

070508

ROOF FLASHING

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Waterproofing of roofs is one of the major defective aspects of building work for the building industry.

Designers and contractors are responsible for the standard of their work and should be aware of correct roof flashing methods. Contractors can be directed by the Building Services Authority (BSA) to rectify, not only defective work, but consequential damage which can be significant as a result of leaking roofs.

Defective roof flashing systems are a common cause of water penetration in roofs. Examples of roof flashings include: cavity flashing, stepped flashing, flashing between existing roofs and patio additions, flashing around curved surfaces, hip and valley flashing, parapet wall flashing and capping. Other flashings types include: Apron, Counter (or Over), Hanging, and Soaker flashing (HB39).

Masonry walls can be porous, absorbing moisture, coupled with capillary action, can allow moisture to saturate internal surfaces. In such cases flashing is needed to redirect moisture back out to external surfaces.

It is essential to install a complete flashing system that intercepts, collects and discharges moisture or water back on to the roof stormwater drainage system.

Apart from malleable flashing (i.e. lead) which is fitted on site, roof flashing should be purpose-made and machine-folded, of material compatible with all material used in the storm water drainage system.

The Metal Building Products Manufacturers Association and Standards Australia have produced a handbook SAA HB39—1997; "Installation code for metal roofing and wall cladding", that provides a comprehensive guide including tables and illustrations on roof flashing and capping detail.

Roof flashing design and installation methods referred to in HB39 (Sec 8, pp. 84-96) offer guidelines, that will be dependent on site application, including; minimum thickness, minimum cover and recommended fastening systems of roof flashing and capping.

COVER AND SIZE OF FLASHING and capping systems should be provided, allowing for minimum standards (HB39, Table 8.1.2).

FASTENING METHODS should withstand wind pressure and thermal forces. Flashing should not be fastened to other roof components such as other flashing members (HB39, Table 8.2.1).

WIND DRIVEN RAIN can spill over flashing systems and penetrate roof surfaces. Flashing systems must allow for the effect of wind driven rainfall (AS/NZS 3500.3:2003).

VALLEY GUTTER DESIGN LIMITS including: roof slopes and effective width and angle of valley gutters are specified in Australian Standards:AS/NZS 3500.3:2003.

JOINING INTERSECTIONS, lapping and mitres should be properly fastened and sealed (HB39, clause 5.9):with a minimum of 25 mm lap in direction of fall and spacing of rivet fasteners not exceeding 40 mm.

DRINKING-WATER (portable water) roof catchment areas must not be exposed to lead based products (BCA: 3.5.1.3 (h) (iv)).

LEAD FLASHING should not be placed in contact with pre-painted steel or with zinc/aluminium coated steel or aluminium.

On completion all: debris, swarf, cement, mortar waste and excess sealant should be carefully removed.

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Roof flashing and capping should be designed to permit longitudinal expansion and contraction.

When differential movement can be expected, between different material types, sliding clips or fixings should be used.

Thermal movement between flashing or capping and surrounding material can be allowed for with cleats or sliding support fasteners.

Parapet wall capping should be properly anchored at 500 mm centres with clips that allow sliding movement and a 35° minimum drip angle.

Barge capping fixing methods are shown in the following illustration.

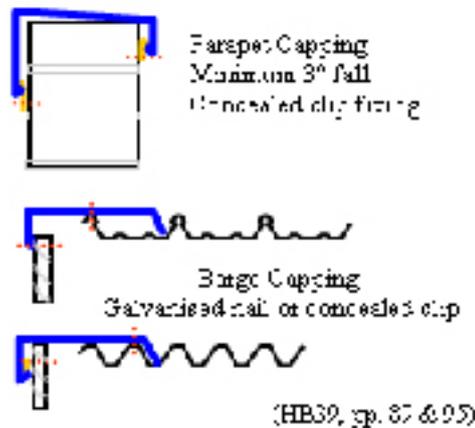


Illustration 1: Capping Fastening Methods

Capping to wall cladding, whether fixed with concealed-fixing or pierced-fixing, should be tightly notched and fixed at every rib.

Wedge set in sealant or mortar 22 mm (min) depth into bed joint.

Cover flashing

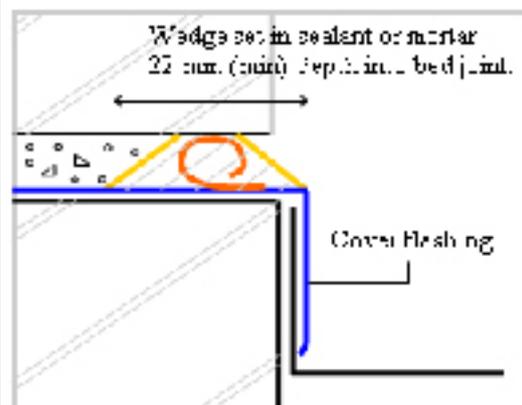


Illustration 2: Masonry fixing wedge system pressing down on apron flashing

Fitting methods should allow for tight notching and fastening at correct intervals (HB39, Table 8.2.2).

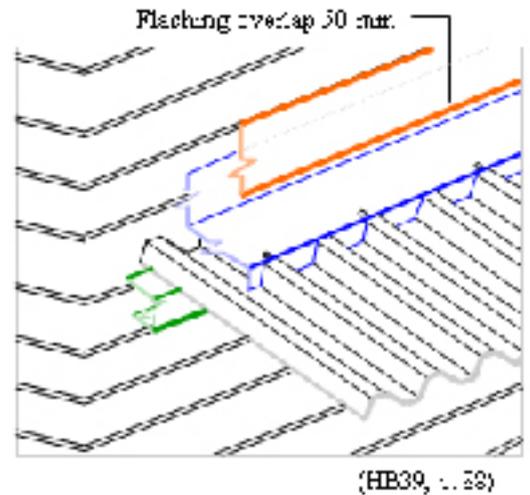


Illustration 3: Parapet flashing set into brickwork bed joint

Step flashing should be uniform in size and shaped to the angle of the roof, with 50 mm overlaps in direction of flow.

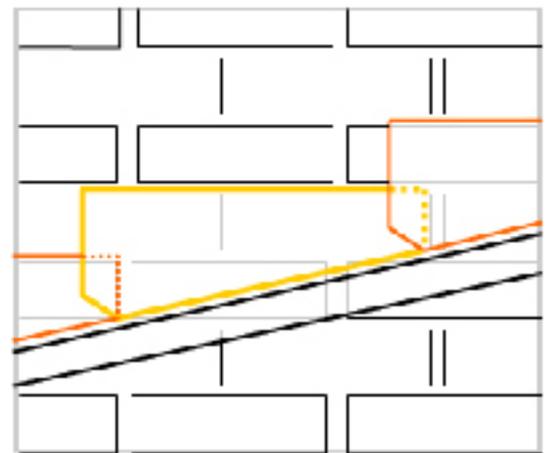


Illustration 4: Step cavity flashing 50mm overlap

Laps should be at least 50mm across, with extra cover provided where high wind velocities can be encountered.

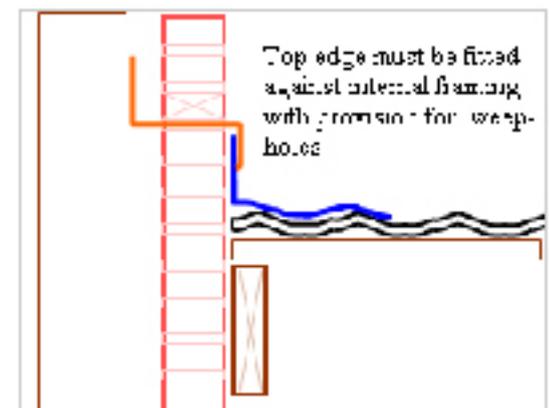


Illustration 5: Cavity flashing fixed to timber frame and fitted to outside of masonry wall

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Widths exceeding 150 mm should have a continuous support system with fastenings spaced not more than 200 mm centres.

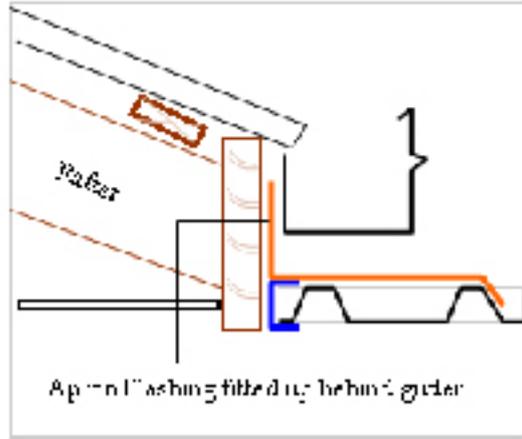


Illustration 6: Apron flashing over skillion patio roof extension to existing roof

When water can enter through a lap it must be sealed with an appropriate sealant.

End folds should be 10 mm wide and set at 30° against consistently flat surfaces (such as metal finishes) and 90° to 130° against non-flat or rough surfaces (such as timber or masonry finishes) to form capillary breaks.

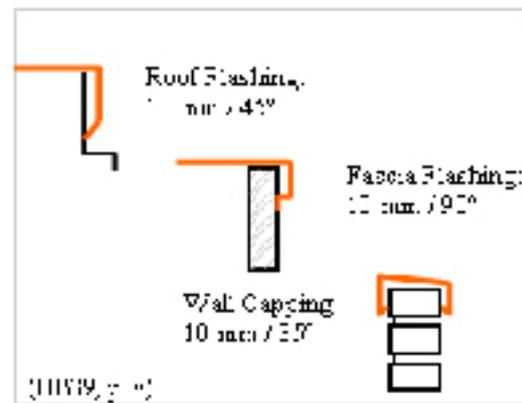


Illustration 7: Anti Capillary Breaks