

# Bombproof Chimney Cap



Lead flashing  
keeps water out  
and protects  
masonry

BY RYAN OLIVIERI

**A**fter a long winter, I often see the tops of chimneys disintegrating, sometimes to the point where entire courses of brick or stone have been loosened by daily freeze-thaw cycles. Eventually, I'll see towers of staging set up at some of these houses as masons replace half the chimney.

A good chimney cap keeps out the water that causes this damage, thus preserving the chimney top. A piece of bluestone standing on masonry legs is a common way to shield the delicate crown, but an alternative that I use is to cap the crown with sheet lead. Lead doesn't deteriorate meaningfully, so a chimney crown capped this way should have no end to its service life.

Contractor-oriented lumberyards stock sheet lead, and it can be found online. Lead is sold by the pound in rolls of various widths. (I use 2½-lb.-per-sq.-ft. material, which is 0.042 in. thick.) Even when I'm using a wide roll, I usually find it necessary to join two or three pieces by folding their edges together to span the full width of the chimney crown.

I always set up pipe staging for myself and a worktable. It makes the job easier in a way that shows through in the finished product.

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Ryan Olivieri is a contractor from Roxbury, Conn. Photos by Andy Engel.

## PREP THE CHIMNEY

Before you get the lead out, make any structural repairs the chimney needs. It's common for the mortar atop the chimney to be cracked and spalling, and for the flue tile to need trimming.

### **Chip off loose mortar.**

Freeze-thaw cycles can crack and dislodge the mortar on top of a chimney. Remove anything that's loose, leaving only sound material.



**Cut the flue tile.** Use an angle grinder with a diamond blade to cut back the existing flue, leaving it 1 in. higher than the surrounding concrete cap.



**Parge the top.** Mix successive batches of fast-curing mortar, and apply it in layers to fix damaged spots and create a smooth transition to the top of the flue.





**STEP BY STEP**

# Flat-lock seams keep water out with no sealant

Flat-lock seams, consisting of several interlocking folds, allow sheets of lead to be joined with a watertight seal and to stay together when handled. Before seaming, cut the lead sheets a little longer than you'll need to drape down the side of the chimney. In this case, about 6 in. was allowed on each end. When considering width, for every two sheets you join, allow 3 in. to make a 1-in.-wide flat-lock seam.



**1**

*Use hand-benders. Mark the bend with a straightedge and a permanent marker, then turn up 1 in. of the first edge.*



**2**

*Bend the second sheet. Turn up 2 in. of the edge on the second sheet, and bend that over the first sheet's 1-in. up-turn.*



**3**

*Finish the seam. Crimp the bends together, and fold them flat. Hammer them together with a series of light blows.*

## FIT AND FASTEN THE LEAD

Lead is soft and flexible, making it easy to form around irregular surfaces such as chimneys. The flip side is that it mars easily, so work gently.

**Form the lead to the chimney.** Using hands and a no-mar hammer, gently mold the sheet to the masonry. A pin hole or two won't do any harm, but be careful not to tear the lead.



**Trim the corner.** Make a diagonal cut at the corner, then fold one side under the other. Trim the overlapping side, leaving just enough to wrap around the corner.



**Tighten the overlap.** Use gentle taps, trimming excess lead as needed, to snug the overlapping piece down. Cut the bottom edges with a knife and a straightedge, using snips on any seams.



**Fasten the edges.** ITW Red Head Hammer Set anchors driven into holes drilled near the corners and every foot or so along each side hold the lead in place.



### LEAD SAFETY

## Lead goes bone deep

According to Mark Miller, a toxicologist with the National Institute of Environmental Health Sciences, lead is associated with a wide range of negative health impacts, with the most serious being neurodevelopmental effects in children. "That means exposure for children is of concern, but so

is exposure for women of childbearing age or younger," he says. "Lead is stored in bone and becomes mobilized at the same time as calcium during pregnancy." In short, girls exposed to lead before they're of childbearing age can pass it on to their unborn children years later.

## MAKE THE OPENING FOR THE FLUE

While most chimney caps won't have anyone looking at them closely, the work will be there for decades, so take the time to detail the job nicely.



**Seat the lead.** Gently tap the lead sheet into the flue so that it laps down about  $\frac{1}{2}$  in.



**Cut out the flue hole.** Use snips to make the cut, leaving about a  $\frac{1}{2}$  in. of lead inside the flue.



Exposure can happen not just on the job site but also through lead that's brought home on workers' skin or clothing. Most literature on lead safety focuses on work that creates airborne lead dust or breathable vapors, which working with lead sheets as shown here does not do. Hand-

ling sheet lead does call for some common-sense precautions, but mainly that means wearing disposable gloves.

There isn't much information available about any environmental effects from lead flashing. The U.S. Forest Service says in its online Facilities Toolbox, "Generally

speaking, lead roofing or flashing that is in good shape may safely be left in place." Scrap lead is recyclable at some community recycling centers and at scrap yards.

An alternative to lead is soft zinc. It may not be as available locally, but you can buy it online ([bestmaterials.com](http://bestmaterials.com)).