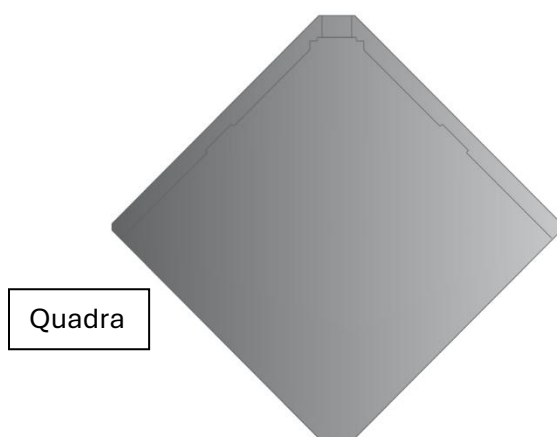


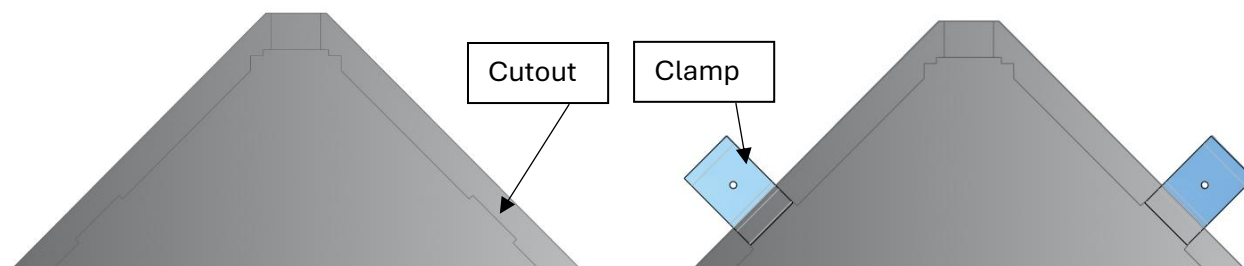
Installation Instructions Quadra

1. Introduction

Quadra are small format metal shingles, produced from steel. The shingles are produced from steel alloy sheets with multilayer surface treatments, offering high resistance, durability, and a refined appearance that complements traditional architecture and modern architectural visions. They provide a cost-effective, environmentally friendly, and technically advanced roofing and façade solution. Proper technical knowledge and professional installation are crucial for optimal performance and durability.

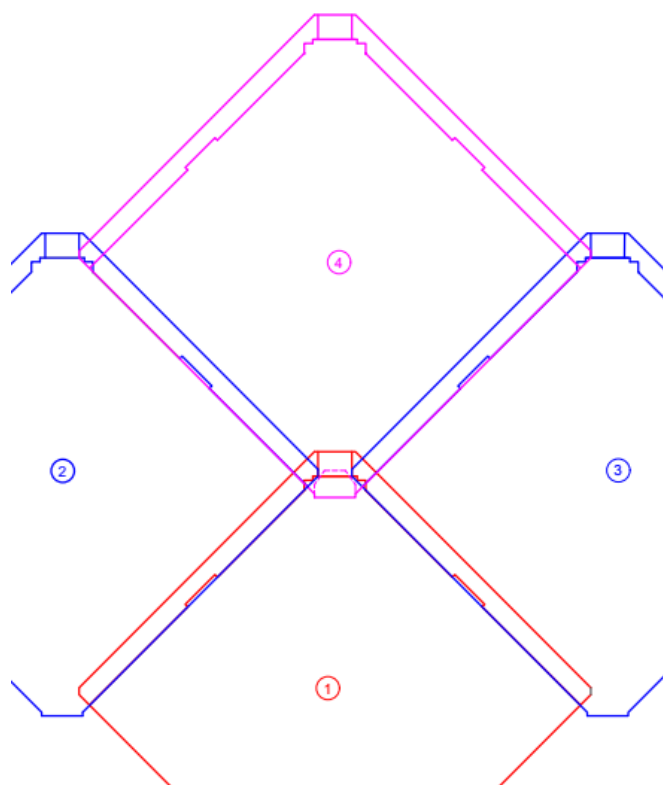


The shingles are fastened to the formwork (roof decking) using special clamps (Quadra Clamp). Placement of the clamps on the shingles is marked by a cutout on the side seam on the front part of the shingle. The cutout not only marks where the clamp is positioned but it also assures that it is recessed so the added thickness does not protrude past the seam edge, thus avoiding a pivot point for the shingles that interlock on top.

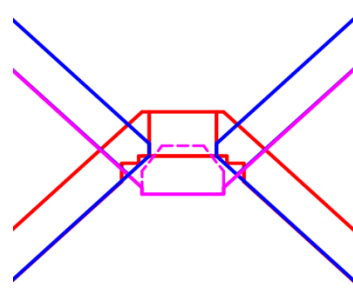


As far as the assembly and connection between adjacent shingles is concerned, each shingle interlocks with the neighboring shingles (two below and another two above) with the seams on the sides and connects with the shingle perpendicularly below due to the detail on the bottom – “the nose”.

This adds up to 2 anchor points to the roof structure and one to the shingle below, accounting for 3 anchor points in total, making it secure in all types of weather conditions.

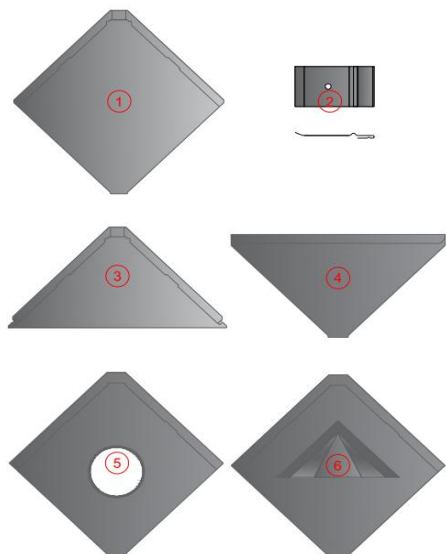


In this image we marked the order of installation: the red shingle is the first one to be installed, the blue shingles, numbers 2 and 3 are the next on the row above and their seams on the bottom part of the shingle interlock with the seams on the upper part of shingle number 1. The purple shingle, number 4, locks with its bottom half seams to shingles number 2 and 3 and with its “nose”, locks under the top of shingle number 1.



It is also worth mentioning that Quadra are part of a system designed to help installers save time and eliminate tedious work on site by cutting and bending shingles for the first row at the eave and the top row, under the ridge or wall connection. Also, these products are standardized and ensure that all pieces are the same geometrically, which cannot be guaranteed for cutting and bending on site.





1. Quadra Shingle,
2. Quadra Clamp,
3. Quadra Start Shingle used for the first row at the eave or at slope angle breaks,
4. Quadra End Shingle – used as the last row before the ridge or wall connection,
5. Quadra Pass-through Shingle – used for any round elements (pipes, ducts) that need to pass through the roof assembly,
6. Quadra Vent Shingle – used for ventilation purposes where a correct dimension of the exhaust of ventilation cannot be met.

2. Technical provisions

Slope:

Before recommending Quadra as a roofing solution, or before installation, check that the slope of the roof meets the below requirements.

Conditions									
Minimum slope	Slope length ≤ 33' without valleys (2 slope simple roof)			Slope length > 33' or slopes of any length with valleys			Slope length ≤ 33' in areas where high winds and heavy rains are frequent		
	Degree	Percent	Fractional	Degree	Percent	Fractional	Degree	Percent	Fractional
	22.62°	41.6%	5:12	26.57°	50%	6:12	30.6°	59.14%	7/12

Environment:

Make sure to choose the appropriate material for your shingles, Quadra is available in steel.

Quadra shingles:



Raw materials	Galvanized steel	Galvanized steel	Aluminium
Thickness	25 ga	24-25 ga	23 ga
Corrosion protection	Zinc 0.74-0.9 oz/ft²	Zinc 0.9 oz/ft², ZnMg 0.39 oz/ft²	-
Types of finish	SandShape / BigStone / PrinTech	RainDrop / PrinTech / MagneZinc	SunClear / Embossed
Warranty	20 years/ 30 years/ 30 years	30 years	40 years

Color selection Steel:

SandShape					BigStone			
								
RAL 7024	RAL 8004	RAL 8017	RAL 8019	RAL 9005	RAL 7024	RAL 8017	RAL 8019	RAL 9005

AUSTRIA
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FRANCE
CZECH
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E-mail: office@bravo.eu
Web: www.bravo-europa.eu

Printech			
			
RAL Spanish Andalusia	RAL Spanish Granada	RAL Stone Gray	RAL Metal Gray

System No.	Substrate	Underlayment	Roof Covering	Uplift Resistance	Roof-Fire Classification
1	Minimum 15/32-inch plywood Non-combustible substrate ¹	Minimum one (1) layer #30 ASTM D226 Type II felt ²	Quadra steel tiles, anchored with one (1) No. 6 x 2-inch ³ -long pan head or conical head wood screws for each Quadra Clamp. Two (2) clamps per Quadra steel roof shingle, anchored into underlying sheathing.	101 psf ³	A ¹
2	Minimum 15/32-inch plywood	Minimum one (1) layer #30 ASTM D226 Type II felt ²	Quadra steel tiles, anchored with one (1) No. 6 x 2-inch-long pan head or conical head wood screws for each Quadra Clamp. Two (2) clamps per Quadra steel roof shingle, anchored into underlying sheathing.	101 psf	C
4	Minimum 3/4-inch plywood Non-combustible substrate ¹	One (1) layer #30 ASTM D226 Type II felt ²	Quadra steel tiles, anchored with one (1) No. 6 x 2-inch ³ -long pan head or conical head wood screws for each Quadra Clamp. Two (2) clamps per Quadra steel roof shingle, anchored into underlying sheathing.	129 psf ³	A ¹
5	Minimum 3/4-inch plywood	One (1) layer #30 ASTM D226 Type II felt ²	Quadra steel tiles, anchored with one (1) No. 6 x 2-inch-long pan head or conical head wood screws for each Quadra Clamp. Two (2) clamps per Quadra steel roof shingle, anchored into underlying sheathing.	129 psf	C
6	Minimum 15/32-inch plywood	One (1) layer GAF Versashield covering one (1) layer #30 ASTM D226 Type II felt ² , joints offset between underlayment layers.	Quadra steel tiles, anchored with one (1) No. 6 x 2-inch-long pan head or conical head wood screws for each Quadra Clamp. Two (2) clamps per Quadra steel roof shingle, anchored into underlying sheathing.	129 psf	B

RATINGS:

Notes to table:

1. Non-combustible substrate covering underlying wood structural panels is required where Class A roof-fire classification is required.
2. Underlayment is to be installed in accordance with Section 1507 of the 2023 FBC and the manufacturer's installation instructions.
3. Where non-combustible substrates are installed, the noted fastener length is to be increased by the thickness of non-combustible substrate applied to ensure anchoring of the Quadra Clamp to underlying wood structural panel sheathing.



Roof Assembly:

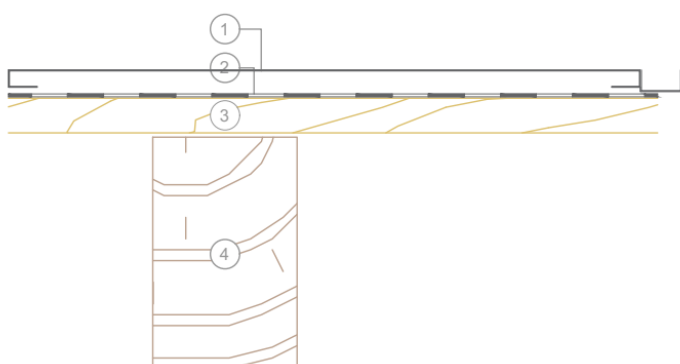
Bravo Quadra products are intended for installation over code complying sheathing and underlayment roof systems, with installations of sheathing and underlayment to comply with the applicable code and these installation instructions for ratings published.

Direct to Deck

Unventilated decking roofs should respect the following provisions:

- The attic must be ventilated at the gables (natural ventilation) or with mechanized ventilation solutions.
- In case space under the roof is a livable space, an empty space under the roof, towards the ridge must be left to allow vapors a buffer space. That empty space will be ventilated at the gables (natural ventilation) or with mechanized ventilation solutions.
- One Quadra Vent Shingle will be used for every 500 ft² of roof.

Decking / sheathing to be used minimum 15/32 in Plywood



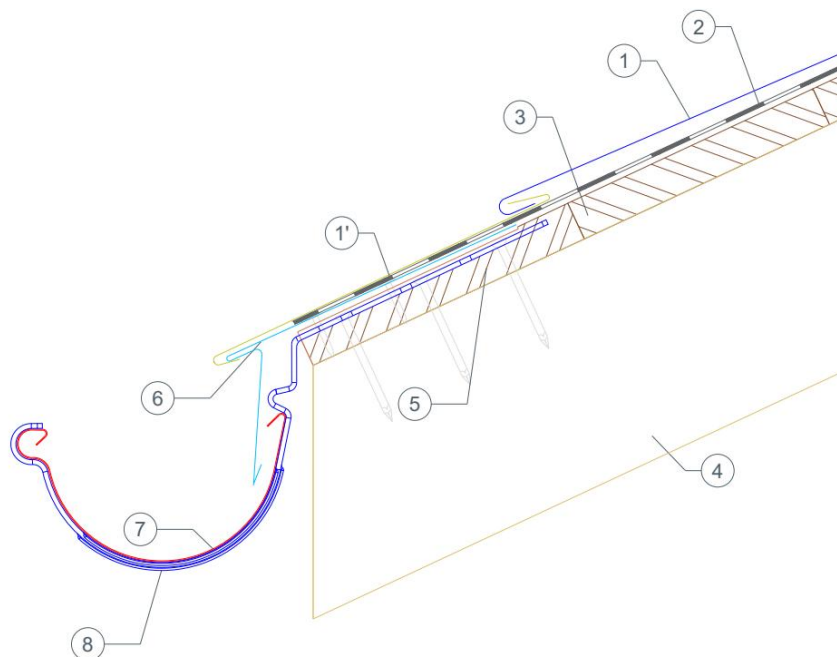
1. Quadra
2. Underlayment
3. Decking / sheathing
4. Rafter

Direct-to-deck installation involves attaching roofing materials directly to the deck, eliminating an air gap and heightening the need for thorough vapor management. To prevent moisture buildup between metal roofing and bitumen felt paper, effective vapor control through natural or mechanized ventilation is crucial. Installing one Quadra Vent Shingle per 500 square feet of roof provides adequate airflow, allowing trapped moisture to escape and reducing condensation risks. This arrangement, combined with quality insulation, maintains dry conditions under the roof, safeguarding against rust and degradation. With proper ventilation and moisture control, the metal roofing and felt underlayment remain durable and effective.

Installation of flashing and copings in accordance with 2023 FBC 1503 is required in accordance with the applicable code and good roofing practice

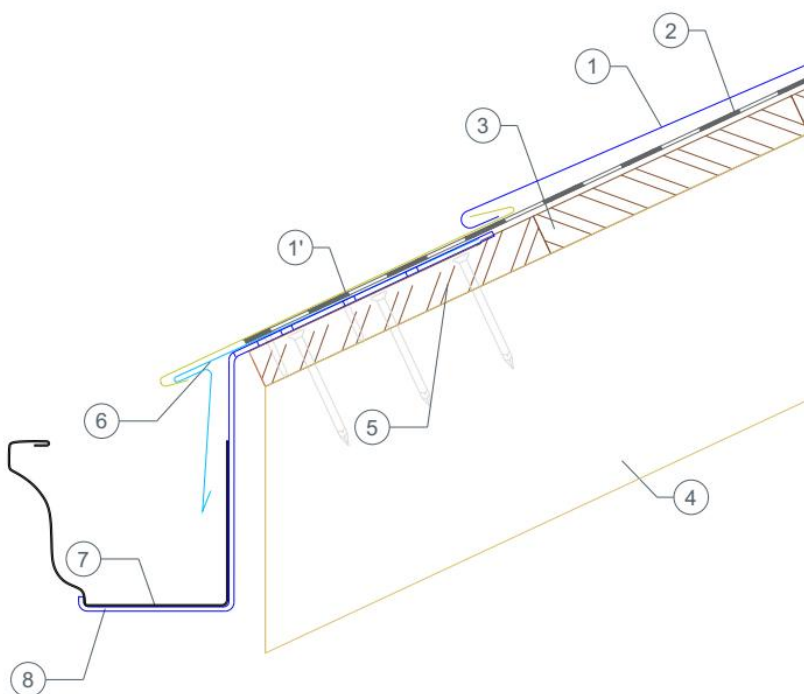
1. EAVE DETAIL

Seen in section, the complete eave detail should look like in the following image:



HALFROUND GUTTER

1. Quadra
- 1' Quadra Start
2. Bitumen saturated organic felt
3. Decking / sheathing
4. Rafter
5. Baseboard at eave, channels for gutter brackets dug in
6. Eave trim
7. Gutter
8. Gutter hanger



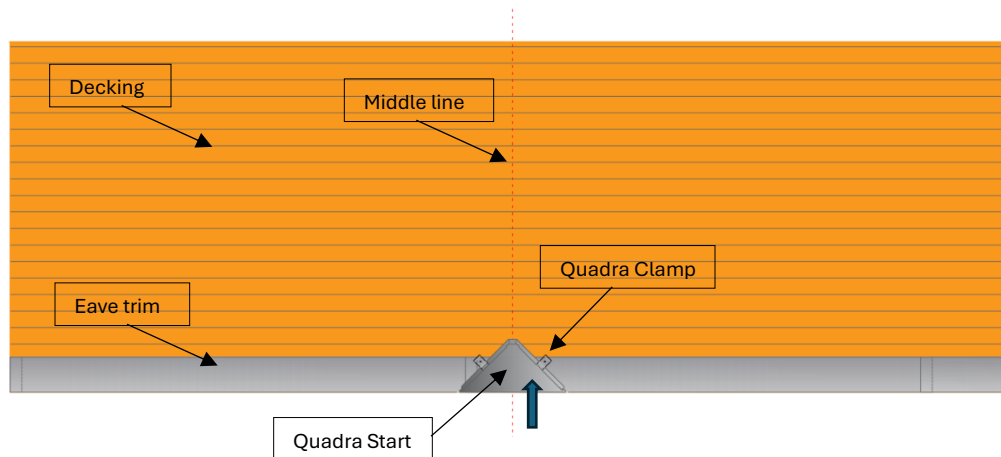
K-STYLE GUTTER

1. Quadra
- 1' Quadra Start
2. Bitumen saturated organic felt
3. Decking / sheathing
4. Rafter
5. Baseboard at eave, channels for gutter brackets dug in
6. Eave trim
7. Gutter
8. Gutter hanger



2. INSTALLING THE QUADRA START SHINGHLE

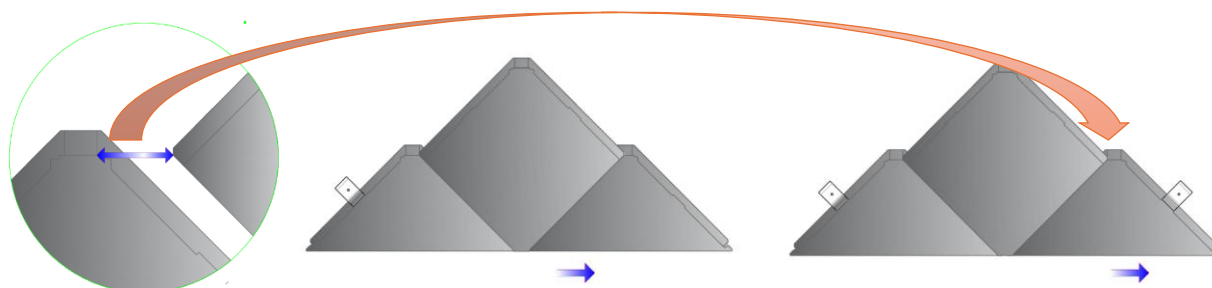
For optimal aesthetic results, start by determining the middle of the roof, considering the highest point of the roof, which is also the most visible. On that line, position the first Quadra Start shingle, with the middle over the middle line of the roof. This will ensure symmetry on both the right side and the left side of the roof. Make sure to clip the Quadra Start shingle to the eave trim, then place the clamps in the cutouts and using a screw (flat head #6 x 2"), fasten them to the decking.



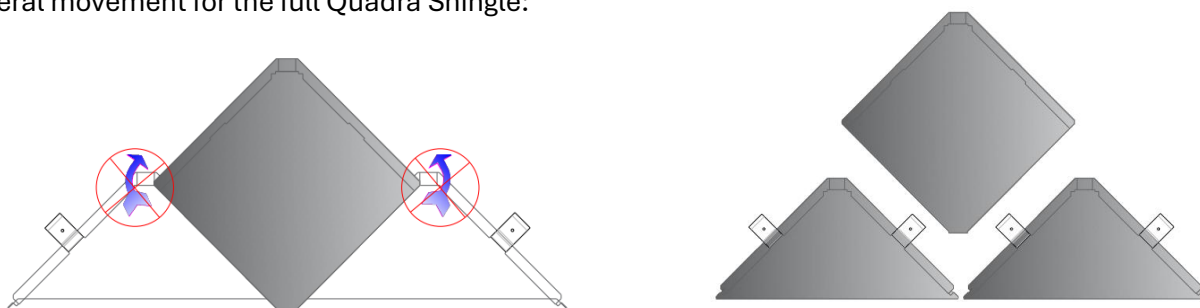
From this point, the installer has the option to continue installation towards the left or right edge of the roof. To position the following Quadra Start shingle, use a Quadra shingle as a template to determine the exact distance between the Quadra Start shingles.

Position the Quadra Start shingle near the first Quadra Start shingle, place the Quadra shingle over, locking the back seam to the first Quadra Start shingle, then push the Quadra Start shingle to the right, until it locks with the full Quadra Shingle.

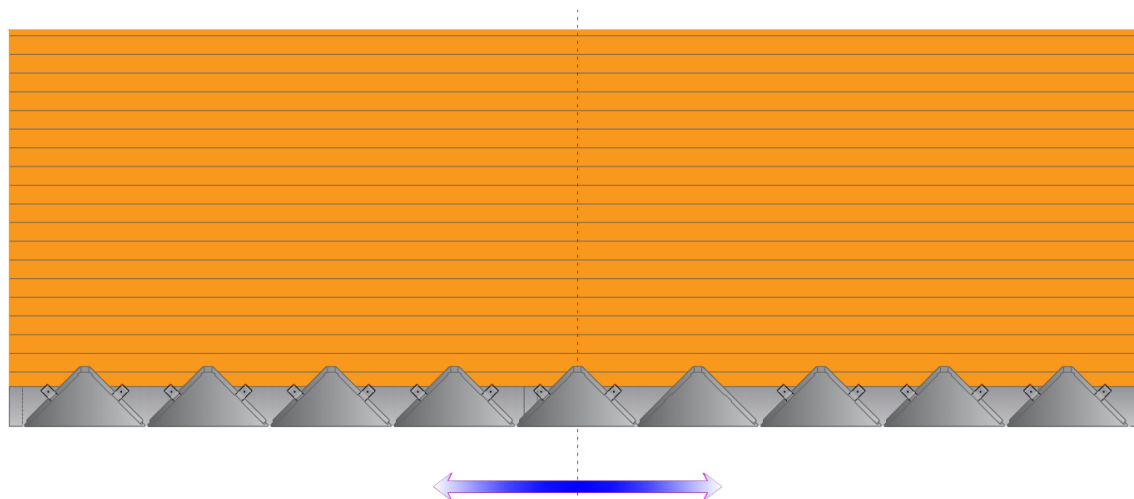
When positioning the full Quadra Shingle, take into consideration the below image as a reference point of the correct overlapping:



Fix one clamp on the Quadra Start shingle to secure it in place. The distance is correct if there is no lateral movement for the full Quadra Shingle:

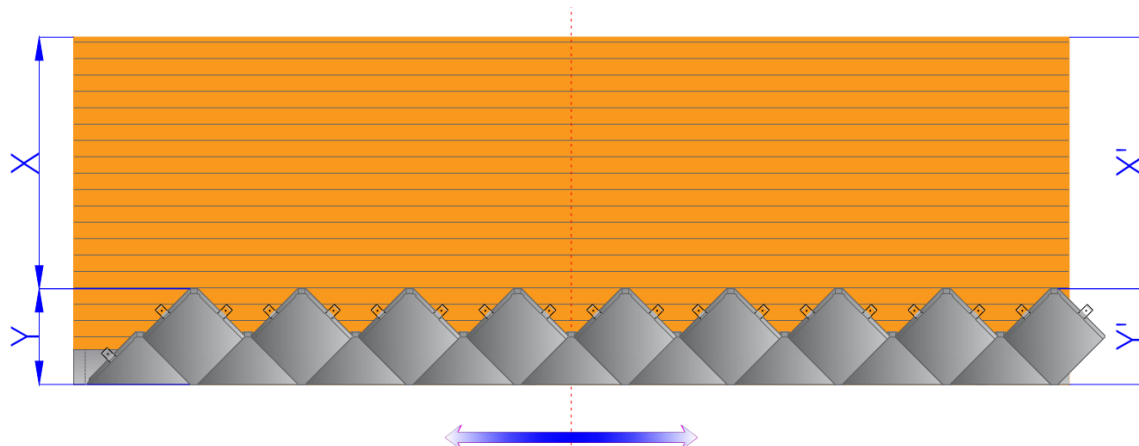


Remove the Quadra shingle and fix the second clamp to the decking. Continue to the right edge and then to the left edge until the entire first row is assembled:

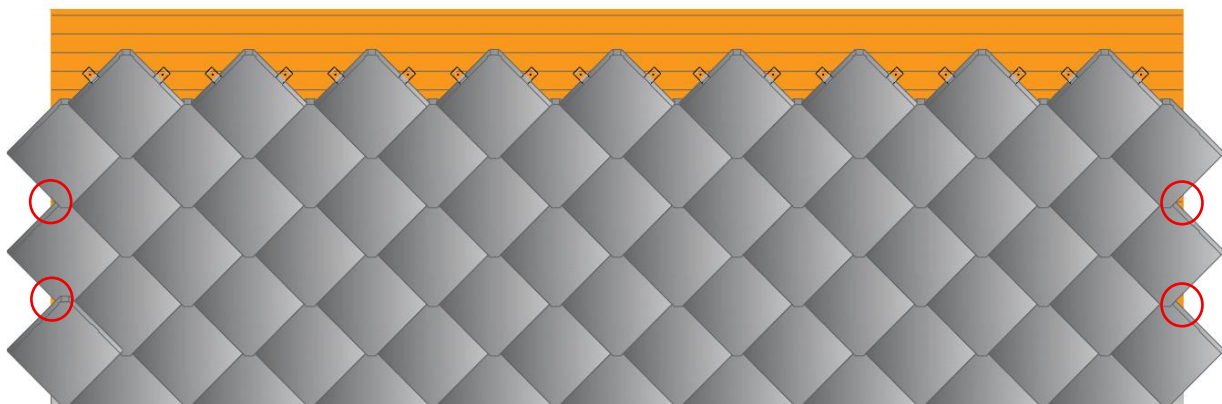


3. QUADRA SHINGLE INSTALLATION

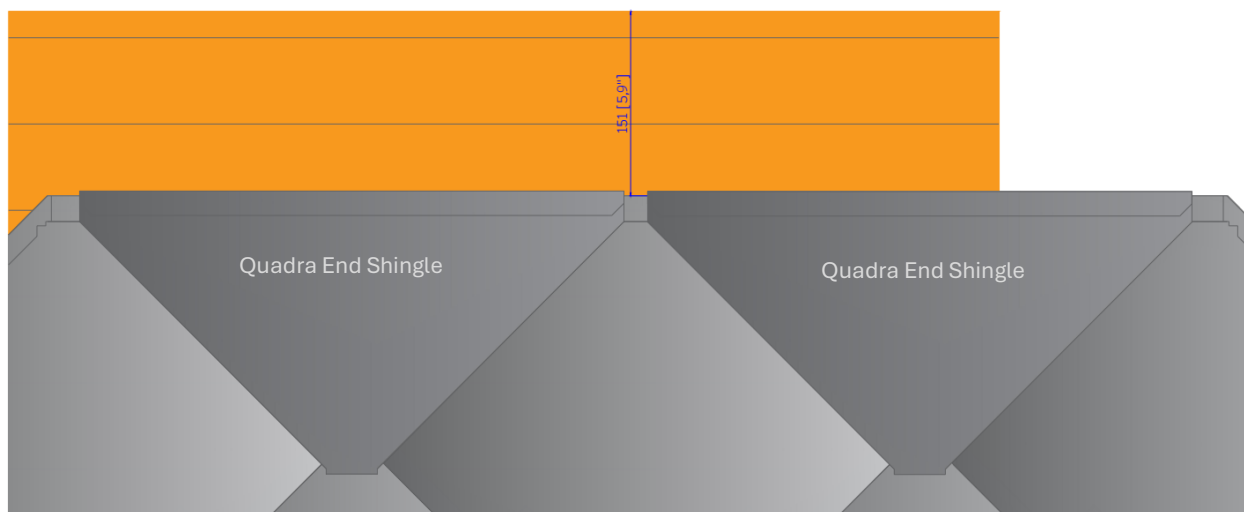
Start installing the full Quadra shingles from one of the edges of the roof and install row by row. Keep checking that on both sides of the roof the distances to the bottom and to the crest are equal: $X=X'$ and $Y=Y'$.



Continue installing the Quadra shingles on the entire surface of the slope, making sure that every space is covered. If on the edges of the roof there are small spaces left uncovered (see the red circles on the image below), the gable detail will have to be Version 1, if the edges are covered by more than 1 inch, Version 2 and 3 are possible.



Install Quadra shingles until the gap between the top edge of the last installed shingle and the ridge, rake, or wall connection is **no more than 7.4 inches (188 mm)**.
Use Quadra End Shingles to complete the final row.



4. GABLE DETAIL AND TRIMMING – Version 1

Use this version in the following cases:

- Standard gable trimming and capping.
- Roof slopes where the angle between the eave and the gable is **not** 90°.
- Roofs where the ratio between the eave length and the Quadra offset (18.5 inches) results in a decimal number with the fractional part **less than 0.5**.

Calculation Example

1. Measure the **eave length** in inches.
2. Divide the eave length by the Quadra offset (**18.5 inches**).
3. Look at the decimal part of the result:
 - If the decimal is **less than 0.5** → Use **Version 1**.
 - If the decimal is **0.5 or more** → Version 2 or 3 applies.

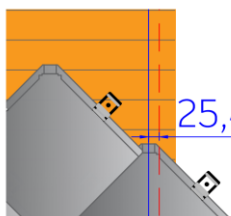
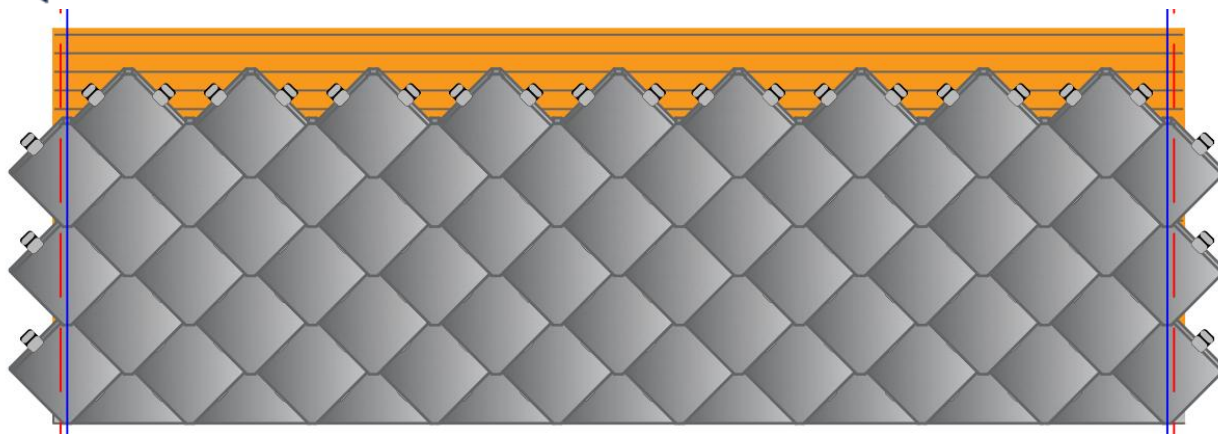
Example:

- Eave length: **142 inches**
- $142 \div 18.5 = 7.68$ → Decimal part is **0.68** (≥ 0.5) → Version 2 or 3 applies.

For Version 1 installations, the Quadra shingles along both edges of the slope must be prepared as follows:

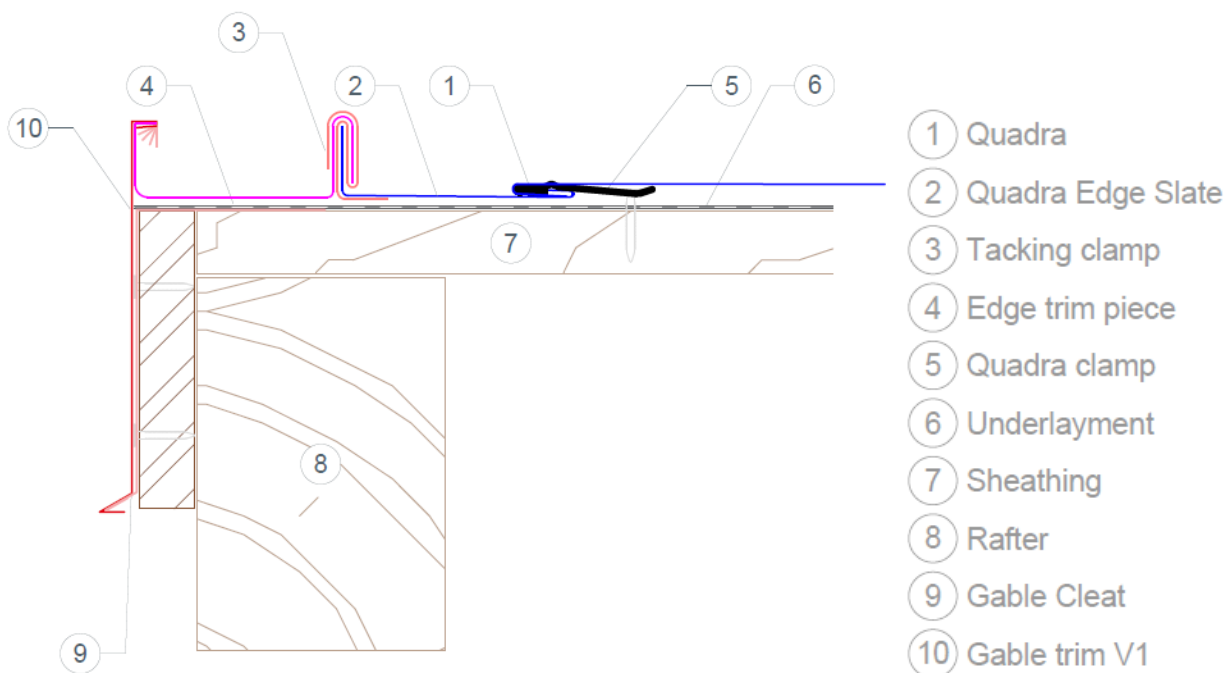
1. **Mark the bend line** (shown in **blue** in the diagram) at the center of the shingle. This line is your primary reference.
2. From the bend line, measure **1 inch (25.4 mm)** toward the roof edge and mark the **cut line** (shown in **red** in the diagram).
3. Cut along the red line.
4. Bend the remaining portion of the shingle along the blue bend line so it can fit under the gable trim or the fabricated side metal piece.

Refer to the attached diagrams for the exact placement of the bend and cut lines.



Bend on blue line, cut on red line (1" / 25.4 mm toward roof edge from blue).

Seen in section the detail would look like this:



*Gable cleat fixing according to local codes and regulations drip edge installation according to underlayment producer specifications.

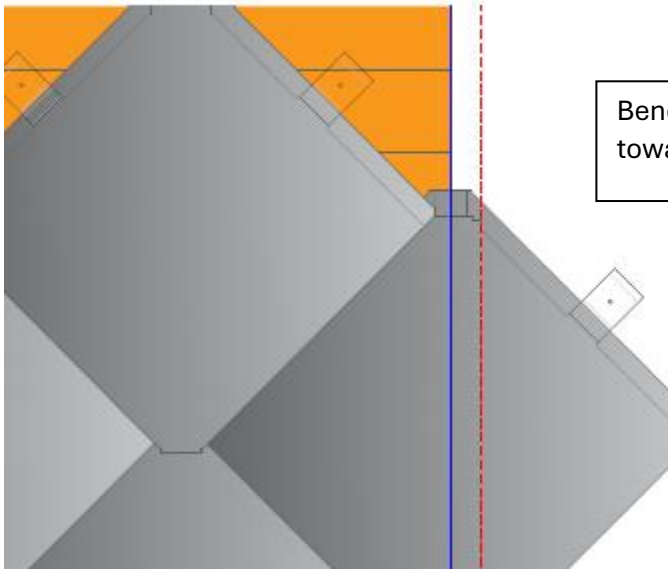
Edge Trim Piece – Unfolded Width

The unfolded width of the edge trim piece should equal the distance from the Quadra Edge Shingle to the edge of the roof slope, **plus 3 inches (76.2 mm)**.

- **1 inch (25.4 mm)** will fit under the gable trim.
- The remaining **2 inches (50.8 mm)** will fold over the 1-inch side bevel of the Quadra Edge piece.

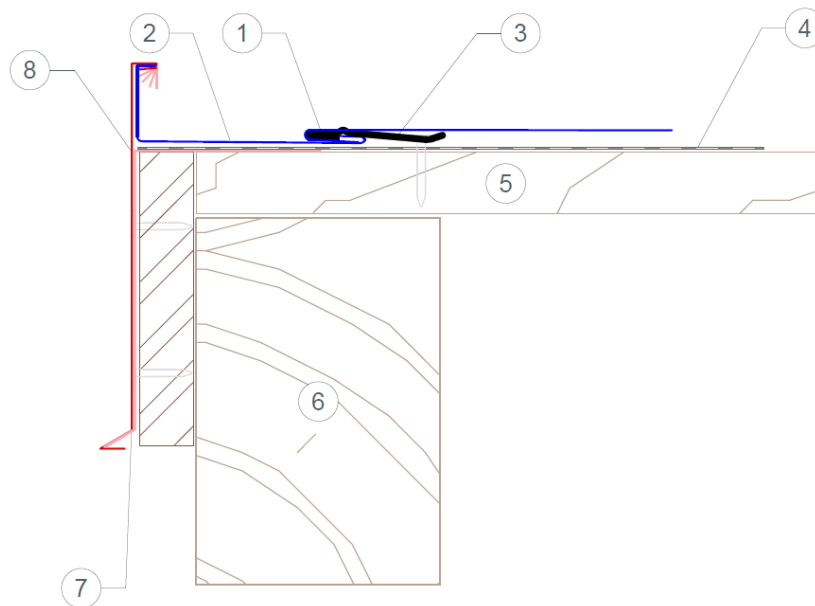
5. GABLE DETAIL AND TRIMMING – Version 2

This applies when the roof slope edge is under the middle of the Quadra shingle as seen in the diagram below:



Bend on blue line, cut on red line (1" / 25.4 mm toward roof edge from blue).

In this situation, bend the 1 inch / 25.4 mm excess 90 degrees upwards and place the Gable trim V 1 over the bent edge and create a double standing seam type lock:



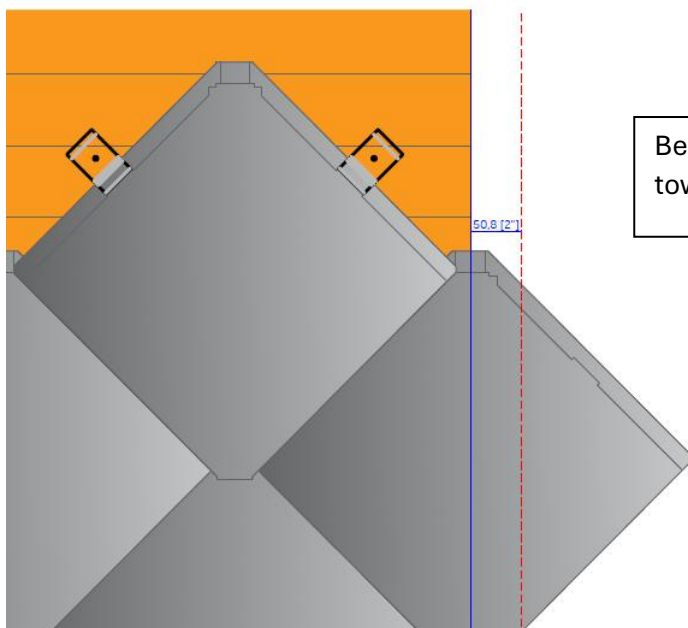
- ① Quadra
- ② Quadra Edge Slate
- ③ Quadra Clamp
- ④ Underlayment
- ⑤ Sheathing
- ⑥ Rafter
- ⑦ Gable Cleat
- ⑧ Gable trim V1



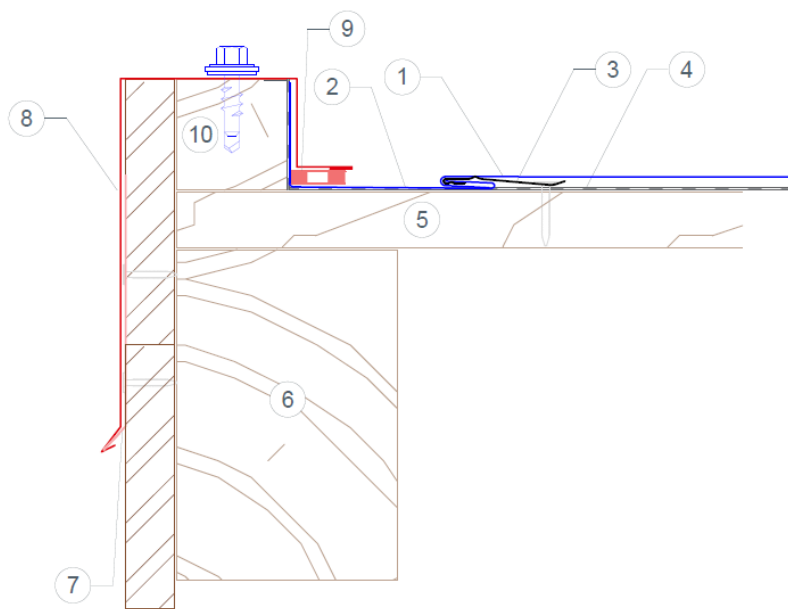
*Gable cleat fixing according to local codes and regulations, drip edge installation according to underlayment producer specifications.

6. GABLE DETAIL AND TRIMMING – alternative version to Gable trim V1

As edge capping alternative for the Gable Trim V1 that implies use of tools suited to double standing seam installation, there is a possibility to use an edge batten of 2/ 2 inches that will hold the gable trim over it. In this case, the cut line will be moved 2 inches / 50.4 mm towards the edge, and the bent side will be 2 inches / 50.4 mm upwards at 90 degrees. This detail is to be used if the local building code allows for rake construction without drip edge.



Bend on blue line, cut on red line (2" / 50.8mm toward roof edge from blue).



- ① Quadra
- ② Quadra Edge Slate
- ③ Quadra clamp
- ④ Underlayment
- ⑤ Sheathing
- ⑥ Rafter
- ⑦ Gable Cleat
- ⑧ Gable trim V2
- ⑨ Adhesive expandable foam
- ⑩ 2/2 inch batten

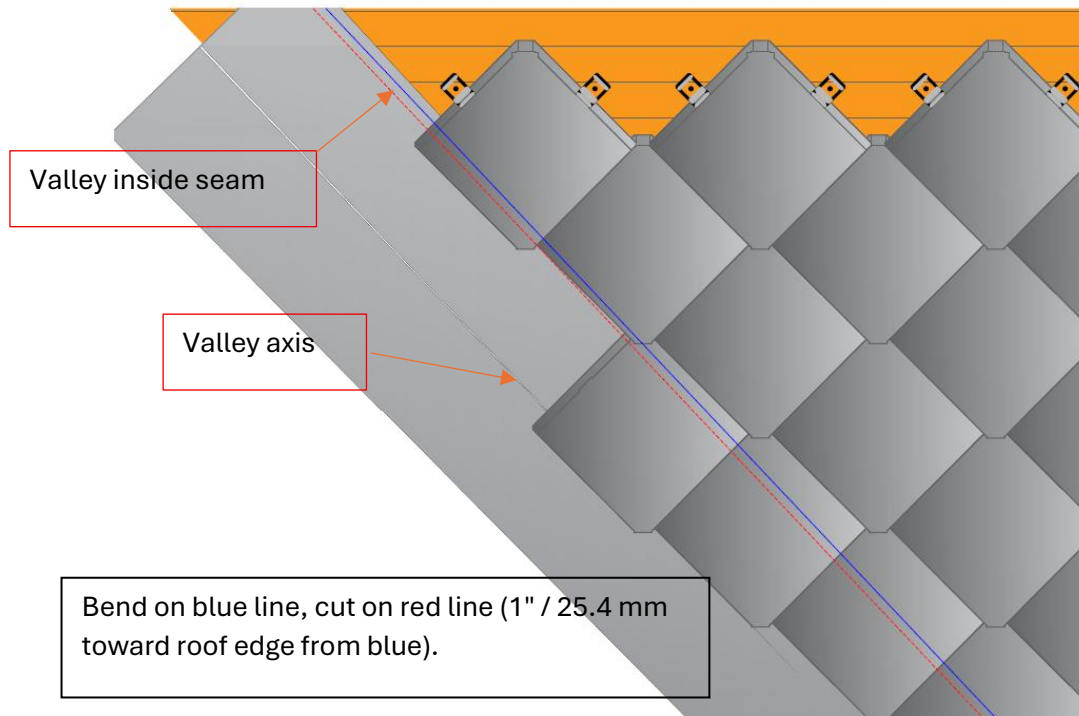


*Gable cleat fixing according to local codes and regulations

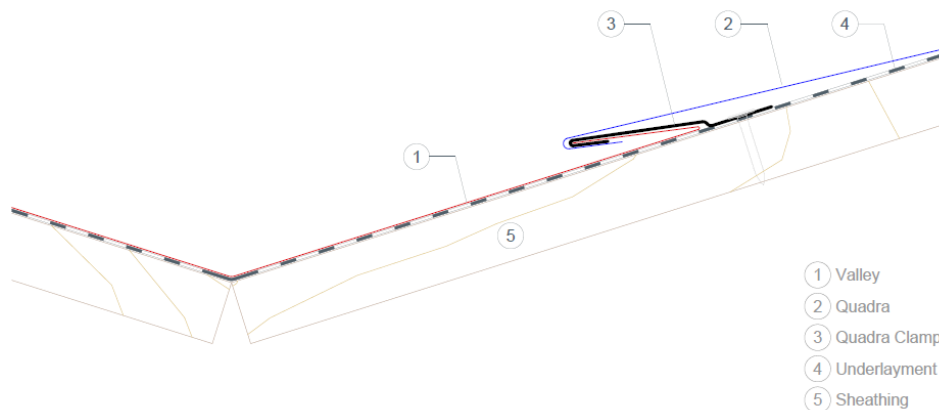
7. VALLEY TRIMMING AND DETAIL

Underlayment installation for the valley will follow local building code stipulations, as well as the number of fixings for the valley metal flashing. The valley will not be screwed directly to the sheathing, instead metal clips will be used to clip to the inside seam of the flashing and attaching the clip to the sheathing.

Trimming the Quadra shingles for the valley detail, considers the same 1 inch offset between cut and bent lines, this time take in consideration that the bend will be to the inside of the shingle

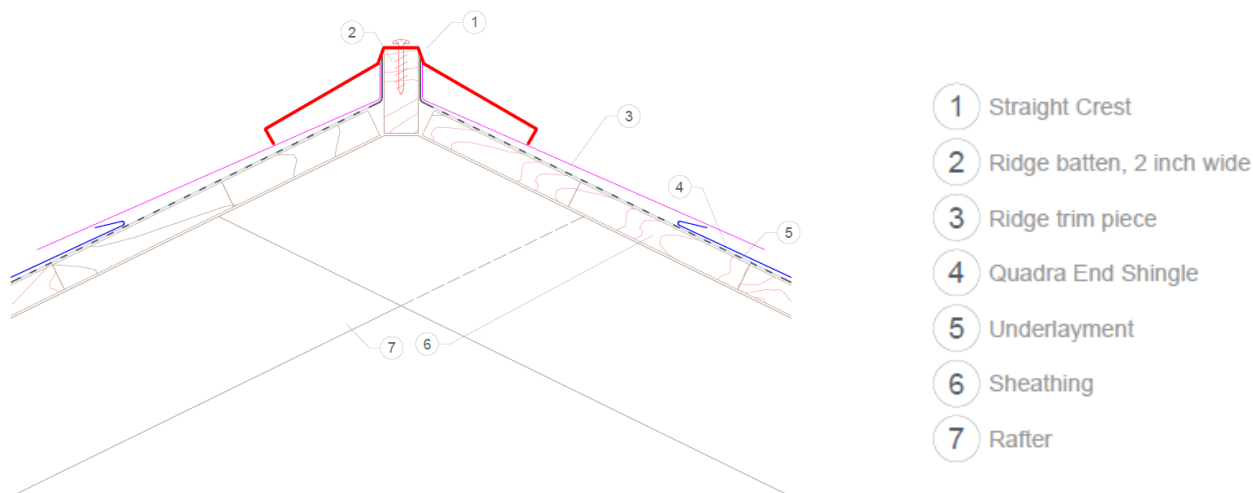


Section view:



8. RIDGE DETAIL

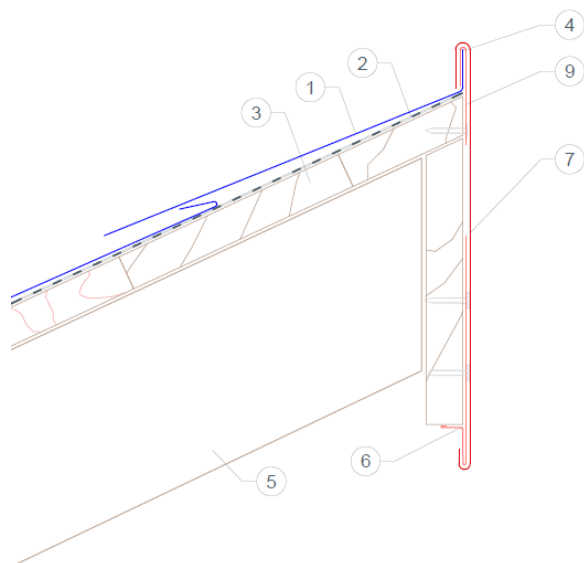
After installing the last full Quadra shingle row and the Quadra End shingle row (point 3 of the Installation manual), a Ridge trim piece needs to be installed before placing the Straight Crest that covers both sides of the ridge, if the slope length allows, the Ridge trim piece can be excluded, for that, the distance between the end row and the top of the ridge should be no less than 2 inches.



The Ridge trim piece needs to overlap the last row by at least 4 inches. The number of screws used to secure the Straight Crest to the Ridge batten should be according to local building codes.

9. SINGLE SLOPE / MONO PITCH DETAIL

For single slope or mono pitch slopes: continue installing the shingles until the entire slope of the roof is covered with the Quadra shingles, if the distance between the penultimate row and the peak of the slope is less than 8 ¼ inches, the Quadra End shingles can be used as the final row, otherwise a Quadra shingle or a Ridge trim piece will be used. The final row should extend 1 inch over the edge of the roof, that 1 inch extension needs to be bent upward. Over the bent part a fixing clip will be used to secure the assembly to the peak barge board, the fixing clips should be no more than 10 inches apart on the entire length of the peak. On the base of the peak barge board, a cleat will be installed that will facilitate a seamless connection of the Peak trim flashing. If a cleat is not used, the Peak trim can be fixed using self-tapping screws.

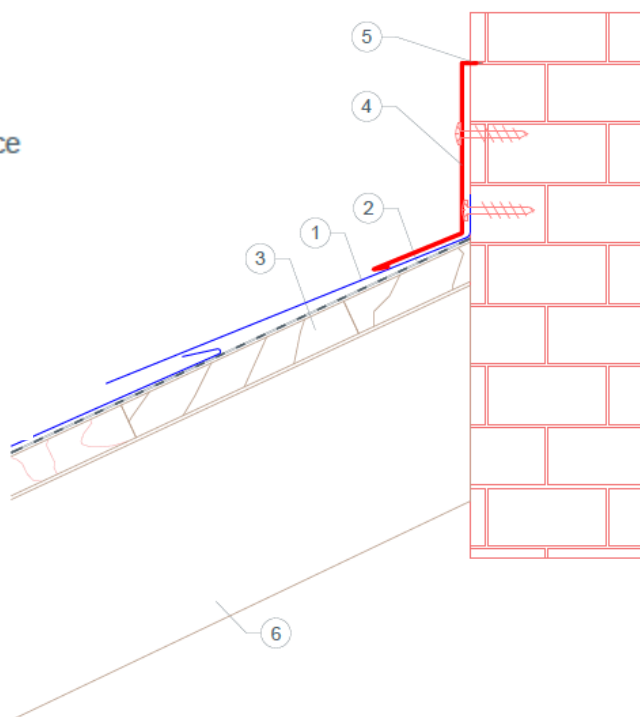


- ① Quadra / Quadra End Shingle / Ridge trim piece
- ② Underlayment
- ③ Sheathing sheathing (at least 24 mm)
- ④ Fixing clip
- ⑤ Rafter
- ⑥ Edge cleat
- ⑦ Peak trim

10. SIDE WALL CONNECTION DETAIL

Like described for ridge and peak the last row covering the roof slope depends on the length of the slope related to the size of the Quadra shingles. Like in both cases a 1 inch bent upwards is needed in order to create a correct water tight detail

- ① Quadra / Quadra End Shingle / Ridge trim piece
- ② Underlayment
- ③ Sheathing sheathing (at least 24 mm)
- ④ Side wall flashing
- ⑤ Roof grade adhesive
- ⑥ Rafter



END

