Lifting Big Beams—the Easy Way

BY JOSH GIRARD

The 32-foot-long beam is built safely on the ground **(1)**. The longer LVLs are chained to the telehandler's forks, ready to be moved **(2)**. The telehandler lifts the partially built beam into place **(3)**. The beam is guided into place via hand signals **(4)**.

Photos by Tim Healey

I've been building and remodeling homes since 2000, first as an employee, then breaking out on my own in 2010. About two years ago, I bought a used telehandler from a local excavator for $30,000 and so far, it's been a wise investment. Having grown weary of moving stacks of heavy lumber and sheet goods around jobsites (and up and down ladders), I decided to take the plunge and buy this invaluable piece of equipment.

I currently run a two-man home-building company with my friend, Aaron Guinness, but I used to employ three- and four-man crews. I needed the extra manpower to help lift walls and lug material around. But now with the telehandler, we can build homes faster and more safely than we did with those larger crews. For example, while framing a new two-story home recently, we had to install a 32-foot-long built-up LVL beam. We were able to build the beam safely on the ground, rig it up with chains, and drop it in place without breaking our backs. This article offers some insight into how we efficiently use our telehandler on the jobsite.

PLACING THE BEAM

As part of the purchase of a floor framing package, my lumberyard offers free engineering (I give the yard my plans and it sends me drawings in return, showing where to place the wood I-joists and any needed LVL beams). In this case, the engineering plans called for a built-up, four-piece LVL beam supported by a partition wall at one end and by a double-LVL support beam at the other. The floor system was flush-framed and built with 12-inch-deep wood I-joists and LVLs. To accommodate a stair opening, two of the LVLs needed to be 6 feet shorter than the two 32-foot-long ones. So we decided to nail together the two 32-footers on the ground and install the joined pair with the telehandler. Afterwards, we lifted the two 26-foot-long ones and nailed them in place.

We began by field-measuring to verify both the main-beam and the support-beam locations, then cut the two longer LVLs to length. We then applied a continuous bead of construction adhesive to one of the LVLs and sandwiched the two together. We nailed off the beam with 16d nails in a robust nailing pattern, keeping the pair aligned by toenailing as needed **(1)**. While still on the ground, we cut the main beam's two shorter members and the support-beam LVLs to length.

Prior to tele-lifting the partial main beam into place, we installed the first of the doubled-up 12-foot-long support beams by hand from ladders (marking where the main beam would butt into it). Then, we attached the 32-footer to the forks of the telehandler with a pair of heavy-duty chains (double wrapping the beam and forks) **(2)**. I slowly brought the beam over to the front of the house and lifted it up and over the first-floor wall **(3)**. Aaron hand-signaled me as we guided the beam roughly into place **(4)**.

To hold the main beam's butted end in place, we nailed a temporary 2x6 block to the bottom of the support beam to serve as a seat. I further tweaked the main beam's position with the telehandler's articulating fork setup (tilting it side to side) to line it up with the location mark. Back on deck, I helped muscle the partial beam into its final position **(5)**. Aaron end-nailed the butted end while I toenailed the beam to the top plate.

Next, I picked up the main beam's two remaining 26-foot-long LVLs with the telehandler and lifted them in close proximity to the installed 32-footers (laid across the forks like a work table). On the ground, we had cut these shorter LVLs a little long so we could precisely mark and cut them in place. After we applied construction adhesive on the side of the installed beam, we flipped the third LVL into place and nailed it off **(6)**. The fourth LVL was installed the same way **(7)**. Aaron applied construction adhesive to the first support beam, then we lifted the second support LVL into place and nailed it off **(8)**. Finally, I installed the beefy beam hanger **(9)**, while Aaron started marking off the I-joist spacing for the floor system.

THE THIRD 'MAN'

What once would have taken a three-man crew to complete in four hours (build and install a large beam), Aaron and I were able to do safely in just under two hours with the telehandler.

In addition to moving material to work-staging areas with it, we use this 23-year-old work horse to lay out joists and stand up walls. Though there are some maintenance costs associated with running it—changing the oil every 200 hours and regularly greasing its fittings—they haven't broken the bank (luckily, I haven't needed to replace any of the hydraulic lines or any of the tires). In purchasing the telehandler, I chose to invest in my business to make our lives easier and keep the job fun.

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The author positions the first doubled LVL **(5)**. Once these first pieces are nailed off, the telehandler becomes a work platform for laminating the third **(6)** and fourth layers **(7)**. The telehandler supports the beam while end support is installed **(8)** and the structural assembly is secured with a beam hanger **(9)**.

Curved Head Flashing

BY RYAN LABRENZ

A few years ago, the company I work for, New Dimension Construction, was asked to repair a leaky cupola on a carriage-house garage (see "Fixing a Poorly Flashed Cupola," Apr/16). The restoration of the cupola went well, and the clients called us back last fall to repair more of the home's exterior problems. Though only 13 years old, this nicely trimmed-out house showed signs of premature trim and siding failure on both the main house and the attached garage—something we had pointed out to the clients while we were working on the cupola.

The cause of most of the problems was inappropriately installed drip-cap flashing. Some of the window and door heads were "flashed" with housewrap tape (the tape was adhered to the face of the WRB and run onto the exterior head trim). Over time, the tape lost its adhesion and failed, leading to repeated water intrusion into the home. Nowhere was this more apparent than with the garage doors on the carriage house **(1)**.

ARCH-TOP GARAGE DOORS

The home's two segmented-arch-top garage doors were shop-built and made out of mahogany (the rest of the building had been trimmed out in pine). As I started in on the repairs, I noticed that the arch top's wide cap molding was custom milled with an outward slope for drainage. Standard metal head flashing had not been installed, and loose tape was all that remained to bridge the gap between the existing WRB and curved cap molding (the original builders probably thought the sloped cap molding would be sufficient to shed water away from this critical juncture).

Though it appeared some water had been wicking behind the clapboards and the subpar tape "flashing" for some time (the siding was cut tight to the cap molding), the main problem was at the lower ends of the cap molding. Water had managed to collect at the bottom of the sloped mahogany cap and find its way in behind the siding and WRB.

Removing the rot. I opened up the garage wall to discover rotted sheathing and framing that looked charred from the effects of whatever type of mold or other fungus was present. The wall's open-cell foam acted like a sponge, holding a reservoir of moisture from years of repeated wetting **(2)**. I demolished the sheathing and removed about 1$\frac{1}{2}$ to 2 inches of the wall's 2x8 SPF framing (the carriage-house garage and living space above were heated and well insulated). I then cut slices in the exterior face of the framing and chiseled out the

At top are the repaired carriage-house wall and arch-top garage doors **(1)**. Water damage was due to a poorly flashed drip cap **(2)**. The sloped drip cap made a tricky flashing job even trickier **(3)**. The copper overhung the cap in the center when laid in place; the flat stock needed to be crescent-shaped to fit properly **(4)**.

Photos by Ed Brady

little blocks of rot down to good wood. The door's header had some surface rot, which I cut out. I let the insulation dry out for a few days, then spliced new wood onto the front of the existing wood and skinned over the repaired framing with new plywood sheathing.

The door's mahogany frame had some minor rot and its wide cap molding had just started to deteriorate at the lower ends **(3)**. I restored these areas with small applications of Abatron Wood Epoxy.

A LEARNING CURVE

I've made numerous site-fabricated curved head flashings for windows and doors (usually no more than 4 feet wide, covering 5/4-thick head trim stock). At more than 8 feet wide and with 5-inch curved cap trim, these doors were on the large side for me (I had to make the flashing in two pieces, lapping them at the center high point).

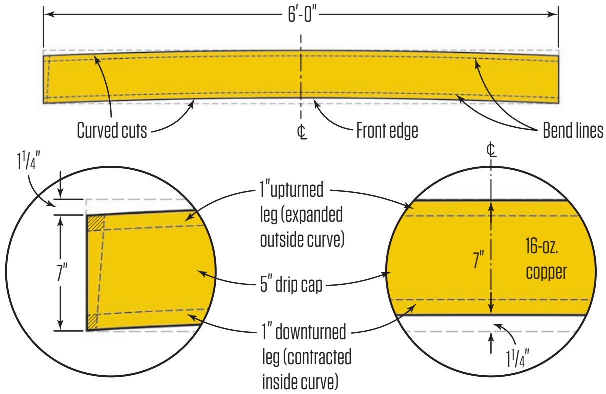
Starting out, I laid down a 6-foot-long strip of flat stock over half the arch. That's when I noticed that making the flashing wasn't going to be as easy as I thought—I hadn't factored in how the outward slope of the curved cap would affect making the new flashing. The flat stock overhung the wood cap's front edge by about 1 1/4 inches in the middle of the curve. A corresponding gap between the flat stock and the wall sheathing roughly mimicked the crescent-shaped overhang in the front **(4)**. Not only would I have to make an arch-shaped flashing, but I'd also have to bend it along a slight crescent-shaped curve, upping the degree of difficulty.

After a few minutes of head scratching, I laid the flat stock back down and marked a scribe line from underneath from the front edge of the cap. I set the scribed piece on my work table and cut out the crescent shape; this became my pattern (see illustration, right). I laid the pattern on some wider 16-gauge copper stock and traced out this crescent shape **(5)**, then cut out the curve with a pair of tin snips **(6)**. Next, I used a block as a scribe and marked a 1-inch fold line for what would be the downward vertical leg of the front of the head flashing **(7)**, then bent the copper stock with a hand brake **(8)**. I measured out 5 inches to match the width of the sloped cap, plus another inch for the vertical leg, which would run up the sheathing. I repeated the previous marking, cutting, and bending steps for the upturned leg of the head flashing.

SHAPING THE CURVE

On repair jobs where we've encountered metal flashing at arch tops, we've typically found butchered aluminum flashing with vertical legs repeatedly cut in order curve the flashing to its needed shape (they might as well have not installed anything). To avoid such practices, we use a couple of tools that allow us to make curved flashing on site fairly quickly and easily.

Crescent-Shaped Flat Stock






The author laid a crescent-shaped template on wider copper stock **(5)**, traced the slight curve, and cut it out with snips **(6)**. He used a scribe block to mark the 1-inch fold line for the flashing's downward vertical leg **(7)** and then used a hand brake to bend the leg **(8)**. He repeated the process for the upward leg.

Flashing was shaped with Eastwood shrinker (blue) and stretcher (gray) tools **(9)**. Flashing in the corners helps direct water away from the wall **(10)**. Flashing was installed with minimal nailing; ends were folded down **(11)**. The center seam was soldered **(12)**.

Years ago, our company purchased a set of Eastwood sheet-metal shrinker and stretcher tools (largely used in autobody repair work; eastwood.com) after seeing a roofer using them on a jobsite. They operate on the same principle; both have little jaws that grab the metal and either contract it to form inside curves or expand it to form outside curves. When making curved flashing with both upturned (an expanded outside curve) and downturned (a contracted inside curve) vertical legs, you have to gradually form it into its final shape—you can't shrink or expand one side all in one shot.

The first piece. With the vertical legs bent, I began to shape the curve. First, I transferred half of the arch's profile onto a piece of plywood, then laid it on the table as a reference guide. Then, I started to curve the copper, alternating between the shrinker (blue) and the stretcher (gray) as needed **(9)**. I lightly pulled the handle up to release the jaws, slid the flashing's vertical leg forward into the jaws, and lightly pressed the handle down. I was careful to advance the metal about an inch at a time (the tools shrink or expand the copper over a small area). After repeatedly checking the flashing against the reference and going up and down the ladder a few times to lay it in place, I finished one side of one arch top's flashing. Now that I knew what I was doing, I was able to form the second, third, and fourth pieces faster.

INSTALLING THE HEAD FLASHING

Before I installed my finished head-flashing pieces, I first slipped small pieces of copper flashing under the ends of the mahogany drip cap (the bottom of the flashing lapped onto the clapboard siding below) **(10)**. These small corner flashings help prevent water draining off the head flashing from finding its way behind the siding and housewrap.

With the small flashing in place, I installed the two head-flashing pieces **(11)**, lapping them 2 inches at the center high point **(12)**. The finished flashing fit snugly to the existing drip cap and I needed only a few fasteners to hold it in place—the fewer nails, the better. I nailed the flashing to the sheathing with three copper nails, one at each end and one at the center seam. Then I top-nailed the flashing's sloped leg with three more copper nails (similarly located), setting the nails in sealant. Finishing up, I soldered the center seam where the two pieces lapped. Then, I patched in some new drainable housewrap, placed peel-and-stick over the new housewrap and copper, and re-sided. The flashing fabrication process (learning curve and all) took about two days to complete.

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