Module 17: Flashing & capping roofs

Module Objectives

By the end of this session, participants will understand:

1. Various types of flashing
2. Various kinds of capping used along the ridges and verges (barges)
3. Fascias and beam infill

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Flashing of roofs

"Flashing" means the waterproofing strip used at junctions where roofs meet abutments, chimneys and other projections, and where changes in roof pitch occur. NHBRC 3:7.5: Flashing makes these junctions watertight.

Metals which are used for flashing include zinc, aluminum alloy, galvanised iron, copper, and lead. Bituminous “torched-on” flashings are common when extended from adjacent flat roofs or in "difficult" areas. There is an increasing trend in South Africa for builders to use "cheap and easy" acrylic membrane as a roofing flashing. This is seldom completely satisfactory as the end result is not as durable, nor as attractive, as professionally installed metal flashing.

On thatched roofs, mortar is often used for ridge capping and for head and side wall flashing.

NHBRC requirements for flashing

NHBRC 3:7.5

- End laps of flashing to be at least 150mm
- Cover flashing not to be punctured within 75mm of a vertical lap
- Head wall and side wall flashing to be turned up at least 75mm against vertical surfaces and dressed in the wall, fixed to the wall, or cover flashed.
- Flashing laid at right angles to box-ribbed profile sheeting to be fixed on alternate flutes, or at a maximum of 600mm centres.
- Valley flashings to have a minimum width of 300m.
The following illustrations, taken from the NHBRC manuals, illustrate most of the basic flashing techniques required for South African home building.

**Head wall flashing**

This type of metal flashing is used at a “head wall”. This is where the top of the roof runs against an abutment wall of the house, or against the lower wall of a chimney. Best practice flashing consists of turned-up metal flashing, angled over the top of the roof and extending up the head wall. This flashing strip is then covered by a “counter flashing” strip. The top edge of the counter flashing is embedded into the mortar of a brick course.

*Did you know...*

_In modern South African housing well-crafted, attractive and durable metal flashing is often replaced by bitumen or acrylic systems.*
Side wall flashing (of abutments or chimneys) follows similar principles to head wall flashing, with one difference. Side wall flashing must be "stepped" up the slope of the roof. In best practice, this stepped flashing follows the brick courses.

Again, in modern South African building practice (often untidy) bitumen and acrylic flashing has replaced well-crafted stepped metal side wall flashing.
Stepped side wall flashing

Gutters around chimneys and abutments

Two examples of gutter construction on the side wall (left) and back wall (right)
On the “back wall” – this is where the lower end of a roof plane intersects with an abutment or chimney - a gutter is often installed there. This gutter is designed to carry away the water which would otherwise flow against the chimney or abutment wall.

Sometimes in modern housing, this gutter is dispensed with and the intersection is simply flashed (waterproofed) with bitumen or acrylic.

**Ridge capping**

Where the two planes of a roof intersect – either along a hip or at an apex – this is known as a "ridge". This intersection must obviously also be waterproofed. There are various methods of waterproofing (“capping”) ridges – depending on the roof covering material.

**Capping tiled roofs (concrete and clay tiles)**

Special ridge capping tiles are used. These can be either collar jointed (where the ends fit into one another) or butt jointed. Ridge capping tiles are normally laid on a mortar bed (3:1 sand: cement mixture) which is placed on top of plastic (DPC or tile under lay). Mortar is also used to grout the ridge capping tiles.

Cracked ridge capping mortar can result in roof leaks and is usually the result of an incorrect mortar mix, or too rapid drying out of the mortar. Concrete tiles especially are very porous and on a hot day will rapidly suck water out of the mortar. This can be countered by wetting the tiles before laying them.

**Capping sheeted roofs**

Purpose made metal or fibre cement capping strips are usually nailed into place.

**Capping slate and shingle roofs**

A so-called “double soaker” is usually employed along the ridges of slate and shingle roofs. The top courses of the slates or shingles butt together and in order to waterproof this junction, the malthoid (bitumen) underlay is overlapped at the junction.
Capping thatched roofs

Mortar, often reinforced with wire mesh, is the most common capping and flashing material used for thatched roofs.

Barge (verge) capping

The edges of roof gables are known as verges and the capping along these edges of the roof is usually called "barge" or "roll" capping. Verges often overhang the gable walls.

Verges usually have a wooden or fibre cement barge board fastened to the edge of the roof. These are then finished off with barge tiles (sometimes referred to as "barge roll tiles"), or metal or fibre cement barge capping sheets.

Fascias and beam infill

The horizontal "fascia board" caps the end of rafters outside a building. The fascia board can also be used to mount the rain gutter. The finished surface below the fascia and rafters is called the soffit or eave.

On gutterless roofs, the roof covering should extend beyond the fascia, and on roofs with gutters, the roof covering (and tile underlay) should extend sufficiently over the inside edge of the gutter to ensure that rain water discharges into the gutter and does not fall short or overshoot.

The outer brick skin of the walls is normally built up between the rafters to reach the bottom of the roof covering. This is known as “beam infill” and is usually then covered with a fascia board. (Remember that the timber wall plate – on which the roof structure rests – runs along the top of the inner skin of bricks).

Fascia boards can be wood, fibre cement, or sometimes metal.
Parapet wall flashing

Parapet walls are low walls usually surrounding semi-flat roofs. These walls are often the source of water ingress into the building if they are not properly waterproofed. Normal principals of flashing apply to the intersection of the roof surface with the parapet wall. Usually a 45 deg. Mortar “fillet” is installed at the junction beneath the flashing.

The tops of parapet walls can be problematic and often crack and allow water ingress unless the top of the parapet is finished off with coping, or is adequately waterproofed with acrylic or similar.

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