METAL ROOF EAVES

FIGURE 6–15

Figure 6–15 illustrates basic metal roof eave conditions for areas not subject to ice problems. The figures depict standing seam panel situations. The closed ends of the standing seams in Figures 6–15A and 6–15B can be either perpendicular to the roof or parallel to the surface adjacent to the roof.

Figure 6–15A shows the roof panel being held by a roof cleat that is nailed through an apron flashing that might be an extension of a fascia or wall panel, or an independent flashing.

Figure 6–15B is an alternative to Figure 6–15A. All of the figures loose lock the roof panel so that expansion and contraction are possible. The roof panel ends are positioned at installation so that they may move later without unlocking. Cleating is continuous. For ice area conditions *see* Figure 6–16 and related references.

Figure 6–15C shows a standing seam panel at a gutter in an area not subject to ice dams. *See* Figure 1–21 and detail 4 of Figure 6–6. *See* the batten seam to gutter connection on Figure 1–19. *See* Figure 1–23 also. A built-in gutter can be located up to 48 in. (1220 mm) behind an eave and still have ribs carried across the gutter to the eave.

For panel terminations at valleys *see* Figures 6–7 and 6–10.

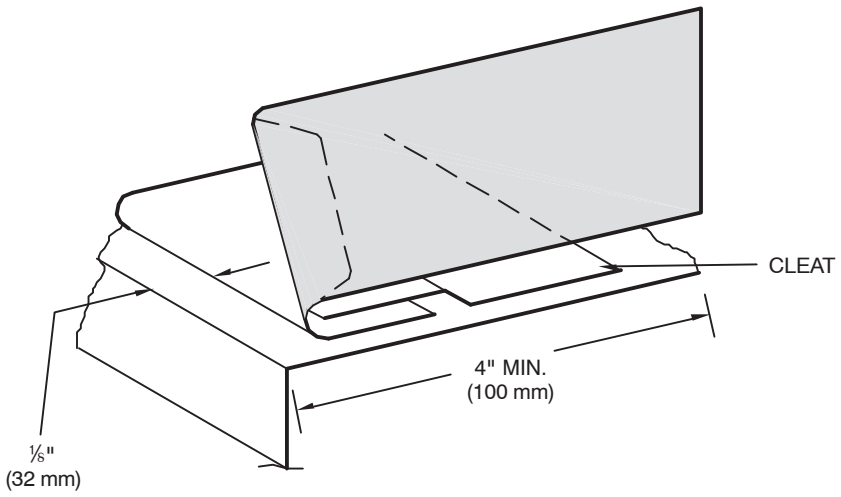

FIG 6–15A

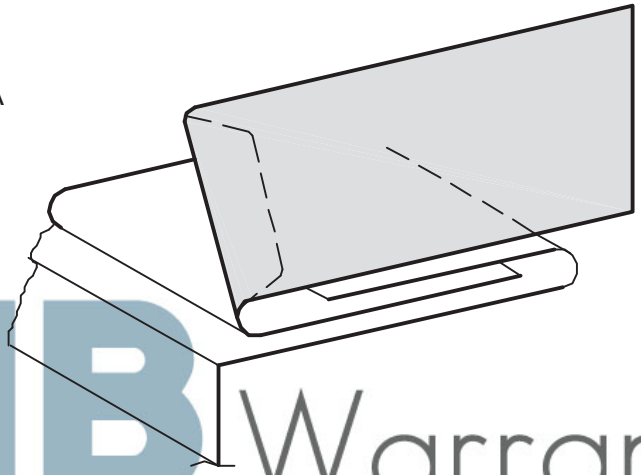

FIG 6–15B

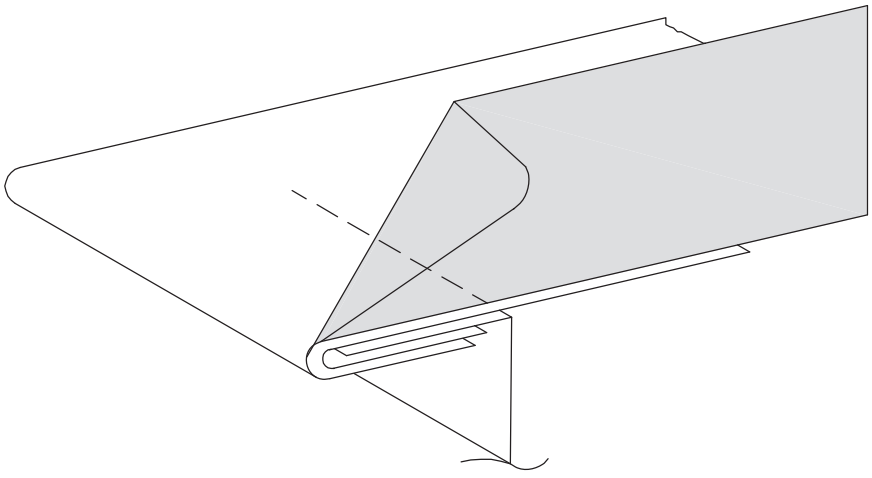

FIG 6–15C

FIGURE 6–15 METAL ROOF EAVES CONDITIONS

EAVES WITH ICE DAMS

FIGURE 6–16

Figure 6–16 illustrates limits for eave design for areas subject to heavy snow and ice. Building orientation, shadows cast on eaves while roof areas higher up are sunlit, radical daily temperature cycles and eave ventilation are among the factors that make it difficult to standardize waterproofing methods. Eaves with gutters are generally a greater risk. Built-in gutters are an even higher risk. Gutter and flashings that can be soldered are preferred. Wherever snow build-up and ice dams can occur (eaves, valleys, chimneys, snow guards, roof-mounted equipment and rake-walls), the potential for flooding joints and seams should be overcome by the system design. It is difficult to effectively seal over cleated flashing edges. Loose locked joints and mechanically closed seams are not watertight. The use of an additional waterproof sheet beneath the finished roof has become recommended practice for many conditions. Principles of use of such sheets generally apply to metal and nonmetal roofs. These principles may limit the roof design aesthetically.

Figure 6–16A. shows a roof edge design that is generally acceptable only without gutters and with a minimum pitch of 6 in. per ft (500 mm per m). Eaves with drip edges that are not subject to flooding tend to be more serviceable.

Figure 6–16B has an overhang that may lead to ice dam formation. The supplemental waterproof sheet may lap over the eave flashing (alternatively) and run to the eave. Nail penetration of the flashing must be protected. Its upper edge is lap sealed under the roofing felt.

Figure 6–16C shows the use of waterproof sheet from the eave (with a gutter) to the ridge, depending on roof pitch. The extension schedule could be applied by the designer for all roof surfaces. Ice dams may cause water collection 5 in. (127 mm) to 7 in. (178 mm) above their upper edge. Setting the roof panel end out of an ice dam is desirable. The apron flashing extends about 6 in. (152 mm) further to be, potentially, out of a pond. When the metal flashing edge would need to be more than 30 in. (760 mm) from the eave the edge might be extended somewhat using methods shown for valleys in Figure 6–7. However the necessity to cleat standing seam 12 in. (305 mm) OC can be a practical limit to avoid fastener penetration of the apron extension.

Authorities recommend taking the waterproof sheet underlayment 24 in. (610 mm) beyond the interior wall in any case. However, lapping stock widths of sheet, 36 in. (0.91 mm) wide for example, without cementing the laps may not achieve the objective. This problem tends to exist whenever eave overhang is more than 30 in. (760 mm).

See Figures 1–4 and 1–9 for related concerns with design.

Additional precautions: Use a waterproof membrane that will withstand the operating temperatures of the roof without deteriorating. As metal apron size increases consider it to be low pitch flat seam roofing. Carefully apply and waterproof expansion cleat installations. Consider the need for snow guards at the design stage.

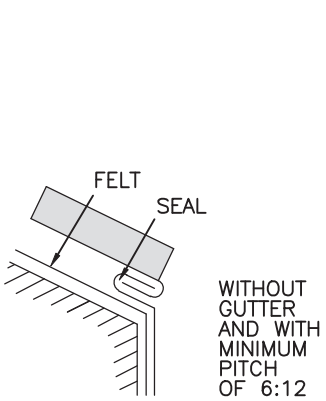

FIG 6–16A

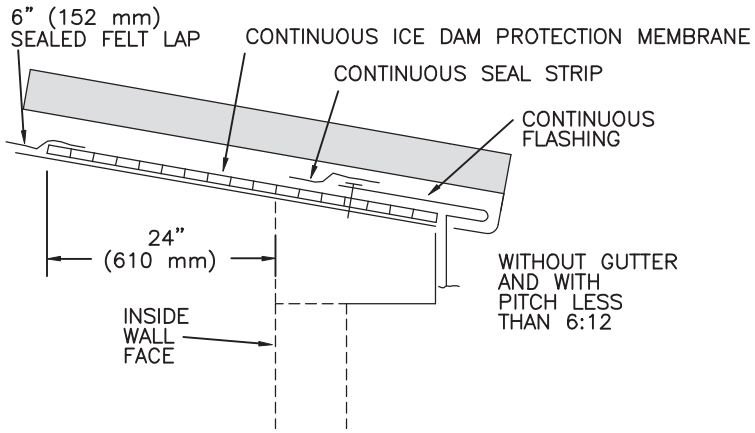

FIG 6–16B

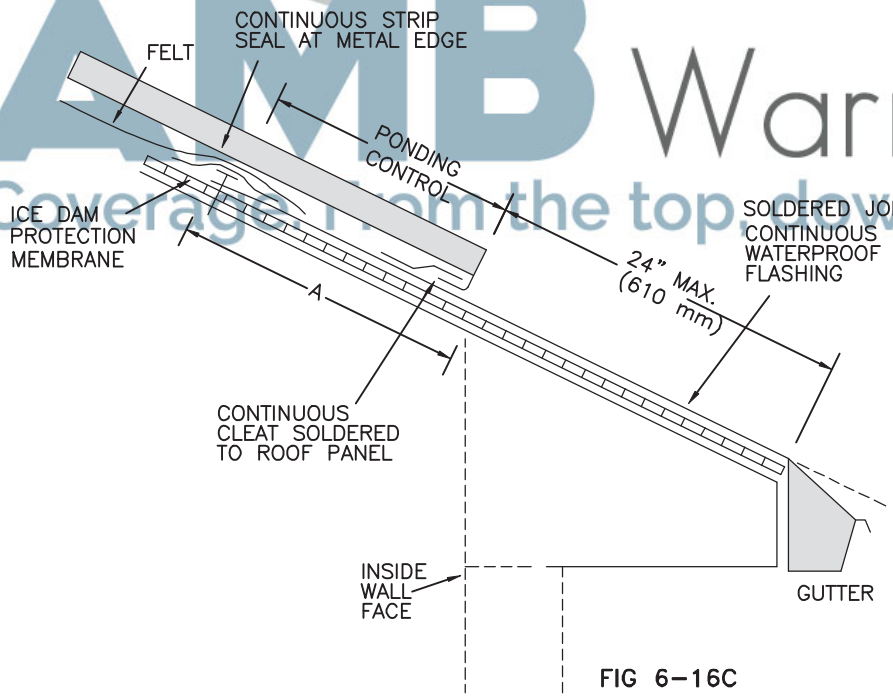

FIG 6–16C

FIGURE 6–16 EAVES WITH ICE DAMS