

Choosing the right Roof Curb

By Ken Buchinger

The majority of today's standing seam roofs are manufactured from Galvalume-coated steel, which carries a 20-year corrosion warranty. Many projects today also require a 20-year weather tightness warranty.

Because roof curbs have become such a common accessory for standing seam roofs, it is essential that they too perform leak-free for 20 years. This requires building designers and roofing contractors to make some important decisions about the roof curbs they use. Following are some critical areas to consider when selecting a product.

Pick the proper material

Most roof curbs manufactured for standing seam metal roofs are made from galvanized

material, though some are made from Galvalume.

Galvanized material is not guaranteed by the producing mills to last for 20 years, as Galvalume is, and indeed it will not last for 20 years in most cases. Even curbs made from Galvalume material will not last for 20 years because the Galvalume melts away when the corners are welded. These areas are coated with material having a much shorter service life. (see *photo A*)

Aluminum and stainless steel are much better materials for

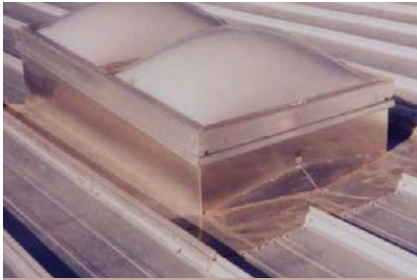


A This galvanized curb has already started rusting at the welds in less than one year.



B This over/over roof curb allows water to leak through the seam area.

C



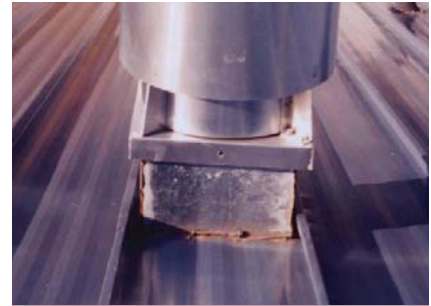
This under/over roof curb allows for the curb to be "shingled" into the roof to prevent roof leaks.

D

This curb has no clearance on the upslope end, which allows a water head to build up.



E



This curb does not allow for adequate water drainage.

The "under/over" curb is the most failsafe type. It is lapped under the roof panels at the upslope and over the roof panels at the downslope.

roof curbs, with aluminum being the best choice by far. The thickness should be 0.08 inch.

The question often asked is: Will aluminum cause galvanic corrosion when used with Galvalume roofing materials? The answer is no. Galvalume is approximately 80% aluminum by volume, so there is no problem with corrosion.

Choose the proper curb type

Many roofers prefer to use an "over/over" type curb. This means that the curb is over the panel on both the upslope and downslope ends. At the upslope end of the curb, the joint between the roof panels and the curb is lapped backwards against the water flow. It is not shingled and is commonly referred to as a back water lap.

This type of curb almost always leads to leaks. If the

installer pays attention to detail, he can usually get a good seal across the panel—until he gets to the seam. It is at the seam, particularly snap-together types, where leak problems occur. There is always a void at the seam that cannot be adequately sealed. Even field-seamed panels have pinholes at the seams that are nearly impossible to fully seal. (see photo B)

The “under/over” curb is the most failsafe type to use. It is lapped under the roof panels at the upslope end and over the roof panels at the downslope end. Both ends of the curb are properly shingled with respect to water flow. (see photo C)

Ensure adequate water flow around the curb

Most curbs do not have a long enough flange on the upslope end. When the roof panels are lapped onto the upslope flange of such curbs, there is little, if any, clearance between the ends of the panels and the beginning of the curb diverter. This can cause flooding at the detail and lead to seam submersion. (see photo D)

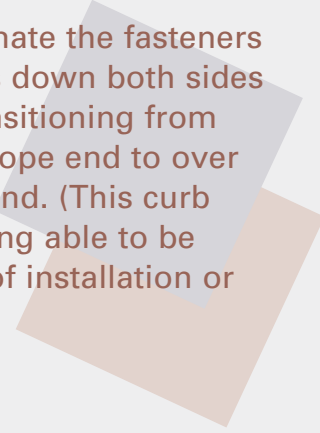
Many curbs also have inadequate clearance along the sides, which can cause water to build up at the upslope end of the curb. This buildup creates head pressure that will pump water into the building through any pinholes in the seal between the curb and the roof panels. (see photo E)

A well-designed curb will have a minimum clearance of 12 inches between the panel ends and the point of the curb



Key Features for Best Performance

To provide a curb that will perform for the life of the standing seam roof, you should use:

- A curb made from aluminum or stainless steel to prevent premature corrosion.
 - An under/over curb to allow for shingled laps between the curb and the roof.
 - A curb with a minimum clearance of 12 inches on the upslope end and 6 inches at the sides to ensure that water can flow around the curb without creating a water head at the upslope end of the curb.
 - A rib-to-rib curb to eliminate the fasteners in the pan of the roof panels down both sides of the curb and to allow transitioning from under the roof on the upslope end to over the roof on the downslope end. (This curb has the added benefit of being able to be installed both during the roof installation or after the roof is finished.)
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This curb has 12 inches of clearance between the panel ends and the water diverter, which prevents water buildup.



F



Slit cut in roof panel at downslope end of curb will leak.

G

The rib-to-rib curb eliminates fasteners in the pan of the roof panels.



H



diverter at the upslope end. The sides will have a minimum clearance of 6 inches between the panel ribs and curb wall. Keep in mind that very wide curbs may require even more clearance on both the upslope end and the sides. (see photo F)

Side flanges vs. rib-to-rib

Most curbs have 4- to 6-inch-wide side flanges. This requires that the curb somehow transition from being under the roof at the upslope end to over the roof at the downslope end (assuming you choose to use an under/over curb). Most roofers accomplish this by cutting a slit in the roof panels on each side of the curb to allow the side flanges to make the transition. Such a practice creates a juncture that cannot be completely sealed. (see photo G)

The better practice is to create an endlap in the roof panels at the downslope end of the roof curb, but this is seldom done. The side flanges also require roofers to install fasteners approximately 4 inches on center down both sides of the roof curb to seal the side flanges of the curb to the roof.

Since the seal is in the flat of the roof panel, there is a great potential for leaks. If a fastener is stripped out, the fastener spacing is too far apart, or a fastener is not torqued down tightly, water can easily leak into the building. This type of curb is also very difficult, if not impossible, to install in a finished roof. (see photo H)

A rib-to-rib curb has sides that extend to the next panel rib. This allows the curb to seal to the roof panels on each side "in the high," away from the water rather than down in the flat of the panel. It also eliminates the problem of transitioning from under the roof on the upslope end to over the roof on the downslope end. Roofers can easily install this type of curb during roof installation or after the roof is finished. 🌟

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