

BY CLAYTON DEKORNE



Handy Formulas for Stick Framing Roofs

Storied roof framer Will Holladay has come out with a new roof framing guide—*Handy Formulas for Stick Framing Roofs*. Think of it as the CliffsNotes version of Holladay’s first book, *A Roof Cutter’s Secrets to Framing the Custom Home*. Holladay pulled out the illustrations from this famed roof-cutting manual and organized them with sample calculations into a pocket-sized book to make them easy to access on the jobsite.

This is not exactly a book for beginners. At the very least, you need to be well-versed in the methods that Holladay details in *A Roof Cutter’s Secrets*. Chief among these is the concept of the line length ratio: To lay out the ridge cut and birdsmouth of a common rafter, for example, Holladay determines the rafter’s line length (LL), which equals the length from the ridge cut to the heel cut of the birdsmouth. This length is measured along the bottom edge of the rafter. For a straight gable rafter, the run is equal to the actual rafter run multiplied by the common LL ratio for a specific pitch. Most people are used to using a theoretical rafter run. To find the actual rafter run, he subtracts the thickness of the ridge from the span of the building and divides by two (see sample at left). The common LL ratio is, in trigonometric terms, the secant of the roof pitch angle, and rather than using rafter tables or running through the Pythagorean theorem, Will uses it to figure all roofs.

Another key concept is the roof rise ratio, which, in trigonometric terms, is the tangent of the roof pitch angle. It’s essential to Holladay’s method whenever he needs to find the rise. (For example, finding the overhangs for intersecting roofs with unequal pitches or resolving the intersections of different width rafters). Like the LL, he figures RR ratios out for a range of roof pitches beforehand and includes these in tables early in the book.

Throughout the book, Holladay includes, in addition to his method equations, the relevant key strokes for the Construction Master Pro calculator on an adjacent page. True to the title, this makes for an especially handy resource if you aren’t doing the calculations every day and need a ready reminder.

The more cut-up and complex the roof, the more you will want to pore over the illustrations and notes in this guide. It’s all here, if you know how to apply it. I just wish it were an app on my phone rather than a book.

Section 3
4.5

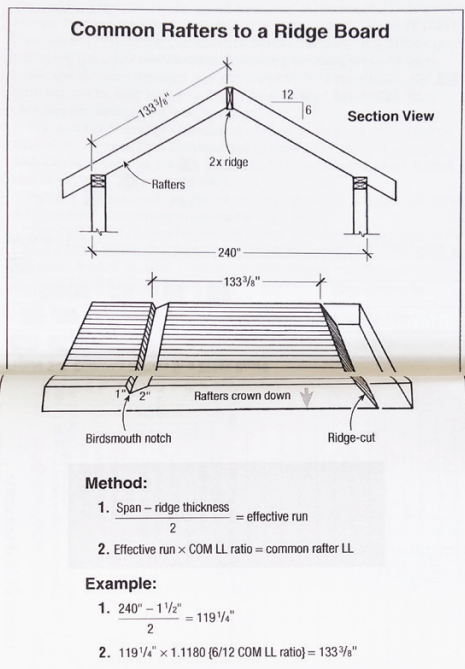


Figure 3-4. Lengths for common rafters that butt a ridge board are calculated in two steps: the first step is to find the effective run, and the second step is to convert that horizontal distance into a rake measurement using a ratio. The appropriate COM LL ratio for each pitch is found in Chart 2.

4.4 Handy formulas for Stick Framing Roofs

Figure 3-4. Lengths for common rafters that butt a ridge board are calculated in two steps: the first step is to find the effective run, and the second step is to convert that horizontal distance into a rake measurement using a ratio. The appropriate COM LL ratio for each pitch is found in Chart 2 in Appendix A.