



Metal flashing thicknesses

Inconsistencies in building codes can lead to confusion

by Mark S. Graham

Roofing professionals know metal flashings can play important roles in properly terminating at roof perimeters and providing weathertightness for penetrations. However, there is little agreement regarding the thicknesses of metals to be used for specific metal flashing conditions. The following offers some guidance.

Code requirements

Building codes generally provide for minimum metal thicknesses used in roof systems. For example, the *International Building Code*,[®] 2015 Edition (IBC 2015), Section 1503.2-Flashings indicates: “... Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than 0.019 inch (0.483 mm) (No. 26 galvanized steel).”

An identical statement is made in the *International Residential Code*,[®] 2015 Edition (IRC 2015), Section R903.2-Flashing.

One specific problem with this code requirement is the indication of “(No. 26 galvanized steel).” If using the U.S. Standard Gauge to determine metal gauge from metal thicknesses, 0.019 inch correlates to a 26-gauge metal thickness. However, if using B & S (Brown and Sharpe) gauge conversions, 26 gauge only is 0.0159 of an inch thick.



In standards and codes, the first numerical value provided generally is considered to be the requirement and any parenthetical values generally are interpreted as informational or advisory only. On this basis, 0.019 can be interpreted as the minimum code-required thickness for metal flashings.

IBC 2015's Table 1506.2.9.2 provides minimum metal thicknesses for open valleys lined with metal for asphalt shingle roof systems. This table requires thicker metal than the Section 1503 requirement when using aluminum (0.024 inch), cold-rolled copper (0.0216

inch), lead-coated copper (0.0216 inch) or zinc (0.027 inch). Interestingly, the table indicates metal valley liners thinner than the Section 1503.2 requirement are permitted when using galvanized steel (0.0179 inch), high-yield copper (0.0162 inch) or lead-coated high-yield copper (0.0162 inch). This appears to be an unintended conflict in IBC 2015. IRC 2015's Table R905.2.8.2 is similar.

IBC 2015 Section 1507.5.7 addressing flashings for metal shingle roof systems indicates metal valley flashings shall be the same minimum thickness as required for the metal shingles as described in Table 1507.4.3(1). The table requires minimum metal thicknesses of 0.024 of an inch for aluminum, 12 ounces (0.0162 of an inch) for copper and 0.027 of an inch for zinc. The 12-ounce copper requirement also appears to be an

unintended conflict with IBC 2015's Section 1503.2 requirement.

IBC 2015's Section 1504.5-Edge Securement for Low-slope Roofs indirectly provides minimum thicknesses for edge metal flashings (except gutters) for built-up, polymer-modified bitumen and single-ply membrane

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roof systems. This section requires edge metal be tested according to ANSI/SPRI ES-1 (2011 edition). Within this standard, Table 3 provides minimum recommended metal thicknesses for flatness based on specific ranges of face dimensions.

For example, for exposed face dimensions ranging from 4 inches to 8 inches, using a minimum 24-gauge galvanized or stainless steel, 0.040-inch aluminum or 16-ounce copper is recommended. Thicker metal may be required based on the specific edge metal flashing configuration tested.

NRCA recommendations

In The NRCA Roofing Manual, NRCA provides minimum metal thickness recommendations for specific metal flashing configurations based on roof system type.

For example, in the Architectural Metal Flashing section of The NRCA

Roofing Manual, Figure 2-16 provides NRCA's minimum thickness guidelines for weatherability for counterflashings used in low-slope roof systems. NRCA recommends metal counterflashings be a minimum 26-gauge galvanized, prefinished galvanized or stainless steel; 26-gauge Galvalume®; 0.032-inch aluminum or prefinished aluminum; or 16-ounce copper or lead-coated copper. The use of thicker metal for counterflashings may be necessary based on the specific metal counterflashing configuration.

Similarly, the manual's Figure 3-12 provides NRCA's minimum weatherability thickness guidelines for valley metal used in various steep-slope roof systems. For asphalt shingle roof systems, NRCA recommends valley metal be a minimum of 26 gauge for galvanized, prefinished galvanized, Galvalume or stainless steel; 0.016 of an inch for copper-coated stainless steel; 0.032 of an inch for aluminum or prefinished aluminum; or 16 ounces for copper or lead-coated copper.

For slate roof systems, NRCA recommends valley metal be 26-gauge stainless steel; 0.0216-inch copper-coated stainless steel; or 20-ounce copper or lead-coated copper.

Fewer metal types are recommended for slate roof systems because of material compatibility. Thicker metals are recommended for slate roof systems because of their expected longer service lives.

Additional information about metal flashings is provided in the Architectural Metal Flashing section of The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing. 🌐🌱

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