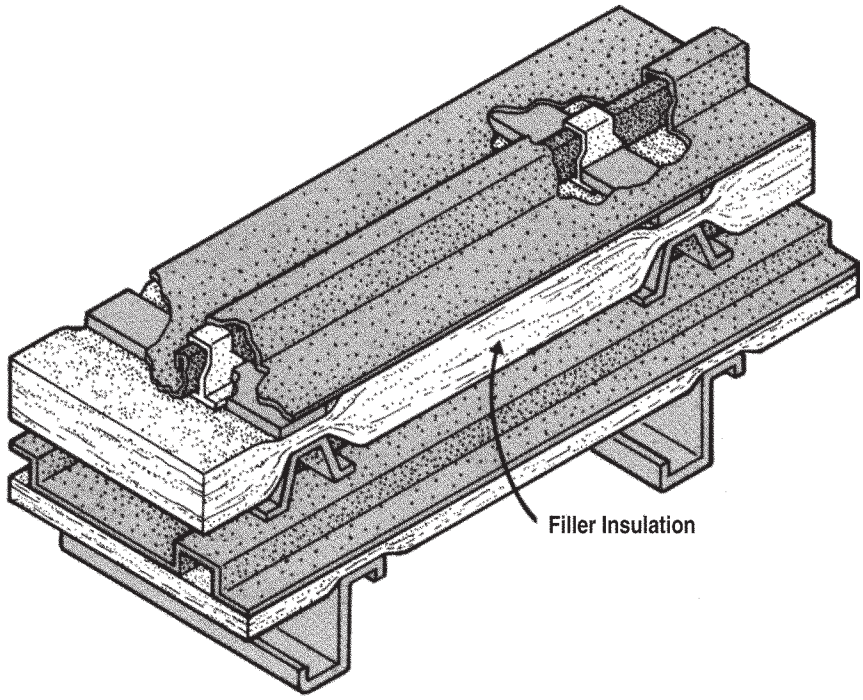

FIGURE 14.6 Reroofing over existing metal roof with adequate slope. (*Courtesy of NAIMA Metal Building Committee.*)

insulation with a vapor retarder of its own, or if the roofing is left essentially intact, the new vapor retarder is probably not needed. If, on the other hand, the existing roofing has been cut for venting purposes, it might be.

A similar situation occurs when a new rigid insulation is mechanically attached to an existing roof. A multitude of the resulting holes may compromise the vapor-retarding qualities of the old membrane, although we don't quite know whether this will in fact happen.[5]

In any case, perhaps the worst situation of all arises when there are multiple vapor retarders at the top and bottom of the existing roof assembly. The existing insulation sandwiched between the relatively impermeable barriers tends to absorb moisture seeping through the inevitable imperfections in the vapor retarders, but is not able to lose it by evaporation. Unfortunately, it is rather difficult to design a reroofing system that is totally free from this problem if the existing roofing is not removed. The issues of vapor migration deserve careful consideration by the design professionals involved.

Another common problem is treatment of existing rooftop HVAC components. With the new slope buildup framing, all existing roof vent pipes can be extended. When the metal roofing is replaced, it can be applied over existing vent pipes and other penetrations by lapping the new panels around them. Special slotted retrofit pipe boots are available for this condition (Fig. 14.9). Similarly, exhaust fans can be relocated to the new roof surface and be supported by proper curbs.

But what should one do about major equipment such as chillers, air conditioners, or cooling towers? The new lightweight retrofit framing is clearly not strong enough to support them. It is possible, of course, to extend structural framing to a higher elevation, but the cost might be prohibitive. It is also possible to treat the space between the new and existing roofs as a sort of mechanical penthouse and fill the new gable walls with louvers or large vents. In that case, the HVAC equipment could stay on the existing roof and be completely or partially enveloped by the retrofit roofing.

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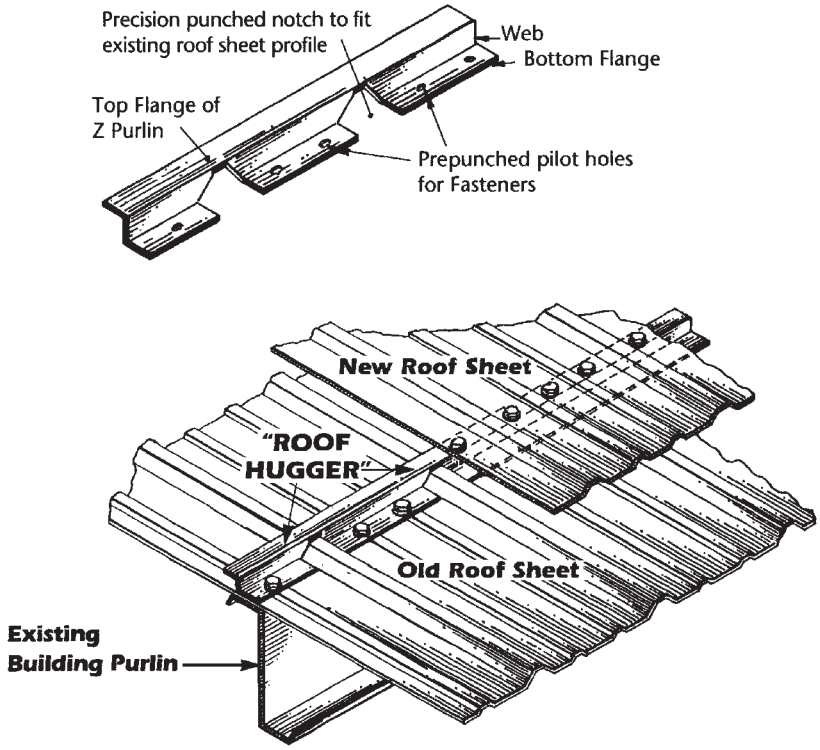

FIGURE 14.7 Roof Hugger. (*Roof Hugger Inc.*)

It is wise to specify that the existing roofing being penetrated by retrofit columns or connections be patched to provide an interim leak protection.

14.2.10 What the Manufacturer Needs to Know for Metal Reroofing

The contract documents for metal reroofing should include at least the following information:

- The governing building code and edition; desired UL and insurance ratings
- Design live, snow, wind, and seismic loads and load combinations
- Existing building dimensions and construction details (some original drawings could be attached)
- Proposed roof plan, slope, and configuration
- Desired type of roofing including profile and finish
- Structural requirements for the new support framing such as column spacing, bracing, and roof diaphragm construction
- Provisions dealing with partial or complete removal of the existing roofing, if appropriate, or with roof venting

It is prudent to require a submittal of structural design calculations and detailed shop drawings accompanied by the certification by a professional engineer that the new roof meets the contract requirements.