



## Dialing for Rafters

**Dial-a-Length Rafterule.** Craftsman Book Co., 6058 Corte Del Cedro, Carlsbad, CA 92009. \$9.50.

by Paul Hanke

"Rafterule" is a device consisting of two circular plastic disks with a clear hairline arm, all of which rotate around a center rivet. To determine the lengths of common or hip and valley rafters, you simply set the red pointer arrow on the roof pitch (say, 5/12), rotate the hairline to the building width (28 feet, for example), and read the rafter length (15'2") on the appropriate table through a window in the upper disk.

To test its accuracy, I checked the Rafterule against the tables on my framing square and a rafter-length manual for three different problems. In one case, I had to interpolate between numbers on the Rafterule—a task I found difficult because of small print and the fact that the markings on the lower disk were almost obscured by the edge of the viewing

slot cut in the upper disk. However, I still came out within 1/16 inch of the answer given by the other two methods, which is the accuracy predicted by the manufacturer.

Smaller windows tell you plumb and level cuts for your bird's mouth (completely obvious without the Rafterule!). For hip and valley rafters you can also read directly the common difference in jack lengths for various spacings. Another window tells what angle is necessary for compound-angle cuts on hip and valley rafters.

A handy device, but I wonder about its durability and how easy it would be to lose in the field. It comes with an instruction sheet and directions on the back (both of which neglect to mention how to use the "side cut" window). ■

## What Are All Those Numbers?

**The Steel Square**, by Gilbert Townsend. American Technical Publishers, 1155 W. 175th, Homewood, IL 60430. 1947. 172 pages \$8.82 postpaid.

This slim volume, originally printed in Great Britain, sets out to show how the steel square can be used to solve various house-building problems.

Author Gilbert Townsend is best on the use of the tables that are found on the front and back of common framing squares, but falls short when it comes to step-by-step instructions.

For instance, I learned in a few minutes how to use the board-foot table on my square, but I still find it easier to do by math. The instructions for using the rafter-length and brace-measure tables are also easily understood, even for beginners.

On the other hand, in his rafter-length example, Townsend notes that the computed length of 144.2 inches, when divided by 12, is 12.01 feet (actually, 12.02), so he says "call it an even 12 feet." I would say that 144.2 inches is closer to 12'1/4"—it's an error of almost 1/4 inch if you follow Townsend's advice. In any case, why not measure 144-1/4 inches directly, rather than convert to feet, or use the hundredths scale on the heel of the square?

Practical instruction on how to use the square for layout begins simply—with cutting diagonal braces—and moves on to stepping-off common rafters, and then to more complex hip and valley cutting. The common-rafter step-off begins (for Townsend) at the point of the bird's mouth, which determines the layout line for all further measuring.

In his example he locates this point at 17 inches in (to allow for the rafter tail) and 5 inches down from the top edge. How this 5-inch dimension was determined is never explained. Is it the same for all rafters? If not, how do I calculate the correct measurement in other cases? And why not start at the peak as virtually all other layout instructions do?

Furthermore, why measure along the layout line at all, rather than using the top edge of the rafter as other carpentry books—and most

carpenters—do. Another difficulty is that Townsend fails to note until the final chapter that the rafter must be shortened by one half the ridge thickness at the peak. That's easy enough for a carpenter to remedy, but it should have been emphasized earlier in the book.

Townsend's theoretical description of hip-rafter cutting is all right, but other texts (Durbahn and Sundberg's *Fundamentals of Carpentry* and Koel's *Carpentry*, both available from American Tech) are much better.

Stair layout is covered with just a ship's ladder as an example. Joist layout is described only in that it corresponds to stud layout, which isn't always true. And Townsend's stud layout proceeds from the inside of the corner box, which works fine for his goal of installing 16-inch-long lath on the inside of the wall, but isn't modular for modern exterior siding and sheathing measurements. Consequently, shortening the first bay in floor framing by half the joist thickness is never mentioned.

The preface notes that the book contains "many clear illustrations." The illustrations are many and adequate, but their clarity is definitely hampered by their small size (and sometimes illegibility). What's more, some illustrations seem to be unnecessary, such as the drawing of a board on top of two sawhorses.

Finally, there is a quaintness that gives this book a distinct flavor but is also sometimes frustrating. Terms such as "scantling" and "feet board measure" lend an English accent to the text. I find the archaic 1/3, 1/4 (and so on) pitch terminology confusing, although it might have been more common when the book was originally published. And Townsend's description of how to cut braces for trusses above door and window openings is interesting only for its historic value in an age when solid-lumber headers have made such practices obsolete.

I would skip this book. You can get much better information and clearer presentations elsewhere. ■

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—NEB staff