Fast-Tracking a Pop-Top Addition

Using wall panels and trusses, framing and roofing took only four days

by Dave Haines

I pride myself on being a good listener. But the whole time my clients were describing the extensive remodel planned for their 1950s cape, I kept thinking, "If I get this job, I have to get started soon so I can take my family camping."

We'd been planning the trip for more than a year, but there was no way I could leave an extensive remodel in limbo for the two-and-a-half weeks I'd be gone — especially a job that involved ripping off the house's sloped-ceiling second floor and replacing it with a full second story. Obviously, getting the roof off and back on again as quickly as possible would be critical to the project's success.

Besides a new second floor, the job included a new kitchen, a rear deck, and a family-room addition on the back of the house.

Figure 1. Plans drawn in Chief Architect helped the clients and the building inspector visualize the project, and were also supplied to the truss manufacturer.

Tight Schedule Rules

As soon as I got home from that initial meeting, I created an 11-week construction schedule to ensure that most of the critical work would be done before our vacation.

The first two weeks of the project would be the most stressful — laying the family-room foundation, completing the demo, and getting the roof back on, all while the clients were living in the first-floor den. My goal was to demo the existing second story on a Tuesday, frame the new second-story walls on Wednesday, set and sheathe the roof trusses on Thursday, and finish installing shingles by the end of Friday.

To keep up the pace, I decided to use wall panels supplied by the truss manufacturer. As usual, I had done the design work for the project in Chief Architect (see Figure 1), so I supplied the truss company with accurate drawings of both existing conditions and the proposed construction. The company, in turn, provided engineer-stamped drawings to submit with the building-permit application.

Dealing With Debris

With a permit in hand and the roof trusses and wall panels on order, I went about putting in the foundation for the family-room addition and gutting the second floor in preparation for ripping off the roof.

Figure 2. Demo of the existing roof took half a day. A dump trailer provided by the excavation contractor handled the debris.

The site's narrow driveway meant I couldn't set a dumpster there because it would prevent the excavation and foundation contractors from reaching the back of the house for the addition. Instead, I used my excavator's dump-body trailer for the debris; it could simply be rolled out of the way when the need arose (Figure 2).

Tuesday: The Tearoff

Fortunately, the weather turned nice the week of the tearoff. In keeping with the schedule, a crew of seven guys tackled the house with bars and recip saws. By lunch, most of the structure was down.

Using the dump-body trailer to catch the debris had another advantage beyond mobility: The axles underneath the trailer make it much taller than a conventional dumpster, so dropping in material from the second-floor level was relatively easy.

Demolishing the second floor and existing kitchen generated about 16 tons of debris, filling the trailer three times.

Later that day, the wall panels and trusses showed up. We had the driver drop them in the driveway as far back as he could, so there would be room for the crane.

We spent the rest of the day cleaning up smaller debris and adding rim joists and floor sheathing in areas that

Figure 3. Flooring behind the original upstairs knee walls had to be filled in before the wall panels could be set. Two-by-ten blocks extended the tapered joist ends.

Figure 4. On its first visit, the crane lifted the second-story wall panels onto the deck. Wall framing took a day.

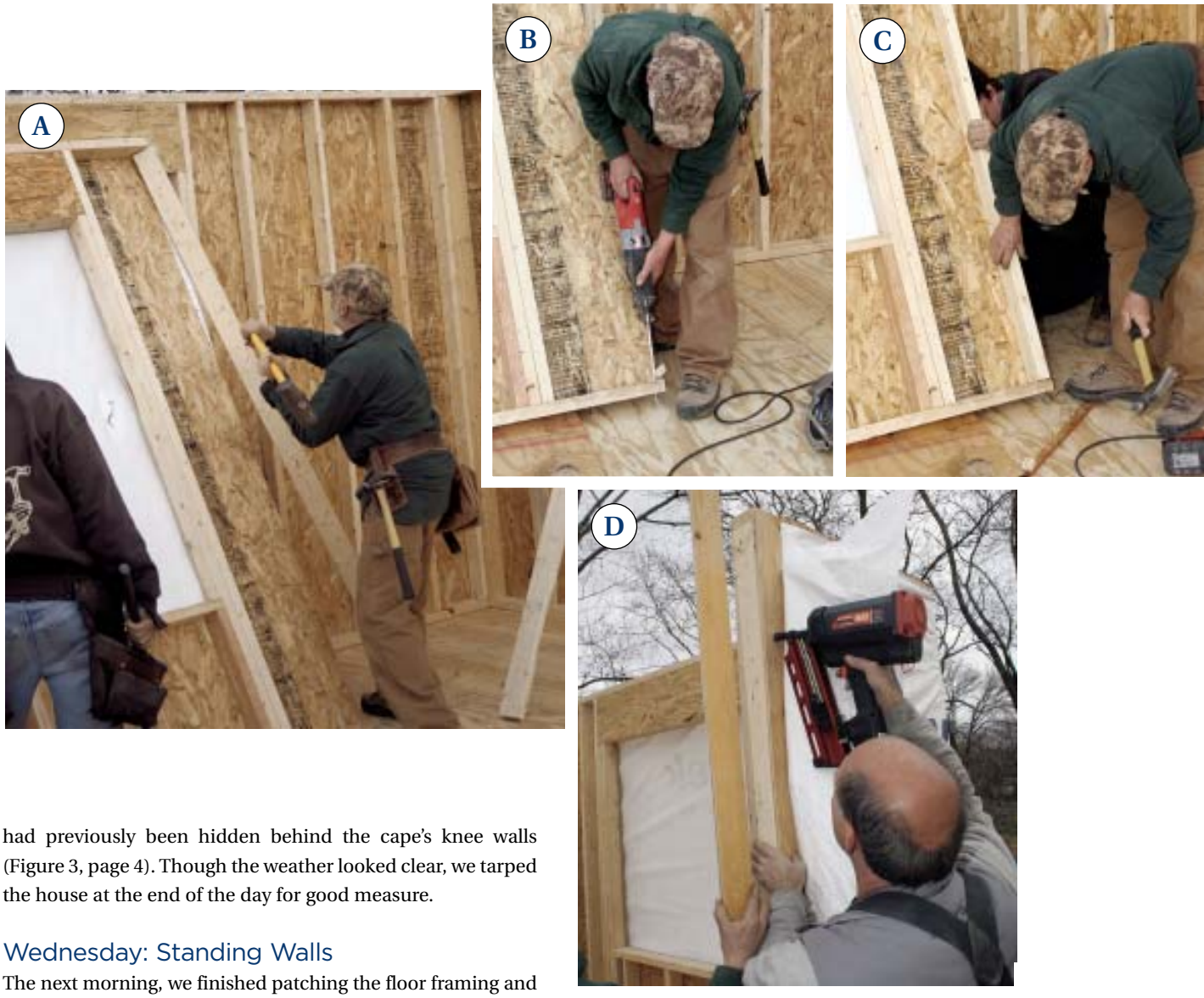

Figure 5. Because the existing floor was 2 inches out of square, the crew had to lengthen one wall panel by removing the last stud (A), cutting off the plate (B), and replacing the stud (C). Another panel was lengthened with plywood spacers (D).

had previously been hidden behind the cape's knee walls (Figure 3, page 4). Though the weather looked clear, we tarped the house at the end of the day for good measure.

Wednesday: Standing Walls

The next morning, we finished patching the floor framing and subfloor. When the crane arrived, just after lunch, we set the wall panels and trusses for the family-room addition. Then we had the crane lift the walls for the second story onto the floor deck, setting them directly over a bearing wall to avoid cracks in the finishes below (Figure 4, page 4).

Rather than keep the crane sitting around while we set the walls, I sent the operator away, which kept the bill to a three-hour minimum charge. This gave us the whole afternoon to set walls, so we spent a little extra time wrapping them with housewrap before standing them.

We measured the floor deck and found that it was about 2 inches out of square. This wasn't a surprise: I had known something was off when I measured the house during the design phase. Instead of trying to figure out the exact problem then, I'd had the panel producer make the panels as if the house were perfectly square. I knew we could make field modifications later.

The out-of-square floor deck required that we shorten one wall panel and extend another. The process was easy: With two guys working, the alterations took about 10 minutes (Figure 5).

We finished out the day straightening the walls. The panels come with a single top plate; you add the double plate to stitch the wall together, then plumb and string it or site it as usual.

We were lucky that we had great weather, because effectively tarping the second floor with the walls standing and no roof would have been nearly impossible. If rain had been

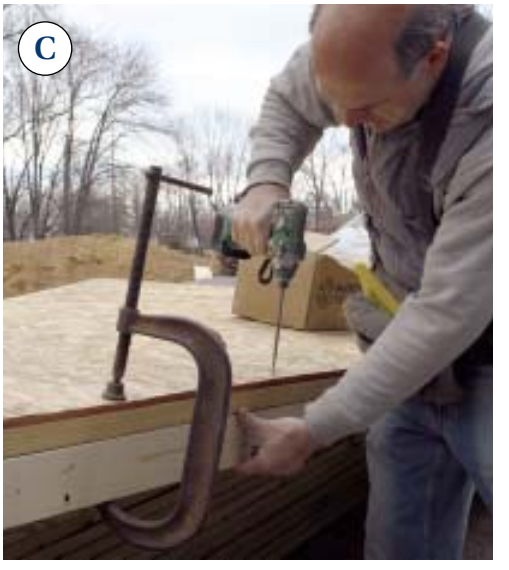

Figure 6. In preparation for the crane's second visit, the crew installed the girder truss for a small bump-out (A). The gable truss was prepped with building paper (B) and preinstalled blocking for the drywall ceiling (C). When the crane arrived, truss-setting moved quickly (D); note the vertical bracing for the gable truss, installed on the inside rather than the outside of the end wall.

Figure 7. Lifting trusses in pairs eliminates waiting: There's just enough time to set the two trusses, using precut braces marked with the layout (right), while the crane operator picks up the next pair. Unlike longer braces, the 49½-inch-long pieces don't get in the way of the next trusses to be set.

in the forecast, I probably would have kept the crane on site and worked as long as necessary to set the trusses. With the trusses up, I could have tarped the structure; luckily, this wasn't necessary.

Thursday: Setting Trusses

The next day, while waiting for the crane, we installed a two-ply girder truss for a small intersecting gable over a bedroom bump-out (Figure 6, page 6). We knew having this in place would make setting the rest of the trusses go much faster. We also prepped the gable trusses and got some braces and spacers ready.

When the crane arrived, we began by lifting the interior wall studs and the roof sheathing up onto the second-floor deck, then started placing trusses. With the first gable in position but still suspended from the crane, we installed temporary bracing. Most framers place vertical braces on the outside of the building, which requires ladders or staging, but I like to put them on the inside because it can be done easily from stepladders.

The rest of the trusses were set very quickly. To keep things moving, we typically have the crane lift the trusses in pairs. The timing works perfectly: While we're setting and bracing two trusses, the operator can pick up another pair and have them ready for us by the time we're done with the first two (Figure 7). We were able to stock the second floor with material

Figure 8. The completed home (left) looks vastly different from the original structure and has 1,000 square feet of additional living space. The family-room addition on the back of the house (below) contains a cathedral ceiling and a wood-burning fireplace.

and set all the second-floor trusses within the three-hour minimum crane charge.

Once the trusses were in place, we immediately started sheathing the roof. Handing the sheathing up from the second-floor deck, we tacked it in place, aligning the trusses as we went, then had one guy finish it off with a coil framing nailer. He was responsible for making sure all the sheathing was solidly nailed and that nothing was missed.

The main roof was completely sheathed by the end of the day. We could have stuck around for another hour or two and felted the roof, but with no rain in the forecast we went home.

Friday: Roofing

The roofers showed up Friday morning. They got started on the front side of the roof while we finished up filling in the valleys on the gable bump-out and installing subfascia on the back.

By noon the roof was shingled and I was able to breathe a little easier.

Photos: Bill Schloo

Planning Paid Off

The following week, we built the porch roof, finished off the interior partitions, and moved on to doors and windows.

The rest of the job was a matter of scheduling subs to bring it all together. The granite countertops and custom shower doors were templated the day before I left on vacation. When I got back, the countertops and finished flooring had been installed, so I just had to arrange for the plumbing trim-out and for final inspections, and complete a few items on the punch list.

The house had gone through quite a transformation (Figure 8). In addition to gaining an extra 1,000 square feet of living space, it now had a luxury master bath, a porch, a back deck, and a wood-burning fireplace.

The project's $270,000 price tag might seem high, but in this area it's tough to find an existing home for less than $500,000, and you'd pay a similar amount for a ½-acre building lot — if you could find one.

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