

What Is a Chimney Crown?

Sweeps often use the term “crown” in an embrasive manner to refer to the masonry on top of the chimney. Because the cement put on top of a wall is called a cap, clients sometimes confuse the “crown” with a cap. A chimney cap, however, is the cover over the flue that prevents rain and snow from entering. A good cap will have spark arrestor mesh to capture sparks that might fly up the chimney, preventing them from falling on the roof. The masonry called the “crown” is there to close the top of the chimney around the flue.

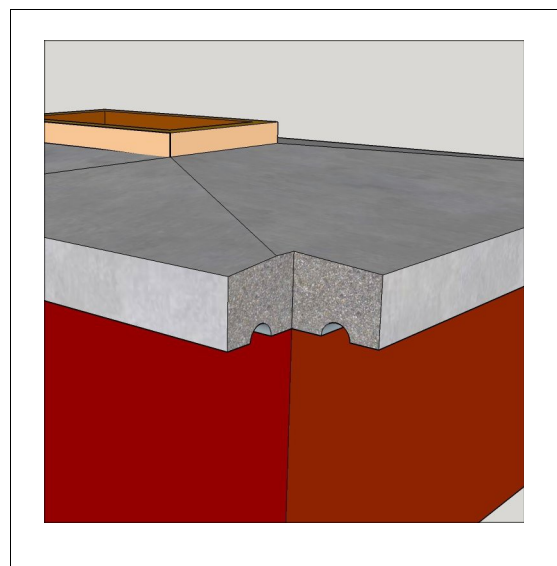
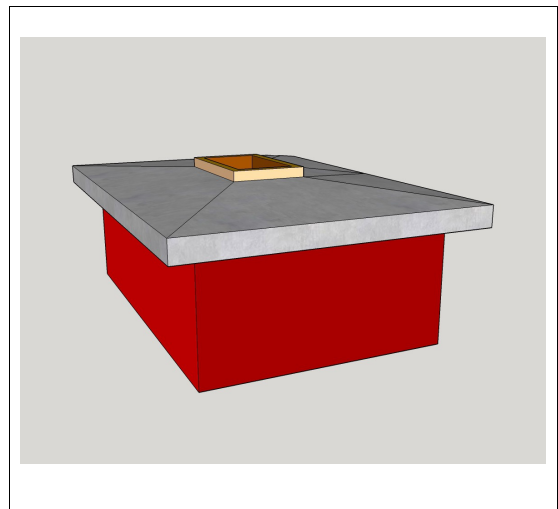
There are commonly three treatments used to close the top of the chimney; wash, splay, and crown.

Crown

A crown is the correct method according to the national chimney standard*. A crown has a few key features. First it must have an expansion gasket around the flue to allow for expansion; both outward and upward. There is some horizontal expansion, but more remarkable is the vertical expansion. During a chimney fire, this can be as much as TWO inches!

The next feature is the bond break. That can be any intervening material that prevents the crown from adhering to the brick or stone work. Ideally, if one were strong enough, one could lift the entire crown off the chimney in one piece.

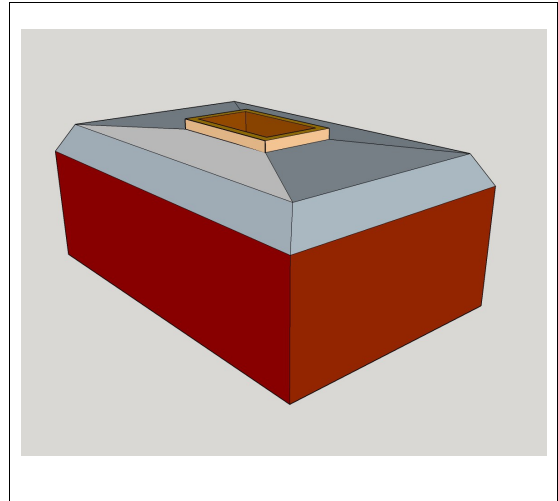
The main key feature is the edge. The edge of a crown extends beyond the brick work. Because stone work has a variable edge, the extended edge of a crown is the only method that can have a proper, neat finish. When forming the crown, a declivity is made for the underside. Without that declivity, surface tension of the water would carry it right back to brickwork. Since water will not flow uphill, it forms a drip away from the face of the chimney and falls off.



A crown is installed by building a form and pouring concrete in. Pouring ensures compaction which develops the strength of the concrete. Stones in the concrete increase strength and hardness. You can easily see why this is the standard way to finish a chimney top with masonry.

Splay

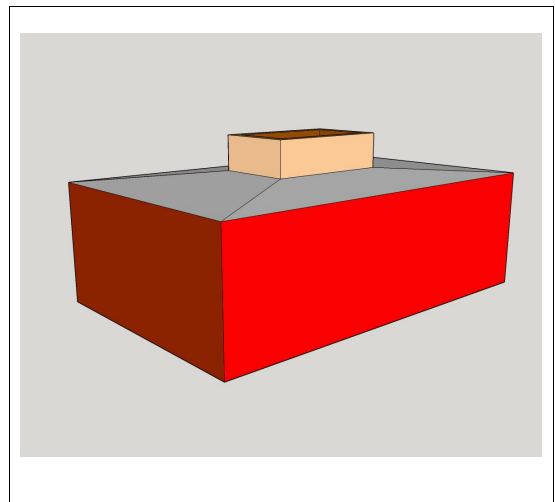
A splay might be thought of as a shortened version of a crown done without a form. A splay typically will also have a gasket and might also have a bond break. It has thickness like a crown. But, its edge stops flush with the edge of the brickwork. If one were to put it on stone, tooling can only leave a ragged edge. It is installed by casting it in place. Cast without forms it gets less compaction. Shed water rolls right on down the face of the brickwork. The interface of the splay and the brickwork must also be maintained with caulking over the years.



Obviously it can only keep water out of the chimney if the bond break is sealed. While it appears to be a good repair it is clearly sub-standard.

Wash

The third top treatment used for closing the top of the chimney is called a wash. Perhaps because water falling onto it washes over the edge? Like a crown and splay the wash must have the expansion gasket but likely has no bond break. Although not compliant with the standard, a wash is a common way that chimney tops are finished. It is invariably the left over cement that has partially set up and therefore weaker. Cement has no large aggregate to develop strength like concrete. The cement is mounded up near the flue and spread out to the edge feathering to no thickness at the edge.



This is the most common treatment used to finish the top. The need for gasket and bond break is ignored. The thin nature of cement is weak. Shearing force, from expansion, cracks the wash, sometimes as soon as the first use of the chimney.

Often times we see the light weight wash lifted from the brickwork giving us the inverse of the drip edge in the crown. Surface tension carries the water, not off the chimney, but right inside it!

Chase Cover

An associated top treatment, the chase cover, is most often used on framed chimney chases. Usually designing a chase cover for a masonry chimney is fairly complex, but in special circumstance can be used.

*NFPA 211: Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances

ASTM C1283 – 15 Standard Practice for Installing Clay Flue Lining