Beyond Aluminum Flashing

The new generation of wood preservatives is driving up the popularity of corrosion-resistant alternatives

by Scott Gibson

No one disputes the importance of flashing the connection between a deck ledger and a house to keep water out, thus preventing decay and the resulting expense for repairs to sheathing and structural framing. The question is what kind of flashing works best. Though the International Residential Code specifies that "corrosion resistant" materials be used where porches, decks, or stairs are attached to a wall or floor assembly in wood-frame construction, it doesn't specify what constitutes a corrosion-resistant material. The ideal flashing should not only resist corrosion, but also hold up in sunlight, install easily, and cost a reasonable amount. Plus, it needs to be accepted by the local building official, so the best advice is to check with him or her before making any final decisions on what type of flashing to use.

Why Not Aluminum?

Aluminum has long been the flashing of choice for many builders. It's inexpensive, widely available, and fairly easy to work with. But when lumber treated with chromated copper arsenate (CCA) was phased out for most residential

YORK MANUFACTURING

Figure 1. Aluminum has been the go-to flashing for decades, but contact with ACQ and CA preservatives corrodes the metal. And some studies have shown aluminum to corrode too quickly near the coast, even with the less corrosive CCA preservatives of the past.

GRACE CONSTRUCTION PRODUCTS

Figure 2. Peel-and-stick membranes can be used to isolate metal from wood preservatives, thereby reducing corrosion. When protected from long-term exposure to the sun, they may even be used in place of rigid flashings in some jurisdictions.

applications in 2004, aluminum flashing became a lot less attractive for decks (**Figure 1, page 2**).

The two most common replacements for CCA — alkaline copper quaternary (ACQ) and copper azole (CA) — contain two or three times as much copper, in a chemically more active form. When aluminum flashing contacts this copper-laden lumber, the aluminum quickly corrodes. For the majority of decks, which are framed with pressure-treated lumber, aluminum flashing just isn't an option anymore.

A possible exception to this rule of thumb is the "micronized" versions of these chemical treatments, such as Sustain from PhibroWood (877/737-9663, www.phibrowood.com) or MicroPro from Osmose (770/233-4200, osmosewood.com). Copper is ground into microscopically tiny particles and the manufacturers say the treated lumber is no more corrosive to aluminum building products than CCA lumber. Even so, some building inspectors may not be receptive to using aluminum flashing with it.

In the experience of Roger Robertson, chief of inspections in Chesterfield County, Va., aluminum flashing had been suspect long before the switch to ACQ and CA lumber treatments. In a local study 15 years ago, inspectors found that aluminum flashing was failing after five to seven years. The county subsequently banned it on decks. Robertson says the change (along with a requirement that rim joists at points of attachment be made of pressure-treated lumber) has sharply reduced the number of reports of rot and, along with it, the need for repairs.

One way around the corrosion problem is to isolate the aluminum from direct contact with framing lumber using a peel-and-stick membrane, like those made by Grace Construction Products (graceconstruction.com) or Protecto Wrap Co. (877/271-9661, protectowrap.com). These rubberized asphalt membranes add another layer of protection and prevent the galvanic corrosion that would otherwise attack the aluminum (**Figure 2**). On the downside, flashing the ledger then takes two steps instead of one, increasing labor as well as material costs.

Galvanized Steel

Galvanized steel is another potential flashing material, although its use has declined as other flashing options have become more common. Steel is strong and highly resistant to damage, and it can be formed into a variety of profiles. But corrosion is still a potential risk, as galvanization protects steel only temporarily. That could mean decades, but particularly in marine environments where salt speeds corrosion, it could also mean just a few years. The idea behind galvanization is to coat steel with zinc,

which will corrode before the steel does. However, once the zinc is used up, the steel is next to go.

Galvanized-steel is also used for some framing hardware, which is generally stamped from galvanized sheet, not galvanized after forming. So, the edges of the hardware are not galvanized and therefore are susceptible to rust. Using a layer of peel-and-stick behind framing hardware isolates it from the copper in the wood preservatives, and should increase the durability of the hardware (**Figure 3**).

Standard G90 galvanized steel is protected by a layer of zinc applied at the rate of 0.90 ounce per square foot. This isn't enough for use with the new pressure-treated lumber, at least according to Simpson Strong-Tie (800/999-5099, strongtie.com), which manufactures a variety of metal connectors for deck construction. The company recommends its G185 ZMAX line (1.85 ounces of zinc per square foot) with ACQ and CA lumber but cautions that stainless steel may be the best choice under some conditions.

Given these concerns, flashing made of galvanized-steel would not seem like a good bet unless it's separated from framing lumber by an intermediate membrane.

PROTECTO WRAP

Figure 3. Galvanized framing hardware may also be prone to accelerated corrosion from some preservatives. Isolating it with peel-and-stick may increase the galvanization's lifespan.

YORK MANUFACTURING

Figure 4. Installed with the copper face to the treated lumber and the polymer face out, hybrids can both flash and isolate galvanized hardware.

Copper

On the plus side, copper flashing is compatible with the high concentrations of copper in treated lumber. Also, copper is an exceptionally durable material. One problem, though, is cost: Even with recent declines in prices, copper in a traditional 16-ounce weight is more expensive than some of the alternatives, and you need a brake to form it.

At least two manufacturers make flashing in which just a thin layer of copper is bonded to a sheet of polymer. The copper — as light as 2 ounces (or .0081 inch thick), in some cases — provides a durable weather seal while the plastic resists tears and other job-site and installation damage. An adhesive that binds the two layers together also seals around any fasteners (**Figure 4**).

Advanced Building Products (800/252-2306, advancedflashing.com), for example, makes a product called Cop-R-Shield PC. It comes in several weights of copper, with prices starting at about $10 for a 20-foot roll 8 inches wide. York Manufacturing (800/551-2828, yorkmfg.com) produces YorkShield 106 PT, which incorporates 3-ounce copper, retails for between $20 and $25 for an 8-inch-wide 20-foot roll, and about $30 for a 12-inch-wide 20-foot roll. The flashing is thin enough to be formed easily by hand, and both companies say the products are guaranteed to last as long as the structure.

PVC

As well as being compatible with ACQ and CA lumber, polyvinyl-chloride flashing is inexpensive. It's available in both preformed sections and in 50-foot rolls up to 24 inches wide. In its Pro-Trim line, Alum-A-Pole (800/421-2586, alumapole.com) makes 15-mil stock — which comes in 12-inch and 14-inch widths in rolls 25 feet and 50 feet long — that's been precreased so it can be formed by hand on site (**Figure 5, page 4**). The company says the 14-inch material, designed to go behind the ledger, has a $\frac{5}{8}$-inch bend at the bottom to kick water away from the building. Its 12-inch PVC flashing, made to go over the face of the ledger, has creases at 5 inches, $1\frac{9}{16}$ inches, and $4\frac{3}{4}$ inches, along with a $\frac{5}{8}$-inch kick out at the bottom. The flashing retails for between $23 and $32 for a 25-foot roll.

Pro-Trim DuroBend is thicker (.030 inch) and is formed on a conventional metal brake. It can be used to cover the entire face of a ledger. Tom Dulay of Alum-A-Pole says the

flashing is 100 percent virgin PVC that doesn't become brittle even in extremely cold temperatures. It retails for between $70 and $80 for a 50-foot roll.

P & G Solutions makes DuraFlash (888/835-4171, duraflash.net) PVC flashing, both preformed and rolled, in a variety of widths and lengths. The UV-stabilized plastic can be formed in a brake and comes with a 20-year warranty.

Advanced Building Products also makes a preformed PVC flashing, called Ledger Flash. It's made with a 3½-inch section for the sidewall, a 1⅝-inch leg for the top of the ledger, and a ⅜-inch lip to shed water away from the ledger. An 8-foot section retails for about $3. Keith Lolley, the company's vice president says the material should last 10 years or more but that PVC has a tendency to crack over time.

ALUM-A-POLE

Figure 5. Rigid PVC flashings have no risk of corrosion, can be exposed to the sun, and may be bent on a sheet-metal brake or along factory-made creases.

MFM BUILDING PRODUCTS

Figure 6. Flashing is not just for the ledger. Particularly in the West, where wood species used for treated lumber don't absorb preservatives that well, flashing the tops of joists and beams can keep out water and reduce the potential for rot.

Flashing for Joist Hangers, Joists, and Beams

Corrosion-resistant flashing at the ledger is key to preventing water damage to the house. But many builders go further by isolating joist hangers from direct contact with pressure-treated lumber, and by flashing the tops of joists and built-up beams. Where two or more pieces of 2-by material have been nailed together to form a beam, a strip of flashing on top will prevent water from seeping into the joint. Even single-thickness joists may last longer if they're capped with a strip of flashing before the decking goes down.

Grace promotes its Vycor Deck Protector for exactly this purpose. It consists of very sticky rubberized asphalt protected by a layer of cross-laminated poly and is available in 4-inch-wide rolls made just for joist tops. Wider material can be used to protect the face of the ledger, wrap joist ends where they rest in hangers, or protect the sheathing behind the ledger. Protecto-Wrap makes a similar product called Deck ACQ Flashing Tape, as does MFM Building Products (800/882-7663, deckwrap.com) with its DeckWrap (**Figure 6**), and JJ Partners with its Joist Jackets (800/700-1179, joistjackets.com). These membranes can be left exposed for up to 30 days but ultimately should be covered. They are not recommended for use in hot desert conditions in the Southwest.

PVC, copper, or even strips of tarpaper also might be used to protect the tops of joists. But one advantage of self-adhering membranes is that they seal around fasteners used to attach deck boards or joist hangers. For this reason, Robertson likes the idea of nonmetallic flashing like the Grace or Protecto-Wrap products. "Any time you keep water out of anywhere is a good idea," he says.

Compared with the overall cost of a new deck, flashing is a minor expense. The benefits of using a high-quality material and taking pains to install it exactly by the book far outweigh any added time or money. Ask anyone who's been called in to repair rotten siding, sheathing, and framing where flashing failed or was overlooked altogether. ❖

Scott Gibson is a freelance writer in East Waterboro, Maine. He specializes in construction topics.