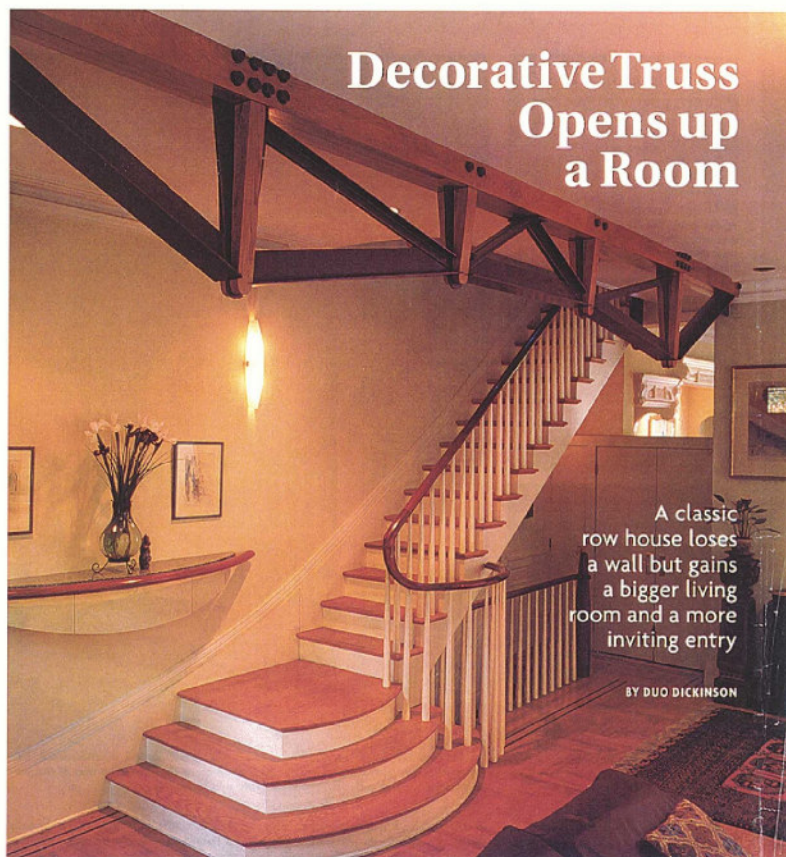


Decorative Truss Opens up a Room

A classic row house loses a wall but gains a bigger living room and a more inviting entry

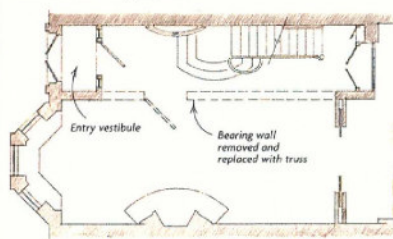
BY DUO DICKINSON



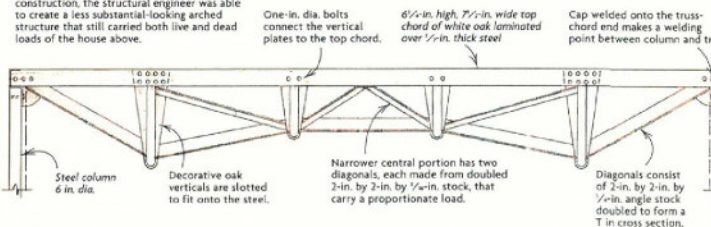
Sometimes you just have to go ahead and knock down a wall. It's a common occurrence during a house renovation, one that yields more light or space or even just more breathing room. It's also common to have to supply a surrogate structure, usually a big boxy header, that carries the weight once borne by the wall. What's not common is a request to design a replacement that is as expressive as it is functional.

My clients, Eric and Polly, had owned the top two floors of a four-story Brooklyn brownstone for 20 years. Like many row houses, this one was divided by a bearing wall (floor plan, facing page) that ran half the length of the house. The right side opened into the neighbor's place on the first floor; the left side contained the stairs to the upper two floors. When the neighbor decided to sell, Eric and Polly bought the remainder of the house. It was like rejoining the two halves of a split brain.

A cramped, divided entry before renovation. Originally, the house's entry hall was the common area for two apartments. A bearing wall that ran half the length of the house separated the downstairs apartment from the stairs that led to the upper apartment.



Anatomy of a truss. Using laminated construction, the structural engineer was able to create a less substantial-looking arched structure that still carried both live and dead loads of the house above.



The first order of business was to get rid of the bearing wall and open the house's living room to include the entry and the hall. This idea made perfect sense but presented some problems. The wall in question supported half of the house: live and dead loads from the roof, second and third floors. Ordinarily, a situation such as this one would call for a big steel beam buried in the ceiling to span the opening.

However, Eric and Polly thought the new support should be visible. They just couldn't agree on the design: One wanted a sinuous wood arch that recalled the original appointments of the house; the other wanted a steel truss of Industrial Age beauty that was a reminder of the nearby Brooklyn Bridge.

The result was a combination of the two, an exposed truss of steel and oak (photo facing page). Instead of a truss that's wider at the center (think of an inverted roof truss), this one is narrower. The trick belongs to structural engineer Martin Gehner, P.E., of Branford, Connecticut, who was able to include extra diagonal bracing that made up for the loss of depth at the truss's center (drawing

above). Held in compression, the oak laminations add strength to the steel structure.

The truss was built nearby at Master Iron Works Inc. and trucked to the site. Once the crew had braced the floor and ceiling each side of the wall, they cut out the bearing wall and installed 6-in. dia. steel columns. [The columns bear on 1-ft. thick, 4-ft. concrete footings cut into the existing basement slab.] Using a crane hoist the 22-ft. long oak and steel lamination through the door on dollies. Aided by hoists and jacks, they then muscled the columns, welded it into place, and bolted the diagonals and teals onto the chord. Costing about \$6,000 more than a steel I-l of the same size, the structure is good evidence that even in a tentional setting, exposing the "bones" of a house has its rewards.

Duo Dickinson is an architect in Madison, Connecticut. Photo by Charles Beckio set photo by Justin van Soest.

COMBINING SCULPTURE AND STRUCTURE

An important feature of the house's renovation was the removal of the central bearing wall. Instead of hiding the required carrying beam, the owners wanted the structure to be exposed and to have a design that evoked both the look of Industrial Age steel and a more organic wooden arch.

