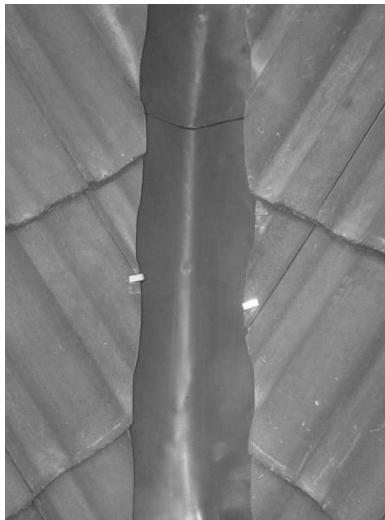


REDLAND RAPID FLASHING

Installation Instructions for Mortar-Free Open Valley



Version: 2

Date: October 2012

Author: Michael McHugh/Kevin Ley

Department: Redland Technical Solutions

1 Installation

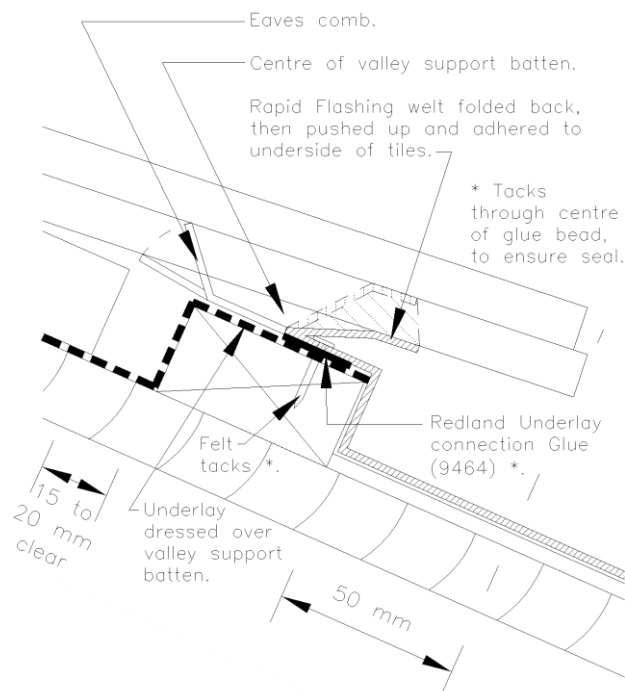
1.1 MORTAR-FREE OPEN VALLEY CONSTRUCTION DETAIL

Redland Rapid Flashing is a versatile flashing material that can replace lead in most pitched roofing applications including pitched valley and gutter details. The Redland Rapid Flashing 560 mm roll width (9959) can be used for the construction of open valleys. It must be appreciated that there will be many variations in valley gutter length, roof pitch, plan area of roof draining into the valley, and also exposure, and therefore it is imperative that the precise construction of the valley in terms of open valley width will vary in accordance with Table 14 in BS 5534: 2003, Code of practice for slating and tiling. This table is reproduced in the drawing shown later in these instructions. Failure to follow these instructions may result in the valley being undersized and thereby prone to leakage.

The mortar-free Rapid Flashing open valley can be used on roof slopes with a minimum rafter pitch of 15 degrees with rafter lengths up to 10 m on plan. The construction and installation of this open valley using Rapid Flashing is shown in this section and is described further in Section 1.2.

Key design features:

- Mortar-free, dry-fix construction. Non-toxic.
- The Rapid Flashing valley lining is laid directly onto the valley boards to ensure good wind uplift resistance. For this reason underlay should not be laid beneath the lining.
- Weatherproofing of the junction between the underside of the cut tiles overhanging into the valley and the valley support batten is achieved by a special welt detail which takes advantage of the adhesive properties of Rapid Flashing (see diagram below)



- The roofing underlay is terminated on top of the valley support batten where the junction it makes with the Rapid Flashing welt must be sealed with Redland Underlay Connection Glue to prevent any water penetration between the Rapid Flashing lining and valley boards.
- Ingress of birds and insects is prevented by the use of an eaves comb which is installed behind the Rapid Flashing welt (see diagram). This must always be fitted when using either flat or profiled interlocking roof tiles or cambered plain tiles. It can be omitted when using natural slates or fibre-cement slates.
- All roof tiles cut to the rake of the valley must be mechanically fixed in accordance with BS 5534 and Redland fixing specifications. Where small tile cuts are unavoidable that cannot be fixed in the normal way then they must be fixed with a three point fixing using 1 x Redland Kro-clip (9142) and 2 x Redland C-clip (9518) (see section 1.2).
- Rapid Flashing can be laid in up to 2500 mm lengths up the valley with a minimum overlap of 150 mm at all roof pitches. In comparison lead linings are limited to 1.5 m lengths in a valley due to the thermal expansion of lead. Additionally lead linings require laps that can vary from 150 mm at 30 degree pitch to 290 mm at 15 degree pitch.
- Rapid Flashing 560 mm wide roll (9959) can be used to construct nearly all the possible open valley widths that may be required depending on site exposure and building details. See Table below. For rafter pitches 15-17 degrees, plan areas over 25 m² to 100m², in geographical locations with design rainfall of 225 mm/hr please contact Redland Technical Solutions for advice.

RAPID FLASHING VALLEY: IDEAL WIDTH OF RAPID FLASHING (mm)						
DESIGN RAINFALL	0.0625 l/s per m ² (225 mm/hr)		0.041 l/s per m ² (150 mm/hr)		0.02 l/s per m ² (75 mm/hr)	
AREA ON PLAN	25m ² or Less	Over 25m ² to 100m ²	25m ² or Less	Over 25m ² to 100m ²	25m ² or Less	Over 25m ² to 100m ²
DIMENSIONS	WIDTH		WIDTH		WIDTH	
RAFTER PITCH (°)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
15.0+	510	-	485	560	485	510
17.5+	485	560	485	510	460*	485
22.5+	460*	510	460*	485	460*	460*
30.0+	460*	485	460*	460*	460*	460*
35.0+	460*	460*	460*	460*	460*	460*

This table assumes Key dimensions are in accordance with the Key Dimensions table on the detail drawing.

"DESIGN RAINFALL" = The Design Rainfall used for the roof.

"AREA ON PLAN" = Plan Area of roof draining into valley.

If rafter length is greater than 10m on plan, contact Redland Technical Solutions.

If roof plan areas either side of valley differ by more than 10%, contact Redland Technical Solutions.

If any roof area abuts a wall, add 50% of its area to allow for driving rain on the wall.

"WIDTH" = The ideal width of Rapid Flashing required. However, actual width must be a standard 560mm Rapid Flashing width.

* = At 460mm ideal width, the Rapid Flashing welt will fold back to the raking edge of the tiles.

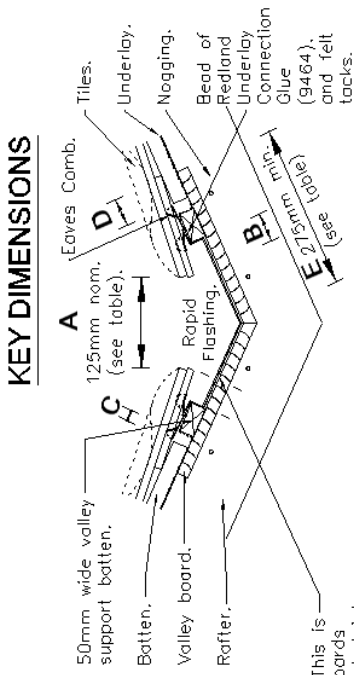
"RAFTER PITCH" = Pitch of roof slope either side of valley measured by angle rafters make to the horizontal.

If roof pitches differ either side of the valley, use the lower pitch for calculations.

If roof pitches differ either side of the valley by more than 5%, contact Redland Technical Solutions.

DIAGRAMS

For clarity, underlay not shown on diagrams.



KEY DIMENSIONS

DIMENSION "A" TABLE.

Roof Pitch (Degrees).	Width of Valley Gutters (mm).		Design Rainfall Rate per m ² Plan Area Draining.	
0.0625 1/s per m ²	0.041 1/s per m ²	0.02 1/s per m ²	0.025 m ² or less.	0.025 m ² or less.
15.0 +	125	125	125	125
17.5 +	125	200	150	100
22.5 +	100	150	100	100
30.0 +	100	125	100	100
35.0 +	100	100	100	100

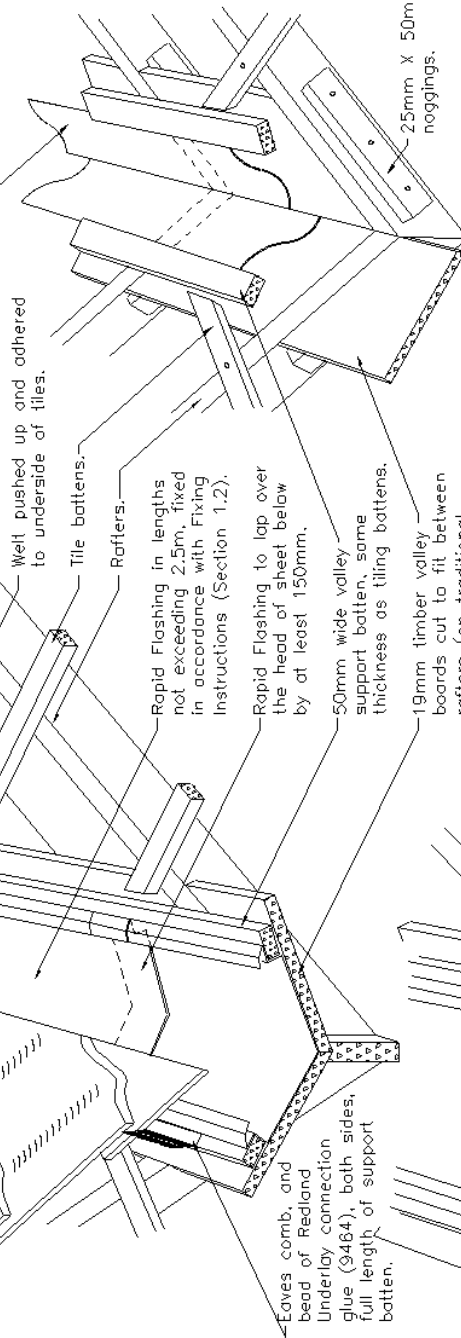
DIMENSION "B": 50 mm clear.

DIMENSION "C": 15 to 20 mm clear.

DIMENSION "D": 45 mm minimum.

DIMENSION "E": 275 mm minimum. Increase as required to facilitate dimensions A, B, C & D. This will vary because of pitch and also drainage requirements (dimension A).

4mm WBP ply lining. This is not required if valley boards are continuous and rebated into rafters with top surface flush (traditional rafters only – not trussed rafters).



SPECIFICATION NOTES

All construction and fixing to be in accordance with good practice, and appropriate for situation, or as otherwise upgraded by specification. Ensure gluing surfaces are clean and dry. Ensure that valley support batten height from rafters is at least level with top of tile battens, and not so high as to tilt tiles beyond their tolerance.

Valley width to be at least in accordance with the "KEY DIMENSIONS" diagram and tables. In severe situations, consider increasing appropriately.

Rapid Flashing to be laid and fixed in accordance with the Monier Redland Fixing Instructions (Section 1.2). Felt tacks used at head and sides of each sheet.

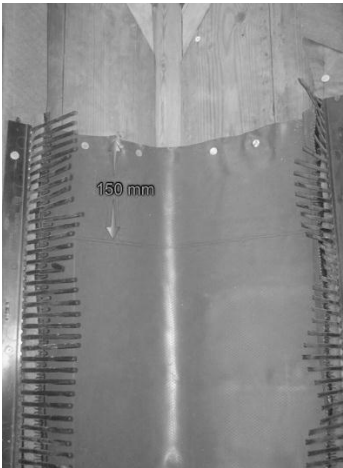
Underlay to dress over valley support batten, and finish at edge. Rapid Flashing well to finish at centre-line of valley support batten, with bead of Redland Underlay Connection Glue (9464) between underlay and Rapid Flashing, then laid back towards valley and be pushed up and adhered to underside of tiles. Eaves comb to run length of, and be fixed to, support batten, with underlay under to hold in place.

RAPID FLASHING VALLEY DETAIL

1.2 MORTAR-FREE OPEN VALLEY FIXING INSTRUCTIONS



Following the construction detail in Section 1.1 first fix two continuous valley support battens up the length of the valley at the width required securing into the valley support board below using batten nails at 300 mm centres. Lay the roofing underlay up to the valley finishing the underlay over the valley support battens either side of the valley. Using felt tacks secure the underlay to the top of the valley support battens. The tiling battens either side of the valley must be laid to terminate short of the valley support battens by 15-20 mm to leave a clear drainage channel to eaves between the ends of the tiling battens and the valley support battens.



Fix the Redland Eaves Comb (9965) into the top of the valley support batten continuously up the length of the valley on both sides using felt tacks. The eaves comb should be fitted on the side of the support batten furthest away from the valley. Next run a continuous bead of Redland Underlay Connection Glue (9464) on top of the underlay on the side of the support batten nearest the valley. After removing the backing lay and dress the Rapid Flashing 560 mm wide roll in lengths not exceeding 2500mm up the length of the valley securing at the head of each piece using 4 felt tacks as shown. A roller should be used to dress the Rapid Flashing into the valley support board and up an over the valley support battens. The Rapid Flashing over the valley support battens is then folded back over itself such that the butyl adhesive strip is left facing upwards; the section of the Rapid Flashing still in contact with the support batten should be pressed down on the bead of glue and nailed through the glue into the support batten using felt tacks at 300mm centres such that the junction between the Rapid Flashing and underlay is sealed and secured (Note: The glue is important to prevent any water ingress at this junction penetrating between the valley lining and support board).



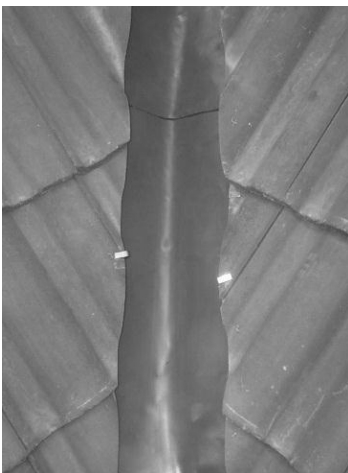
Continue fixing and laying the Rapid Flashing lining up the length of the valley with an 150 mm overlap between lining pieces. Ensure a roller is used with each piece to dress the lining into the valley support board, and to ensure that each lining piece bonds to the piece below. For each piece also ensure the integrity of the glue seal between the Rapid Flashing and the underlay on top of the support batten on either side of the valley is maintained.



Once the Rapid Flashing valley lining has been installed correctly the slating and tiling into the valley can be completed. Maintaining the correct bond of the slating/tiling it is essential that the slate or tile overhang over the valley support batten is a minimum 50 mm in accordance with the diagram in Section 1.1. All slates and tiles immediately adjacent to the valley must be mechanically fixed in accordance with BS 5534, Code of practice for slating and tiling. Small tile cuts should be avoided wherever possible using wider tiles (e.g. slate or tile and a halves or doubles) where available. Where they are not available (depending on tile type) or where small tile cuts are unavoidable they should be fixed using a combination of the Redland Kro-clip (9142) and Redland C-clip (9518).



The recommended combination of clips is to use C-clips both at the head and tail of the cut tile at the coverlock/interlock junction with the tile adjacent, and a Kro-clip on the free cut edge of the tile overhanging into the valley. Ensure the C-clips fit tightly to the cut tile. This provides a very secure three-point fixing for the cut tile as shown.



Complete the installation of the valley as shown in diagram in Section 1.1. At the top of the valley a Rapid Flashing saddle will be required. At the eaves, ensure the Rapid Flashing welt is turned out and splayed into the eaves gutter.

2 Notes

- Do not walk or stand on the Rapid Flashing
- Clear all dirt/items from the valley
- For use with pressure treated or untreated timber. Ensure no chemical timber preservatives are applied to the timber.
- The system should be installed to prevent any area of standing water
- Any damage to the surface of the Rapid Flashing must be fully replaced across its full width
- All roofing work must be carried out in accordance with HSE guidelines with particular attention to the safe use of disc cutters. In fact any tool that generates silica dust when cutting roof tiles must use wet cutting in accordance with HSE advice.

For further information, please contact Redland Technical Solutions (Tel. 08708 702595)