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.
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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.
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-riberb 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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