A HIDDEN Newel Post

Disguised as a baluster, tube steel can double as a support post

by Chuck Green

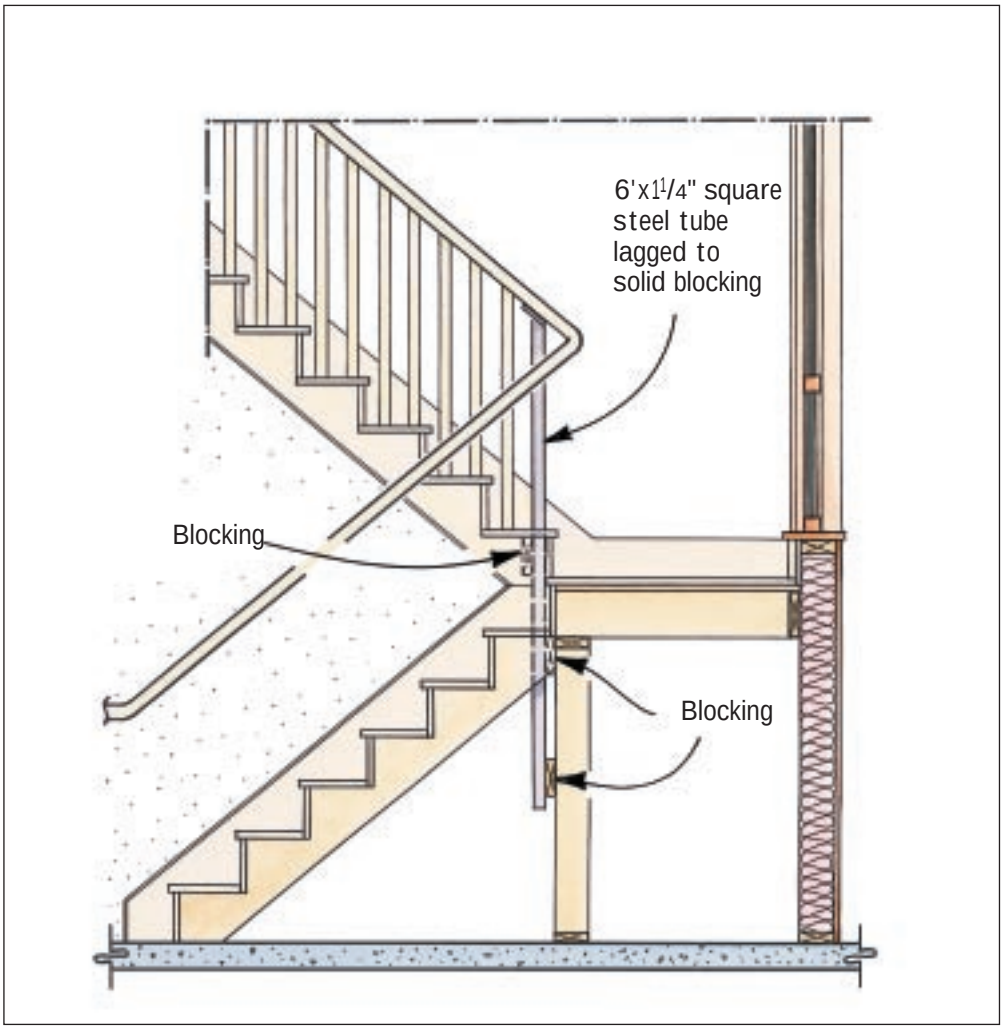
I was recently challenged with building a staircase handrail as a finish subcontractor on a large remodeling project. Built on a slab floor, the stair had a 180-degree turn at a midpoint landing. The design called for a railing to run up the left-hand side along the wall, then turn the corner at the landing without a supporting newel post. Above the landing, the railing would rest on $1^1/_4$-inch-square maple balusters, which would provide limited strength. The clients had four active children, so I knew the railing would be severely tested for years to come. I doubted whether this transition point would hold up without a newel of some sort.

Cantilevered Steel Solution

When we got to the stairs, the architect was away on vacation, but builder Barry Miller came up with a great solution. We would make the first baluster into a secret steel newel post. Barry took a sample of one of the maple balusters I'd made to a welding shop, where they matched it nearly perfectly with some square steel tube stock. We bought a 6-foot-long piece with a small mounting plate welded to the top at the angle of the upper rail. Thirty inches would be exposed above the first tread, while the remaining 42 inches would run through and below the first tread above the landing. The steel post would get bolted in several places to the framing under the stair platform, creating an upright cantilever beam.

Installation

We finished the lower section of stairs normally up to the landing. Above the landing, I installed the skirt boards and temporarily fitted the first tread and second riser. I laid out the location for the steel first baluster, carefully



When the architect designed a landing with no newel, the author substituted a painted steel tube for the last baluster, providing the needed support for the railing.

The tube runs through the tread down into the framing below, where it is securely lagged to solid framing.

cut the hole in the tread, then slid the steel tube through the tread to mark it for attachment points to the framing below. I then permanently attached the first tread, removed the steel post to drill bolt holes, then reinserted and attached it.

The result was one solid newel post. Painted white to match the wooden balusters, it was nearly impossible to distinguish the steel post. We mortised the angled mounting plate into the underside of the rail, and painted that part to match the natural maple of the rail.

Carving a Turn

The trickiest part of the job was fabricating the transition piece where the railing turned the corner. There was no stock fitting available, so I started by gluing up 4-inch-thick maple blank. I temporarily installed the upper and lower railings, and made plumb cuts at their ends where the transition piece was to be. I drilled 3/8-inch-diameter holes in the ends of the rails, then used dowel centers (cylindrical marking devices with a sharp point dead center at the end) to mark the matching 3/8-inch holes in the maple blank. This enabled me to position and remove the blank throughout the milling process using dowels as registration pins. I used every trick I knew — from band sawing and angle grinding to chiseling, filing, and sanding, to match the profile on the railing and create a smooth and natural-looking helical twist. I glued the piece with dowels reinforced with a couple of hidden finish nails.

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