A Slick Approach to Straightening Walls

String and springboards make it easy to get walls straight and the second floor off to a great start

BY ROE A. OSBORN

The framer's version of the classic chicken-or-egg question relates to straightening walls. Is straightening the final step in first-floor wall construction or the start of the second-floor deck? I think it's the latter, and here's why. Let's say you finish framing the walls on a Thursday. Friday it rains, so you don't work. You're off for the weekend, and Monday is a holiday. If you'd straightened the walls on Thursday, they would have had four days to move around in the wind and weather, and you'd probably have to tweak them again before framing the floor above. The floor framing locks in your straightening efforts, so that's why I associate straightening walls with framing the second floor.

The project shown here is a good illustration of how to straighten walls. Built to engineers' specs that satisfy the new 110-mph wind-zone requirement, this framing is much beefier than normal, and therefore a little tougher to push back into a straight line. Still, with this technique, much of the work is a one-person job.

Create a reference line with string

Over the years, I've seen lots of methods, special tools, and jigs for straightening walls, but in my opinion, the springboard method I learned when I first started building houses still works best. It's a two-step process that starts with stringing the walls. Begin by nailing 2x blocks to the inside corners of all four walls. Then drive two additional nails partway into each block, as shown in the photo illustration above. These nails act as anchor pegs for the string. Many framers use strong mason's twine for stringing because it can be stretched extremely taut. A chalkline can work just as well, though, and it has the advantage of having a hook on the end that can slip over the bottom nail on one block.

Tie or hook the string to the bottom nail, and lead it over the top nail. Then stretch the string as tight as possible to the block at the other end of the wall. At this end, lead the string over the top nail, pull it tight, and wrap it several times around the bottom nail. Then wrap the string back over itself on the nail to keep it tight. The trick here is not to tie a knot that might have to be untied later. You now have a straight reference line running the length of the wall.

Let kicker boards do the work

Remove the temporary bracing used to hold the wall upright. (Unless conditions are very windy, even a fairly long wall should stand on its own for now.) The trick is to push the wall in or out to make it perfectly parallel to the string, which is where the springboards come in. For springboard material, I use 12-ft. 1x8 rough-sawn pine boards because

Photo illustration: Bill Godfrey

A one-man job

To straighten the wall, 12-ft.-long springboards are tacked underneath the top plate, then bowed down and tacked to the deck. Shorter kicker boards nailed beneath the springboards are used to manipulate the curve of the springboards, which in turn move the wall in or out. A taut string held off the top plate by blocks creates a guide that can be checked with 2x scrap.

1 Start at the top plate. *Placed at approximately 8-ft. intervals, springboards are first nailed to the underside of the top plate.*

2 Load the springboard. *With the board's lower end on the deck, push down on the middle of the board, and tack that end in place.*

The top plate pushes out.

Push down on the springboard.

3 Install the kicker. *The board that moves the springboard is known as a kicker. Typically a 4-ft. length of 1x8, it's positioned near the center of the springboard. Tack one end to the deck, and bring the other end up snug against the springboard.*

they're flexible, strong, and inexpensive. Also, they come in handy around the job site after they've fulfilled their springing duties. Taller walls require longer boards.

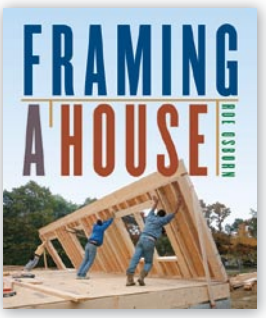
Walls are usually straightened one at a time, and it really doesn't matter which one is first. Choose a wall, and position springboards every 8 ft. or so along the wall. Long headers at rough openings for windows and doors may require a springboard at each end. Also, be conscious of any hinge points, such as sheathing joints, that would make the wall bend. This is particularly important with tall walls.

Starting at one end of the wall, nail one end of a springboard to the underside of the top plate. Secure the other end to the deck, giving the board a slight downward bend as you nail it. This actually pushes on the wall, which means you'll likely be letting in the wall later.

Now nail the bottom of a 4-ft.-long 1x8 kicker to the deck below the springboard. Bring the top of the kicker snug against the springboard, but don't nail that end yet. Pushing the kicker board in or out changes the amount of arc in the springboard, which in turn moves the wall in or out.

Once the springboards are in place, you can begin to straighten the wall. Slide a 2x gauge block up to the string, then push on the kicker until the gauge block just slips under the string. Then drive nails through the springboard and into the end of the kicker to hold the wall straight.

After working down the length of one wall, sight the string and plate for a final check. This is your last opportunity to make sure the walls are dead straight before locking them in with the second-floor framing. The slightest deviation in the wall can turn into a major wave once the exterior siding and trim are applied. □



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4 ***Gauge the movement of the top plate.*** *While sliding the kicker against the springboard with one hand, check the gap between the string and the top plate with a 2x4. Sliding the kicker away from the wall should pull the wall toward the line.*

Sometimes you need **more leverage**

In most cases, springboards can easily straighten a wall. But sometimes more force is required, especially near the end of a wall. A site-built lever lets you apply that force in a controlled fashion. Nail a diagonal 2x brace to a stud near the top of the wall at the trouble spot, and nail a long 2x block to the deck next to the loose end of the brace. Now nail a 2x lever to the block and to the brace. Pull back on the lever as someone else gauges the string. When the wall is straight, nail the bottom of the brace to the block to hold the wall in position.

5 ***Nail it home.*** *When the gauge indicates that the wall section is straight, drive a nail down through the springboard into the kicker to lock its position.*

6 ***Double-check the string.*** *Once all springboards have been adjusted, go back and sight down the stringline to make sure that the wall is straight. Now is the time for any last-minute tweaks, before the top plates are locked into position by the joists above.*

More slick ideas for straightening walls

Both Roe Osborn and I learned to frame houses in seacoast New England. I have a few things to add to his excellent article "A Slick Approach to Straightening Walls" (*FHB* #214 and online at FineHomebuilding.com).

When I was framing (and straightening) walls, we always used a 2x6 for the kicker. There are a couple of reasons to do so. First, the extra thickness makes it an easier target for the nails that are driven through the springboard. Once in action, a 2x6 kicker won't bend or flex when you're pushing it against the springboard, which you do want to bend and flex.

We also used duplex nails for fastening the springboard to the kicker. These nails are easy to pull if you have to readjust the walls when you check them a final time before starting the second-story floor system, especially if it's been a few rainy, windy days since you straightened the walls.

Finally, Roe suggests it doesn't matter which walls you straighten first, but I'd suggest first straightening the walls that the joist ends are going to sit on. After the joists are set, you can go back to the first-floor deck and straighten the walls that run parallel to the joists before sheathing the deck and nailing off the rim joists.

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