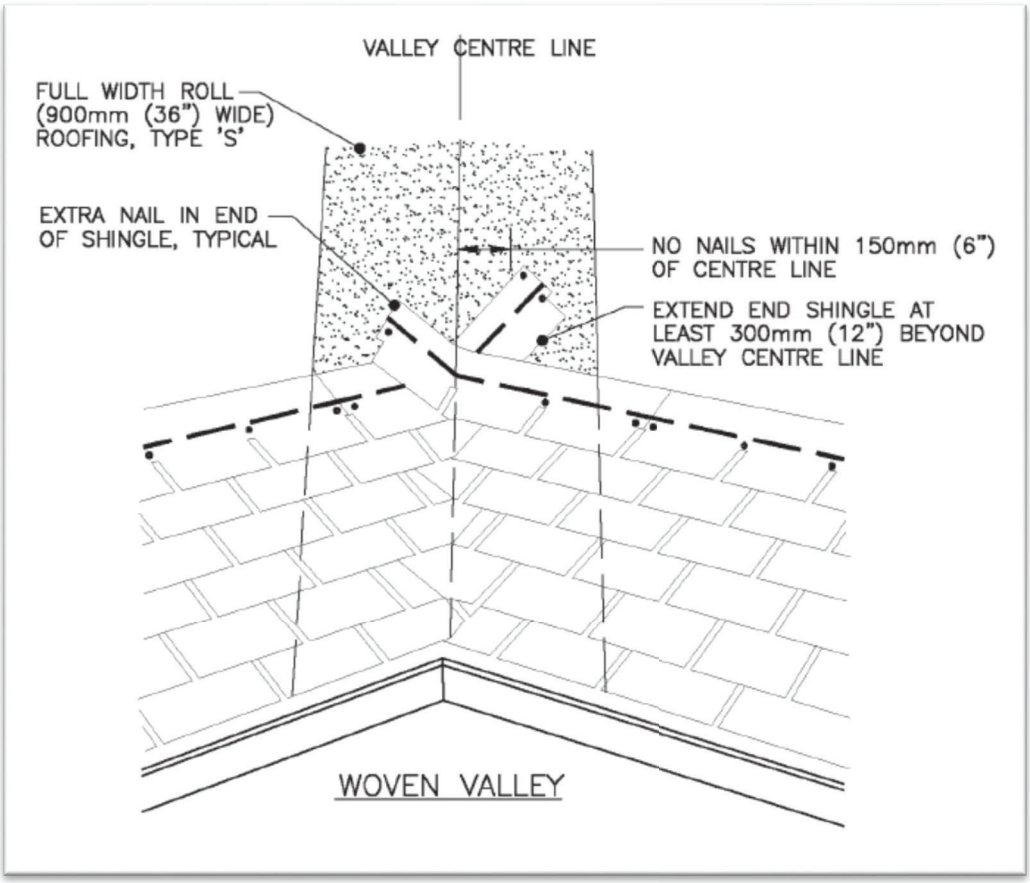


Fig. 7-6 Woven Style Closed Valley
*Image Source: Canada Mortgage and Housing Corporation (CMHC)*

Whatever the style, the lower end of valley flashing should not be cut short to expose the drip edge or the fascia, but it should also not extend too far as it encourages water running down the valley to overshoot the eaves trough. A water diverter is often installed in the trough to prevent this.

Valleys merit close inspection due to the factors previously mentioned. Roofs that are shingled with asphalt will often wear more quickly in the valley, particularly at the low end, than the rest of the roof.

Image 7-7 Lower Valley Deterioration
*Image Source: CIHI*

In the case of open valleys or cut valleys, it may be possible to lift the edges of the shingles at the valley to determine if best practice was

followed by the roofer. This includes sealing down the shingles along the valley, keeping nails away from the centre of the valley, and clipping the pointed ends of the shingles in the valley. If the shingles appear worn or brittle, no attempt should be made to lift them. The lower end of the valley should be properly terminated as described. The cut line of shingles at the valley should be clean and straight, with no ragged cuts or shingle ends showing from underlying courses. A carelessly cut valley may indicate hidden deficiencies and is more prone to catching debris and allowing water to seep past the valley flashing.

Care should be taken not to step in the valley during inspection. Valley flashing does not always conform exactly to the angle of the valley, so metal valleys may dent and asphalt valleys may tear if stepped into. Metal valleys are also very slippery if wet or snow covered, particularly if there is any soil or algae present.

**Summary:**

- Valleys may be may be open or closed style
- Open valleys are required for roofs with slope less than 1:1.2 (10/12)
- Closed valleys may be cut type or woven type
- Valleys may be flashed with roll roofing but metal is superior
- Shingles along valleys should be neatly cut and properly detailed
- Stepping on valley flashing may cause damage

**NBCC References: Articles 9.26.4.2. and 9.26.4.3.**

## 7.4 Ridge and Hip Caps

The upper edges of intersecting roof slopes meet at ridges and hips to form an intersection that is the inverse of a valley intersection. These areas are exposed to the full force of sun and wind but are otherwise not highly stressed. Snow does not accumulate in these areas, and they contend with less rainfall than other parts of the roof. However, ridges are usually level and hips run at a lower angle than the roof slope; thus good overlap of shingle-type capping is required.

The **NBCC** specifically lists requirements only for asphalt roof shingles, both standard and low slope. The requirement for standard asphalt shingles is that they extend 4”/100mm on either side of the ridge or hip, and lap no less than 6”/150mm. Most asphalt shingle ridge/hip capping is made from standard shingles by cutting them in thirds to produce individual caps with a taper that keeps the underlying portion from showing.

This produces caps that satisfy the requirements in **NBCC Article 9.26.7.6**. Some laminated architectural shingles do not lend themselves to this method and require special cap shingles available from the manufacturer. In the case of low-slope asphalt shingle roofs, the requirement for capping is stricter: triple coverage and 6”/150mm to either side of the ridge, with all capping bedded in roofing cement per **NBCC Article 9.26.8.5**.

Though the **NBCC** does not identify requirements for capping of wooden shakes and shingles, the minimum guideline of 4”/100mm to either side of the ridge should be followed

and the lap should conform to the exposures for each length and grade of shingle as listed in the **NBCC** and on manufacturer's labels. Prior to capping the ridge or hips of a wood-shingled roof, a strip of breather-type moisture barrier should be laid over the intersection of the roof planes. Capping must be bevelled to suit the adjacent roof slope, with laps alternating. This may be done on-site, or by purchasing premade cap shingle pairs.

Fig. 7-8 Cedar Shingle Hip Capping
*Image Source: Cedar Shake & Shingle Bureau*

Capping, like valley flashing, for other types of roofing is usually supplied by the manufacturer to be consistent with the roofing system. Whatever the roofing material, it is recommended that non-continuous ridge caps be installed with joint laps facing away from the prevailing wind to lessen the chance of rainwater being driven into the system.

If the ridge is equipped with a continuous vent, the roof sheathing and shingles are held back from the ridge board to create a continuous opening which is then covered by a vent. The vent may take the form of a plain or painted aluminum or steel section or a plastic vent that can be capped with shingles.

Fig. 7-9 Continuous Metal Ridge Vent
*Image Source: CIHI*

Fig. 7-10 Shingled Continuous Plastic Ridge Vent
*Image Source: CIHI*

Vents of this type may be found on any roof, but are the norm for metal sheet roofing and on roofs with cathedral ceilings.

While it is true that ridge and hip caps receive less precipitation than down-slope areas of the roof; they receive more exposure to direct sun as well as wind-driven abrasive material. If there are nearby trees, damage from falling branches is a possibility. Inspection of these areas should note signs of wear or mechanical

damage as well as lifting or loosening from wind. If there is a continuous roof vent present, it should have intact end caps and end connectors if those are required. It is not advisable to step on ridge or hip caps as crushing damage or breakage may result.

**Summary:**

- Ridge and hip caps receive less rain but more sun and impact/abrasion damage than other areas
- **NBCC** requirements are listed only for asphalt and wood shingle roofs
- Capping for asphalt and wood roofs may be made on site or purchased
- Inspection should be alert for wear and mechanical damage
- Stepping on ridge or hip caps may cause damage.

**NBCC References: Articles 9.26.7.6. and 9.26.8.5., Table 9.26.9.6. and Article 9.26.10.5.**

## 7.5 Wall and Chimney Flashing

Where a roof surface intersects with a wall or other vertical element; provisions must be made for the transition to a different covering material and for potential movement between the structural elements at the intersection. This is particularly true if a wood-frame roof abuts a masonry wall or chimney. The wood will undergo some shrinkage while the masonry remains stable.

The potential movement requires flashing that can compensate for the effect. This is done with a two-part flashing; the base flashing is fastened to the roof and the counter flashing is embedded in the masonry and laps over the base flashing. The two flashings work together to remain weather-tight while allowing a degree of movement. There must be enough overlap to maintain a shingle effect after movement has stopped. The most common form of this type of base flashing is step flashing, used with shingles. The base flashing is installed with the shingles.

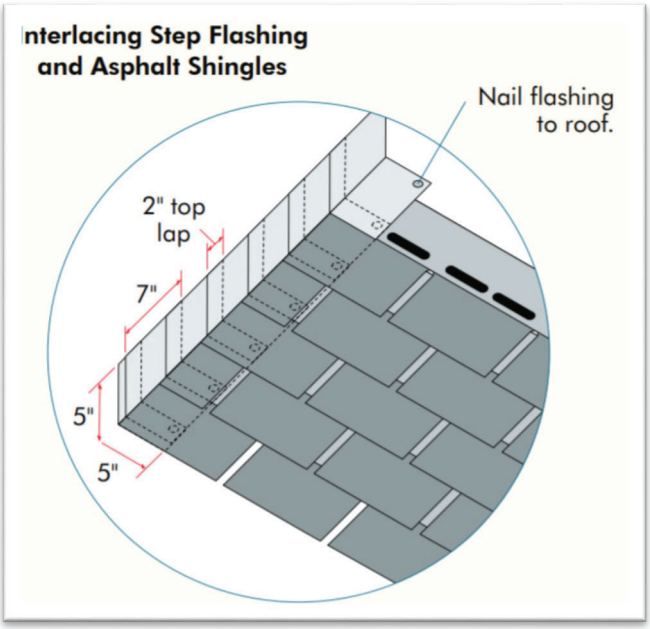


Fig. 7-11 Step Flashing Installation
*Image Source: APA*

Counter flashing is embedded in masonry as in the next image. This may be done by making a saw cut in the mortar joint to receive the counter flashing, or by placing the counter flashing as the masonry is laid. The requirements for lapping and embedment of this type of flashing are contained in **NBCC Article 9.26.4.4**.

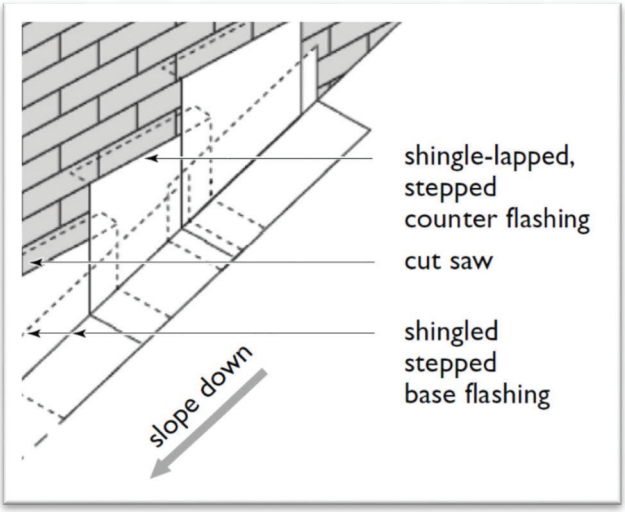


Fig. 7-12 Counter Flashing at Masonry Wall
*Image Source: Canada Mortgage and Housing Corporation (CMHC)*

If the wall is a framed wall with an exterior finish such as siding; the function of the counter flashing is replaced by lapping the moisture barrier and siding of the wall system over the step flashing a minimum of 3”/75mm, per **NBCC Article 9.26.4.5**. To prevent damage to siding or sheathing made from wood or a wood product, such materials must be kept a minimum of 2”/50mm above the finished roof surface, per **NBCC Sentence 9.27.2.4.(2)**. This clearance requirement is a frequent area of concern with older homes that are likely to have more than one layer of roofing applied – the extra thickness of roofing brings the roof surface too close to wood or wood-based siding or concealed wall sheathing.

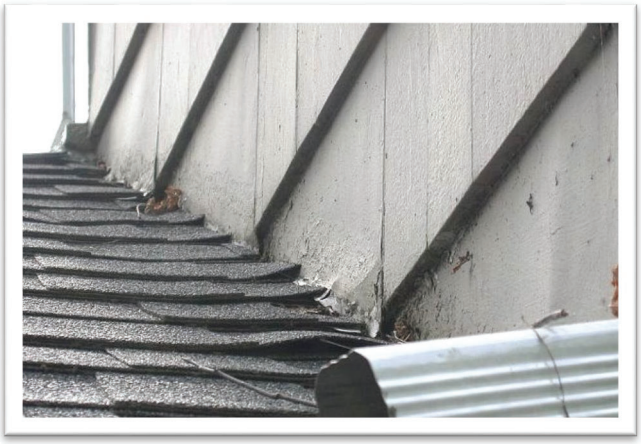

Fig. 7-13 Faulty Intersection at Wall
*Image Source: InspectAPedia.com*

The step flashing is nailed only to the roof surface and should be entirely covered by the shingles. Shingles should be held back from the bend in the step flashing to prevent their buckling in the event of expansion. Failure to allow proper clearance between roofing and wood sheathing can be disastrous.

Fig. 7-14 Improper Wall Flashing Installation
*Image Source: CIHI*

If the roofing is a panel material or a material with a pronounced cross-sectional profile, such as metal shingles, sections of formed metal