

Gutter Installation on a Standing-Seam Metal Roof

By Harvey Freeman

Driving through the Annapolis Valley of Nova Scotia, one comes upon a cluster of one-story buildings with green standing-seam metal roofs and a 3-ft. turned-down metal fascia—the Waterville Youth Centre.

The roofs have a slope of 2 in 12, and the buildings have an eave height of about 10 ft., except for the central building, which contains the administrative offices, pool, and gym. The roof plan (Figure 1) shows this area of the complex. The eaves at Roofs C and D are about 10 ft. above grade, while the eaves at Roofs B and E are about 25 ft. above grade.

The public entrance and service entrance are in the low roof area, but tight against the sidewalls of the wings with the higher roofs. Figure 2 shows the location of the public entrance. The original design included a 5-in. residential gutter at the bottom of the 3-ft. fascia. Figure 3 shows the location of this gutter at the service entrance. In any

regular rainstorm, most of the water from the two roof levels misses the gutter. In addition, the winter ice buildup on the sidewalk at entrances from this water caused a maintenance and safety issue.

The owner came to Fowler Bauld &

Mitchell Ltd. looking for a solution that would work 12 months of the year.

We chose a 6-in. gutter as a size we knew we could support on the edge of the roof, and then determined that a 5-in. downspout could drain about 2,000 sq. ft. of roof for the maximum rainfall expected



Figure 2 – The public entrance is located below the water spill from two roof levels.

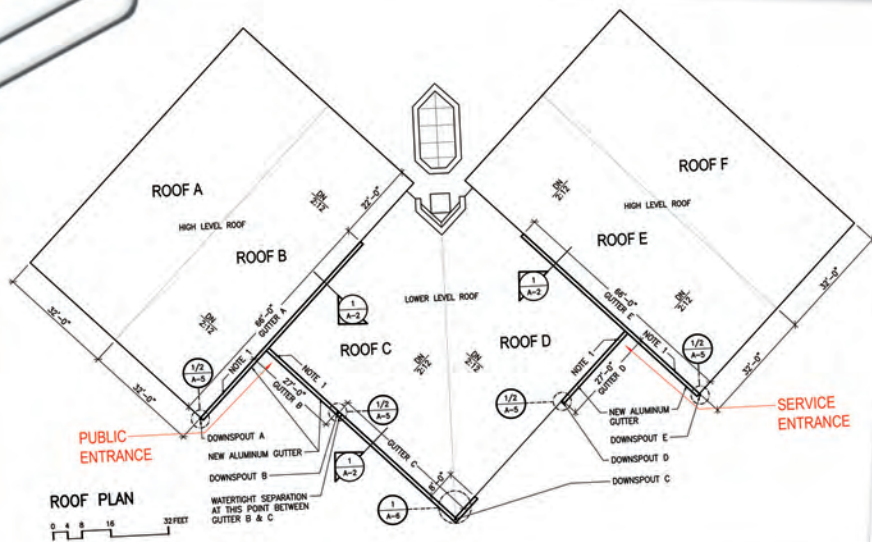


Figure 1 – Roof plan.



Figure 3 – The service entrance showing the original 5-in. gutter at the bottom of the 3-ft.-high fascia.

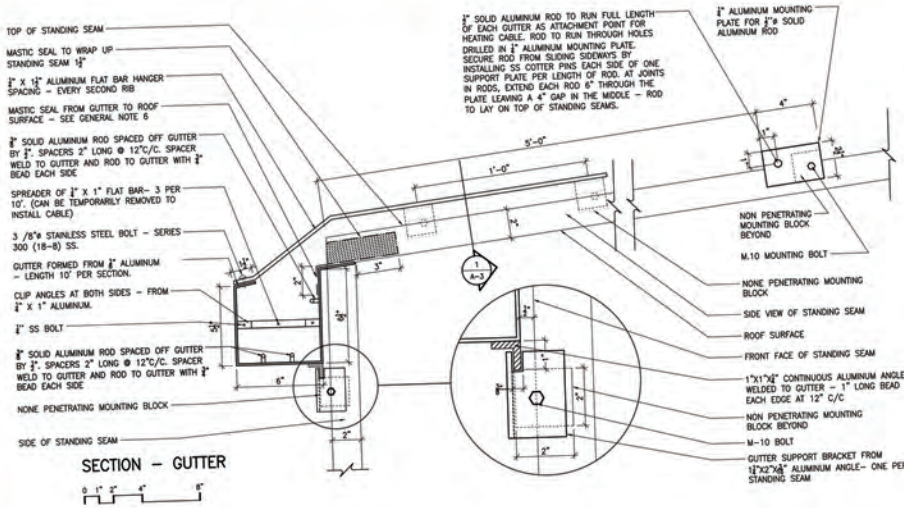


Figure 4 – Roof edge and gutter detail.

brane is a liquid-applied modified silicone product that goes on in two coats with an open-weave fabric mesh used between the coats to reinforce the joint between pre-painted steel roof and aluminum gutter.

This modified silicone product works well to seal the complicated junction of the standing-seam roof to the gutter but only comes in grey. The manufacturer of this product specified that it should extend a minimum of 3 in. beyond the joint. We kept to this dimension to ensure that the grey seal would not be visible from the ground (Figure 6).

The gutter has a double line of commercial heat-tracing cable lying on the bottom of the gutter and running as a double loop down all downspouts to at least 3 ft. below grade, as well as 5 ft. up the roof slope. A 1/2-in. aluminum rod runs parallel to the eave at the 5-ft. mark up the slope to provide a secure anchor point for the cable on the surface of the roof.

The heating cable is connected to the building's energy management system and is controlled by exterior sensors so it is automatically activated only as required.

in the area. There was already an underground drainage system in place, so the location of downspouts had been predetermined. See Figure 4.

The gutter on Roof E does not run the full length of the roof. This was done so that the 5-in. downspout would not be overloaded. The water from the remainder of Roof E drains onto Roof D and is taken by Gutter D. This balances the volume of water going to Downspouts D and E. The water from the remainder of the Roof D area runs over the eave because there is no sidewalk below this length of roof edge.

Roofs B and C are a mirror image of the service entrance side, except that there is a sidewalk all the way along the eave of Roof C. For that reason, the gutter on this edge is continuous and has two downspouts but is divided by a water-tight bulkhead to ensure that neither downspout gets overloaded. That bulkhead is welded within a section of the gutter so that its existence is not visible from the ground.

The gutter is made from 1/8-in. aluminum, which is painted on the visible surfaces to match the green of the roof and is supported on a nonpenetrating mounting block that clamps to the standing seams of the fascia, as shown in the section detail. The same mounting block is used to connect the

tieback straps to the ribs. The gutter has a flange on the inner edge that is notched to fit around the standing seams.

There are no expansion joints in the gutter, since it is totally supported on the metal roof, and expansion of the gutter and roof will be similar.

Due to the standing seams in the fascia, the back flange of the gutter had to be notched around the ribs. The butt line of gutter to roof is shown by the yellow line in Figure 5. The grey mem-



Figure 5 –View of the complete installation of gutter and heating cable.



Figure 6 –View of the complete installation as seen from the ground.

Harvey Freeman

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