Replacing Windows From the Exterior

BY KYLE DIAMOND

Last fall, my company, New Dimension Construction, replaced 23 single-pane windows in an 1860s-vintage farmhouse in Duchess County, N.Y. The homeowners had grown tired of the old, drafty windows and their quirky traits (their operability ranged from "frozen" shut to closing too quickly, much like a guillotine), so they decided to upgrade them.

The home's interior trim was in excellent condition. A majority of the windows were trimmed out with an 8-inch-wide built-up casing (which wrapped the jambs and head) and an accent panel located below the sill **(1)**. The complexity of the interior trim, plus the potential for damaging it and the adjacent plaster walls, convinced us that it would be easier to work from the exterior.

In our region of the Northeast, older homes from this era were often built without board sheathing (much less a WRB). With the farmhouse's existing clapboard siding nailed directly to its post-and-beam framed walls, we had to figure out how to flash and seal the window without the benefit of a WRB. We would have to rely on the seal between the clapboards and trim to keep out bulk water.

Prepping the opening. Prior to demolition, we masked off the interior side of the windows. Next, we began removing the windows from the exterior by first cutting through paint at the clapboard-to-trim seams with a multi-tool (the home's exterior lead paint had been abated 12 years earlier). Then, we pried the jamb trim off, which allowed us to remove the sashes, parting bead, and sash weights. After carefully removing and salvaging the window's pediment **(2)**, we removed the window frame and sill, exposing the roughly 3 3/4-inch-deep wall cavity.

We padded out the rough opening with new 2-by stock to take up the space of the sash weights, adding head and sill framing as needed at the gable-end walls **(3)**. For sill flashing, we installed a piece of beveled siding on the sill plate, then installed small pieces of Zip System flashing tape at each corner **(4)**. Next, we ran a length of the flashing tape along the framed sill, adhering it about half an inch onto the top of the existing clapboard below for drainage. To make the critical sill-to-jamb transition, we installed a second length of Zip System Stretch Tape **(5)**, running it 6 or so inches up the jamb. We find the Stretch tape easy to apply and have had a good track record using it. Last, we applied a bead of sealant to act as a back dam **(6)**, and then we moved on to inserting the window.

Photos by Tim Healey and New Dimension Construction

Complex interior trim **(1)** necessitated removing the 150-year-old windows from the exterior **(2)**. New 2-by stock padded out the R.O. **(3)**, while the sill "pan" was made from flashing tape products **(4, 5)**. A bead of sealant acts as a back dam **(6)**.

Installing the window. Another issue related to the unsheathed walls was that the homeowners chose a two-over-two, Marvin Ultimate double-hung wood window, which has a minimum available frame depth of 4 9/16 inches. This is a standard size for a 2x4 wall, but our wall depth netted out to roughly 4 inches deep. This cornered us into having to install the window proud of the exterior face of the framing, which meant that we needed to rabbet the new jamb trim and pediment in order for it to lay flat.

Starting out, we set the frame in the opening, marked the sill horns (the sill was factory-applied mahogany), and cut out the siding, and then we installed the frame **(7)**. The window was leveled and held in place with clamps and blocking. To through-jamb fasten the window, we removed the sashes and popped out the check rail plugs in the middle of the jambs to gain access to the jamb frames **(8)**. This enabled us to slide the top and bottom jamb filler strips up and down as needed to secure the unit. On each side, we used 3 1/2-inch-long #10 screws at the top and bottom and a GRK adjustable Top Star shim screw in the middle. The shim screws allowed us to micro-adjust the jamb for plumb and straightness **(9)**.

With the window secured, we reinstalled frame pieces and window sashes **(10)**, then we air-sealed the head and jambs from the exterior with spray foam.

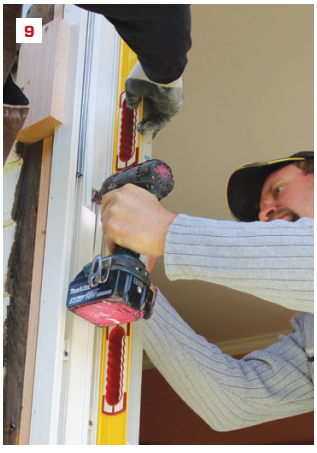
Finishing up. After the foam cured, we ran a length of Zip System flashing tape up the jambs (butted to the existing clapboards and lapped onto the unit's frame), then a length across the head. We next prepped the salvaged pediment for reuse. As mentioned above, the new windows were installed proud of the existing framing, so we rabbeted the interior edge of the pediment with a router so it would lie flat when re-installed. We primed it and ran a bead of sealant along the edge where the clapboards met the pediment legs and along the unit's frame. Then we slid the pediment up and under the existing metal flashing and fastened it off.

For our trim legs, we used Solid Gold treated radiata pine by Claymark. Prior to installing it, we rabbeted its inside edge, then ran a bead of sealant down the inner edge of the pediment and the existing clapboard and onto the unit's frame **(11)**. Then we set the jamb trim in place **(12)**.

With the new trim and pediment secured with finish screws, we ran another bead of sealant down the clapboard-to-trim junction. A narrow piece of beveled clapboard was then installed underneath the sill, gapped to allow any water to escape from the sill "pan" flashing.

We've had a very wet fall and winter (so far), and our flashing system is performing well.

Kyle Diamond is a partner with his father, Dale, in New Dimension Construction, in Millbrook, N.Y.



The window unit is lifted in place **(7)**, its frame partially disassembled for access to fastening points **(8)**. A shim screw is used to micro-adjust the jamb **(9)**. The window is reassembled **(10)**, then sealant and trim are applied **(11, 12)**.