

The Ubiquitous Jack-Rafter.

By Joseph Fusco

The Jack-Rafter:

The jack-rafter is a rafter that travels uninterrupted from either the rafter plate or ridge to a hip rafter or valley rafter. The more complete term would be hip jack or valley jack depending on just what type of rafter the jack connected with.

The Common Difference.

Just what does that mean? Well it means that for any given roof slope each ascending or descending jack-rafter will increase or decrease by a given amount, that amount is known as the **common difference**. You can find this on the framing square for all of the common roof pitches with either 16 or 24 inch centers. That number represents the “length” of the first jack rafter located 16" O.C. from the corner of the roof. That number however isn’t correct and if you cut the jack to that length, the roof would be off.

Steel Framing Square											
23	22	21	20	19	18	10	9	8	7	6	
Length Common Rafters					21.63	15.62	15	14.42	13.89	13.42	
Length Hip or Valley					24.74	19.70	19.21	18.76	18.36	18	
Diff in Length of Jacks 16 inches Centers					28-7/8	20-13/16	20	19-1/4	18-1/2	17-7/8	
Diff in Length of Jacks 24 inch Centers					43-1/4	31-1/4	30	28-7/8	27-3/4	26-13/16	
Side Cut of Jacks Use					6-11/16	9-1/4	9-5/8	10	10-3/8	10-3/4	
Side Cut Hip or Valley Use					8-1/4"	10-3/8	10-5/8	10-7/8	11-1/16	11-5/16	
22	21	20	19	18	17	16	8	7	6		

Steel Framing Square Rafter Tables

The process of getting the “right” number is critical to a properly framed roof and I will show several ways to get the correct jack length for any roof pitch at any location from the corner or the “next” 16/24" O.C. location from the common rafter.

Getting the right numbers:

Since the framing square does half the work for you, (I’ve often wondered why it didn’t do all the work) you are half way there to finding the right numbers. If we use a typical 9-12 pitch