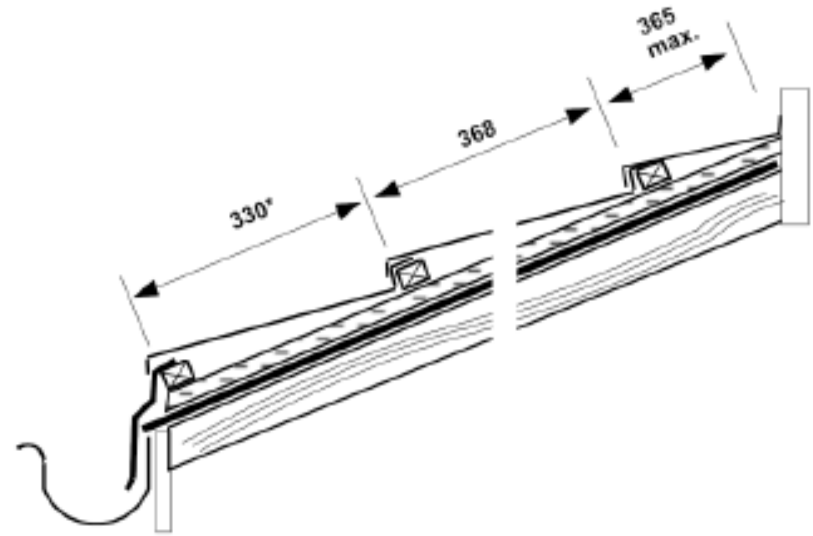
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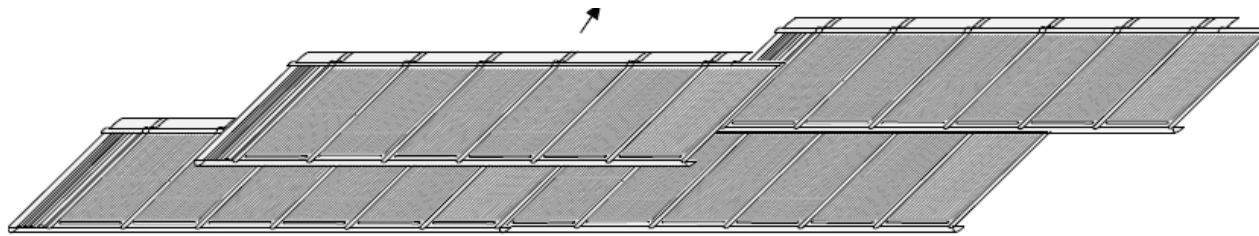
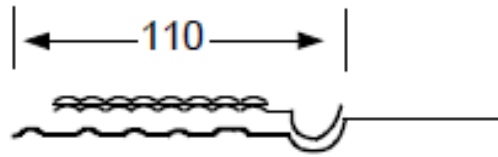
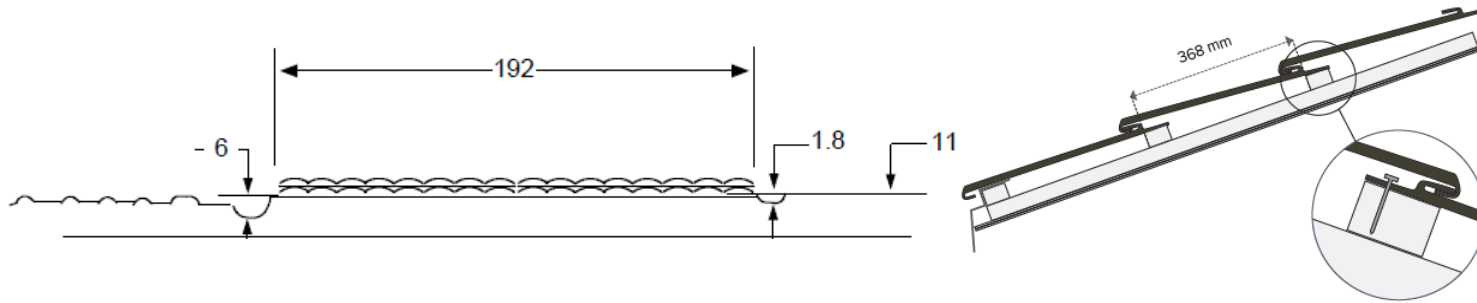
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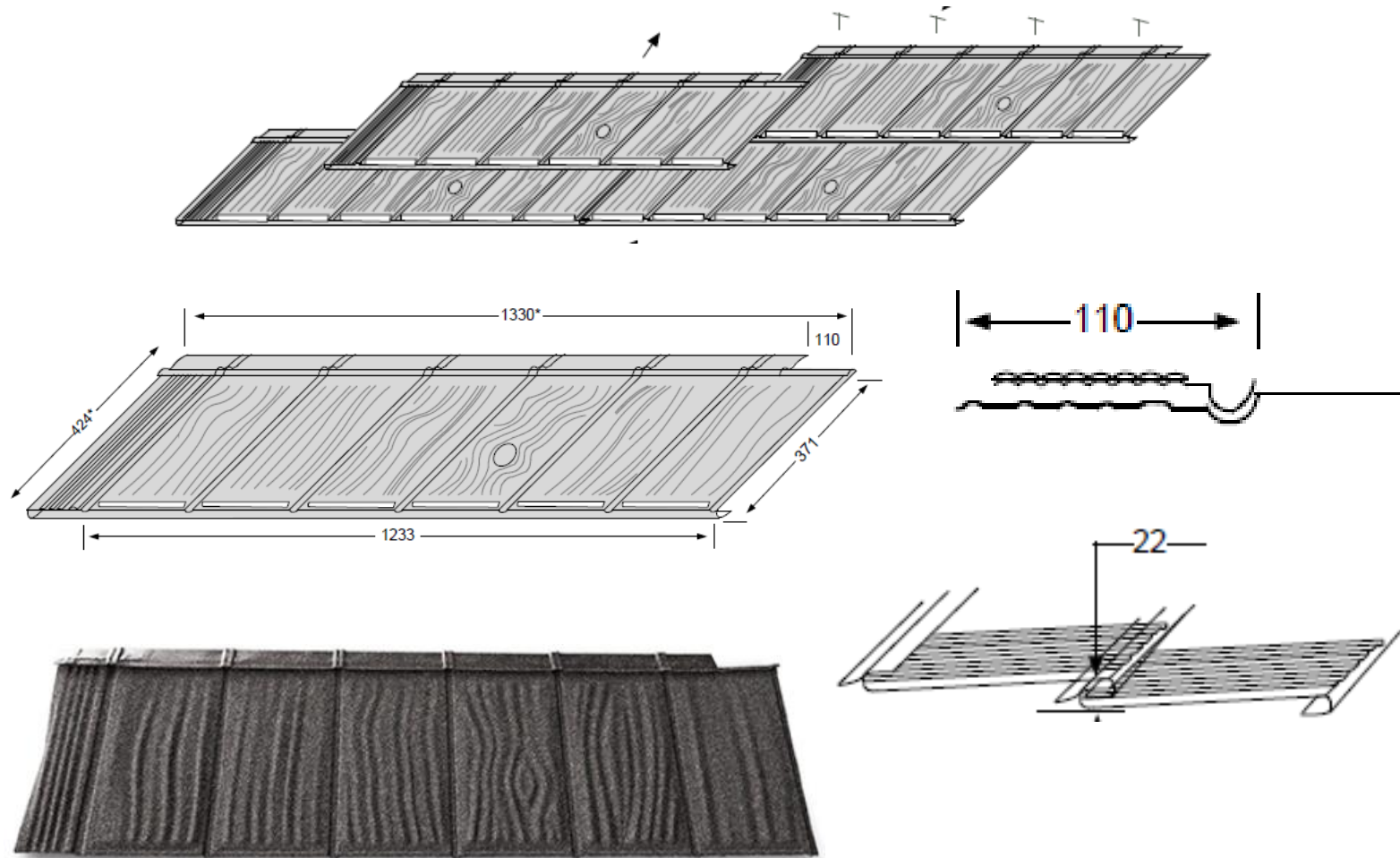
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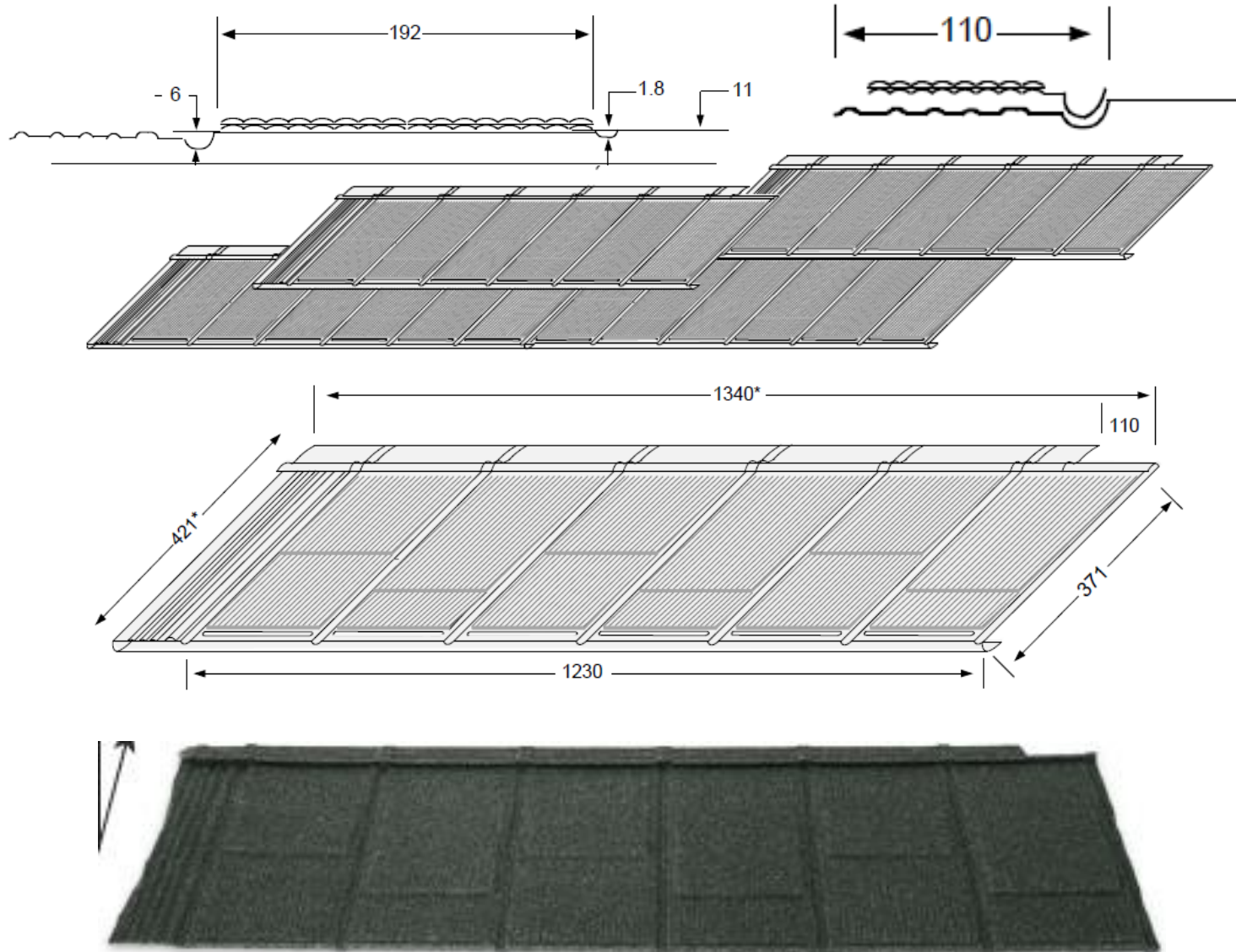
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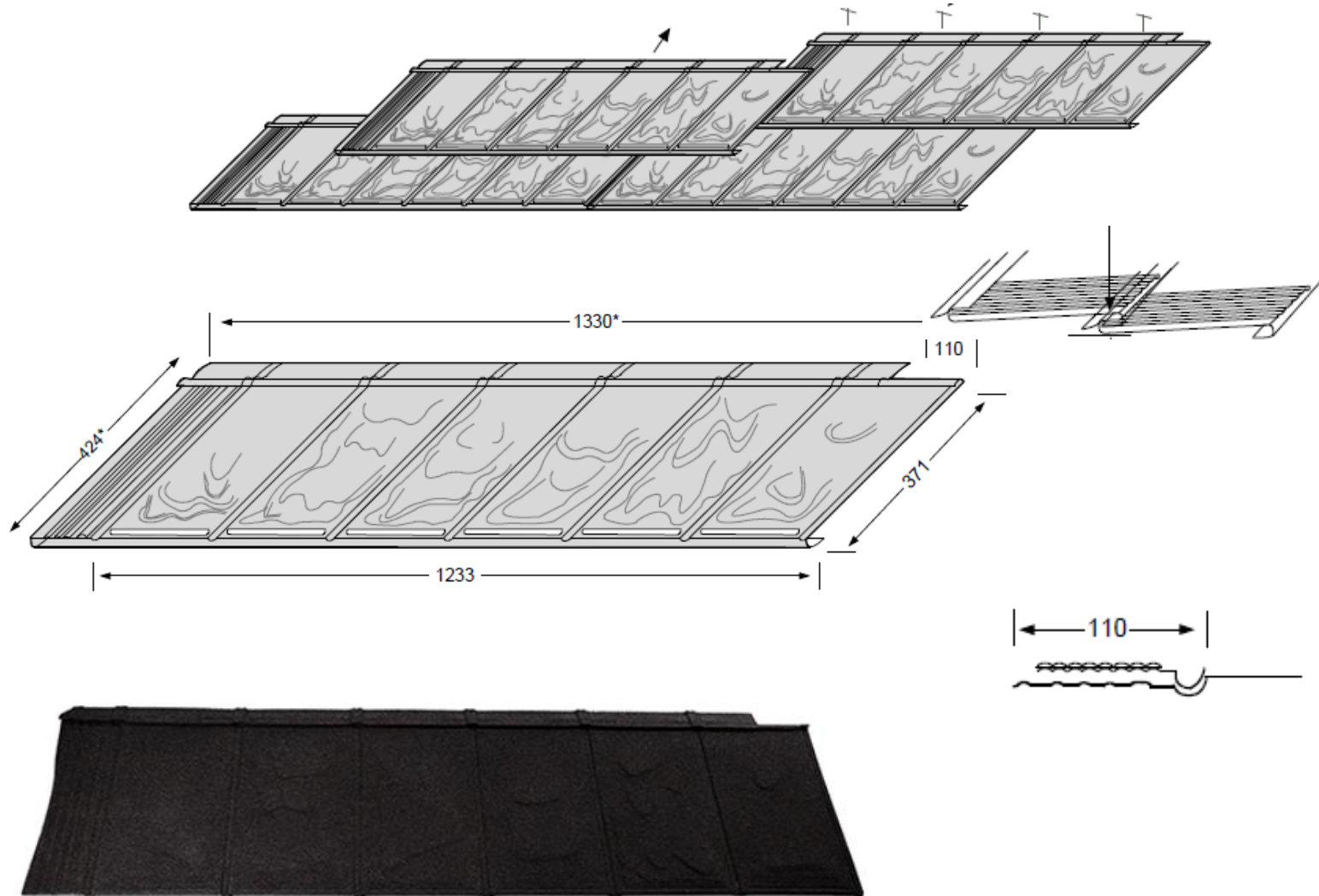
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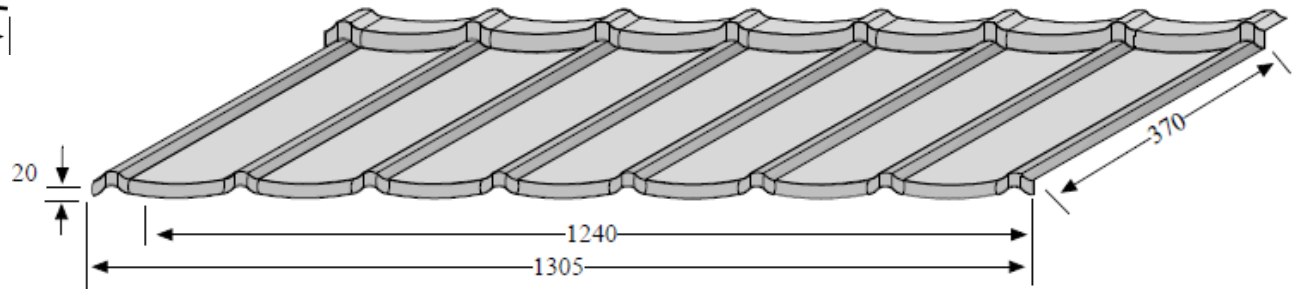
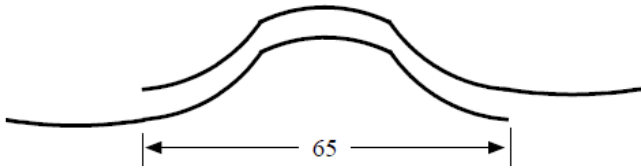
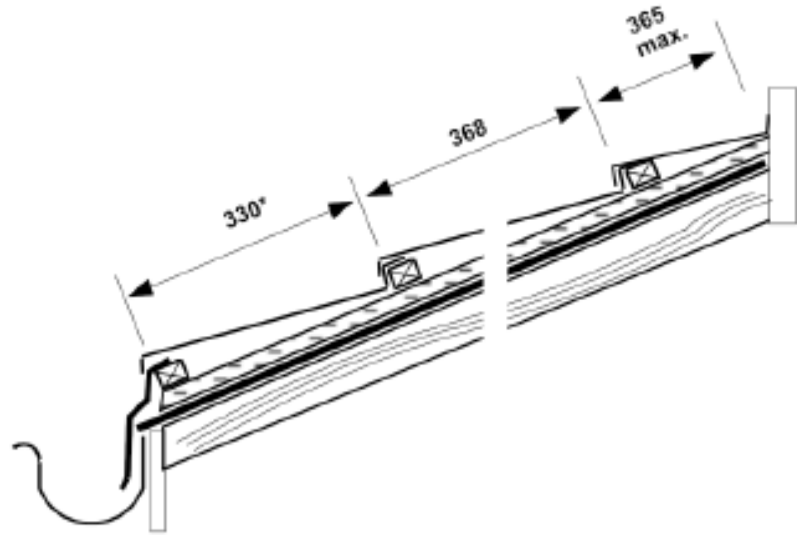
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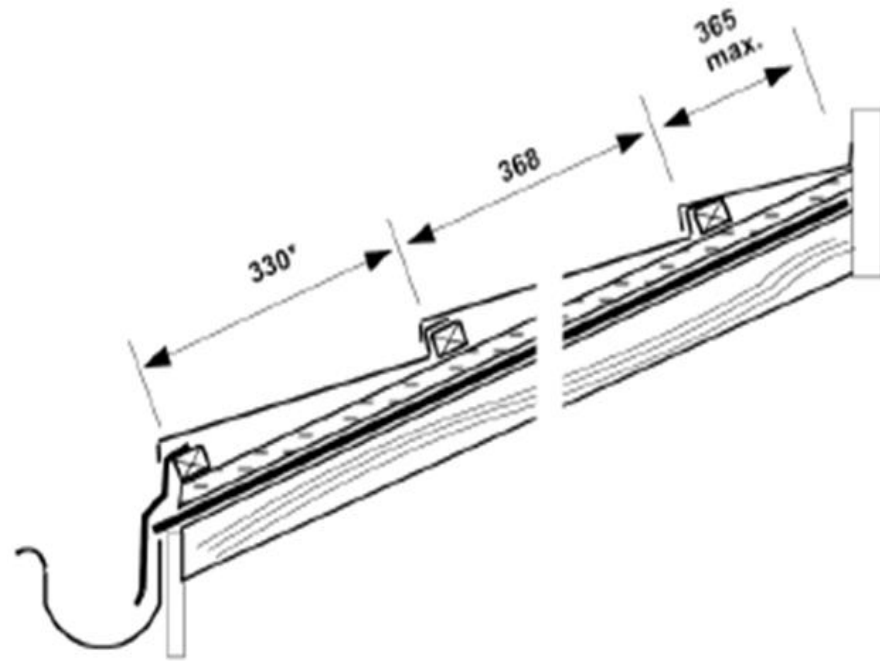
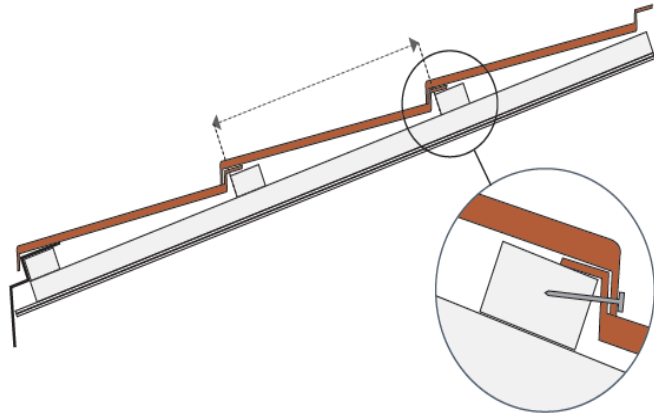
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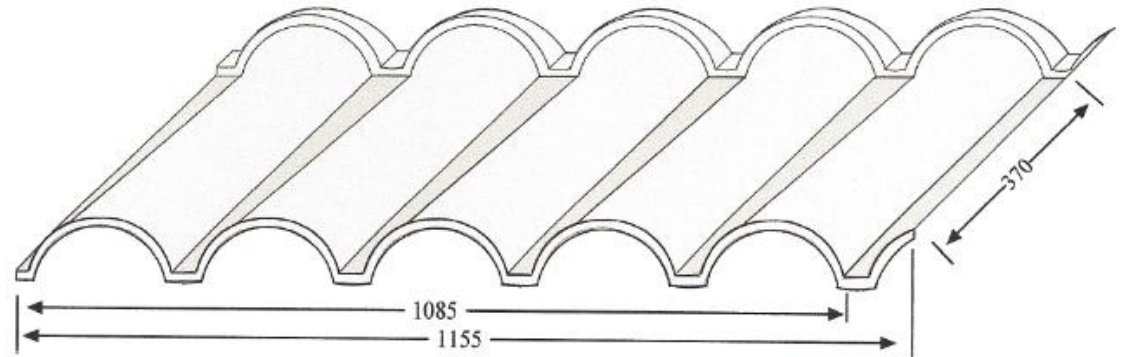
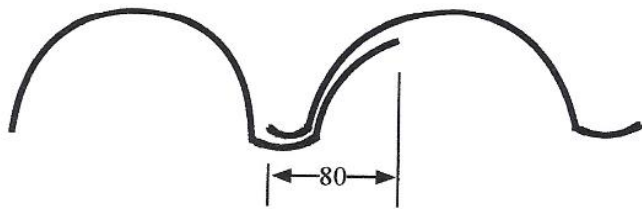
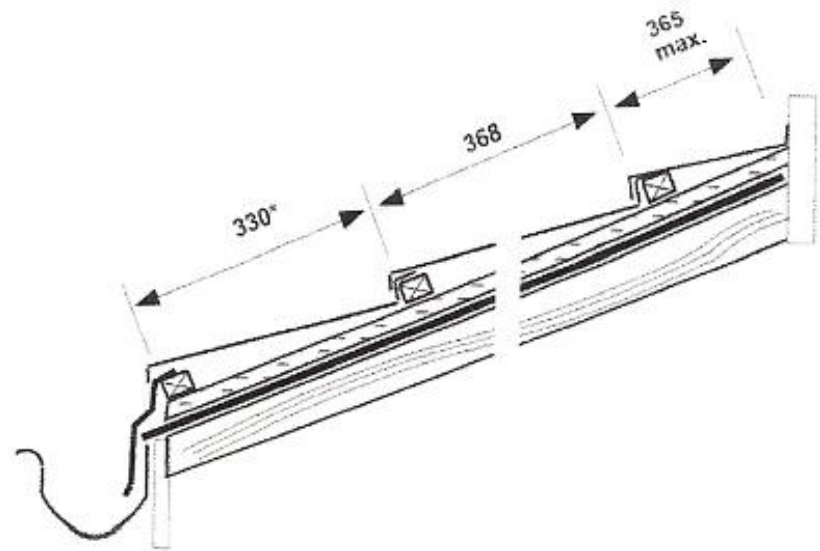
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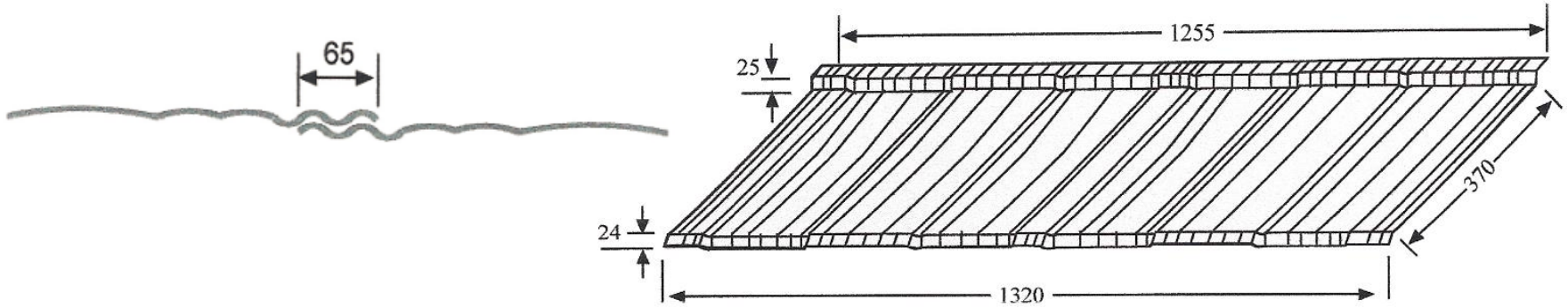
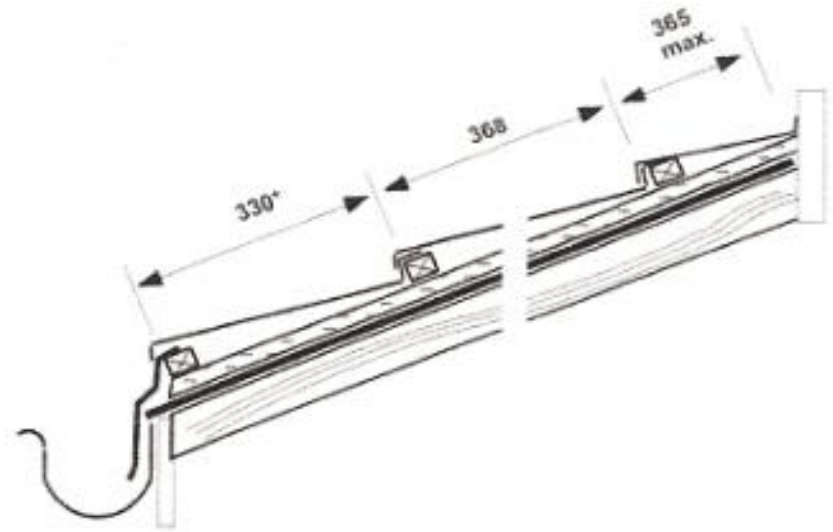
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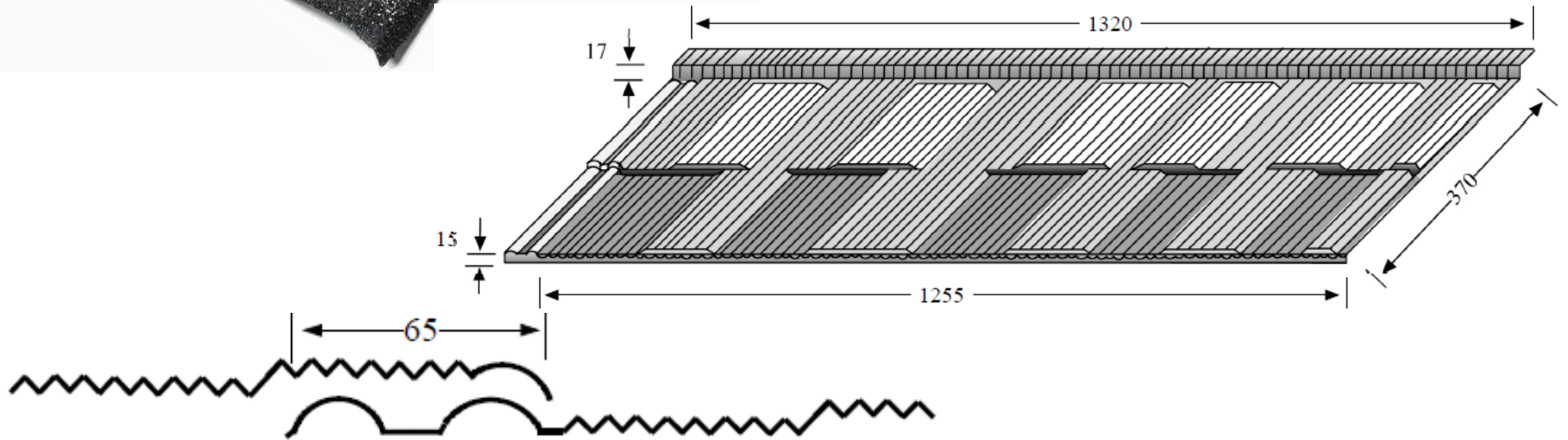
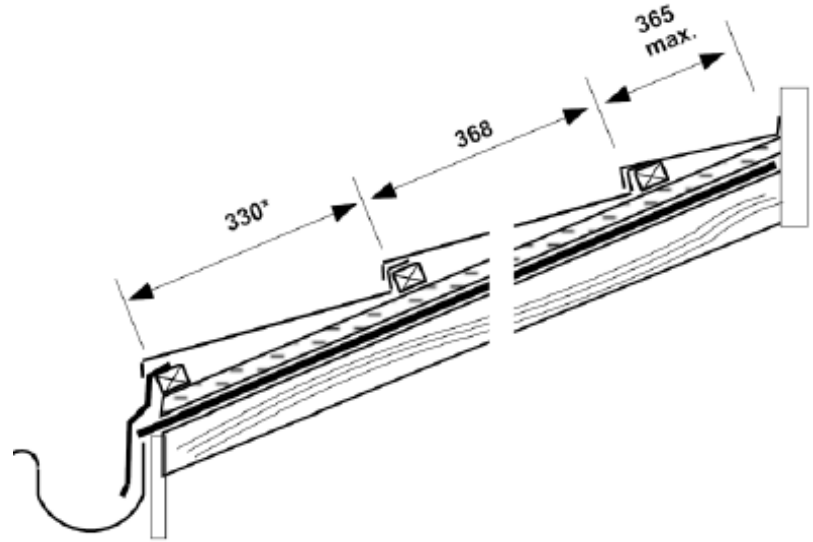
Detail Sequence 10



Detail Sequence 11



Detail Sequence 12



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