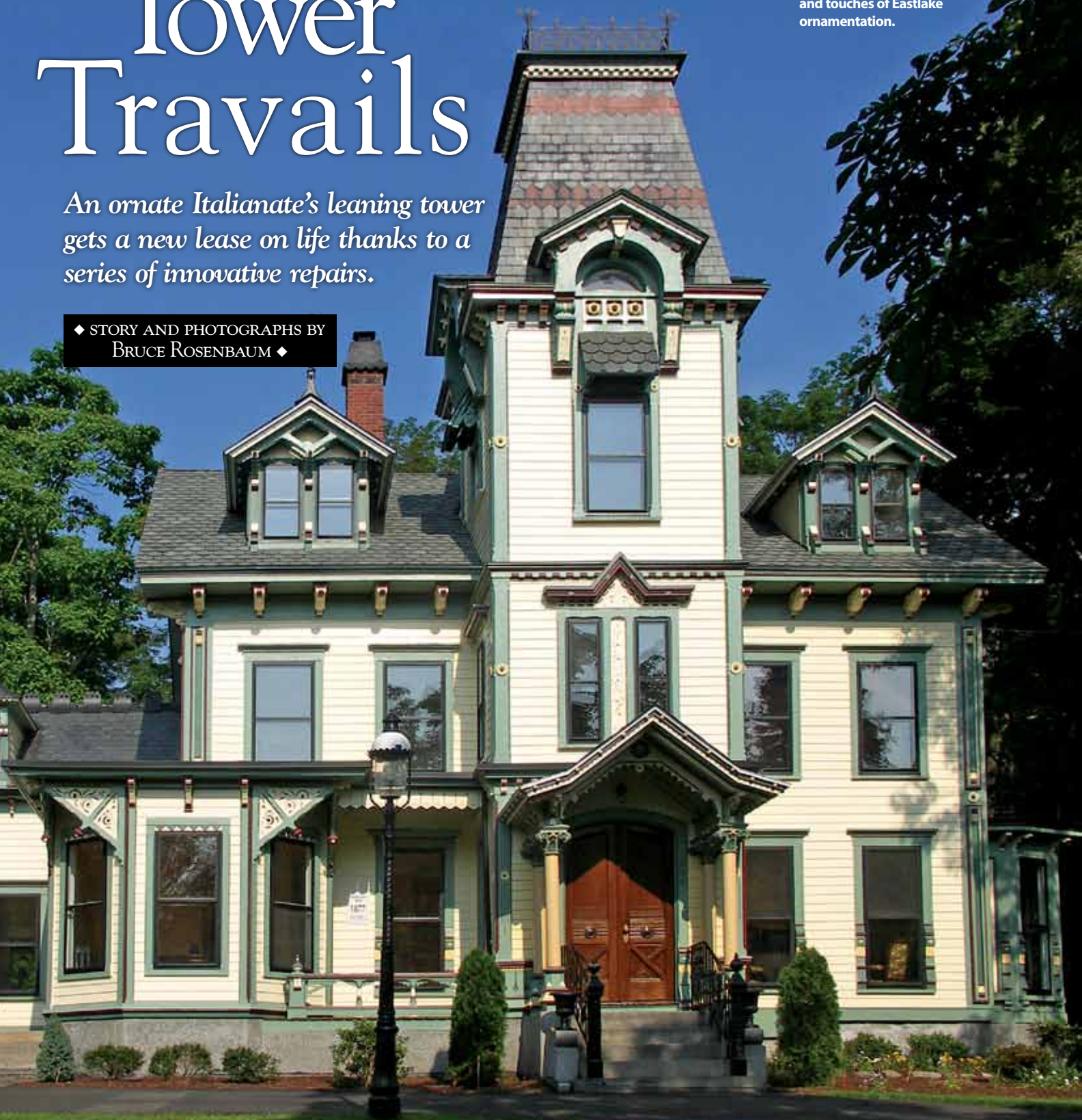


# Tower Travails

*An ornate Italianate's leaning tower gets a new lease on life thanks to a series of innovative repairs.*

◆ STORY AND PHOTOGRAPHS BY  
BRUCE ROSENBAUM ◆

The original circa 1830 house got a fashionable update in 1877, gaining a high-style Italianate tower and touches of Eastlake ornamentation.



# Structural Solutions

- ① 4x6 headers were installed over all doors and windows
- ② Existing 3x4 studs were sistered with pressure-treated 2x6s beam-to-beam
- ③ Rotted studs and rafters were replaced
- ④ Rotted existing beams were cut out and replaced with new 4x6 beams sitting on 2x6 plates
- ⑤ 4x8 collars were placed horizontally, plated, and through-bolted



In 1877, Benjamin Stanley Freeman, a wealthy homeowner in North Attleboro, Massachusetts, expanded and updated his family's classic 1830 Colonial house to better reflect his status and the architectural style of the day, transforming it into a dramatic and ornate Italianate. He added porches, bay windows, large-scale cresting on the roofline, and a striking 50'-tall central tower.

The tower is what first drew my wife, Melanie, and me to the property a couple of years ago. We'd gotten hooked on restoration while we worked on our own 19th-century home, and wanted to try bringing back another historic property to sell to an appreciative family. The iconic tower seemed to whisper, "Please restore me." It looked stable enough from the outside, although we could see some raking and twisting from certain angles. We also

noticed an array of water stains inside the tower near the windows and on the ceiling, but we were so in love with the Italianate beauty that we bought the house, crossing our fingers that any structural problems would be minor. We were wrong.

After purchasing the home and removing two damaged floors and some interior tower walls, we learned that our tower had seven rotted support beams—the result of years of undetected water damage. Worse



**Craftsmen stripped and painted exterior decorative elements, and restored windows.**



**During the work, V-shaped supports propped up lateral temporary shoring; the system was moved daily to access new work areas.**



**Installing new framing and sistering beams were critical to shoring up the tower.**

still, our initial attempt to assess and repair damage by demolishing the ceilings and floors only compounded the situation—the tower was now leaning, Pisa-style, toward one side, and in such fragile condition that it was in danger of collapsing with the next New England storm. We had to find a way to save it.

Our designer told us the easiest option would be to completely demolish the tower, but as lovers and restorers of Victorian homes, we refused. The 50' tower defined this house; preserving it was critical to maintaining the home's architectural style

and history. The designer also suggested removing the tower to repair off-site, but this idea was a budget-buster. Luckily, we found a local restoration contractor, Eric Ayre of Top Cat Construction, who figured out a way to rebuild and restore the tower on site.

### Repairs & Reinforcements

To begin, Eric and his team of talented carpenters built temporary floors out of 2x10s. The new floors gave the walls lateral support, and they acted as a staging area for the construction crew. Next, the

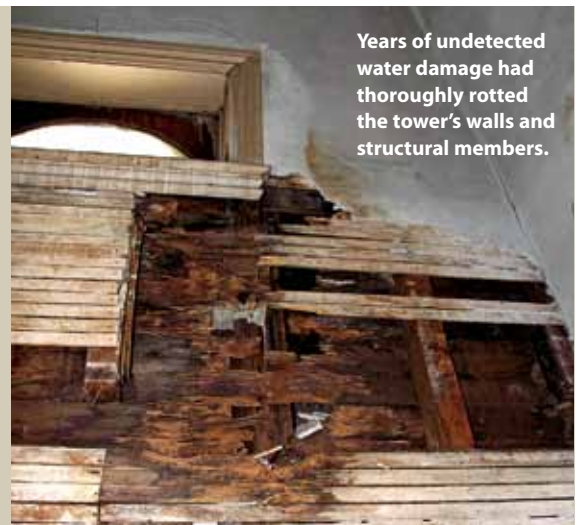
team back-braced the walls with lineal 2x6s installed as wall-to-floor braces on an angle. This made for a great temporary support system, but it was one the team had to continually rip out, move, and rebuild in order to access new areas within the confines of a 10' by 10' space.

The next steps involved sistering walls with 2x6s run floor-to-ceiling. Any rotted studs were cut out and replaced with doubled-up 2x6s. After everything was shored up and the walls were supported, the team worked on replacing the old beams. Most contractors simply take an old beam out

## Identifying Structural Problems

Contractor Eric Ayre shares tips for identifying structural danger zones.

- 1** Inside, look for water stains and mold. In addition, if the room is way out of plumb, there could be significant structural issues.
- 2** Outside, look for missing shingles, rotted or missing siding, improper flashing, and racking or leaning of the structure to one side. Inspect from the top and move down, examining the roof, windows, siding, and flashing along the way.
- 3** If you see evidence of water damage, use a garden hose to perform a water test that can track the potential source of leaks. Remember, water can travel along framing members to a location far away from the initial leak.
- 4** Open or expose walls (via test cuts) to determine whether structural members (support beams) are damaged in any way. Good starting points are areas where the walls come in or go out—think corners or soffits.



**Years of undetected water damage had thoroughly rotted the tower's walls and structural members.**



**Inside the tower, tight space proved challenging for the work team to negotiate.**

and put a new one in exactly the same way, but Eric's team used a different technique. As they removed each old beam using sawzalls and skill saws (or chisels where the saws couldn't reach), they overcut into existing studs so they could make a new level line on the wall studs. This allowed for a new 4x6 and a plate (a pressure-treated 2x6 turned on the flat), which was installed beneath the 4x6. The beam sistering continued up to the roof in this fashion.

To further brace the massive slate roof, Eric's team also created a new lateral support system in the uppermost portion of the tower. The team took four 4x8 beams, notched them where they intersected, carriage-bolted them through where they sistered, and placed angle irons at the crossings. The resulting support structure looks like a pound sign atop the tower's interior.

Because all of the original dimension-

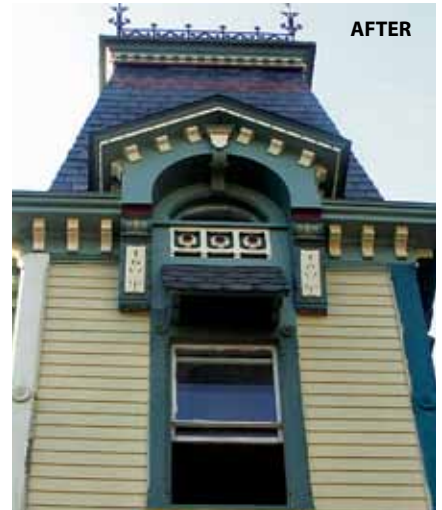


**Atop the finished tower's interior, 4x8 collars placed horizontally (and plated and through-bolted) add extra support.**

al beams and studs had varying measurements and thicknesses, replacements had to be stick built and customized for placement into each location. To help guard against future water damage, the team used pressure-treated lumber throughout. (This was possible because the tower isn't considered a main living space.)

Once the new beams were in place, it was time for the team to permanently remove all of the temporary supports. It was the moment of truth. Despite knowing that the new engineering was sound, some unsettling moments still ensued when the tower creaked and groaned as the weight shifted from the temporary supports to the new beams. When the new beams held, we knew we'd achieved our goal: We had saved the tower. 🏠

*More information on the restoration of the Benjamin Stanley Freeman House can be found at [modvic.com](http://modvic.com).*



## All in a Day's Work

Eric Ayre considers this restoration to be one of the most interesting and challenging projects he's worked on. "Most contractors don't want to take on restoring a tower like this because it carries substantial risks and liabilities, and you need to have specialized knowledge of how to construct temporary supports," he says. "I feel that if a tower is still fairly straight, it's possible to save it, and I wanted to take on the challenge for Bruce and Melanie. This project was so much more satisfying than rehabilitating a cookie-cutter house," he adds. "The work was slow-going, and we needed to be creative problem-solvers. But at the end of the day, it's quite fulfilling to stand back and see that you've resurrected a piece of history that will easily go on for another 130 years or more."



## Blasts from the Past

When we took out the floors, we found that kids from earlier generations had carved artwork and writing along them. It seems the upper part of the tower was a hangout for children who lived in the house. Near the top of the tower, we found the initials "J.J." burnt into the wood. We know from historical records that J.J. (Joseph J. Freeman) was Benjamin Stanley Freeman's younger brother.