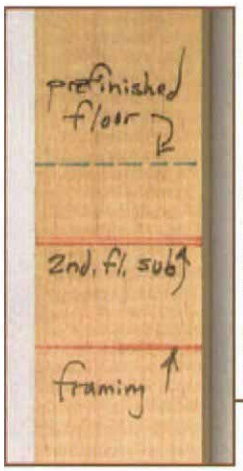
Using a Story Pole to Lay Out Stairs

A simple full-scale pattern takes the confusion out of figuring consistent and safe stair-tread heights

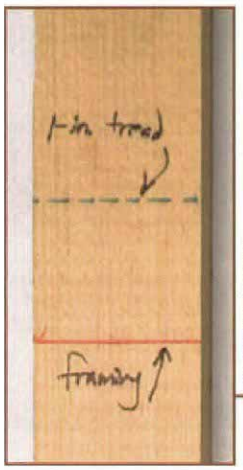
BY LON SCHLEINING

AN EASY WAY TO AVOID MISTAKES

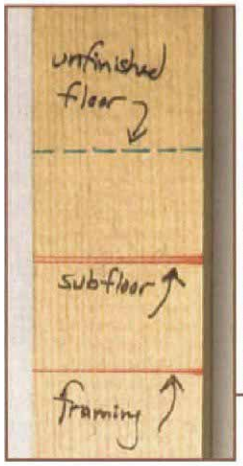
Finish-floor and tread materials of differing thicknesses often complicate stairbuilding. This story pole is a full-scale drawing compressed onto a thin piece of wood that allows a stairbuilder to calculate a staircase's rise and to take variables into account. The first line to be drawn on the story pole shows the second-floor subfloor elevation. Next, lines are drawn to show the finish-floor heights. The distance between these two marks is the total rise of the stairs. The total rise is divided by an estimated number of risers, and the intervals are fine-tuned with a set of dividers.



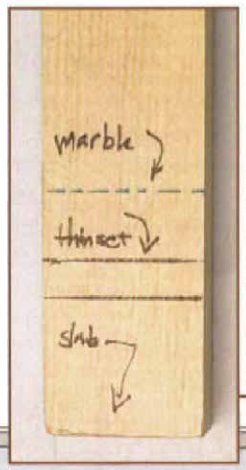
Dotted blue line indicates height of ½-in. thick prefinished floor. Double red line indicates height of plywood subfloor. Red line indicates height of framing.



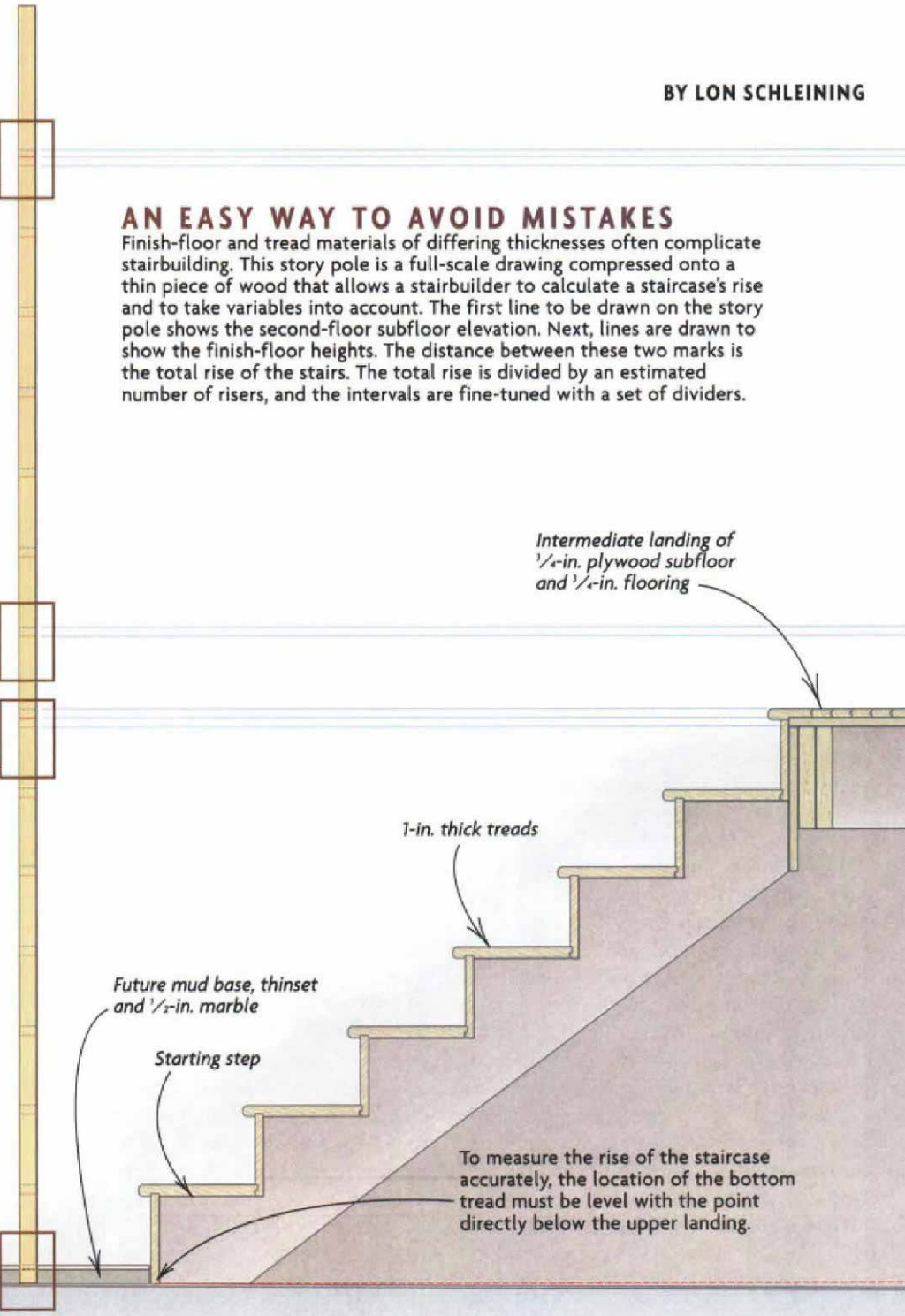
Dotted blue line indicates height of 1-in. thick tread. Red line indicates height of framing (stringer).



Dotted blue line indicates height of ¾-in. thick unfinished hardwood. Double red line indicates height of plywood subfloor. Red line indicates height of landing framing.



Dotted blue line indicates height of marble floor. Black line indicates mud base and thinset. The end of the board registers on the first subfloor or slab.



Drawing: Dan Thornton

Imagine walking down a staircase with your arms full of Christmas packages. You seem to find each step without looking. At the landing, however, your foot reaches out to feel a surface that isn't there. The floor is not the height you think it should be and down you go, packages and all. Ask any personal-injury attorney if this story is familiar.

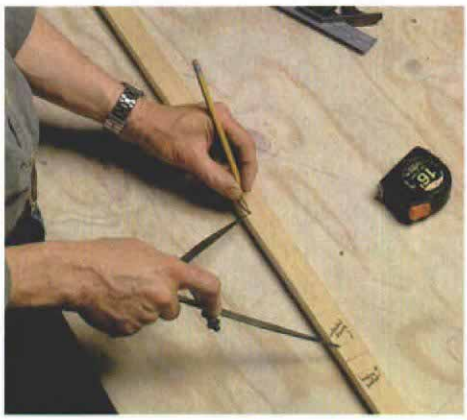
When you're framing stairs, the common practice is to do a quick layout on the stringers with a framing square, assume equal risers and start sawing away. Nowhere in the framing of a house is the possibility for accumulated error greater than in framing stairs. If each rise is off just 1/16 in. (roughly the thickness of a pencil line), the accumulated error could be as much as an inch on a typical staircase.

Everything may seem fine until the job nears its end and the finish-floor coverings are installed. Suddenly, the first or last step is either too high or too low. The framing crew probably built the rough stair without taking into account the varying thickness of finish-floor materials, but by this time, the deed is done. Moreover, the solution to the problem usually involves more than adding a shim or two. All the resulting hair-pulling and finger-pointing could have been avoided if the framers had asked the right questions and had used a simple story pole.

A story pole can be a big help to anyone who frames staircases. Flooring, treads and landings of varying thicknesses, as well as accumulated errors, all conspire against a plumb, level staircase with evenly spaced treads. After spending about 15 minutes to lay out the story pole for a staircase, the stairbuilder can frame the carriage, confident that the finished staircase will have the correct rises.

Remember that before you actually start to build the stairs, it's a good idea to have the owner or designer's flooring choices settled in writing; any changes in materials should occur during the story-pole stage, when they can be easily accommodated. Once the stair carriage is framed, any change in the flooring thickness will mean a costly overhaul or a complete rebuild of the stairs. □

Lon Schleining builds stairs and indulges a renewed passion for surfing near his home in Long Beach, CA. Photos by Charles Bickford.



Dividers walk off tread intervals in measured steps. Once he has estimated the rough-tread intervals with a calculator, the author sets a pair of dividers to the interval and makes sure that each tread is equally spaced.

For an accurate total rise, check the level of the first floor

The first and most important measurement is the vertical distance from the subfloor at the starting step to the subfloor at the upper landing. These two locations will usually be separated laterally by several feet, so it's important to determine if the lower floor is level and to make the necessary adjustments. Once an accurate overall height has been determined, the thickness of the floor coverings can be introduced to find the stair's total rise.