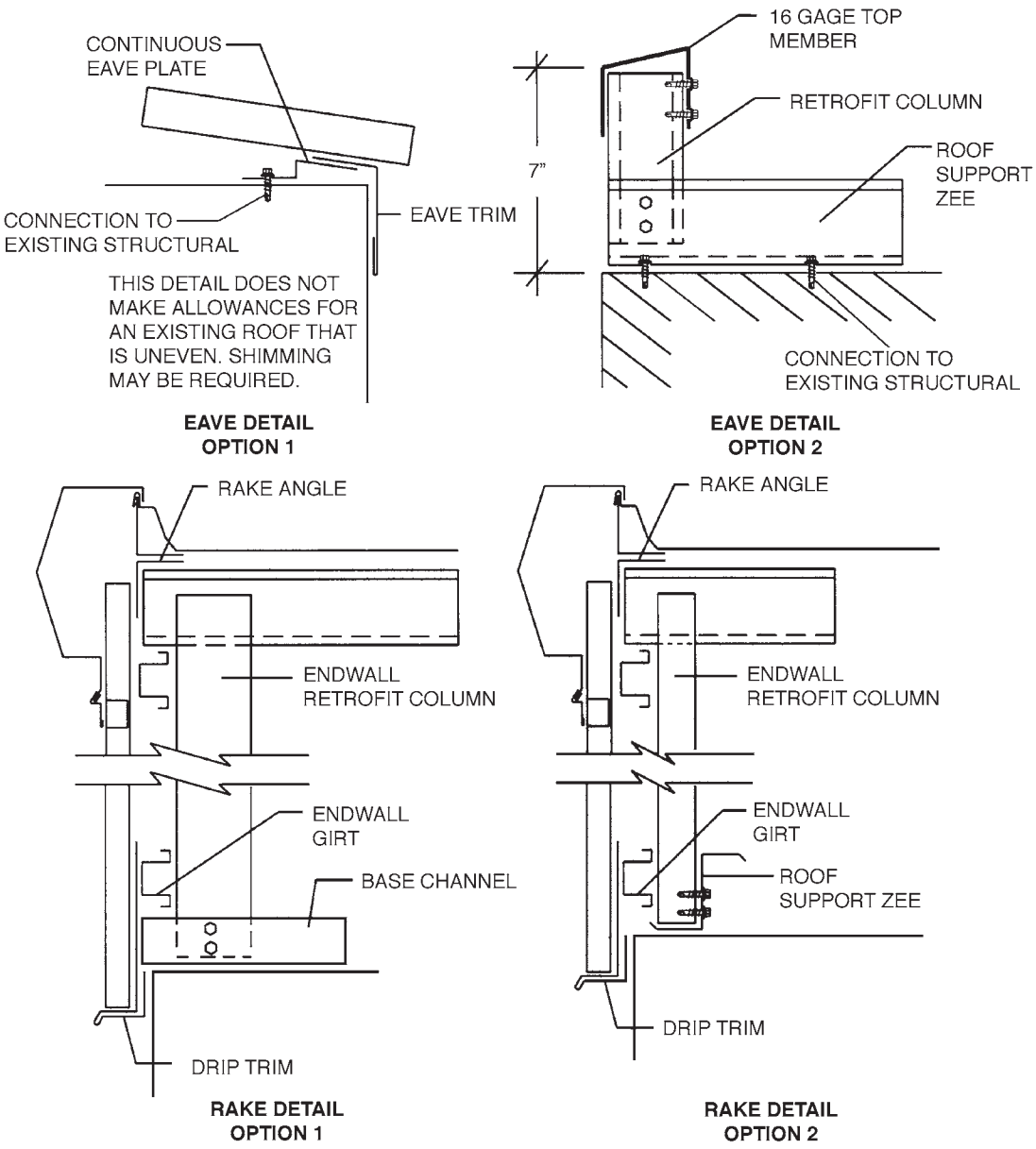

FIGURE 14.8 Typical eave and rake details for slope buildup. (*MBCI.*)

14.2.11 Rehabilitation of Existing Metal Roofing

As with any other roofing type, metal roofing has a limited service life that can be shortened by severe weather exposure or improper installation. A failure of metal roofing may manifest itself in standing seams that open up, fasteners that back out, or rust that spreads from the panel ends to the rest of the roof. All of these lead to leaks. Sometimes, the finish fails first and the roof simply *looks* bad.

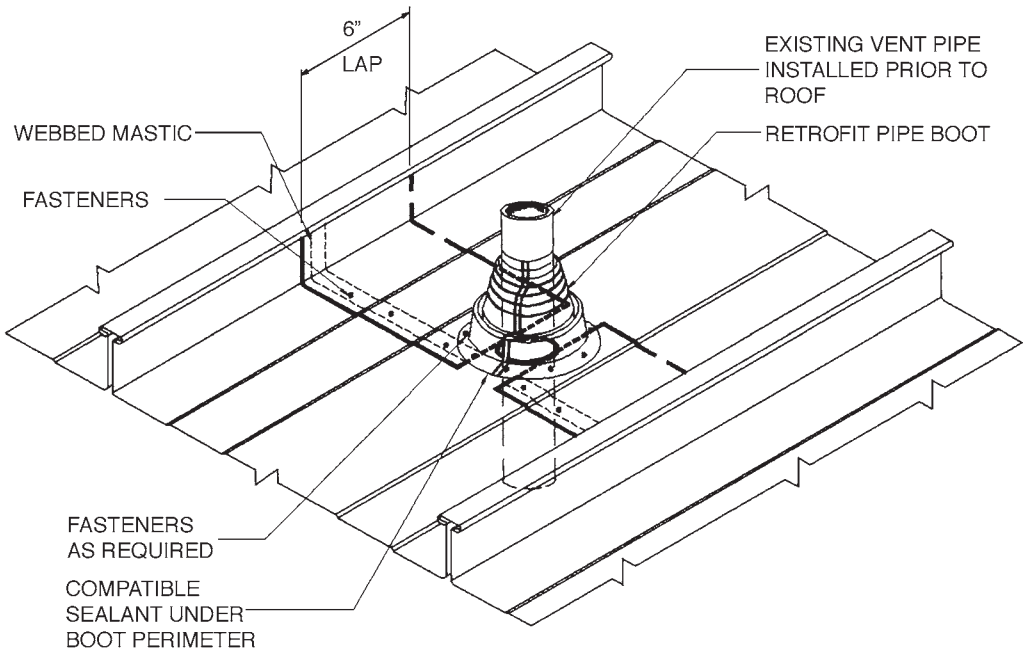

FIGURE 14.9 Applying new roofing over existing roof penetrations by lapping and sealing the panels and using a flexible split retrofit pipe boot. (*Centria.*)

When the building owner identifies a suspected roof leak location, the first impulse often is to cover the suspect area with tar or asphalt. These simple ad-hoc repairs do not last too long, because they are often poorly made and because they can trap water and cause corrosion. Instead, a leaking or deteriorated roof should be systematically evaluated to obtain a general sense of its condition and to locate other possible areas of concern.

The first step in addressing the problem is a roof survey. If the existing roof slope, insulation, and other parameters are satisfactory and the trouble exists only in the deteriorated finish, a complete reroofing job might not be needed. A simple recoating might be enough to dramatically improve the building's image. The most troublesome parts of the roof—flashing, gutters, panels at eaves, and roof penetrations—need to be closely examined and replaced, if needed, prior to the recoating.

Obviously, rusted-through metal cannot be helped by a new finish. The supporting roof framing and fasteners are also vulnerable and should be examined for signs of corrosion. The most critical areas in this regard are the edges of the holes in the purlins made by the roofing fasteners, where the purlins' protective coating is interrupted and the bare metal is exposed. The only protection this area receives is from the fastener's compressible gasket, if any is present, but the gasket's performance depends greatly on the skill of the installer. Widespread corrosion around the fasteners could dramatically weaken the roof's anchorage and require installation of new fasteners, bringing cost-effectiveness of the whole recoating project into question.

The actual rehabilitation process, similar to a repainting job, consists of complete or partial stripping of the existing finish (or sometimes just a power wash), priming, and recoating with a new material compatible with the substrate. The field is crowded with recoating products designed specifically for aging metal roofs. Many such products are based on elastomeric membranes that cover the roof without any joints; some utilize seamless foam systems that consist of sprayed-on polyurethane foam insulation covered with a sprayed-on silicone membrane. Prudent specifiers thoroughly investigate the actual performance of these products prior to their selection. An in-depth explanation of this process, complete with a flow chart, is given by Newman.[6]