



SAFETY INFORMATION

- Be sure to work from secure and safe platforms and ladders
- Secure area underneath your work space to make sure nobody gets hurt in case you drop something
- Edges of cut copper are sharp; be sure to wear proper gloves when handling cut gutter
- When cutting copper, be sure to wear approved safety goggles
- Never install or work on damaged roof material or structure
- When you install gutters, make sure the collected water can run off without causing damages
- Never modify parts without consulting a professional or Slate and Copper's technical support team
- Dispose of leftovers and off-cut safely and in accordance with best practices
- Never leave any parts or tools unsecured on your roof, they might fall down causing serious damage or injury
- Never do installation work alone- always work in a team
- Check for power lines
- Never install on icy or slippery roofs or in windy conditions

-IF YOU DO NOT FEEL YOU CAN COMPLETE THIS WORK SAFELY, CALL A LOCAL CONTRACTOR

WARNING:

Copper is a sharp metal and will bite you if you let it. Firmly and securely hold all pieces when working with them. Do not slide your hands or fingers along any straight or finished edges. This is partly the reason why we wore gloves in our demonstration. Wearing gloves will also help minimize the fingerprint marks on the gutter system. The best gloves to use especially for grip are ones with the palm and fingers coated with a rubber or latex material.

INSTALLING FLAT END CAPS

Tools Required:

- * Green and/or Red Tin Snips also Know as Left and Right Handed Tin Snips Respectively
- * Soldering Equipment and Flux (do not use the pre-tinning flux)
- * Soldering Iron of some sort (many styles to choose from)
- * Mapp Gas Tank (yellow tank) with an Adjustable Flame Torch Head Nozzle



step 1



Slate and Copper's World Gutter System flat end caps come as a left end cap, or a right end cap. How do you determine what is a left or a right end cap? This is easy, if you are facing the front of the gutter (bead side) and the end is on the left, then it requires a left end cap. The end cap we are installing in picture Step 1 is a left end cap.

PART 1

First part- we need to trim the end of the gutter to get the flat end cap to fit properly.

Fit the end cap onto the end, and if you notice in picture Step 2 the back of the end cap is going to run into the back of the gutter. We need to know where this point is, so we can trim it off to get the end cap to fit on properly. Pictures Step 3, Step 4, & Step 5 show one way we can notch the end of the gutter, with basically two straight cuts. Another way we can notch the back of the gutter is at an angle, like picture Step 10 shows.



step 3



step 4



step 2



step 5

PART 2



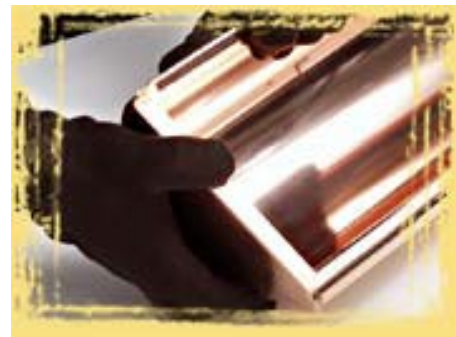
step 6



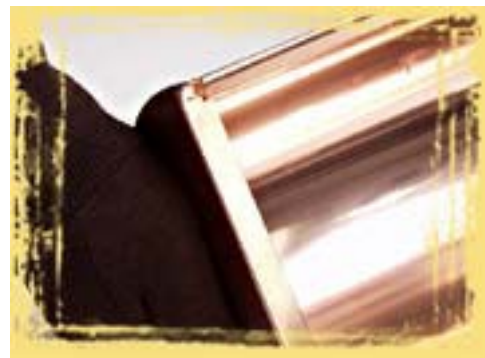
step 7

Second part- fit the end cap onto the end of the gutter.

It is a little easier if you fit the end cap onto the front bead first, then push the back of the gutter in slightly to get the end cap on (see pictures Step 6, Step 7, & Step 8). Picture Step 9 shows what the inside of the gutter looks like after the flat end cap is put on. Now we can solder in into place.



step 8

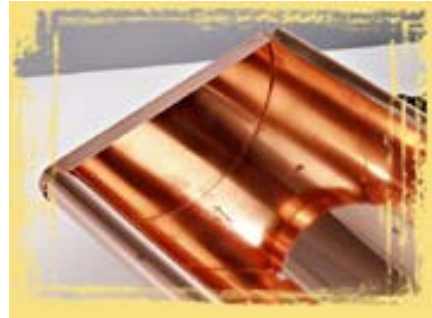


step 9

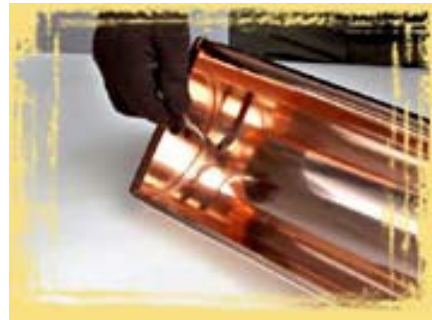
PART 3

Third step; flux and solder the flat end cap onto the gutter.

In picture Step 11 we are applying flux with a flux brush all the way around the inside of the gutter. We must apply flux to our seam, or the solder will not stick to the copper at all. If flux is not applied or gets dried out during soldering, then the solder will bead off like mercury. Simply apply or reapply some flux. In pictures Step 12, Step 13, Step 14, & Step 15 we are soldering the end cap into place. If you are using a hand held torch to solder, then you will not need as many tack solder points 3 to 4 would do. Since we used a soldering iron as you can see in picture Step 13 we made many tack solder points. This many tack points is going to make our soldering job easier. In pictures Step 14 & Step 15 the craftsman is filling in-between his tack points with solder on the back half of the end cap. In picture Step 16, the craftsman shows his perfectly completed soldering job on the inside of the gutter. In pictures Step 17, Step 18, & Step 20 we see a little bead of solder all the way around the end cap. That little bit of solder is just what we are looking for. This means we did a good job.



step 10



step 11



step 12

PART 3



step 13



step 17



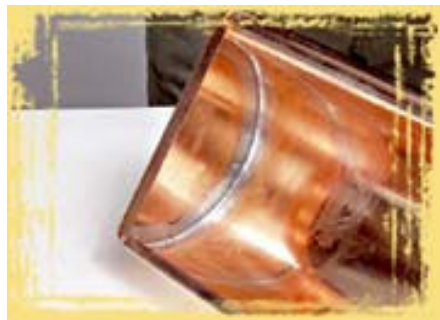
step 14



step 18



step 15



step 19



step 16



step 20