

## ROOF PANEL PENETRATION

Figure 8-1 illustrates flashing of penetrating members that are smaller than one panel rib spacing interval. Figure 8-1A shows a two part flashing system that interrupts a rib of the panel. The roof jack and base pan is an integral unit and the base width is extended to the tops of adjacent ribs. The pan is double sealed at all edge laps.

Figure 8-1B is a rectangular curb that fits between the rib span and has a base panel that laps in the direction of flow on both ends.

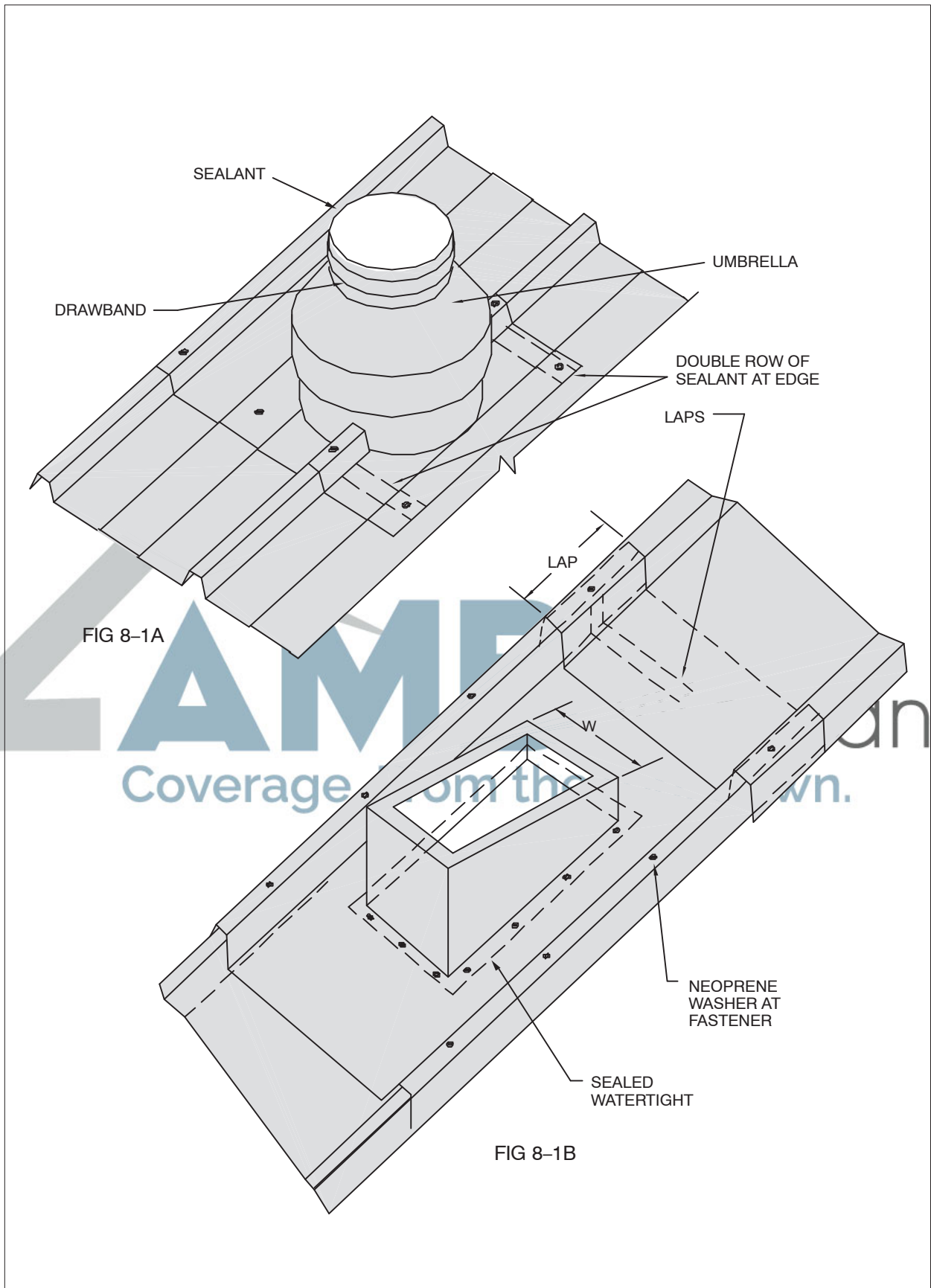
These two details are included as examples that may need to be used in a retrofit addition of a penetration through structural roofing panels using exposed fasteners and sealing tapes or sealant. These types of flashings should be avoided for the roofs of new build-

## FIGURE 8-1

ing roofs and should be replaced with a better design, such as Figure 8-3 or an adaptation, when an existing roof is replaced. Where sealing methods similar to those in this figure are used the condition of the sealed seams and sealing washers should be periodically inspected and rejuvenated as needed.

The best practice on all penetration flashings is to have as many soldered or welded seams as possible with the penetration flashing installed as an assembly with the upper side of the flashing underneath the primary roofing material. Figures 8-1 and 8-2 use exposed fasteners and sealants and may be a necessary compromise on retrofits or where unplanned penetrations occur in the course of fitting out a construction project. Figure 8-3 illustrates the preferred approach.





**FIGURE 8-1 ROOF PANEL PENETRATION**



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Figure 8–2 shows a large curb penetration that interrupts several ribs of roof panels. Structural supports are designed into the roof support structure as necessary to sustain the loading. The location is shown with a cut out near the top end of a roof panel.

The lap on the low side should extend 12 in. (305 mm) minimum over the primary roof.

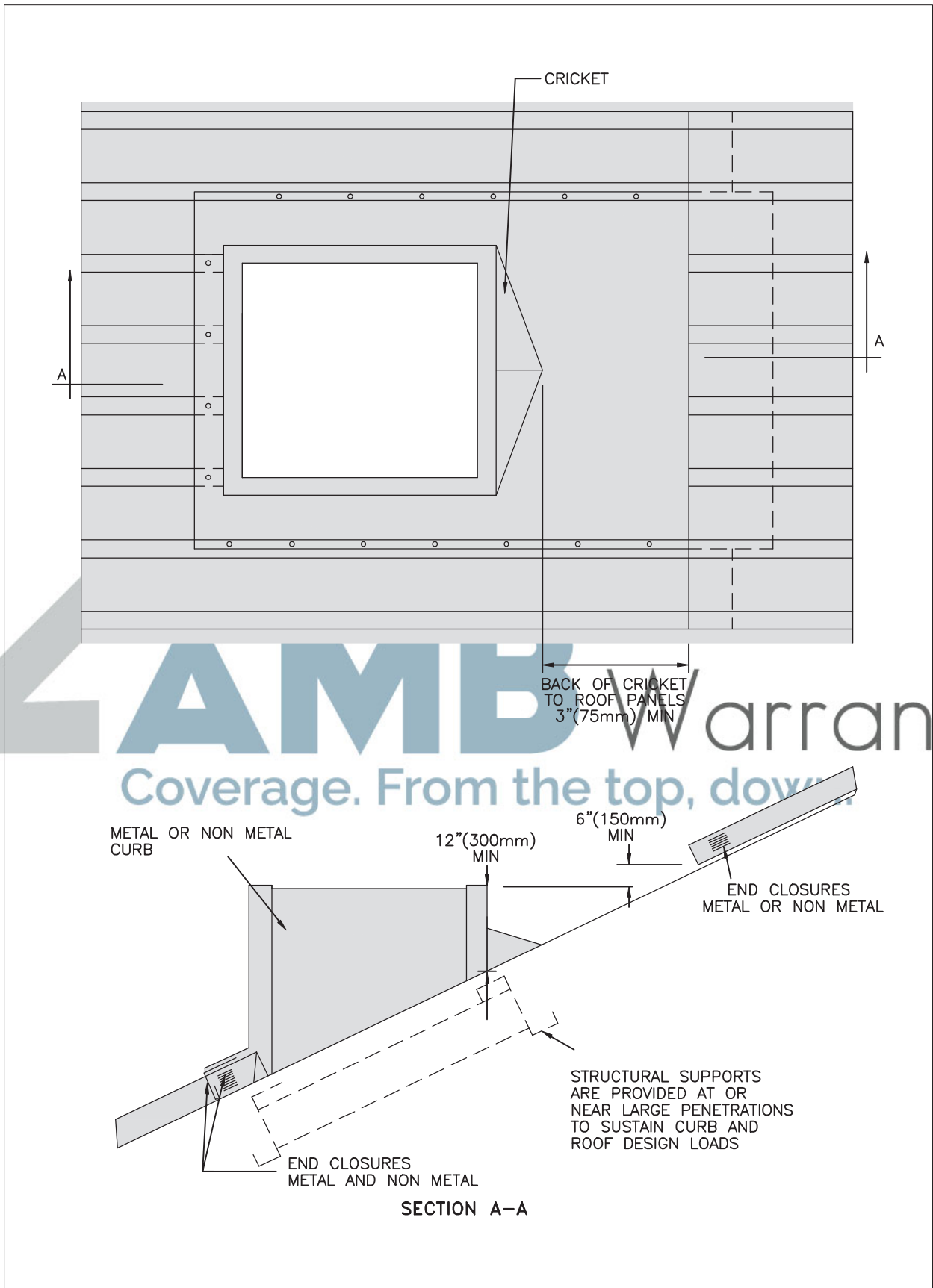
In curb and penetration constructions similar to Figure 8–2 the back (upper side) of the curb should be a minimum of 12 in. (305 mm) in height. The hemmed edge of the upper panel should be a minimum of 16 in. (406 mm) from the curb or 6 in. (150 mm) above a level line from top of curb to the lower hemmed edge of the upper panels, whichever dimension point is greater. The apron flashing should extend at least 12 in (305 mm) under the upper primary roofing panels. The top point

**FIGURE 8–2**

of the cricket should be a minimum of 3 in. (75 mm) below the upper panel's hemmed edge with this dimension increased on wider curbs as necessary to provide bypass channels for water. All these recommended upper dimension minimums need to be increased as the height or width of the curb increases or where flooding from ice dams and related ponding could occur drive water up behind the curb in snow areas. Consult with your architectural sheet metal contractor for guidance regarding local conditions and practice.

Section A-A illustrates the use of metal trim profile closures, non-metal profile closures and panel end up-turn below the curb. Above the curb metal or nonmetal profile closures are used. Nonmetal closures are applied with sealant.





**FIGURE 8-2 ROOF PANEL PENETRATION**



## ROOF PANEL PENETRATION

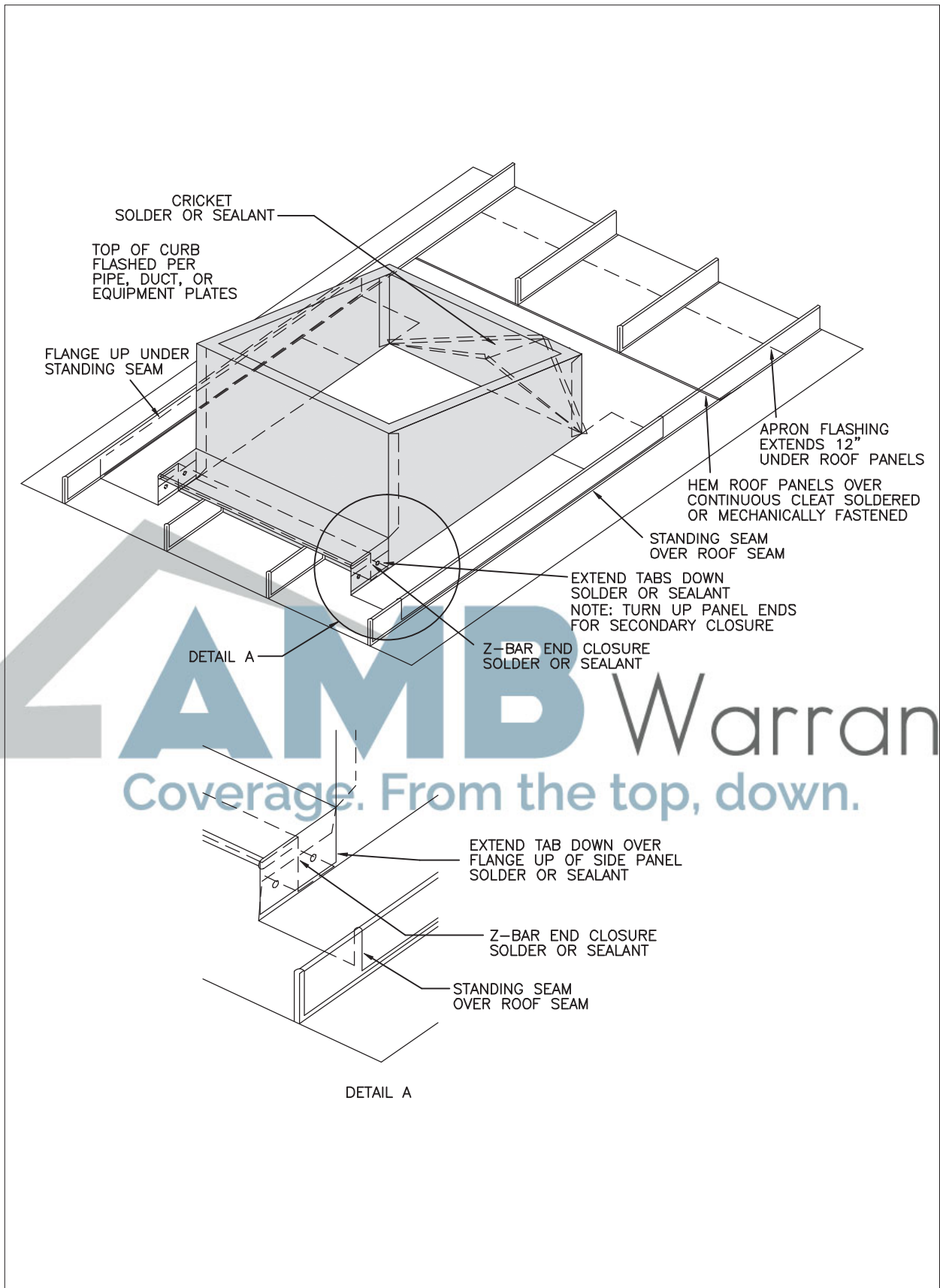
Figure 8-3 shows the general configuration of curb-pan penetration units and some of the possible metal forming alternatives. The units are constructed to be watertight and are flashed at the tops of the curbs as indicated for

## FIGURE 8-3

pipe, duct and equipment flashing plates.

*See the general provisions for flashing and double row sealing with Figure 8-1.*





**FIGURE 8-3 ROOF PANEL PENETRATION**

