

## FLASHING CHIMNEYS

### Introduction

Flashing is an important element in brick masonry's line of defense against water penetration. Flashing may either direct moisture out of a cavity or prevent moisture from entering. Without flashing, any intersection or interruption of materials becomes an avenue for moisture to enter the construction. Several specific areas of potential moisture penetration must be addressed in the flashing of chimneys. This *Brick Brief* addresses these areas of concern and provides details for optimum performance. The *Brick Brief "Proper Chimney Crowns"* may also be of interest.

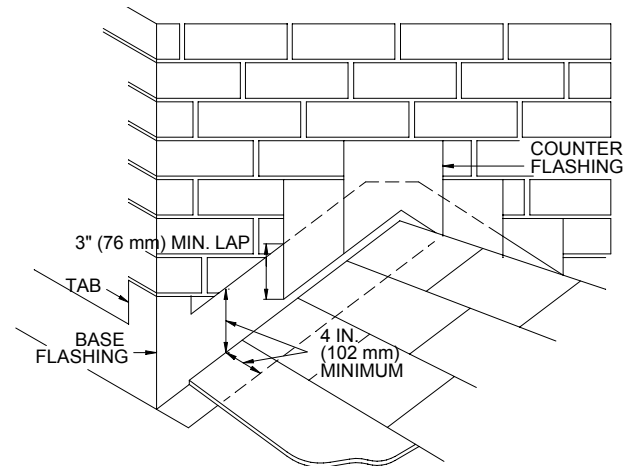
### Chimney Construction

The use of flashing in chimneys presents some unique construction details. The three primary areas of concern are: the base of the chimney, the intersection of the chimney with the roof, and the chimney crown.

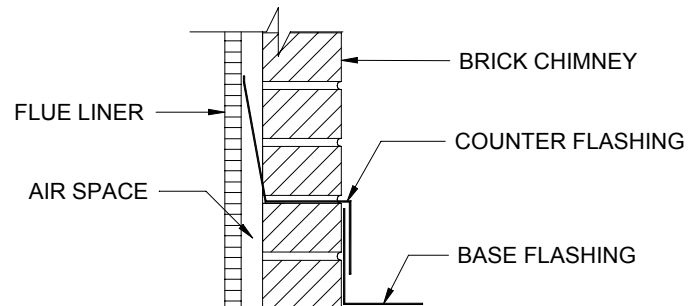
**The Base.** The base of the chimney is constructed in much the same manner as a brick cavity wall. Flashing must be used at the joint between the foundation and the brickwork. The flashing should extend through the brick wythe and turn up behind the exterior face of the brick and end in a mortar joint in the interior wythe. Weeps are placed immediately above the flashing.

**Intersection with the Roof.** The chimney penetration of the roof must be properly flashed to prevent water from entering the interior of the structure. Base and counter flashing must be installed at the interface. Base flashing is placed first, starting with the lower ends of the faces of the chimney perpendicular to the ridgeline, with tabs at each corner. The base flashing should extend a minimum of 4 in. (102 mm) along the roof and 4 in. (102 mm) up the chimney face as shown in [Figure 1](#). Counter flashing is then lapped over the base flashing a minimum of 3 in. (76 mm), extended through the chimney wall, and turned up at an angle into the air space to collect water draining down the back of the brickwork as shown in [Figure 2](#). All joints and laps in the base and counter flashing must be completely sealed. Weeps are not typically included.

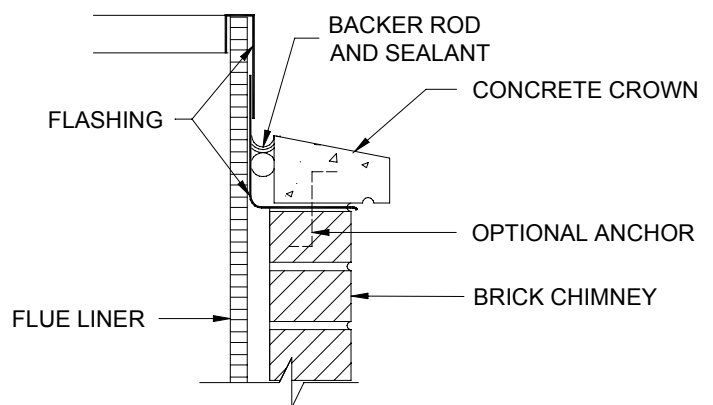
**The Chimney Crown.** The area around the chimney crown is often overlooked as a source of moisture penetration. Flashing and sealant are important here to prevent water from entering the space between the chimney wall and the flue liner. The first piece of flashing should be placed directly below the chimney crown, extend through the brick wythe and turn up against the outer face of the flue liner. This flashing should form a drip



**Figure 1**  
Typical Flashing at Roof/Chimney Intersection



**Figure 2**  
Flashing Detail at Roof/Chimney Intersection



**Figure 3**  
Flashing at Chimney Crown

above the outside chimney face. A second piece of flashing should be folded over the top of the flue liner and extended down the outside to lap the first piece of flashing, as shown in [Figure 3](#). For further information on chimney crown flashing refer to *Brick Brief "Proper Chimney Crowns"*.

## Flashing Materials

The use of quality flashing materials cannot be overemphasized. The initial cost is money well spent to avoid costly future repairs. For flashing chimneys, metal flashings are recommended for their resistance to high temperatures and exterior exposure. The *Brick Brief "Through Wall Flashing"* provides more detailed information on flashing materials.

**Copper.** Copper is durable, able to withstand elevated temperatures in the chimney, available in special preformed shapes, and is an excellent moisture barrier. Copper can be safely embedded in fresh mortar and will not deteriorate in continuously saturated, hardened mortar unless excessive chlorides are present. Copper flashing may stain the concrete crown or brick masonry.

**Stainless Steel.** Stainless steel is an excellent flashing material. It provides a good water barrier, high temperature resistance, and has excellent chemical resistance. ASTM A 240, Type 304 should be specified. The minimum thickness used should be 0.01 in. (0.25 mm).

**Galvanized Steel.** The life of galvanized steel flashing depends on the thickness of the zinc coating. However, thicker coatings may crack when folding the flashing. Galvanized steel is not recommended.

**Aluminum.** The alkalis present in fresh mortar will attack aluminum. Thus, aluminum should not be used as a flashing material in brick masonry.

## Flashing Details and Installation

While flashing is essential to good performance of brick masonry, proper detailing and construction is of the utmost importance. Flashing which stops short of extending through a wall is little better than no flashing at all. It is important that flashing penetrating a wythe of brick extend fully to the outside and form a drip. Flashing and counter flashing must be adequately lapped such that water cannot get behind the inner layer to enter the interior of the structure. Furthermore, flashing must be continuous. Any bends or breaks must be completely sealed. Special preformed shapes which minimize the cutting necessary are available for problem areas such as outside corners.

*Brick Briefs are short discussions of a particular topic. The information contained herein is based on the experience of Brick Industry Association technical staff and must be used with good technical judgment. Final decisions on the use of this information must rest with the project designer and owner.*