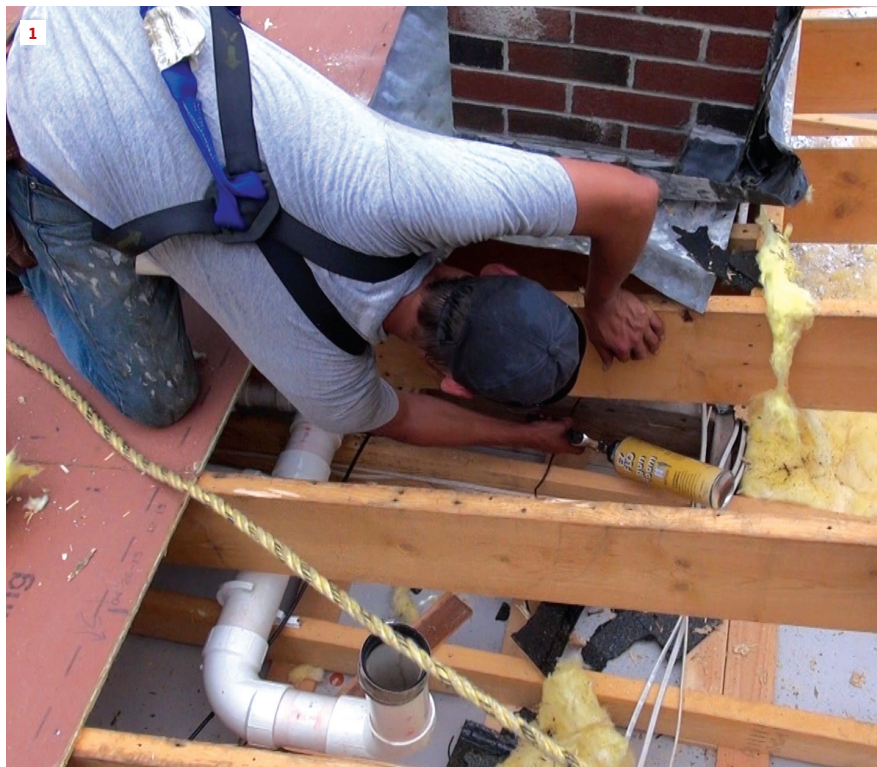


BY TED CUSHMAN



Air-Sealing a Chimney Chase

Portland, Maine-based Upright Frameworks is one of New England's most successful home-performance contractors. A jump-start from the federal stimulus package in 2009 helped the company get on its feet; now, a steady stream of referrals keeps the weatherizing work coming, along with major remodeling and new-construction jobs. In July, *JLC* stopped by an Upright Frameworks weatherizing job in Durham, Maine, to follow the action on site.

The job was a classic home-performance repair: The existing roof had been constructed without an effective air barrier between the occupied second floor and the roof above. Warm, moist air escaping into the unvented roof from below had made the house expensive to heat and was also damaging the roof. The low-pitched, almost flat roof structure made access to the space difficult. But in any case, the Advantech roof sheathing, although only

about 10 years old, was covered in mildew and showing signs of moisture damage. So the customer elected to remove the roof sheathing and replace it—which provided easier access for the crew to carefully air-seal the second-story ceiling and to install a combination of dense-blown and loose-fill cellulose in the roof. At the same time, the crew would install new roof vents.

With the roof off, Upright Frameworks weatherizing tech Scott Phillips took advantage of the situation to air-seal the brick chimney chase from above. Phillips started by air-sealing the joints in the existing framing, using gun foam (1). Then he measured the opening around the chimney (2) and installed metal flashing to cover the 2-inch gap.

Using a pair of Cutco metal shears, Phillips cut pieces of flashing to span the opening (3). The shears, which retail for around \$110, are Phillips' tool of choice for

Photos by Ted Cushman

metal work: “I can snip a penny in half with these,” he said.

Whether for a wood stove, a fireplace, or an oil or a gas furnace or boiler, brick chimneys are usually installed with 2 inches of clearance between the masonry and the wood framing of the ceiling or roof. In some Maine jurisdictions, authorities allow the use of rock-wool insulation in the gap around masonry chimneys. But for this job, local officials would only permit the metal air barrier.

The Upright Frameworks crews carry unpainted sheet-metal material on their trucks for this kind of work. But in this case, Phillips used coated aluminum coil flashing left over from another project. The only requirement, company owner Josh Wojcik explains, is that the material be noncombustible (in other words, metal).

After cutting flashing to the required length and width for one side of the chimney, Phillips snipped off the corners at two ends to leave space for existing TV coaxial cable that had been routed through the chimney chase into the attic from below. To avoid damaging the coax cable’s plastic insulation, he folded small scraps of flashing over the sharp edges at the cuts **(4)**.

Working his way around the chimney, Phillips maneuvered the strips of flashing into the small gaps between the wood and the masonry, operating as much by feel as by sight **(5)**. Once he was sure of a good fit, he applied high-temperature sealant to the underside of each metal piece **(6)**. When the metal was screwed down, the caulking would seal and reinforce the connection, blocking the flow of air at the joint where the metal lay on top of the ceiling framing.

To secure the metal flashing in place, Phillips screwed the pieces down onto the ceiling framing **(7)**. Finally, he sealed the joint between the metal and the chimney with high-temperature caulk **(8)**.

It was tricky work at close quarters, but, Phillips said, easier than the more common problem of sealing that juncture from inside the house. Better still, of course, would be to air-seal this obvious leakage point when you first construct the house—and at the same time, air-seal the rest of the ceiling too.

Ted Cushman is a senior editor at JLC.





Refinishing a Hail-Damaged Home

BY SCOTT BURT

A year ago, I was called in to assess damage done to a home's exterior walls during a severe thunderstorm. Large hailstones had pelted the siding on three of four walls, with the front, northwest facade taking the brunt of the storm. The existing siding and trim had been finished with Sikkens—an alkyd-based stain that, when dry, produces a hard, glossy film—and on the facade that was spared the hail, and in protected areas such as under roof overhangs, the Sikkens was undamaged and still well-bonded. (Though in a few exposed, sunny areas, the finish had begun to peel before the storm.)

On close inspection, I realized that the damage looked far worse than it was. Much like a rock hitting a windshield, the hail had essentially “shattered” the Sikkens film coating on impact, resulting in a pockmarked surface—but the compression wounds left by the hail pene-

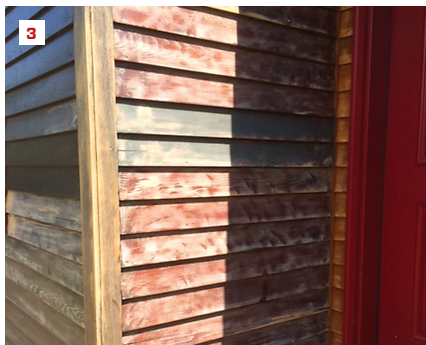
trated only $\frac{1}{32}$ inch, leaving the underlying red-cedar siding relatively untouched. Still, the finish was beyond repair and needed to be replaced.

SURFACE PREPARATION

Sikkens can be removed chemically or mechanically (by sanding). Both methods are messy and time-consuming, but sanding is the better option because stripping vertical surfaces with caustic liquids is an exposure risk and can damage window cladding and gardens below. Starting at the bottom of the front facade, my business partner, Todd Pudvar, and I inspected every clapboard on the house, determining on the fly whether to remove the Sikkens down to bare wood or to scuff-sand it to induce bonding of the new finish.

Using Festool Rotex RO 125 sanders attached to

Photos by Scott Burt



Festool CT Midi HEPA Dust Extractors, we worked our way up toward the soffit (1), sanding off most of the finish (2). The pitting was random in intensity and location, and a small return wall adjacent to the front facade needed only to be scuff-sanded (3).

Sanding down to raw wood eliminated 95% of the pitting (4); in the few spots where bigger stones hit the siding just right, we spent a little more time sanding out the deeper dings in the wood grain. Where the clapboards met corner boards and trim, we sealed the gaps using a brown-colored acrylic latex/silicone caulk by DAP.



PRIMER COAT

Our clients still wanted a dark brown finish on the home but didn't want to use Sikkens or any other transparent stain. We agreed that it would be best to put some "body" in the finish and suggested using a deep-base acrylic primer, which we could tint to match a dark acrylic finish coat. The tinted primer afforded some coverage assistance, allowing us to apply just one coat of final finish.

The primer coat is the most important for longevity, because it's the layer moving with the wood. We only use Sherwin Williams'

Multi-Purpose Latex Primer/Sealer primer, a high-adhesion primer that helps hide imperfections from the surface prep (5)—in this case, the occasional sanded-down deep pockmark and swirl marks left from scuff-sanding. Working from the top down, we applied it by brush rather than spraying it; the brush mechanically puts the primer into the grain of the wood for better adhesion. We like using 2 1/2-inch Purdy XL medium/stiff angled brushes for both the primer and top coats, which we applied liberally and fast to keep them wet. This size of brush works well in clapboard reveals to spread paint in long passes while still allowing us to point and cut where needed.

FINISH COAT

Applying deep-colored paint with a high LRV factor is a double-edged sword. The darker it is, the more pigment it has and the more protection it offers. But dark colors also cause the wood siding to heat up and expand and contract more (they also inherently tend to fade more over time than lighter colors).

We used Sherwin Williams' Duration Satin on the trim and Sherwin Williams' Woodscapes on the siding. Woodscapes is a solid stain with a flatter finish and would help hide any cosmetic defects left over from removing the Sikkens. We applied the top coat as we did the primer, generously and continuously to keep it wet. Todd and I worked quickly to keep material flowing in the hot summer sun, applying it in sections that we could cover alone (between windows) or working together on sections where we needed to blend longer runs into each other without flashing (6).

A surface restoration project like this costs much more than a straight-up exterior repaint (about twice as much), but still costs significantly less than a siding replacement. It was the appropriate option, because despite the predominantly failed Sikkens coating, the cedar siding underneath still had a lot of life left in it. We expect the finish system that we installed to be sound for many years, with light finish maintenance in high-exposure areas recommended by the third year.

Scott Burt owns Topcoat Finishes, in Jericho, Vt.