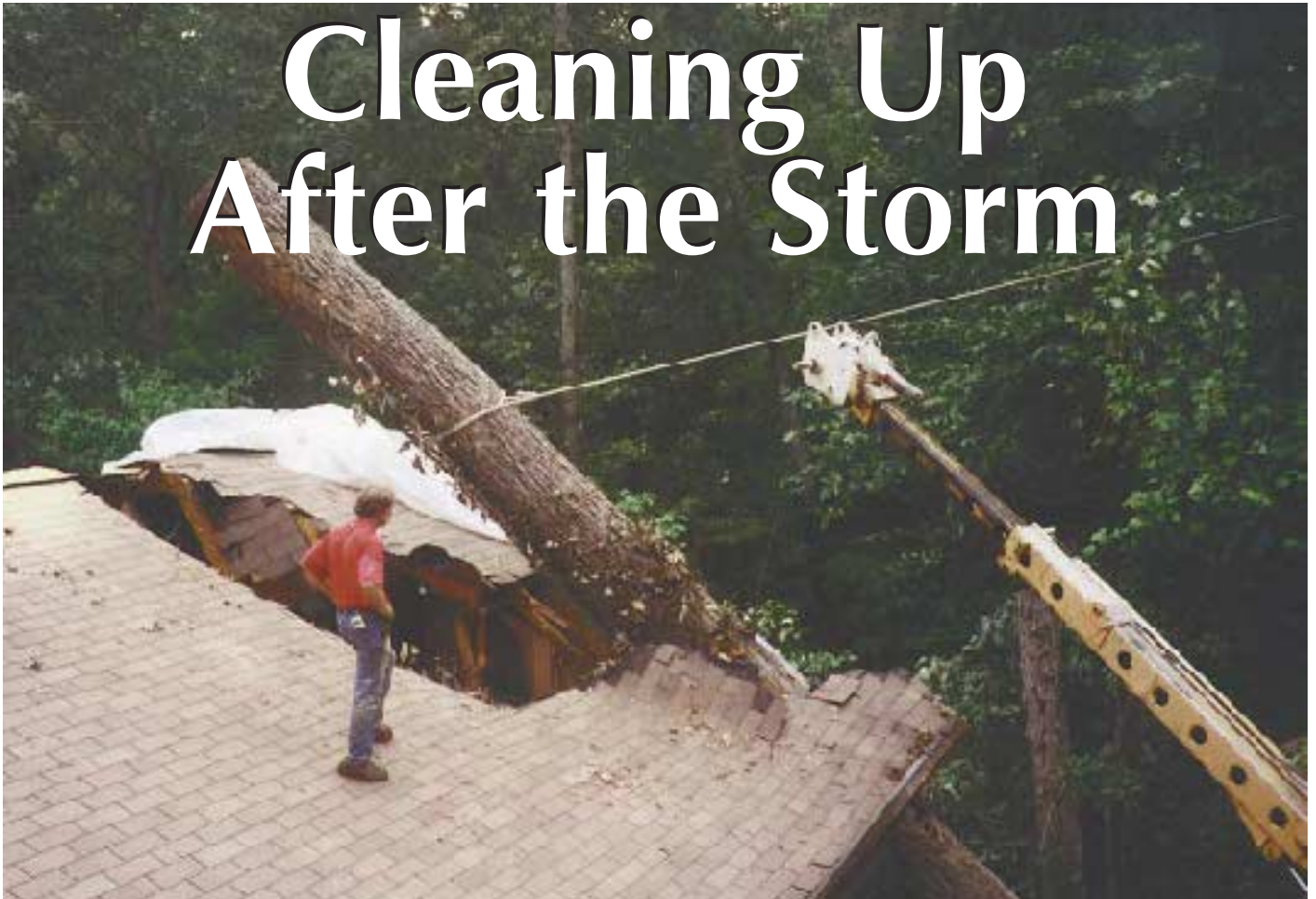


Cleaning Up After the Storm



I slept through Hurricane Fran in September of 1996. Because the North Carolina Piedmont is 150 miles inland, I assumed there was nothing to worry

by **Bill Phillips**

about. As daylight came and I got up to see that pine trees were still swaying, the phone rang. It was one of my favorite customers, for whom I had done a couple of remodeling jobs: "Bill, I've got a tree through my bedroom, bath, and closet." At that moment, I had no idea that the entire city, the entire region, was waking up to a major disaster.

I threw a 100-foot roll of 6-mil plastic along with some 16-foot 2x4s into the back of the truck, and my son and I started out on what should have been a ten-minute drive across town. It took half an hour of backtracking around streets blocked by trees, utility poles snapped and leaning, and downed power lines lying curled on the

Disaster repair work provides satisfaction and a clear source of payment

road. I could not get into the drive of the home, since two or three trees were lying across it. But within an hour, I had plastic tacked down over an enormous poplar tree and a gaping hole in the roof (see Figure 1, next page).

A Time for Cooperation

Over the next six months, I performed major repair work on more than one area home. In the process, I learned a lot about estimating storm damage and working with

Figure 1. Felled by a September hurricane that veered inland, this mature poplar tree was an unwelcome house guest (right). The first order of business was to cover the gaping hole — and the tree within — with 6-mil plastic to keep out the rain (below).



insurance companies. Tree removal crews drove several hundred miles to assist in getting trees off houses, and insurance adjusters were flown in from as far away as Texas.

From the beginning, I felt that local builders and home remodelers in the area had some obligation to try to meet the community's need for timely repairs. I was surprised to find that some builders felt differently. They refused to bid on the work, preferring to continue building the new homes that were on their schedule. As a result, some homeowners waited many months to get their repairs completed.

My experience suggests that this kind of work is both rewarding and profitable — and that should be true of other kinds of disasters as well, such as floods and fires. You can usually count on money being available for the job, since most homes are insured. The insurance people I worked with were intelligent and experienced and ready to pay a fair price for the work, but they also seemed to have a good sense of when a bid was getting out of line. A disaster is a potential lure for “gougers,” but I didn't see a lot of that in this situation.

Reassuring the Owner and Negotiating the Fee

The first thing the owner needed was some reassurance that his home could be fixed. Sometimes I overlook that need because I see the situation in simple terms based on 20 years' experience in remodeling: “If it's broken, it can be fixed.”

Since I'd never dealt with a hurricane before, I had little or no experience estimating for storm repair. I learned a few things. For instance, in dealing with the insurance adjuster, homeowners have considerable leverage in choosing who does the repair. They don't necessarily have to take the lowest bid, and they can argue that a home of higher than average quality deserves equally-high-quality repair work. At the same time, there's nothing the insurance adjusters haven't seen or heard in terms of damage and bids on repair; I don't envy

their job. The fellow on this job knew hurricanes. He had spent months assessing the damage to homes in Florida from Hurricane Andrew.

Since I already had a good working relationship with this homeowner, he wanted me to do the work and did not want to get competitive bids. The insurance adjuster went along with that request. I would normally do such work on a time-and-materials basis, but the insurance company, of course, wanted a figure. Being a little intimidated by the unknown, I overestimated the job. The insurance adjuster knew that but was very considerate in his negotiations. He finally submitted his best offer, which was less than my bid but turned out to be adequate for the job.

The Work Begins

With a crew of three, we started a daily routine of rolling back the tarp to expose the hole in the house, surgically cutting out each damaged piece, and looking for hidden damage along the way. I bought a new Porter-Cable Tiger Saw, which has a convenient quick release for the blade — a handy feature, given the number of blades we went through. For a number of days, the hole in the roof got bigger and bigger as we continued to cut back to find a secure starting point from which to begin rebuilding.

The master bedroom had been vacated for the duration and became the tool storage room. We covered the oak floor to protect it, even though we knew it would have to be refinished because of water damage at one end. Oddly enough, the textured bedroom ceiling was completely intact and did not need repair. To keep it that way, we braced it with a temporary wall in order to work on the adjoining exterior wall (Figure 2). The closet doors and bath door were removed, jamb and all. The bath ceiling was completely replaced because the ceiling joists had been split, and the entire closet area, interior and exterior, was rebuilt. We also replaced a 24x16-foot section of the roof.

This house was so solidly built that at first we thought no damage had reached as far down as the floor system.



Figure 2. The undamaged bedroom ceiling was braced with a temporary wall cushioned by a folded drop cloth (left). Broken framing members like this 4x10 beam (below) were cut back to sound wood.



Figure 3. Replacing the cantilevered beams that supported the gable-end overhang was a time-consuming task that called for some discussion with the homeowner's insurance adjuster.



Figure 4. Eight weeks, 440 carpentry hours, and \$25,000 later, the house — shown here the following summer — was at least as good as new.

Figure 5. Same storm, different tree. Although the second-story apartment suffered relatively minor damage, the poorly braced walls of the two-car garage beneath collapsed on impact, bringing the structure to rest about two feet to the left of its original location.



Figure 6. An initial attempt to jack up the second-story apartment was cut short when the midsection began to sag. To stiffen the floor structure before lifting resumed, reinforcing 2x10s were nailed to the rim joists.



But while inspecting the basement, I noticed that an 8x12-inch girder had been compressed about $\frac{1}{4}$ inch by the blow at the point where it met the foundation. We jacked it up and put a $\frac{1}{4}$ -inch shim on the block.

One interesting architectural feature of this house is that the gable ends of the roof have very wide overhangs and are supported by cantilevered beams secured well within the framing of the house. Since the ends of a couple of these beams had been snapped off by the tree, we had to remove enough roof to take out the old, damaged beams and install new ones (Figure 3, previous page). This was one of the tasks that didn't fit into the insurance company's statistics of averages for repairs, but once we explained the nature of the task and how time consuming it was, the adjuster was willing to add an amount for doing it.

Finishing the Job

The pieces of the puzzle slowly came back together. We used western red cedar for vertical siding instead of the original cypress. Cypress was considerably more expensive and harder to get now than it had been when the house was built almost 30 years earlier.

Roofing was the only part of the job that was delayed. Because of the extensive damage in the region, roofers were scheduling six months in advance. To keep things dry until the roofers arrived, we covered the repaired areas of the roof with 30-pound felt — double the usual thickness — and tacked lattice strips around the edges.

We started the job on October 1, 1996, and completed it, except for the roof shingles, on November 26. The carpentry took 440 hours, which includes my time working "hands on." Add to that the subcontracts, which included roofing, sheetrock, painting, and floor refinishing. The total cost of the completed job was \$25,060 (Figure 4).

The Job Nobody Wanted

Meanwhile, I had talked with a woman about a two-car garage with a second-floor apartment that had been

completely knocked off its foundation by a falling tree (Figure 5). Because it was uninhabited, the appealing structure was a low priority for repair. A few contractors looked at it and suggested that it be torn down and rebuilt.

Though picturesque and inviting, this garage had not been solidly built. Had the walls been sheathed in plywood, I doubt the tree could have pushed it over. But since bracing was minimal and the siding was nailed directly to the studs, the building leaned easily about four feet off its foundation and came to rest against a tree on the opposite side. Had it not been for that small tree, the second floor would surely have ended up on the ground. Surprisingly enough, the main structure was still square and sound despite some damage at the corner where the tree hit.

Nevertheless, this structure had some serious problems. The first floor was beyond repair. The second floor would have to be lifted by house movers and placed back over the foundation, so that a new first floor could be rebuilt under it. Even so, I was convinced that building a new two-story garage would cost more than salvaging the existing one. Since I was the only contractor who showed any interest, I got the job.

The two hand-built doors on the garage had sentimental value for the woman who lived there. They had been part of a previous garage, an important part of her family memory. Respectful of old architectural pieces myself, I assured her that the doors could be repaired and preserved.

Lifting the Second Story

On a cool bright February day, the house movers arrived with their truck full of oak support timbers, oak shims, and steel I-beams. Moving more quickly than my comfort level suggested, they stacked their crisscrossed oak blocks in four neat columns, placed two I-beams under the second floor parallel to the floor joists and began to lift. As I had feared, the belly of the second floor began to sag in the middle. The movers settled the building back down on the wrecked first-floor studs while my crew



Figure 7. Once elevated on cribbing (top), the structure was carefully repositioned with a backhoe, aided by small steel rollers placed beneath the supporting steel I-beams (bottom).



Figure 8. After some minor foundation repairs and the placement of new anchor bolts, new garage walls were framed and partially sheathed (above). At the last minute, the steel beams were eased out of their slots, shifting the second-story load onto the foundation (right).



and I nailed a reinforcing 2x10 along each side of the floor system (Figure 6, page 4).

After lunch, they tried lifting it again, and the center section held its shape, easing my concern about structural damage. Satisfied in their first step of lifting the weight of the second floor off the tilted first-floor walls, the movers braced the second floor at the raised position and called it a day. The second floor was still two feet off-center of the foundation, but it was lifted and secure. My crew and I spent the afternoon removing the first-floor walls.

In the morning, the movers returned to position the second floor over the foundation. They placed small steel rollers under the I-beams. Then one of the movers eased the shovel of his backhoe under the floor. With amazing precision he nudged the building, and it began to move (Figure 7, previous page). A gentle push in first one direction and then another, and in about an hour the second floor was sitting over the foundation, no more than $\frac{3}{8}$ inch out of plumb at any corner — which for all we knew was as good as it had ever been. The movers jacked it up to the right height, readjusted it all around, and their job was done.

Rebuilding the First Level

Some block joints in the foundation had been damaged by the force of the blow, so those blocks were re-laid. The cores of the entire foundation wall were filled with concrete, and foundation bolts were set in and tightened to the bottom plate of the wall. We set the framing of the first-floor walls $\frac{1}{2}$ inch in from the original in order to sheath the studs in plywood. Plumbing lines to the second-floor apartment had been ripped loose by the blow, and we repaired those. Once the structure was framed and mostly sheathed, we slid the steel beams out of their slots (Figure 8).

The only problem now was that the opening for the garage doors was slightly out of square. To fix it, we used a come-along to crank the opening



Figure 9. To square up the garage door opening, the completed frame was carefully racked with a come-along (left), and the temporary diagonal bracing shown above was replaced with shorter, permanent braces.

square and locked it into shape with short, permanent interior diagonal bracing (Figure 9).

Since the job was ahead of schedule at this point, I had time to thoroughly restore the aged garage doors. We replaced rotten wood along the bottom of the doors with pressure-treated wood, and reinforced the warped diagonal tongue-in-groove panels from behind.

This job was completed in six weeks and cost \$27,250 (Figure 10). The 535 carpenter hours included my time as contractor, because I work as a carpenter on my jobs. It also included the many non-carpenter things that carpenters do, such as laying a few blocks when the job is too small to call a mason. The price included the painting, electrical, and plumbing subcontractors, as well as the \$3,000 bill from the house mover.



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Figure 10. Better than new on its reworked underpinnings, the repaired structure came in well below the cost of razing and rebuilding.