

## TABLE OF CONTENTS

Introduction . . . . .	1
Common Rafters with Rafter Square . . . . .	5
Common Rafters with Framing Square . . . . .	10
Hip and Valley Rafters with Rafter Square . . . . .	11
Jack Rafters . . . . .	16
Hip and Valley Rafters with Framing Square . . . . .	19
Dormer Rafters . . . . .	21
Brace Measure . . . . .	22
Rafter Length Charts . . . . .	24
Rafter Square and Framing Square Diagrams . . . . .	48

The Rafter Square and Framing Square save time on roof construction. All necessary cuts for a particular rafter can be laid out with these two squares. A basic knowledge of rafters helps determine what scale and what number on the tool to use. The following information will help when using these tools.

## RAFTER DEFINITIONS

**Common Rafter:** A rafter that runs perpendicular (90° when looking straight down on the roof) from the top of the wall plate to the roof ridge forming the hypotenuse or diagonal of a right triangle.

(See figures 1, 3 and 14)

**Valley Rafter:** A rafter that runs from the top of the wall plate to the roof ridge at the intersection of the gable extension with the main roof.

(See figures 1, 10, 11, and 14)

**Valley Jack Rafter:** A rafter that runs from the ridge to the valley, perpendicular to the ridge.

(See figures 1, 14 and 16)

**Hip Rafter:** A rafter that runs from the top of the wall plate to the roof ridge diagonally.

(See figures 1, 9, 10 and 12)

**Hip Jack Rafter:** A rafter that runs 90° from the top of the wall plate to the hip rafter.

(See figures 1, 14 and 15)

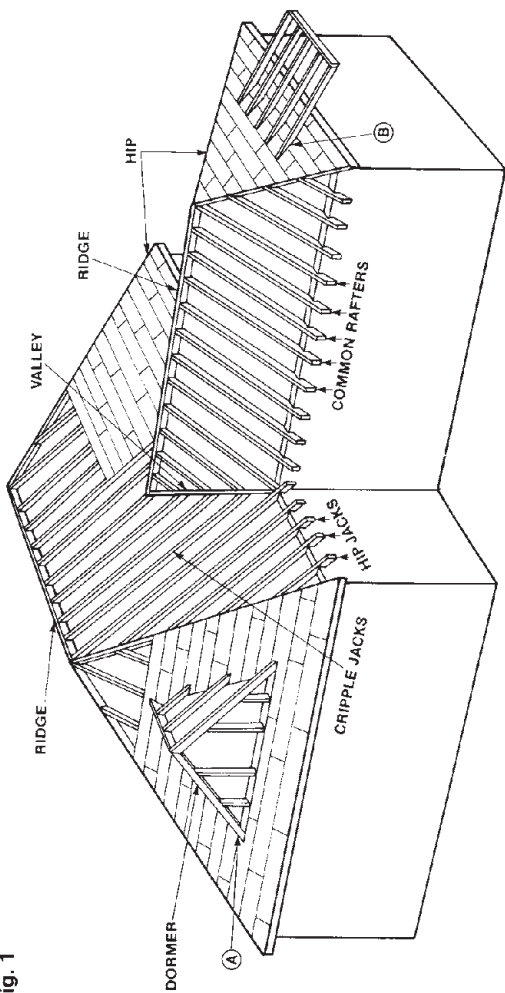
**Cripple Jack Rafter:** A rafter that runs from the hip to the valley perpendicular to the ridge.

(See figures 1 and 14)

**Dormer Rafter:** A rafter that sets on top of the main roof without cutting into the main roof. (For example, when remodeling or adding on.) (See figure 1)

Figure 1 on the next page shows each type of rafter.

Fig. 1

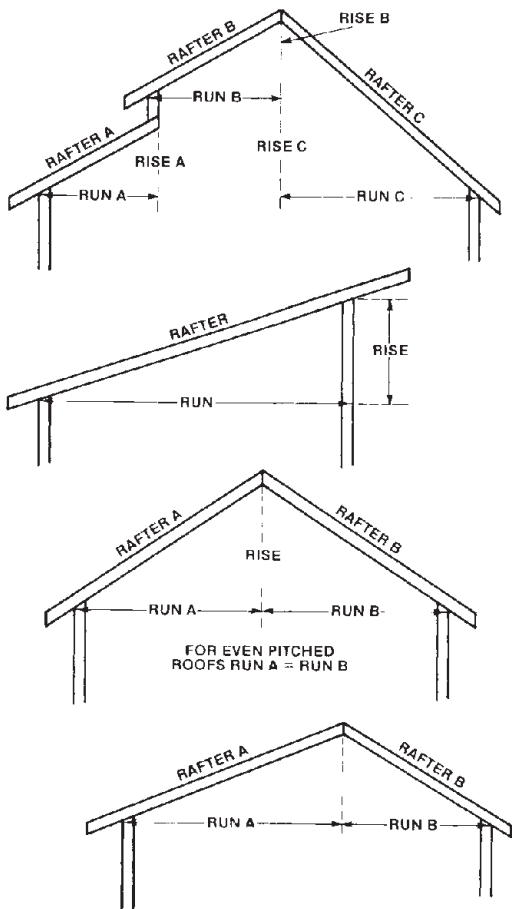


All cuts on this roof can be made by using the one number on the layout square.

## USING THE RAFTER SQUARE

The use of the Rafter Square is based on two simple building measurements; (1) the rafter run, and (2) the rafter rise. These can be obtained from either building blueprints, drawings, or actual measurements. The tables used are also based on these two simple measurements. (See figure 2)

Fig. 2 Rafter Rise and Run



**Rafter Run:** Run is the horizontal distance, measured in feet, that the rafter will span.

**Rafter Rise:** Rise is the vertical distance, measured in feet, between the highest and lowest point of the rafter.

**Inch Rise:** The rise measured in inches per foot run.

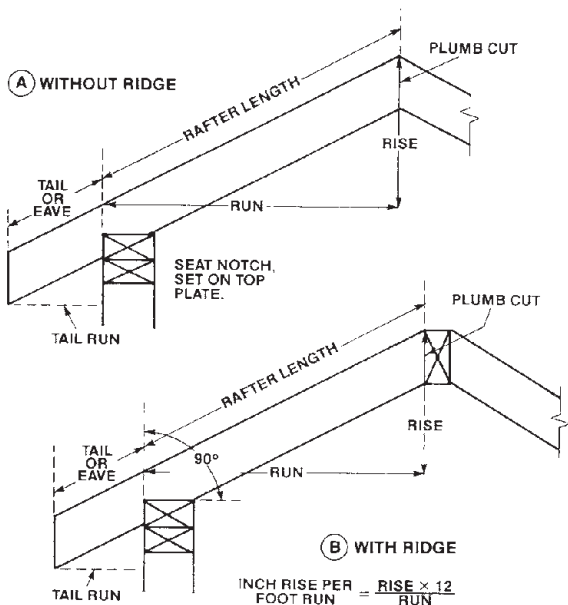
The Inch Rise gives you the corresponding number on the scale to be used, and can be obtained with the following formula:

$$\begin{array}{c} \text{SCALE NUMBER} \\ \text{OR} \\ \text{INCH RISE} \end{array} = \frac{\text{RISE}' \times 12}{\text{RUN}'}$$

Inch Rise, run and the tables in the back of this book are all that are needed to layout rafter lengths and cuts for common, hip, valley and jack rafters.

Figure 3 shows the different cuts necessary on the common rafter, and the following step by step instructions show the procedure used to layout the rafter.

**Fig. 3 The Common Rafter**



Step 1. **Obtain Rafter Run:** Measure or calculate the horizontal distance the rafter will span, starting at the outside of the wall on which it rests, including any boarding on the wall if it extends to the wall top plate. (See figure 3)

Step 2. **Obtain Roof Rise:** Measure, calculate, or obtain from the blueprints, the distance in feet the ridge will be from the top of the wall.

**Table A**  
**Change Inches to Feet**

1" = .08'	7" = .58'
2" = .16'	8" = .67'
3" = .25'	9" = .75'
4" = .33'	10" = .83'
5" = .42'	11" = .92'
6" = .50'	

Step 3. **Calculate Inch Rise:** Example; Run = 11 ft., Rise = 5 ft., 8 in. First, using Table A, convert rise to feet in decimal form. Therefore, rise now equals 5.67 ft. Using the formula for Inch Rise, we see that:

$$\text{INCH RISE} = \frac{5.67' \times 12}{11'} = 6.18 \text{ in./ft. run}$$

Round off Inch Rise to the nearest inch. Rounding off the Inch Rise will make the actual roof rise slightly higher or lower, and will not matter in most cases. Rounding off this figure has a more dramatic effect on buildings with longer rafter runs or higher roof rises. If the Inch Rise is given on a blueprint, the previous calculation is not needed. Just use the Inch Rise given.

We are now ready to layout each type of rafter.

## **COMMON RAFTERS WITH RAFTER SQUARE**

**Common Rafter Length:** Once Inch Rise and run are calculated, use the tables in the back of this book to find common rafter length. Example: Use 6 Inch Rise table, read common rafter length adjacent to 11' run. Our example rafter length is 12' 3 $\frac{3}{8}$ ". This is the length from the top to the seat plumb mark.

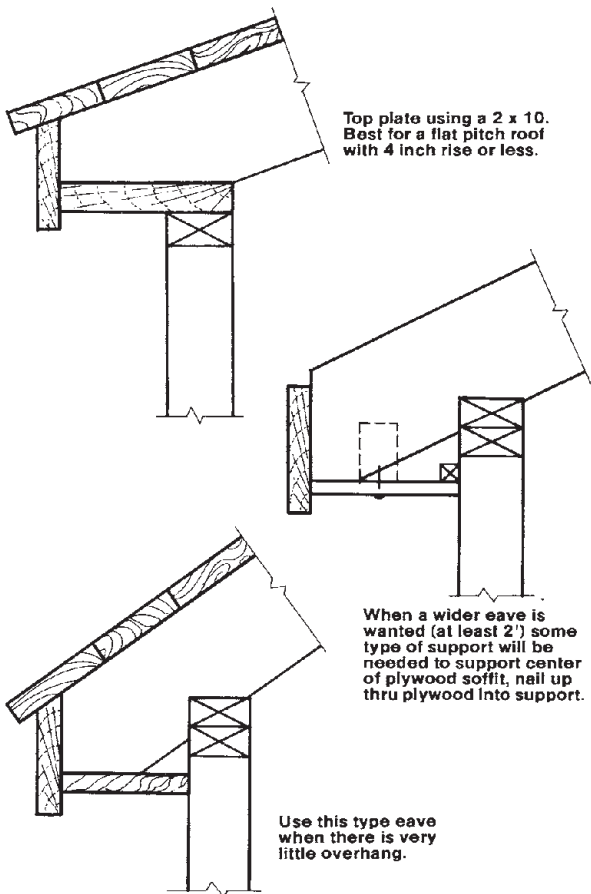
**Tail Eave Length:** The tail or eave overhang must be added. (See figure 4 on the next page, for a suggested eave construction.)

Example: Using a tail run of 2' 5" we will find in the same 6 Inch Rise table, under common:

$$\begin{array}{r} 2' \text{ Run} = 2' 2\frac{7}{8}" \\ 5" \text{ Run} = 5\frac{5}{8}" \\ \hline 2' 5" \text{ Tail} = 2' 8\frac{1}{2}" \end{array}$$

NOTE: For runs not given in the table, any combination of runs are added together to obtain the total run.

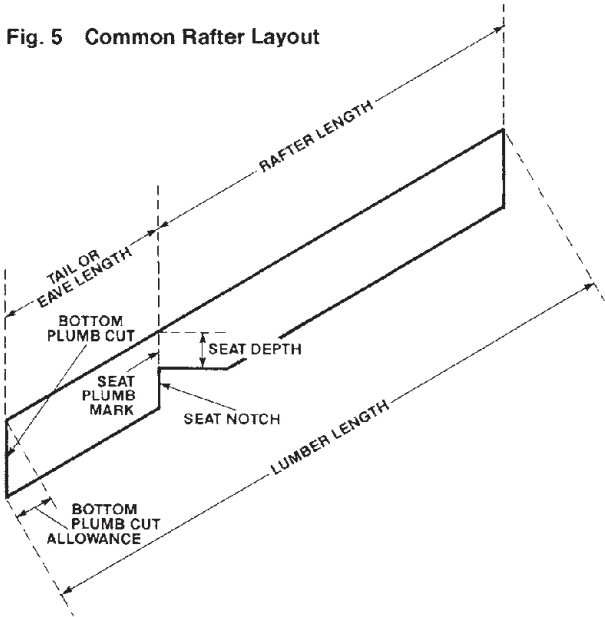
**Fig. 4 Suggested Eave Construction**



**Common Rafter Lumber Length:** To obtain lumber length required, an allowance for the bottom plumb cut must be added. (See figure 5) This allowance can be obtained by using the tables. Example: Using 6 Inch Rise and 2 x 6 lumber, the depth is 6 inches. From the bottom allowance table, the common and jack allowance equals 3 inches. The total lumber length required for this common rafter is:

RAFTER LENGTH	=	12' 3 <sup>5</sup> / <sub>8</sub> "
TAIL	=	2' 8 <sup>1</sup> / <sub>2</sub> "
BOTTOM ALLOWANCE	=	3"
<hr/>		
TOTAL LUMBER LENGTH	=	15' 3 <sup>1</sup> / <sub>8</sub> "

**Fig. 5 Common Rafter Layout**

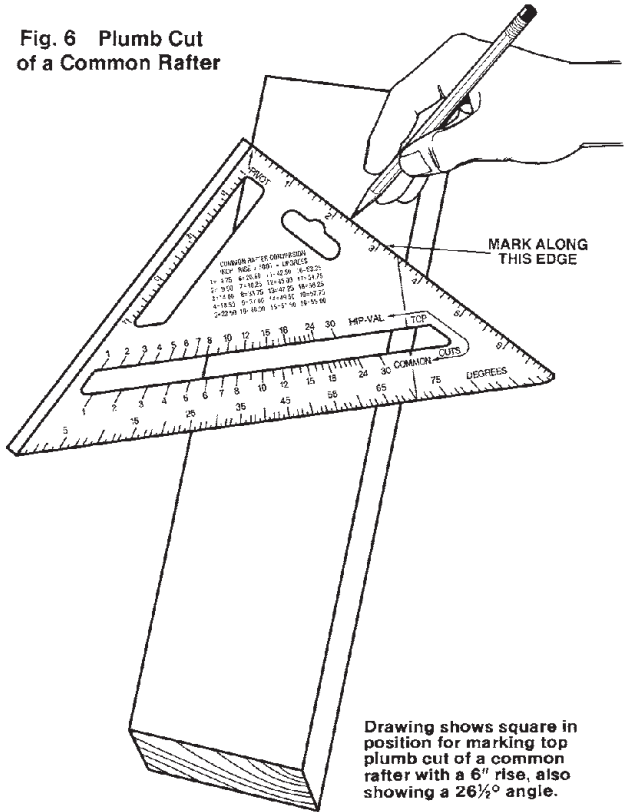


**COMMON RAFTER LAYOUT**

Step 1. **Top Plumb Cut:** If the lumber is not straight, always put the high or crown side up. At the top of the rafter, put the layout square on the face of the rafter as in figure 6, on the next page.

Pivot the layout square so that the number 6 on the common scale lines up with the edge of the rafter. Mark your line, starting at the pivot point along the top edge of the square, while holding the pivot point firmly against the rafter and keeping the number 6 lined up properly. This will be the top plumb cut.

**Fig. 6 Plumb Cut of a Common Rafter**

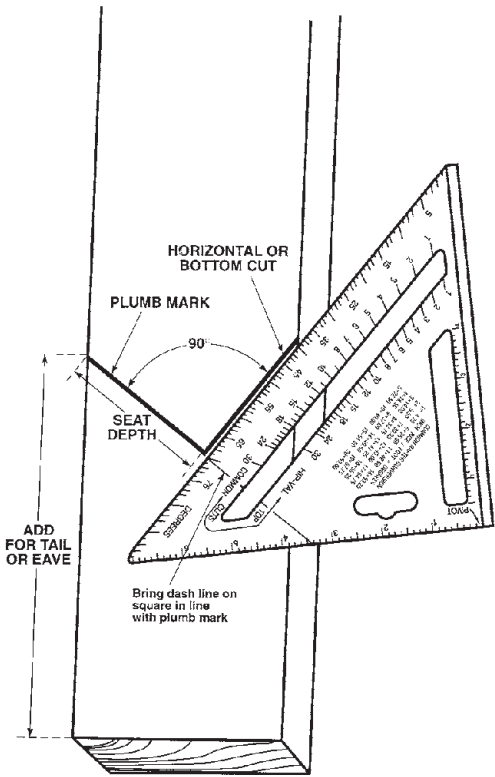


**Step 2. Seat Notch:** Using the rafter length, (our example: 12' 3<sup>5</sup>/<sub>8</sub>" ), measure down the top of the rafter and mark another plumb mark the same as in Step 1. This line represents the outside wall of your building. Line up the dash line on the square with the plumb mark and make a horizontal line as shown in figure 7. Never notch more



than halfway through the rafter, and make all seat notches the same depth.

**Fig. 7 Seat Notch Layout**



**Step 3. Tail or Bottom Plumb Cut:** Using the tail length, (our example: 2' 8½"), measure down the rafter from the seat plumb mark and make the bottom plumb mark the same as in Step 1. If the mark is too close to the end of the lumber, turn the square over to the bottom edge of the rafter, and still using the number 6, make the bottom plumb mark.

You may wish to leave the tails long and make the bottom plumb cuts after all the rafters are set.



## HIP AND VALLEY RAFTERS WITH RAFTER SQUARE

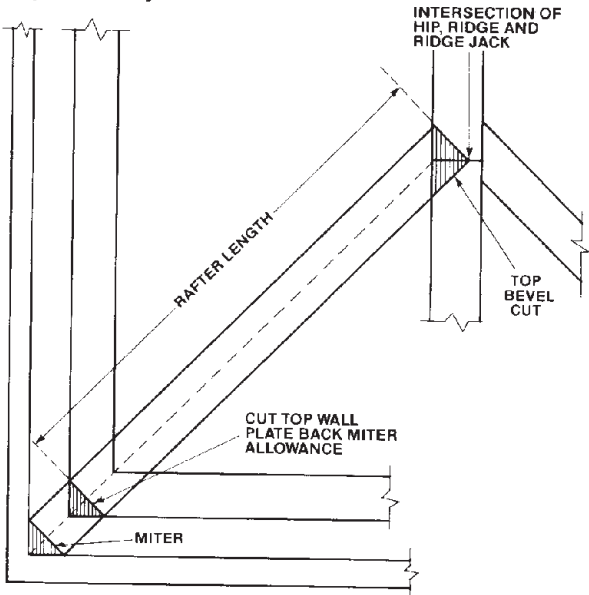
**Hip-Val Length:** Obtain the hip or valley rafter length, still using the tables. For our example: (6 Inch Rise, 11' run) we find under Hip-Val, 16' 6" rafter length.

**Tail or Eave Length:** Use the same rafter length calculation for Hip-Val length, as was used for common rafter length. Make sure the Hip-Val column is used in the tables. As before, from the tables, we have for a 2' 5" tail under the Hip-Val column:

$$\begin{array}{r} 2' \quad \text{RUN} = 3' \\ 5'' \text{ RUN} = 7\frac{1}{2}'' \\ \hline 2' 5'' \text{ TAIL} = 3' 7\frac{1}{2}'' \end{array}$$

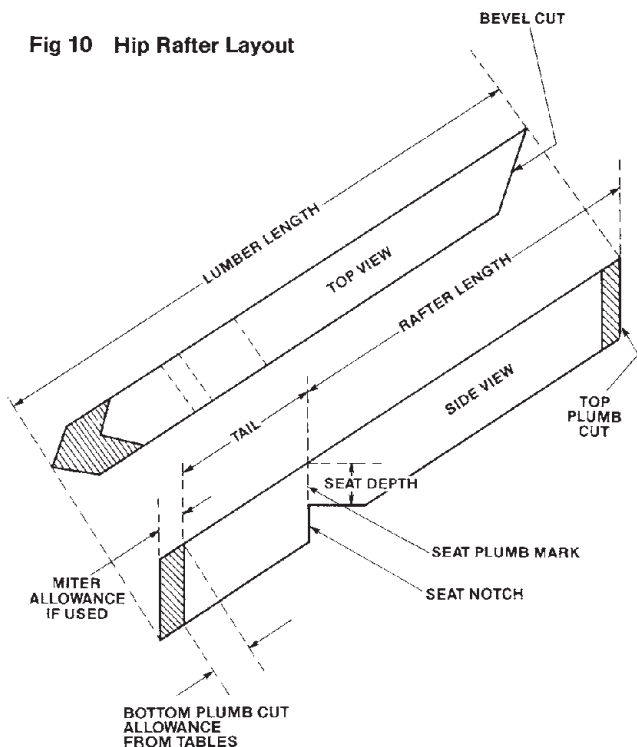
NOTE: If miter is desired, add for hip miter allowance from the tables. (See figures 9 and 10)

**Fig. 9 Top View of  
Hip Rafter Layout**



IF USING BOTTOM MITER,  
USE MITER ALLOWANCE FROM TABLES

**Fig 10 Hip Rafter Layout**



**Hip-Val Lumber Length:** Adding the allowance for the bottom plumb cut, and the miter allowance (see figure 10) obtained from the table, using a 2 x 6, we have:

RAFTER LENGTH	= 16' 6"
TAIL LENGTH	= 3' 7½"
BOTTOM PLUMB ALLOWANCE	= 3"
MITER ALLOWANCE	= 1⅛" (1⅞" rafter thickness)
<hr/>	
LUMBER LENGTH	= 20' 5⅞"

NOTE: Only add miter allowance if miter is used.

## HIP RAFTER LAYOUT

**Step 1. Top Plumb Cut:** Use the square in the same manner as in Step 1 of the common rafter layout, except reading the Hip-Val scale. Make the top plumb cut mark. (See figure 10) Since the hip rafter top bevels run opposite for opposite rafters, make the mark on the side of the rafter which will be the long side of the bevel. Bevel cut will be explained in Step 4.

**Step 2. Seat Notch:** Measure the rafter length (our example: 16' 6") down the top of the rafter and make the seat plumb mark in the same manner as the top plumb mark in Step 1. Using the dash line on the square, make the horizontal seat mark, measuring down from the top of the rafter in the same manner as with the common rafter. (See figure 7) For proper fit when setting the hip, cut the top wall plate as shown in figure 9.

**Step 3. Tail or Bottom Plumb Cut:** Measure down the top of the rafter from the seat plumb mark and mark the distance for the tail. (Our example: 3' 7½") At this point, make the bottom plumb mark. If a tail miter is used, make another plumb mark on the other side of the rafter. (See figure 10)

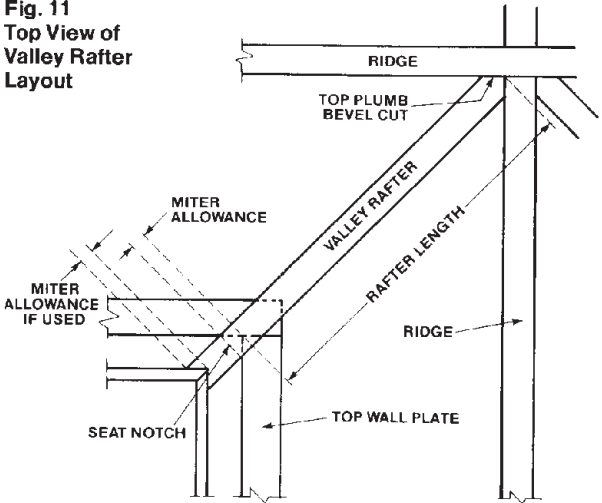
**Step 4. Hip Rafter Pattern:** Set your saw at 45° for the top plumb cut, making sure top bevels are opposite for opposite rafters. Setting the saw at 45° automatically gives the plumb cut and side cut bevel. Make bottom plumb cut on a 45° angle if miter is used. If miter is not used, set the saw at 90°. The seat notch is made with the saw set at 90°. (See figure 10)

## INTERSECTION OF HIPS AND RIDGE RAFTER LENGTH

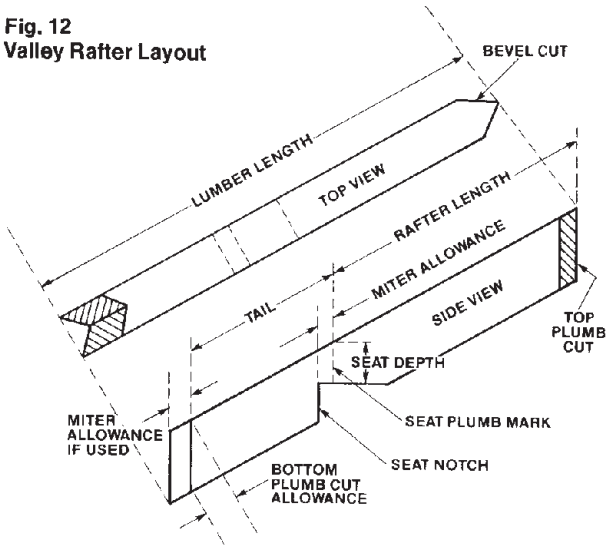
**Finding the Intersection Points of Hip on the Ridge Rafter:**

Cut ridge rafter one foot longer at the point where the hips intersect with the ridge. Now, using a regular length common rafter, set the seat cut over the edge of the top plate, in line with the ridge. Be sure your walls are straight. Place the top end of the common rafter even with the top of the ridge. (See figure 11) Now, at this point, mark across the ridge. This mark will be the center of the two intersecting hips. If a common rafter is to be used, as in figure 12, it will be placed at the end of the ridge at this point, and the ridge will be cut off at this mark. If no common rafter is used, cut the ridge about 2" longer. This will allow you to nail through the ridge into the hip.

**Fig. 11**  
**Top View of**  
**Valley Rafter Layout**

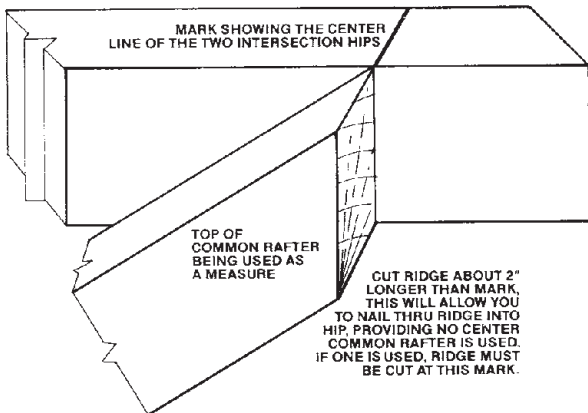


**Fig. 12**  
**Valley Rafter Layout**



**NOTE: ON VALLEY RAFTERS ADD MITER ALLOWANCE TO RAFTER LENGTH BEFORE MAKING SEAT CUT.**

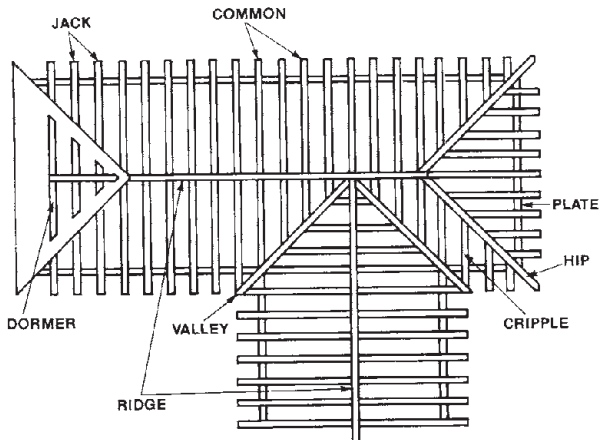
## VALLEY RAFTER LAYOUT



**Fig. 13 Finding Intersecting Points of Hips on Ridge.**

Step 1. **Top Plumb Cut:** Use the hip-val scale on the square and use the same method for the top plumb mark. Measure down the top of the rafter from this mark for the miter allowance obtained from the tables. Make another plumb mark on both sides of the rafter. (See figures 13 and 14) Be sure to use the hip-val scale and the length and allowance from the hip-val column in the tables.

**Fig. 14 Top View Rafter Definition**



Step 2. **Seat Notch:** Measure down from the first top plumb mark, the valley rafter length. (Our example: 16' 6") Make the seat plumb mark. (See figures 13 and 14) Now, move down the rafter from this mark the amount of the miter allowance and make another plumb mark. For the horizontal seat notch line, measure down to the seat depth on the FIRST plumb mark. Using the dash line on the square, extend the horizontal line to the added miter allowance line. (See figures 13 and 14) All seat notches must be the same depth.

Step 3. **Bottom or Tail Plumb Cut:** Measure down from the FIRST seat plumb mark and mark the tail length. (Our example: 3' 7½") Make the bottom plumb mark with the square, as usual. If no bottom miter is used, shorten the tail the amount of the miter allowance. (See figures 13 and 14)

Step 4. **Rafter Pattern:** Set the saw at 45° to make the top and bottom cuts as in figure 14. Change to 90° for the seat notch.

## JACK RAFTERS

**Jack Rafter Length:** The jack rafter tables are different than the other rafter tables. The first column in the table lists varying center to center spacing of jack rafters. The second column is the difference in length from one jack to the next. (See figure 15) This is the amount of length to be added or subtracted as you progress from jack to jack using the spacing selected. (Example: 6 Inch Rise and 24" rafter spacing—amount to add or subtract  $-2' 2\frac{5}{8}"$ —from jack rafter length in 6 Inch Rise table.) To obtain the length of the first or longest jack, measure the distance from the edge of the last common rafter to the intersection of the hip and ridge, or the valley and top plate. Subtract the measurement (D) from the spacing you are using (S). The result is the distance from the intersection to the first jack, (S - D). Look in the table for this distance and find the length to subtract from a common rafter length. This gives you the rafter length for the first or longest jack. (See figure 14) Example: Rafter spacing (S) 24" centers, D = 10", (S - D) = 14". From the 6 Inch Rise table, we have a length of  $1' 3\frac{5}{8}"$ . Therefore:

COMMON RAFTER	= 12' 3 $\frac{5}{8}"$
SUBTRACT	1' 3 $\frac{5}{8}"$
FIRST JACK RAFTER LENGTH	= 11'

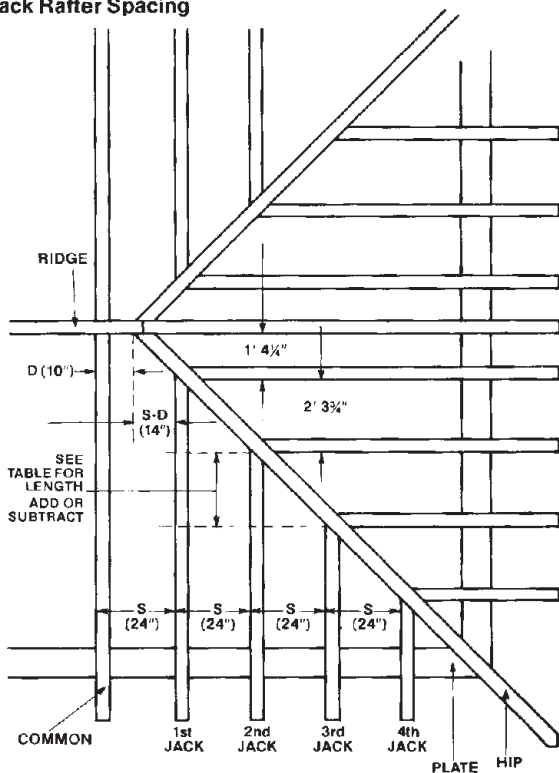


Remember to add tail length to this length. For all remaining jacks, use the full spacing (S). Example:  $S = 24''$  jack length subtracted =  $2' 2\frac{7}{8}''$  from the tables. Therefore:

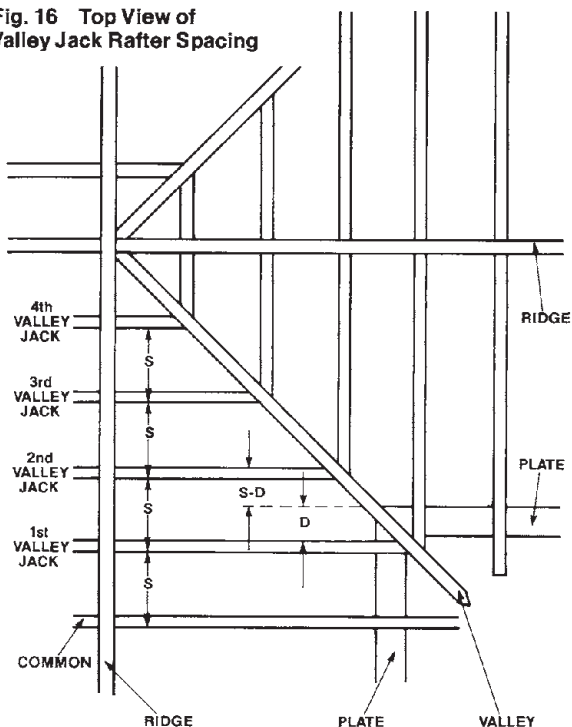
$$\begin{array}{r} \text{FIRST JACK RAFTER LENGTH} = 11' \\ \text{SUBTRACT} \quad \quad \quad \quad \quad 2' 2\frac{7}{8}'' \\ \hline \text{SECOND JACK RAFTER LENGTH} = 8' 9\frac{1}{8}'' \end{array}$$

Continue this process to the last jack rafter. Be sure to measure jack rafter length on the long side of the rafter because of the bevel. Use this same procedure for valley jacks. Cripple jacks must use the same method, but must be shortened at both ends.

**Fig. 15 Top View of Jack Rafter Spacing**



**Fig. 16 Top View of Valley Jack Rafter Spacing**



**Tail or Eave Length:** The tail length for all jack rafters resting on the wall plate is the same as for common rafters. Valley jacks and cripple jacks have no tail. (See figure 16 for the valley jack)

**Lumber Length:** Lumber length is found by using the same procedure as for common rafters, jack rafter length + tail + bottom plumb allowance.

**Jack Rafter Layout:** Bottom plumb cuts and seat notches for all jack rafters resting on the wall plate are the same as for common rafters. The common scale is used for all jack rafters. Where jack rafters rest against a hip or valley, mark a plumb cut, then cut at a  $45^\circ$  angle along the mark. This will give both the plumb cut and the side cut. (See figure 15) See figures 13 and 15 for center common rafter at the end of the ridge.

## HIP AND VALLEY RAFTERS WITH FRAMING SQUARE: TOP, BOTTOM AND SIDE CUTS.

To obtain top and bottom cuts of hip or valley rafters, use the 17-inch mark on the body and the *rise per foot run* value on the tongue. The 17-inch mark on the body will give the seat cut and the figure on the tongue the vertical or top cut.

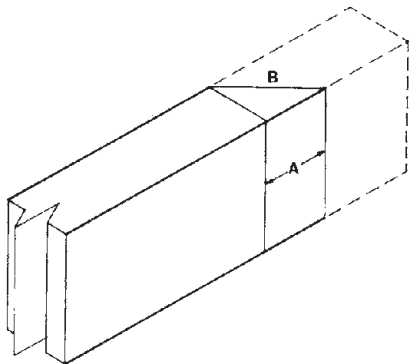
NOTE: On smaller framing squares use  $8\frac{1}{2}$ " on the body and one-half of the rise value on the tongue.

**SIDE CUTS.** Hip and valley rafters also have cheek or side cuts where they meet the ridge. Side cuts are found on the bottom line of the Square Table which is marked: "Side cut hip or valley—use." The values given in this line refer to the graduations on the outside edge of the body.

These values on the square have been derived by determining the figure to be used with the 12-inch mark on the tongue for the side cuts of the various pitches by the following method:

1. From a plumb line the thickness of the rafter is measured and marked at right angles (A, Fig. 17).
2. A line is then squared across the top of the rafter.
3. The diagonal points connect as at B. Line B or the side cut is obtained by marking along the tongue of the square.

Fig. 17 Side Cut on Plumb End

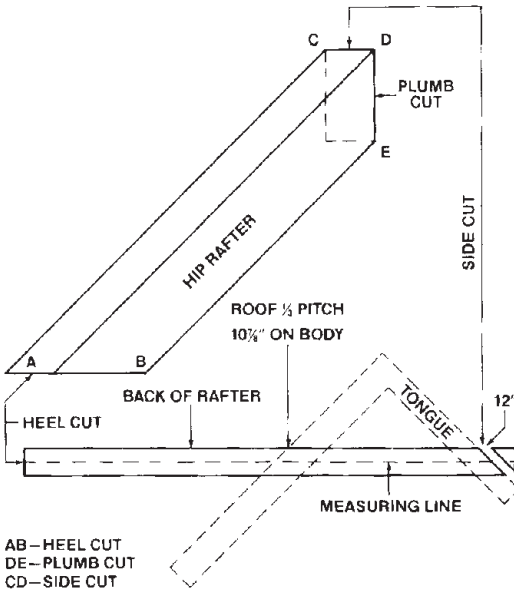


**Fig. 17**

To obtain a side cut for valley or hip rafters use the value given in the table on the body of the square. Use the 12-inch mark on the tongue. Mark side cut along tongue where tongue intersects with the measuring line.

Fig. 18 illustrates how to find the side cut of a hip rafter for a roof having an 8" rise per foot run or one-third pitch.

**Fig. 18 Side Cut Layout**



**Fig. 18**

The rise of the roof in Fig. 18 is 8 inches to the foot. First locate the figure 8 on the outside edge of the body. Under this figure in the bottom line you find "10<sup>1</sup>/<sub>8</sub>." This value is

used on the body and 12 inches is used on the tongue. The square is positioned on the edge of the back of the hip rafter. The side cut "CD" comes along the tongue.

Deduction for half the thickness of the ridge must be determined and measured the same as for common rafters, except that half the diagonal ( $45^\circ$ ) thickness of the ridge must be used.

In making seat cuts for hip rafters, an allowance must be made for the top edges of the rafters which would project above the line of the common and jack rafters if the corners of the hip rafter were not removed. These hip rafters must be lowered slightly by cutting parallel to the seat cut a distance which varies with their thickness and the pitch of the roof.

It should be noted that the 12-inch mark on the tongue is used in ALL angle cuts, both top, bottom and side cuts. This leaves only one number to remember when laying out side or angle cuts. (The value taken from the fifth or sixth line of the Rafter Table.)

The side cuts are always made on the "right hand" or "tongue" side on the rafters. When marking boards these can be reserved for convenience at any time by using the 12-inch mark on the body and using the body references on the tongue.

## **DORMER RAFTERS**

When remodeling or adding a room, it is sometimes easier to build a valley on top of the main roof. This saves cutting into the main roof which could cause weakening.

**Step 1. Mark Location of the Valley on the Roof at  $45^\circ$  to the Common Rafters.** (See figure 1) Set the long point of the bottom end of the rafter even with line A.

**Step 2. Plumb Cuts on the Dormer Rafter:** These will be the same as the common rafter, using whatever Inch Rise has been determined.

**Step 3. Rafter Length:** After measuring the shortest rafter, length may be determined by using the same method as with jack rafters.

**Step 4. Bottom Cut:** This is a horizontal cut the same as in figure 7. Do not cut on the plumb mark; cut horizontally all the way across the rafter. Before making the horizontal cut, tilt the base of your saw at the same angle as the rise of your roof. This will allow your horizontal cut to lay flat

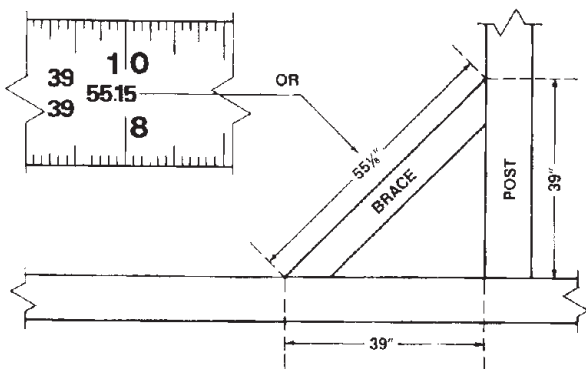
against your roof. Example: Using the common rafter scale, if you have a 6 Inch Rise, you will notice that the number 6 lines up with  $26\frac{1}{2}^\circ$  on the degree scale below. Therefore, tilt your saw at  $26\frac{1}{2}^\circ$ .

Figure 1 also pictures the roof that is sometimes used over doors. To find the end cut at point B, hold the square so that the T-bar is flat against the rafter for the plumb cut of a flat roof. Using the common rafter scale, mark the pivot point and make a mark at the rise using the same rise as the main roof. Then mark a line through these two points. This is the cut required.

## BRACE MEASURE

This table is found in the center of the back of the tongue and gives the lengths of common braces. Fig. 19.

**Fig. 19** Brace Measure from Square Table



**Fig. 19**

For example: To find the length of a brace whose run on post and beam is 39 inches, find the following expression in Fig. 19.

This means that a 39-inch run on the beam and a 39-inch run on the post the length of the brace will be 55.15 inches or  $55\frac{1}{8}$ ".

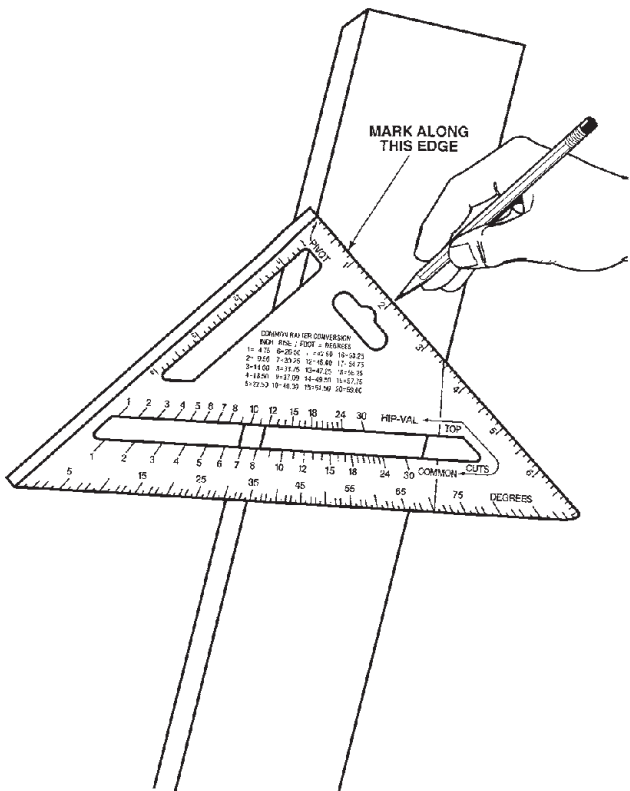
Braces may be regarded as common rafters. When the brace run on the post differs from the run on the beam—their lengths, top and bottom cuts may be determined from the values given in the tables for common rafters.

## DEGREE SCALE

The degree scale on the layout tool can be used to mark any angle cut across a board. This can be used for many applications. (See figure 20)

Put the pivot point on the mark where the cut is to be made on the board. Set the degree scale on the edge of the board at the required angle (in this case 35°). Scribe a line along the top edge as shown in the figure.

**Fig. 20** Resulting Angles Using the Degree Scale on a Board



## 1 INCH RISE 1-12 PITCH 4¾° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 0"	1' 5"
2	2' 0½"	2' 10"
3	3' 0⅝"	4' 3"
4	4' 0⅞"	5' 8"
5	5' 0¼"	7' 1"
6	6' 0¼"	8' 6"
7	7' 0¼"	9' 11"
8	8' 0⅜"	11' 4"
9	9' 0⅜"	12' 9"
10	10' 0⅜"	14' 2"
11	11' 0½"	15' 7"
12	12' 0½"	17' 0"
13	13' 0½"	18' 5"
14	14' 0⅝"	19' 10"
15	15' 0⅝"	21' 3"
16	16' 0⅝"	22' 8"
17	17' 0⅝"	24' 1"
18	18' 0¾"	25' 6"
19	19' 0¾"	26' 11"
20	20' 0⅞"	28' 4"
21	21' 0⅞"	29' 9"
22	22' 0⅞"	31' 2"
23	23' 1"	32' 7"
24	24' 1"	34' 0"
25	25' 1"	35' 5"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	½"	¾"
1	1"	1⅜"
1½	1½"	2⅛"
2	2"	2⅞"
2½	2½"	3½"
3	3"	4¼"
3½	3½"	5"
4	4"	5⅝"
4½	4½"	6⅜"
5	5"	7⅞"
5½	5½"	7¾"
6	6"	8½"
6½	6½"	9¼"
7	7"	9⅞"
7½	7½"	10⅝"
8	8"	11⅜"
8½	8½"	12"
9	9"	12¾"
9½	9½"	13½"
10	10"	14⅞"
10½	10½"	14⅞"
11	11"	15⅝"
11½	11½"	16¼"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1"	13	1' 1"
2	2"	14	1' 2"
3	3"	15	1' 3"
4	4"	16	1' 4"
5	5"	17	1' 5"
6	6"	18	1' 6⅛"
7	7"	19	1' 7⅛"
8	8"	20	1' 8⅛"
9	9"	21	1' 9⅛"
10	10"	22	1' 10⅛"
11	11"	23	1' 11⅛"
12	1' 0"	24	2' 0⅛"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1½"	13/16"	4"	5/16"
1¾"	7/8"	6"	½"
1⅞"	15/16"	8"	11/16"



## 2 INCH RISE 2-12 PITCH 9½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 0⅛"	1' 5⅛"
2	2' 0⅛"	2' 10⅛"
3	3' 0⅛"	4' 3¼"
4	4' 0⅛"	5' 8⅞"
5	5' 0⅛"	7' 1½"
6	6' 1"	8' 6½"
7	7' 1⅛"	9' 11⅝"
8	8' 1⅜"	11' 4¾"
9	9' 1½"	12' 9¼"
10	10' 1⅝"	14' 2⅞"
11	11' 1⅞"	15' 8"
12	12' 2"	17' 1"
13	13' 2⅛"	18' 6⅞"
14	14' 2⅜"	19' 11¼"
15	15' 2½"	21' 4⅞"
16	16' 2⅝"	22' 9⅞"
17	17' 2⅞"	24' 2½"
18	18' 3"	25' 7⅞"
19	19' 3⅛"	27' 0⅝"
20	20' 3⅜"	28' 5¼"
21	21' 3½"	29' 10⅞"
22	22' 3⅞"	31' 3⅞"
23	23' 3⅞"	32' 9"
24	24' 4"	34' 2⅞"
25	25' 4⅛"	35' 7¼"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	½"	¾"
1	1"	1⅜"
1½	1½"	2⅛"
2	2"	2⅞"
2½	2½"	3½"
3	3"	4¼"
3½	3½"	5"
4	4"	5¾"
4½	4⅝"	6⅜"
5	5⅞"	7⅞"
5½	5⅞"	7⅞"
6	6⅞"	8½"
6½	6⅞"	9¼"
7	7⅞"	9⅞"
7½	7⅞"	10⅞"
8	8⅞"	11⅝"
8½	8⅞"	12"
9	9⅞"	12¾"
9½	9⅞"	13½"
10	10⅞"	14¼"
10½	10¾"	14⅞"
11	11¼"	15⅞"
11½	11¾"	16⅞"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1"	13	1' 1⅛"
2	2"	14	1' 2¼"
3	3"	15	1' 3⅜"
4	4"	16	1' 4½"
5	5⅞"	17	1' 5¼"
6	6⅞"	18	1' 6¼"
7	7⅞"	19	1' 7¼"
8	8⅞"	20	1' 8¼"
9	9⅞"	21	1' 9¼"
10	10⅞"	22	1' 10¼"
11	11⅞"	23	1' 11⅝"
12	1' 0⅞"	24	2' 0⅞"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅞"	1¾"	4"	1⅛"
1¾"	¾"	6"	1"
1⅝"	1⅝"	8"	1⅝"

### 3 INCH RISE 3-12 PITCH 14° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 0 <sup>3</sup> / <sub>8</sub> "	1' 5 <sup>1</sup> / <sub>4</sub> "
2	2' 0 <sup>3</sup> / <sub>8</sub> "	2' 10 <sup>1</sup> / <sub>2</sub> "
3	3' 1 <sup>1</sup> / <sub>8</sub> "	4' 3 <sup>3</sup> / <sub>4</sub> "
4	4' 1 <sup>1</sup> / <sub>2</sub> "	5' 8 <sup>7</sup> / <sub>8</sub> "
5	5' 1 <sup>7</sup> / <sub>8</sub> "	7' 2 <sup>1</sup> / <sub>8</sub> "
6	6' 2 <sup>1</sup> / <sub>4</sub> "	8' 7 <sup>3</sup> / <sub>8</sub> "
7	7' 2 <sup>5</sup> / <sub>8</sub> "	10' 0 <sup>5</sup> / <sub>8</sub> "
8	8' 3"	11' 5 <sup>5</sup> / <sub>8</sub> "
9	9' 3 <sup>3</sup> / <sub>8</sub> "	12' 11 <sup>1</sup> / <sub>8</sub> "
10	10' 3 <sup>3</sup> / <sub>4</sub> "	14' 4 <sup>3</sup> / <sub>8</sub> "
11	11' 4 <sup>1</sup> / <sub>4</sub> "	15' 9 <sup>5</sup> / <sub>8</sub> "
12	12' 4 <sup>3</sup> / <sub>8</sub> "	17' 2 <sup>3</sup> / <sub>4</sub> "
13	13' 4 <sup>3</sup> / <sub>4</sub> "	18' 8"
14	14' 5 <sup>1</sup> / <sub>8</sub> "	20' 1 <sup>1</sup> / <sub>4</sub> "
15	15' 5 <sup>1</sup> / <sub>2</sub> "	21' 6 <sup>1</sup> / <sub>2</sub> "
16	16' 5 <sup>5</sup> / <sub>8</sub> "	22' 11 <sup>3</sup> / <sub>4</sub> "
17	17' 6 <sup>1</sup> / <sub>4</sub> "	24' 5"
18	18' 6 <sup>5</sup> / <sub>8</sub> "	25' 10 <sup>1</sup> / <sub>4</sub> "
19	19' 7"	27' 3 <sup>1</sup> / <sub>2</sub> "
20	20' 7 <sup>3</sup> / <sub>8</sub> "	28' 8 <sup>5</sup> / <sub>8</sub> "
21	21' 7 <sup>3</sup> / <sub>4</sub> "	30' 1 <sup>1</sup> / <sub>8</sub> "
22	22' 8 <sup>1</sup> / <sub>8</sub> "	31' 7 <sup>1</sup> / <sub>8</sub> "
23	23' 8 <sup>1</sup> / <sub>2</sub> "	33' 0 <sup>3</sup> / <sub>8</sub> "
24	24' 8 <sup>7</sup> / <sub>8</sub> "	34' 5 <sup>5</sup> / <sub>8</sub> "
25	25' 9 <sup>1</sup> / <sub>4</sub> "	35' 10 <sup>7</sup> / <sub>8</sub> "

Run In.	Common Rafter Length	Hip or Val. Rafter Length
1/2	1/2"	3/4"
1	1"	1 3/8"
1 1/2	1 1/2"	2 1/8"
2	2"	2 7/8"
2 1/2	2 5/8"	3 3/8"
3	3 1/8"	4 1/4"
3 1/2	3 5/8"	5"
4	4 1/8"	5 3/4"
4 1/2	4 5/8"	6 1/2"
5	5 1/8"	7 1/8"
5 1/2	5 5/8"	7 7/8"
6	6 1/8"	8 5/8"
6 1/2	6 5/8"	9 3/8"
7	7 1/8"	10"
7 1/2	7 5/8"	10 3/4"
8	8 1/8"	11 1/2"
8 1/2	8 3/4"	12 1/4"
9	9 1/4"	12 7/8"
9 1/2	9 3/4"	13 5/8"
10	10 1/4"	14 3/8"
10 1/2	10 3/4"	15 1/8"
11	11 1/4"	15 3/4"
11 1/2	11 3/4"	16 1/2"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1"	13	1' 1 3/8"
2	2"	14	1' 2 3/8"
3	3 1/8"	15	1' 3 1/2"
4	4 1/8"	16	1' 4 1/2"
5	5 1/8"	17	1' 5 1/2"
6	6 1/8"	18	1' 6 1/2"
7	7 1/4"	19	1' 7 5/8"
8	8 1/4"	20	1' 8 5/8"
9	9 1/4"	21	1' 9 5/8"
10	10 1/4"	22	1' 10 5/8"
11	11 3/8"	23	1' 11 3/4"
12	1' 0 3/8"	24	2' 0 3/4"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1 3/8"	13/16"	4"	1"
1 3/4"	7/8"	6"	1 7/16"
1 7/8"	15/16"	8"	2"

## 4 INCH RISE 4-12 PITCH 18½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 0 <sup>5</sup> / <sub>8</sub> "	1' 5 <sup>3</sup> / <sub>8</sub> "
2	2' 1 <sup>1</sup> / <sub>4</sub> "	2' 10 <sup>7</sup> / <sub>8</sub> "
3	3' 2"	4' 4 <sup>1</sup> / <sub>4</sub> "
4	4' 2 <sup>5</sup> / <sub>8</sub> "	5' 9 <sup>3</sup> / <sub>4</sub> "
5	5' 3 <sup>1</sup> / <sub>4</sub> "	7' 3 <sup>7</sup> / <sub>8</sub> "
6	6' 3 <sup>3</sup> / <sub>8</sub> "	8' 8 <sup>5</sup> / <sub>8</sub> "
7	7' 4 <sup>1</sup> / <sub>2</sub> "	10' 2"
8	8' 5 <sup>1</sup> / <sub>4</sub> "	11' 7 <sup>1</sup> / <sub>2</sub> "
9	9' 5 <sup>3</sup> / <sub>8</sub> "	13' 0 <sup>3</sup> / <sub>8</sub> "
10	10' 6 <sup>1</sup> / <sub>2</sub> "	14' 6 <sup>3</sup> / <sub>8</sub> "
11	11' 7 <sup>1</sup> / <sub>8</sub> "	15' 11 <sup>3</sup> / <sub>4</sub> "
12	12' 7 <sup>3</sup> / <sub>4</sub> "	17' 5 <sup>1</sup> / <sub>4</sub> "
13	13' 8 <sup>1</sup> / <sub>2</sub> "	18' 10 <sup>5</sup> / <sub>8</sub> "
14	14' 9 <sup>1</sup> / <sub>8</sub> "	20' 4 <sup>1</sup> / <sub>8</sub> "
15	15' 9 <sup>3</sup> / <sub>4</sub> "	21' 9 <sup>1</sup> / <sub>2</sub> "
16	16' 10 <sup>3</sup> / <sub>8</sub> "	23' 3"
17	17' 11"	24' 8 <sup>3</sup> / <sub>8</sub> "
18	18' 11 <sup>5</sup> / <sub>8</sub> "	26' 1 <sup>1</sup> / <sub>8</sub> "
19	20' 0 <sup>5</sup> / <sub>8</sub> "	27' 7 <sup>1</sup> / <sub>4</sub> "
20	21' 1"	29' 0 <sup>3</sup> / <sub>4</sub> "
21	22' 1 <sup>1</sup> / <sub>8</sub> "	30' 8 <sup>1</sup> / <sub>8</sub> "
22	23' 2 <sup>1</sup> / <sub>4</sub> "	31' 11 <sup>5</sup> / <sub>8</sub> "
23	24' 3"	33' 5"
24	25' 3 <sup>3</sup> / <sub>8</sub> "	34' 10 <sup>1</sup> / <sub>2</sub> "
25	26' 4 <sup>1</sup> / <sub>4</sub> "	36' 3 <sup>7</sup> / <sub>8</sub> "

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	½"	¾"
1	1"	1½"
1½	1 <sup>5</sup> / <sub>8</sub> "	2 <sup>1</sup> / <sub>8</sub> "
2	2 <sup>1</sup> / <sub>8</sub> "	2 <sup>5</sup> / <sub>8</sub> "
2½	2 <sup>5</sup> / <sub>8</sub> "	3 <sup>3</sup> / <sub>8</sub> "
3	3 <sup>1</sup> / <sub>8</sub> "	4 <sup>1</sup> / <sub>8</sub> "
3½	3 <sup>3</sup> / <sub>4</sub> "	5 <sup>1</sup> / <sub>8</sub> "
4	4 <sup>1</sup> / <sub>4</sub> "	5 <sup>3</sup> / <sub>4</sub> "
4½	4 <sup>3</sup> / <sub>4</sub> "	6 <sup>1</sup> / <sub>2</sub> "
5	5 <sup>1</sup> / <sub>4</sub> "	7 <sup>1</sup> / <sub>4</sub> "
5½	5 <sup>3</sup> / <sub>4</sub> "	8"
6	6 <sup>3</sup> / <sub>8</sub> "	8 <sup>3</sup> / <sub>4</sub> "
6½	6 <sup>5</sup> / <sub>8</sub> "	9 <sup>1</sup> / <sub>2</sub> "
7	7 <sup>3</sup> / <sub>8</sub> "	10 <sup>1</sup> / <sub>4</sub> "
7½	8"	10 <sup>5</sup> / <sub>8</sub> "
8	8 <sup>1</sup> / <sub>2</sub> "	11 <sup>5</sup> / <sub>8</sub> "
8½	9"	12 <sup>3</sup> / <sub>8</sub> "
9	9 <sup>1</sup> / <sub>2</sub> "	13 <sup>3</sup> / <sub>8</sub> "
9½	10 <sup>1</sup> / <sub>8</sub> "	13 <sup>3</sup> / <sub>8</sub> "
10	10 <sup>3</sup> / <sub>8</sub> "	14 <sup>1</sup> / <sub>2</sub> "
10½	11 <sup>1</sup> / <sub>8</sub> "	15 <sup>1</sup> / <sub>4</sub> "
11	11 <sup>3</sup> / <sub>8</sub> "	16"
11½	12 <sup>1</sup> / <sub>8</sub> "	16 <sup>3</sup> / <sub>4</sub> "

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1"	13	1' 1 <sup>3</sup> / <sub>4</sub> "
2	2 <sup>1</sup> / <sub>8</sub> "	14	1' 2 <sup>3</sup> / <sub>4</sub> "
3	3 <sup>3</sup> / <sub>8</sub> "	15	1' 3 <sup>3</sup> / <sub>4</sub> "
4	4 <sup>1</sup> / <sub>4</sub> "	16	1' 4 <sup>7</sup> / <sub>8</sub> "
5	5 <sup>1</sup> / <sub>4</sub> "	17	1' 5 <sup>7</sup> / <sub>8</sub> "
6	6 <sup>3</sup> / <sub>8</sub> "	18	1' 7"
7	7 <sup>3</sup> / <sub>8</sub> "	19	1' 8"
8	8 <sup>3</sup> / <sub>8</sub> "	20	1' 9 <sup>1</sup> / <sub>8</sub> "
9	9 <sup>1</sup> / <sub>2</sub> "	21	1' 10 <sup>1</sup> / <sub>8</sub> "
10	10 <sup>1</sup> / <sub>2</sub> "	22	1' 11 <sup>1</sup> / <sub>4</sub> "
11	11 <sup>5</sup> / <sub>8</sub> "	23	2' 0 <sup>1</sup> / <sub>4</sub> "
12	1' 0 <sup>5</sup> / <sub>8</sub> "	24	2' 1 <sup>1</sup> / <sub>4</sub> "

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1 <sup>5</sup> / <sub>8</sub> "	¾"	4"	1 <sup>5</sup> / <sub>8</sub> "
1 <sup>3</sup> / <sub>4</sub> "	1 <sup>5</sup> / <sub>16</sub> "	6"	2"
1 <sup>1</sup> / <sub>2</sub> "	1"	8"	2 <sup>1</sup> / <sub>16</sub> "

## 5 INCH RISE 5-12 PITCH 22½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 1"	1' 5¾"
2	2' 2"	2' 11¾"
3	3' 3"	4' 5⅝"
4	4' 4"	5' 10¾"
5	5' 5"	7' 4½"
6	6' 6"	8' 10⅛"
7	7' 7"	10' 3⅞"
8	8' 8"	11' 9½"
9	9' 9"	13' 3¼"
10	10' 10"	14' 8⅝"
11	11' 11"	16' 2⅝"
12	13' 0"	17' 8¼"
13	14' 1"	19' 2"
14	15' 2"	20' 7⅝"
15	16' 3"	22' 1⅞"
16	17' 4"	23' 7⅝"
17	18' 5"	25' 0¾"
18	19' 6"	26' 6½"
19	20' 7"	28' 0⅝"
20	21' 8"	29' 5⅝"
21	22' 9"	30' 11½"
22	23' 10"	32' 5¼"
23	24' 11"	33' 10⅝"
24	26' 0"	35' 4⅝"
25	27' 1"	36' 10¼"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	½"	¾"
1	1⅛"	1½"
1½	1⅝"	2¼"
2	2⅞"	3"
2½	2¾"	3⅝"
3	3¼"	4⅜"
3½	3¾"	5⅝"
4	4⅜"	5⅝"
4½	4⅞"	6⅝"
5	5⅜"	7⅝"
5½	6"	8⅝"
6	6½"	8⅝"
6½	7"	9⅝"
7	7⅝"	10⅝"
7½	8⅛"	11⅝"
8	8⅝"	11⅝"
8½	9¼"	12½"
9	9¾"	13¼"
9½	10¼"	14"
10	10⅞"	14¾"
10½	11⅝"	15½"
11	11⅞"	16¼"
11½	12½"	17"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1⅛"	13	1' 2⅝"
2	2⅞"	14	1' 3⅝"
3	3¼"	15	1' 4¼"
4	4⅜"	16	1' 5⅝"
5	5⅝"	17	1' 6⅝"
6	6½"	18	1' 7½"
7	7⅞"	19	1' 8⅝"
8	8⅝"	20	1' 9⅝"
9	9¼"	21	1' 10¼"
10	10⅞"	22	1' 11⅝"
11	11⅞"	23	2' 0⅝"
12	1' 1"	24	2' 2"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅝"	⅞"	4"	1⅛"
1¾"	1⅝"	6"	2½"
1⅞"	1"	8"	3⅝"

## 6 INCH RISE 6-12 PITCH 26½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 1⅜"	1' 6"
2	2' 2⅞"	3' 0"
3	3' 4¼"	4' 6"
4	4' 5⅝"	6' 0"
5	5' 7⅞"	7' 6"
6	6' 8½"	9' 0"
7	7' 9⅞"	10' 6"
8	8' 11⅜"	12' 0"
9	10' 0¼"	13' 6"
10	11' 2⅞"	15' 0"
11	12' 3⅝"	16' 6"
12	13' 5"	18' 0"
13	14' 6⅜"	19' 6"
14	15' 7⅞"	21' 0"
15	16' 9¼"	22' 6"
16	17' 10⅝"	24' 0"
17	19' 0⅞"	25' 6"
18	20' 1½"	27' 0"
19	21' 2⅞"	28' 6"
20	22' 4⅜"	30' 0"
21	23' 5⅝"	31' 6"
22	24' 7⅞"	33' 0"
23	25' 8⅝"	34' 6"
24	26' 10"	36' 0"
25	27' 11⅜"	37' 6"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	½"	¾"
1	1⅞"	1½"
1½	1⅝"	2¼"
2	2¼"	3"
2½	2¾"	3¾"
3	3⅜"	4½"
3½	3⅞"	5¼"
4	4½"	6"
4½	5"	6¾"
5	5⅝"	7½"
5½	6⅞"	8¼"
6	6¾"	9"
6½	7¼"	9¾"
7	7⅞"	10½"
7½	8⅜"	11¼"
8	9"	12"
8½	9½"	12¾"
9	10⅞"	13½"
9½	10⅝"	14¼"
10	11¼"	15"
10½	11¾"	15¾"
11	12⅝"	16½"
11½	12⅞"	17¼"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1⅞"	13	1' 2½"
2	2¼"	14	1' 3⅝"
3	3⅜"	15	1' 4¾"
4	4½"	16	1' 5⅞"
5	5⅝"	17	1' 7"
6	6¾"	18	1' 8⅞"
7	7⅞"	19	1' 9¼"
8	9"	20	1' 10⅜"
9	10⅞"	21	1' 11½"
10	11⅞"	22	2' 0⅝"
11	1' 0¼"	23	2' 1¾"
12	1' 1⅞"	24	2' 2⅞"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅝"	1⅝"	4"	2"
1¾"	1"	6"	3"
1⅞"	1⅞"	8"	4"

## 7 INCH RISE 7-12 PITCH 30¼° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 1⅛"	1' 6⅜"
2	2' 3¼"	3' 0⅞"
3	3' 5½"	4' 7⅞"
4	4' 7¾"	6' 1⅜"
5	5' 9⅞"	7' 7¼"
6	6' 11⅜"	9' 2⅞"
7	8' 1¼"	10' 8½"
8	9' 3⅞"	12' 2⅞"
9	10' 5"	13' 9¼"
10	11' 6⅞"	15' 3⅝"
11	12' 8⅞"	16' 9⅞"
12	13' 10⅝"	18' 4⅞"
13	15' 0⅝"	19' 10⅝"
14	16' 2⅞"	21' 5"
15	17' 4⅜"	22' 11⅜"
16	18' 6¼"	24' 5¾"
17	19' 8⅞"	26' 0⅞"
18	20' 10"	27' 6⅜"
19	22' 0"	29' 0¾"
20	23' 1⅞"	30' 7⅞"
21	24' 3⅞"	32' 1⅞"
22	25' 5⅝"	33' 7⅞"
23	26' 7½"	35' 2¼"
24	27' 9⅜"	36' 8⅝"
25	28' 11¼"	38' 2⅞"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	⅝"	¾"
1	1⅛"	1½"
1½	1¾"	2¼"
2	2⅜"	3"
2½	2⅞"	3⅞"
3	3½"	4⅝"
3½	4"	5⅜"
4	4⅝"	6⅞"
4½	5¼"	6⅞"
5	5¾"	7⅝"
5½	6⅝"	8⅝"
6	6⅞"	9⅞"
6½	7½"	9⅞"
7	8"	10⅝"
7½	8⅝"	11⅜"
8	9¼"	12⅞"
8½	9¾"	13"
9	10⅝"	13¾"
9½	10⅞"	14½"
10	11½"	15¼"
10½	12⅞"	16"
11	12⅝"	16⅜"
11½	13¼"	17½"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1⅛"	13	1' 3"
2	2⅜"	14	1' 4¼"
3	3½"	15	1' 5⅝"
4	4⅝"	16	1' 6½"
5	5¾"	17	1' 7⅝"
6	7"	18	1' 8⅞"
7	8⅞"	19	1' 10"
8	9¼"	20	1' 11⅞"
9	10⅝"	21	2' 0¼"
10	11⅝"	22	2' 1⅞"
11	1' 0¾"	23	2' 2⅝"
12	1' 1⅞"	24	2' 3¼"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1¼"	1⅝"	4"	2⅝"
1½"	1"	6"	3⅞"
1¾"	1⅞"	8"	4⅞"

## 8 INCH RISE 8-12 PITCH 33 $\frac{3}{4}$ ° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 2 $\frac{3}{8}$ "	1' 6 $\frac{3}{4}$ "
2	2' 4 $\frac{7}{8}$ "	3' 1 $\frac{1}{2}$ "
3	3' 7 $\frac{1}{4}$ "	4' 8 $\frac{1}{4}$ "
4	4' 9 $\frac{3}{4}$ "	6' 3"
5	6' 0 $\frac{1}{8}$ "	7' 9 $\frac{3}{4}$ "
6	7' 2 $\frac{1}{2}$ "	9' 4 $\frac{5}{8}$ "
7	8' 5"	10' 11 $\frac{3}{8}$ "
8	9' 7 $\frac{3}{8}$ "	12' 6 $\frac{1}{8}$ "
9	10' 9 $\frac{3}{4}$ "	14' 0 $\frac{7}{8}$ "
10	12' 0 $\frac{1}{4}$ "	15' 7 $\frac{5}{8}$ "
11	13' 2 $\frac{5}{8}$ "	17' 2 $\frac{3}{8}$ "
12	14' 5 $\frac{1}{8}$ "	18' 9 $\frac{1}{8}$ "
13	15' 7 $\frac{1}{2}$ "	20' 3 $\frac{7}{8}$ "
14	16' 9 $\frac{3}{8}$ "	21' 10 $\frac{5}{8}$ "
15	18' 0 $\frac{3}{8}$ "	23' 5 $\frac{3}{8}$ "
16	19' 2 $\frac{3}{4}$ "	25' 0 $\frac{1}{8}$ "
17	20' 5 $\frac{1}{8}$ "	26' 7"
18	21' 7 $\frac{5}{8}$ "	28' 1 $\frac{3}{4}$ "
19	22' 10"	29' 8 $\frac{1}{2}$ "
20	24' 0 $\frac{1}{2}$ "	31' 3 $\frac{1}{4}$ "
21	25' 2 $\frac{7}{8}$ "	32' 10"
22	26' 5 $\frac{1}{4}$ "	34' 4 $\frac{3}{4}$ "
23	27' 7 $\frac{3}{4}$ "	35' 11 $\frac{1}{2}$ "
24	28' 10 $\frac{1}{8}$ "	37' 6 $\frac{1}{4}$ "
25	30' 0 $\frac{1}{2}$ "	39' 1"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
$\frac{1}{2}$	$\frac{5}{8}$ "	$\frac{3}{4}$ "
1	1 $\frac{1}{4}$ "	1 $\frac{5}{8}$ "
1 $\frac{1}{2}$	1 $\frac{3}{4}$ "	2 $\frac{3}{8}$ "
2	2 $\frac{3}{8}$ "	3 $\frac{1}{8}$ "
2 $\frac{1}{2}$	3"	3 $\frac{7}{8}$ "
3	3 $\frac{5}{8}$ "	4 $\frac{3}{4}$ "
3 $\frac{1}{2}$	4 $\frac{1}{4}$ "	5 $\frac{1}{2}$ "
4	4 $\frac{3}{4}$ "	6 $\frac{1}{4}$ "
4 $\frac{1}{2}$	5 $\frac{3}{8}$ "	7"
5	6"	7 $\frac{7}{8}$ "
5 $\frac{1}{2}$	6 $\frac{5}{8}$ "	8 $\frac{5}{8}$ "
6	7 $\frac{1}{4}$ "	9 $\frac{3}{8}$ "
6 $\frac{1}{2}$	7 $\frac{5}{8}$ "	10"
7	8 $\frac{1}{2}$ "	11"
7 $\frac{1}{2}$	9"	11 $\frac{1}{4}$ "
8	9 $\frac{5}{8}$ "	12 $\frac{1}{2}$ "
8 $\frac{1}{2}$	10 $\frac{1}{4}$ "	13 $\frac{1}{4}$ "
9	10 $\frac{3}{8}$ "	14 $\frac{1}{8}$ "
9 $\frac{1}{2}$	11 $\frac{1}{2}$ "	14 $\frac{7}{8}$ "
10	12"	15 $\frac{5}{8}$ "
10 $\frac{1}{2}$	12 $\frac{5}{8}$ "	16 $\frac{3}{8}$ "
11	13 $\frac{1}{4}$ "	17 $\frac{1}{4}$ "
11 $\frac{1}{2}$	13 $\frac{7}{8}$ "	18"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1 $\frac{1}{4}$ "	13	1' 3 $\frac{5}{8}$ "
2	2 $\frac{3}{8}$ "	14	1' 4 $\frac{7}{8}$ "
3	3 $\frac{5}{8}$ "	15	1' 6"
4	4 $\frac{3}{4}$ "	16	1' 7 $\frac{1}{4}$ "
5	6"	17	1' 8 $\frac{3}{8}$ "
6	7 $\frac{1}{4}$ "	18	1' 9 $\frac{5}{8}$ "
7	8 $\frac{3}{8}$ "	19	1' 10 $\frac{7}{8}$ "
8	9 $\frac{5}{8}$ "	20	2' 0"
9	10 $\frac{7}{8}$ "	21	2' 1 $\frac{1}{4}$ "
10	1' 0"	22	2' 2 $\frac{1}{2}$ "
11	1' 1 $\frac{1}{8}$ "	23	2' 3 $\frac{5}{8}$ "
12	1' 2 $\frac{3}{8}$ "	24	2' 4 $\frac{3}{8}$ "

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1 $\frac{1}{2}$ "	1"	4"	2 $\frac{1}{16}$ "
1 $\frac{3}{4}$ "	1 $\frac{1}{16}$ "	6"	4"
1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "	8"	5 $\frac{3}{8}$ "

## 9 INCH RISE 9-12 PITCH 37° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 3"	1' 7 $\frac{1}{4}$ "
2	2' 6"	3' 2 $\frac{3}{8}$ "
3	3' 9"	4' 9 $\frac{5}{8}$ "
4	5' 0"	6' 4 $\frac{7}{8}$ "
5	6' 3"	8' 0"
6	7' 6"	9' 7 $\frac{1}{4}$ "
7	8' 9"	11' 2 $\frac{1}{2}$ "
8	10' 0"	12' 9 $\frac{5}{8}$ "
9	11' 3"	14' 4 $\frac{7}{8}$ "
10	12' 6"	16' 0 $\frac{1}{8}$ "
11	13' 9"	17' 7 $\frac{1}{4}$ "
12	15' 0"	19' 2 $\frac{1}{2}$ "
13	16' 3"	20' 9 $\frac{3}{4}$ "
14	17' 6"	22' 4 $\frac{7}{8}$ "
15	18' 9"	24' 0 $\frac{1}{8}$ "
16	20' 0"	25' 7 $\frac{3}{8}$ "
17	21' 3"	27' 2 $\frac{1}{2}$ "
18	22' 6"	28' 9 $\frac{3}{4}$ "
19	23' 9"	30' 5"
20	25' 0"	32' 0 $\frac{1}{8}$ "
21	26' 3"	33' 7 $\frac{3}{8}$ "
22	27' 6"	35' 2 $\frac{5}{8}$ "
23	28' 9"	36' 9 $\frac{3}{4}$ "
24	30' 0"	38' 5"
25	31' 3"	40' 0 $\frac{1}{4}$ "

Run In.	Common Rafter Length	Hip or Val. Rafter Length
$\frac{1}{2}$	$\frac{5}{8}$ "	$\frac{3}{4}$ "
1	1 $\frac{1}{4}$ "	1 $\frac{5}{8}$ "
1 $\frac{1}{2}$	1 $\frac{7}{8}$ "	2 $\frac{3}{8}$ "
2	2 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
2 $\frac{1}{2}$	3 $\frac{1}{8}$ "	4"
3	3 $\frac{3}{4}$ "	4 $\frac{3}{4}$ "
3 $\frac{1}{2}$	4 $\frac{3}{8}$ "	5 $\frac{5}{8}$ "
4	5"	6 $\frac{3}{8}$ "
4 $\frac{1}{2}$	5 $\frac{5}{8}$ "	7 $\frac{1}{4}$ "
5	6 $\frac{1}{4}$ "	8"
5 $\frac{1}{2}$	6 $\frac{3}{8}$ "	8 $\frac{3}{4}$ "
6	7 $\frac{1}{2}$ "	9 $\frac{5}{8}$ "
6 $\frac{1}{2}$	8 $\frac{1}{8}$ "	10 $\frac{3}{8}$ "
7	8 $\frac{3}{4}$ "	11 $\frac{1}{4}$ "
7 $\frac{1}{2}$	9 $\frac{3}{8}$ "	12"
8	10"	12 $\frac{7}{8}$ "
8 $\frac{1}{2}$	10 $\frac{5}{8}$ "	13 $\frac{5}{8}$ "
9	11 $\frac{1}{4}$ "	14 $\frac{3}{8}$ "
9 $\frac{1}{2}$	11 $\frac{7}{8}$ "	15 $\frac{1}{4}$ "
10	12 $\frac{1}{2}$ "	16"
10 $\frac{1}{2}$	13 $\frac{1}{8}$ "	16 $\frac{1}{8}$ "
11	13 $\frac{3}{4}$ "	17 $\frac{3}{8}$ "
11 $\frac{1}{2}$	14 $\frac{3}{8}$ "	18 $\frac{3}{8}$ "

Spacing In.	Jack Rafter Length
1	1 $\frac{1}{4}$ "
2	2 $\frac{1}{2}$ "
3	3 $\frac{3}{4}$ "
4	5"
5	6 $\frac{1}{4}$ "
6	7 $\frac{1}{2}$ "
7	8 $\frac{3}{4}$ "
8	10"
9	11 $\frac{1}{4}$ "
10	1' 0 $\frac{1}{2}$ "
11	1' 1 $\frac{3}{4}$ "
12	1' 3"

Spacing In.	Jack Rafter Length
13	1' 4 $\frac{1}{4}$ "
14	1' 5 $\frac{1}{2}$ "
15	1' 6 $\frac{3}{4}$ "
16	1' 8"
17	1' 9 $\frac{1}{4}$ "
18	1' 10 $\frac{1}{2}$ "
19	1' 11 $\frac{3}{4}$ "
20	2' 1"
21	2' 2 $\frac{1}{4}$ "
22	2' 3 $\frac{1}{2}$ "
23	2' 4 $\frac{3}{4}$ "
24	2' 6"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1 $\frac{5}{8}$ "	1"	4"	3"
1 $\frac{3}{4}$ "	1 $\frac{1}{8}$ "	6"	4 $\frac{1}{2}$ "
1 $\frac{7}{8}$ "	1 $\frac{3}{16}$ "	8"	6"



## 10 INCH RISE 10-12 PITCH 40° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 3 <sup>5</sup> / <sub>8</sub> "	1' 7 <sup>3</sup> / <sub>4</sub> "
2	2' 7 <sup>1</sup> / <sub>4</sub> "	3' 3 <sup>3</sup> / <sub>8</sub> "
3	3' 10 <sup>3</sup> / <sub>8</sub> "	4' 11 <sup>1</sup> / <sub>8</sub> "
4	5' 2 <sup>1</sup> / <sub>2</sub> "	6' 6 <sup>3</sup> / <sub>8</sub> "
5	6' 6 <sup>1</sup> / <sub>8</sub> "	8' 2 <sup>1</sup> / <sub>2</sub> "
6	7' 9 <sup>3</sup> / <sub>4</sub> "	9' 10 <sup>1</sup> / <sub>4</sub> "
7	9' 1 <sup>5</sup> / <sub>8</sub> "	11' 5 <sup>7</sup> / <sub>8</sub> "
8	10' 5"	13' 1 <sup>5</sup> / <sub>8</sub> "
9	11' 8 <sup>5</sup> / <sub>8</sub> "	14' 9 <sup>1</sup> / <sub>4</sub> "
10	13' 0 <sup>1</sup> / <sub>4</sub> "	16' 5"
11	14' 3 <sup>3</sup> / <sub>8</sub> "	18' 0 <sup>5</sup> / <sub>8</sub> "
12	15' 7 <sup>1</sup> / <sub>2</sub> "	19' 8 <sup>3</sup> / <sub>8</sub> "
13	16' 11"	21' 4 <sup>1</sup> / <sub>2</sub> "
14	18' 2 <sup>5</sup> / <sub>8</sub> "	22' 11 <sup>3</sup> / <sub>4</sub> "
15	19' 6 <sup>1</sup> / <sub>4</sub> "	24' 7 <sup>1</sup> / <sub>2</sub> "
16	20' 10"	26' 3 <sup>1</sup> / <sub>8</sub> "
17	22' 1 <sup>1</sup> / <sub>2</sub> "	27' 10 <sup>7</sup> / <sub>8</sub> "
18	23' 5 <sup>1</sup> / <sub>8</sub> "	29' 6 <sup>5</sup> / <sub>8</sub> "
19	24' 8 <sup>3</sup> / <sub>4</sub> "	31' 2 <sup>1</sup> / <sub>4</sub> "
20	26' 0 <sup>3</sup> / <sub>8</sub> "	32' 10"
21	27' 4"	34' 5 <sup>5</sup> / <sub>8</sub> "
22	28' 7 <sup>5</sup> / <sub>8</sub> "	36' 1 <sup>3</sup> / <sub>8</sub> "
23	29' 11 <sup>1</sup> / <sub>4</sub> "	37' 9"
24	31' 2 <sup>7</sup> / <sub>8</sub> "	39' 4 <sup>3</sup> / <sub>4</sub> "
25	32' 6 <sup>1</sup> / <sub>2</sub> "	41' 0 <sup>1</sup> / <sub>2</sub> "

Run In.	Common Rafter Length	Hip or Val. Rafter Length
1/2	5/8"	7/8"
1	1 1/4"	1 5/8"
1 1/2	2"	2 1/2"
2	2 5/8"	3 1/4"
2 1/2	3 1/4"	4 1/8"
3	3 7/8"	4 5/8"
3 1/2	4 1/2"	5 3/4"
4	5 1/4"	6 5/8"
4 1/2	5 5/8"	7 3/8"
5	6 1/2"	8 1/4"
5 1/2	7 3/8"	9"
6	7 3/4"	9 7/8"
6 1/2	8 3/8"	10 3/4"
7	9"	11 1/2"
7 1/2	9 3/4"	12 3/8"
8	10 3/8"	13 1/8"
8 1/2	11"	14"
9	11 5/8"	14 3/4"
9 1/2	12 1/4"	15 5/8"
10	13"	16 1/2"
10 1/2	13 5/8"	17 1/4"
11	14 1/4"	18 1/8"
11 1/2	14 7/8"	18 7/8"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1 1/4"	13	1' 4 7/8"
2	2 5/8"	14	1' 6 1/4"
3	3 7/8"	15	1' 7 1/2"
4	5 1/4"	16	1' 8 7/8"
5	6 1/2"	17	1' 10 1/8"
6	7 3/4"	18	1' 11 3/8"
7	9 1/8"	19	2' 0 3/4"
8	10 3/8"	20	2' 2"
9	11 3/4"	21	2' 3 3/8"
10	1' 1"	22	2' 4 5/8"
11	1' 2 3/8"	23	2' 6"
12	1' 3 5/8"	24	2' 7 1/4"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1 5/8"	1 1/16"	4"	3 3/8"
1 3/4"	1 1/8"	6"	5 1/16"
1 7/8"	1 1/4"	8"	6 1/4"

## 11 INCH RISE 11-12 PITCH 42½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 4¼"	1' 8¼"
2	2' 8½"	3' 4½"
3	4' 0⅞"	5' 0⅞"
4	5' 5⅞"	6' 8⅞"
5	6' 9⅞"	8' 5⅞"
6	8' 1⅞"	10' 1⅞"
7	9' 6"	11' 9⅞"
8	10' 10¼"	13' 5¾"
9	12' 2½"	15' 2"
10	13' 6¾"	16' 10¼"
11	14' 11"	18' 6½"
12	16' 3⅞"	20' 2¾"
13	17' 7⅞"	21' 10⅞"
14	18' 11⅞"	23' 7⅞"
15	20' 4⅞"	25' 3⅞"
16	21' 8⅞"	26' 11⅞"
17	23' 0¾"	28' 7¾"
18	24' 5"	30' 4"
19	25' 9¼"	32' 0¼"
20	27' 1½"	33' 8½"
21	28' 5⅞"	35' 4¾"
22	29' 10⅞"	37' 0⅞"
23	31' 2⅞"	38' 9⅞"
24	32' 6⅞"	40' 5⅞"
25	33' 11"	42' 1⅞"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	⅝"	⅞"
1	1⅜"	1⅝"
1½	2"	2½"
2	2¾"	3⅜"
2½	3⅜"	4¼"
3	4⅞"	5"
3½	4¾"	5⅞"
4	5⅜"	6¾"
4½	6⅞"	7⅝"
5	6¾"	8⅜"
5½	7½"	9¼"
6	8⅞"	10⅞"
6½	8¾"	11"
7	9⅞"	11¾"
7½	10⅞"	12⅝"
8	10⅞"	13½"
8½	11½"	14⅜"
9	12¼"	15⅝"
9½	12⅞"	16"
10	13½"	16⅞"
10½	14¼"	17¾"
11	14⅞"	18⅞"
11½	15⅞"	19¾"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1⅞"	13	1' 5⅞"
2	2¾"	14	1' 7"
3	4¼"	15	1' 8⅜"
4	5⅜"	16	1' 9¾"
5	6¾"	17	1' 11"
6	8⅞"	18	2' 0⅜"
7	9½"	19	2' 1¾"
8	10⅞"	20	2' 3⅞"
9	1' 0⅞"	21	2' 4½"
10	1' 1⅞"	22	2' 5⅞"
11	1' 2⅞"	23	2' 7¼"
12	1' 4¼"	24	2' 8½"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅞"	1⅞"	4"	3⅛"
1¾"	1⅜"	6"	5½"
1⅝"	1¼"	8"	7⅛"

## 12 INCH RISE 12-12 PITCH 45° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 5"	1' 8 <sup>3</sup> / <sub>4</sub> "
2	2' 10"	3' 5 <sup>5</sup> / <sub>8</sub> "
3	4' 2 <sup>7</sup> / <sub>8</sub> "	5' 2 <sup>3</sup> / <sub>8</sub> "
4	5' 7 <sup>7</sup> / <sub>8</sub> "	6' 11 <sup>1</sup> / <sub>8</sub> "
5	7' 0 <sup>7</sup> / <sub>8</sub> "	8' 7 <sup>7</sup> / <sub>8</sub> "
6	8' 5 <sup>5</sup> / <sub>8</sub> "	10' 4 <sup>3</sup> / <sub>4</sub> "
7	9' 10 <sup>3</sup> / <sub>4</sub> "	12' 1 <sup>1</sup> / <sub>2</sub> "
8	11' 3 <sup>3</sup> / <sub>4</sub> "	13' 10 <sup>1</sup> / <sub>4</sub> "
9	12' 8 <sup>3</sup> / <sub>4</sub> "	15' 7"
10	14' 1 <sup>3</sup> / <sub>4</sub> "	17' 3 <sup>3</sup> / <sub>4</sub> "
11	15' 6 <sup>5</sup> / <sub>8</sub> "	19' 0 <sup>5</sup> / <sub>8</sub> "
12	16' 11 <sup>5</sup> / <sub>8</sub> "	20' 9 <sup>5</sup> / <sub>8</sub> "
13	18' 4 <sup>5</sup> / <sub>8</sub> "	22' 6 <sup>1</sup> / <sub>4</sub> "
14	19' 9 <sup>5</sup> / <sub>8</sub> "	24' 3"
15	21' 2 <sup>1</sup> / <sub>2</sub> "	25' 11 <sup>3</sup> / <sub>4</sub> "
16	22' 7 <sup>1</sup> / <sub>2</sub> "	27' 8 <sup>1</sup> / <sub>2</sub> "
17	24' 0 <sup>1</sup> / <sub>2</sub> "	29' 5 <sup>3</sup> / <sub>8</sub> "
18	25' 5 <sup>1</sup> / <sub>2</sub> "	31' 2 <sup>1</sup> / <sub>8</sub> "
19	26' 10 <sup>3</sup> / <sub>8</sub> "	32' 10 <sup>3</sup> / <sub>8</sub> "
20	28' 3 <sup>3</sup> / <sub>8</sub> "	34' 7 <sup>3</sup> / <sub>8</sub> "
21	29' 8 <sup>3</sup> / <sub>8</sub> "	36' 4 <sup>1</sup> / <sub>2</sub> "
22	31' 1 <sup>3</sup> / <sub>8</sub> "	38' 1 <sup>1</sup> / <sub>4</sub> "
23	32' 6 <sup>1</sup> / <sub>4</sub> "	39' 10"
24	33' 11 <sup>1</sup> / <sub>4</sub> "	41' 6 <sup>7</sup> / <sub>8</sub> "
25	35' 4 <sup>1</sup> / <sub>4</sub> "	43' 3 <sup>5</sup> / <sub>8</sub> "

Run In.	Common Rafter Length	Hip or Val. Rafter Length
1/2	3/4"	7/8"
1	1 <sup>3</sup> / <sub>8</sub> "	1 <sup>3</sup> / <sub>4</sub> "
1 1/2	2 <sup>1</sup> / <sub>8</sub> "	2 <sup>5</sup> / <sub>8</sub> "
2	2 <sup>7</sup> / <sub>8</sub> "	3 <sup>1</sup> / <sub>2</sub> "
2 1/2	3 <sup>1</sup> / <sub>2</sub> "	4 <sup>3</sup> / <sub>8</sub> "
3	4 <sup>1</sup> / <sub>4</sub> "	5 <sup>1</sup> / <sub>4</sub> "
3 1/2	5"	6"
4	5 <sup>5</sup> / <sub>8</sub> "	6 <sup>3</sup> / <sub>8</sub> "
4 1/2	6 <sup>3</sup> / <sub>8</sub> "	7 <sup>3</sup> / <sub>4</sub> "
5	7 <sup>1</sup> / <sub>8</sub> "	8 <sup>5</sup> / <sub>8</sub> "
5 1/2	7 <sup>3</sup> / <sub>4</sub> "	9 <sup>1</sup> / <sub>2</sub> "
6	8 <sup>1</sup> / <sub>2</sub> "	10 <sup>5</sup> / <sub>8</sub> "
6 1/2	9 <sup>1</sup> / <sub>4</sub> "	11 <sup>1</sup> / <sub>4</sub> "
7	9 <sup>5</sup> / <sub>8</sub> "	12 <sup>1</sup> / <sub>8</sub> "
7 1/2	10 <sup>5</sup> / <sub>8</sub> "	13"
8	11 <sup>3</sup> / <sub>8</sub> "	13 <sup>3</sup> / <sub>8</sub> "
8 1/2	12"	14 <sup>3</sup> / <sub>4</sub> "
9	12 <sup>3</sup> / <sub>4</sub> "	15 <sup>5</sup> / <sub>8</sub> "
9 1/2	13 <sup>1</sup> / <sub>2</sub> "	16 <sup>3</sup> / <sub>8</sub> "
10	14 <sup>1</sup> / <sub>8</sub> "	17 <sup>1</sup> / <sub>4</sub> "
10 1/2	14 <sup>3</sup> / <sub>8</sub> "	18 <sup>1</sup> / <sub>8</sub> "
11	15 <sup>5</sup> / <sub>8</sub> "	19"
11 1/2	16 <sup>1</sup> / <sub>4</sub> "	19 <sup>7</sup> / <sub>8</sub> "

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1 <sup>3</sup> / <sub>8</sub> "	13	1' 6 <sup>3</sup> / <sub>8</sub> "
2	2 <sup>7</sup> / <sub>8</sub> "	14	1' 7 <sup>3</sup> / <sub>4</sub> "
3	4 <sup>1</sup> / <sub>4</sub> "	15	1' 9 <sup>1</sup> / <sub>4</sub> "
4	5 <sup>5</sup> / <sub>8</sub> "	16	1' 10 <sup>5</sup> / <sub>8</sub> "
5	7 <sup>1</sup> / <sub>8</sub> "	17	2' 0"
6	8 <sup>1</sup> / <sub>2</sub> "	18	2' 1 <sup>1</sup> / <sub>2</sub> "
7	9 <sup>5</sup> / <sub>8</sub> "	19	2' 2 <sup>7</sup> / <sub>8</sub> "
8	11 <sup>3</sup> / <sub>8</sub> "	20	2' 4 <sup>1</sup> / <sub>4</sub> "
9	1' 0 <sup>3</sup> / <sub>4</sub> "	21	2' 5 <sup>3</sup> / <sub>4</sub> "
10	1' 2 <sup>1</sup> / <sub>8</sub> "	22	2' 7 <sup>1</sup> / <sub>8</sub> "
11	1' 3 <sup>1</sup> / <sub>2</sub> "	23	2' 8 <sup>1</sup> / <sub>2</sub> "
12	1' 5"	24	2' 9 <sup>1</sup> / <sub>4</sub> "

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1 <sup>5</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>8</sub> "	4"	4"
1 <sup>3</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>4</sub> "	6"	6"
1 <sup>7</sup> / <sub>8</sub> "	1 <sup>5</sup> / <sub>8</sub> "	8"	8"

## 13 INCH RISE 13-12 PITCH 47¼° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 5¾"	1' 9¾"
2	2' 11¾"	3' 6¾"
3	4' 5½"	5' 4½"
4	5' 10¾"	7' 1½"
5	7' 4½"	8' 10½"
6	8' 10½"	10' 8½"
7	10' 3¾"	12' 5½"
8	11' 9½"	14' 3"
9	13' 3¼"	16' 0¾"
10	14' 8⅞"	17' 9¾"
11	16' 2⅝"	19' 7½"
12	17' 8⅜"	21' 4½"
13	19' 2"	23' 1⅞"
14	20' 7¾"	24' 11½"
15	22' 1¾"	26' 8⅝"
16	23' 7½"	28' 6"
17	25' 0¾"	30' 3¾"
18	26' 6½"	32' 0¾"
19	28' 0⅞"	33' 10½"
20	29' 5⅞"	35' 7½"
21	30' 11½"	37' 4⅞"
22	32' 5¼"	39' 2¼"
23	33' 10⅞"	40' 11⅝"
24	35' 4⅝"	42' 9"
25	36' 10¼"	44' 6⅜"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	¾"	⅞"
1	1½"	1¾"
1½	2¼"	2⅝"
2	3"	3½"
2½	3¾"	4½"
3	4¾"	5⅝"
3½	5½"	6¼"
4	5⅞"	7⅞"
4½	6⅝"	8"
5	7⅜"	8⅞"
5½	8⅞"	9¾"
6	8⅝"	10⅝"
6½	9⅝"	11½"
7	10⅞"	12⅜"
7½	10⅞"	13¼"
8	11⅝"	14⅞"
8½	12¼"	15⅞"
9	13"	16"
9½	13¾"	16⅞"
10	14½"	17¾"
10½	15¼"	18⅝"
11	16"	19½"
11½	16¾"	20⅝"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1½"	13	1' 7⅞"
2	3"	14	1' 8⅝"
3	4⅜"	15	1' 10⅞"
4	5⅞"	16	1' 11⅝"
5	7⅞"	17	2' 1⅞"
6	8⅞"	18	2' 2½"
7	10⅜"	19	2' 4"
8	11¾"	20	2' 5½"
9	1' 1¼"	21	2' 7"
10	1' 2¾"	22	2' 8⅜"
11	1' 4¼"	23	2' 9⅞"
12	1' 5¾"	24	2' 11⅜"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅝"	1⅜"	4"	4⅝"
1¾"	1⅝"	6"	6½"
1⅞"	1⅞"	8"	8⅝"

## 14 INCH RISE 14-12 PITCH 49½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 6½"	1' 10"
2	3' 0⅞"	3' 8"
3	4' 7⅞"	5' 6"
4	6' 1¾"	7' 4"
5	7' 8¼"	9' 2"
6	9' 2⅞"	11' 0"
7	10' 9¼"	12' 10"
8	12' 3⅞"	14' 8"
9	13' 10"	16' 6"
10	15' 4⅜"	18' 4"
11	16' 10⅞"	20' 2"
12	18' 5¼"	22' 0"
13	19' 11¾"	23' 10"
14	21' 6⅞"	25' 8"
15	23' 0⅞"	27' 6"
16	24' 7"	29' 4"
17	26' 1½"	31' 2"
18	27' 7⅞"	33' 0"
19	29' 2⅜"	34' 10"
20	30' 8¾"	36' 8"
21	32' 3⅞"	38' 6"
22	33' 9⅞"	40' 4"
23	35' 4⅞"	42' 2"
24	36' 10½"	44' 0"
25	38' 5"	45' 10"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	¾"	⅞"
1	1½"	1⅞"
1½	2¼"	2¾"
2	3⅞"	3⅞"
2½	3⅞"	4⅞"
3	4⅞"	5½"
3½	5⅞"	6⅞"
4	6⅞"	7⅞"
4½	6⅞"	8¼"
5	7⅞"	9⅞"
5½	8½"	10⅞"
6	9¼"	11"
6½	10"	11⅞"
7	10¾"	12⅞"
7½	11½"	13¾"
8	12⅞"	14⅞"
8½	13⅞"	15⅞"
9	13⅞"	16½"
9½	14⅞"	17⅞"
10	15⅞"	18⅞"
10½	16⅞"	19¼"
11	16⅞"	20⅞"
11½	17¾"	21⅞"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1½"	13	1' 8"
2	3⅞"	14	1' 9½"
3	4⅞"	15	1' 11"
4	6⅞"	16	2' 0⅞"
5	7⅞"	17	2' 2⅞"
6	9¼"	18	2' 3⅞"
7	10¾"	19	2' 5¼"
8	1' 0¼"	20	2' 6¾"
9	1' 1⅞"	21	2' 8¼"
10	1' 3⅞"	22	2' 9⅞"
11	1' 4⅞"	23	2' 11⅞"
12	1' 6½"	24	3' 0⅞"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅞"	¼"	4"	4⅛"
1¾"	⅜"	6"	7"
1⅝"	⅞"	8"	8⅞"

## 15 INCH RISE 15-12 PITCH 51½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 7¼"	1' 10⅝"
2	3' 2⅜"	3' 9¼"
3	4' 9⅝"	5' 8"
4	6' 4⅞"	7' 6⅞"
5	8' 0"	9' 5¼"
6	9' 7¼"	11' 3⅞"
7	11' 2½"	13' 2½"
8	12' 9⅝"	15' 1¼"
9	14' 4⅞"	16' 11⅞"
10	16' 0⅞"	18' 10½"
11	17' 7⅜"	20' 9⅞"
12	19' 2½"	22' 7¾"
13	20' 9¾"	24' 6½"
14	22' 4⅞"	26' 5⅞"
15	24' 0⅞"	28' 3¾"
16	25' 7⅜"	30' 2⅜"
17	27' 2½"	32' 1"
18	28' 9¾"	33' 11¾"
19	30' 5"	35' 10⅜"
20	32' 0¼"	37' 9"
21	33' 7⅜"	39' 7⅞"
22	35' 2⅝"	41' 6¼"
23	36' 9⅞"	43' 4⅞"
24	38' 5"	45' 3⅞"
25	40' 0¼"	47' 2¼"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	¾"	1"
1	1⅝"	1⅞"
1½	2⅜"	2⅞"
2	3¼"	3¾"
2½	4"	4¾"
3	4¾"	5⅞"
3½	5⅝"	6⅞"
4	6⅞"	7½"
4½	7¼"	8½"
5	8"	9½"
5½	8¾"	10⅝"
6	9⅝"	11⅝"
6½	10⅜"	12⅝"
7	11¼"	13¼"
7½	12"	14¼"
8	12⅞"	15⅞"
8½	13⅝"	16⅞"
9	14⅜"	17"
9½	15¼"	18"
10	16"	18⅞"
10½	16⅝"	19⅞"
11	17⅝"	20⅞"
11½	18⅜"	21¾"

Spacing In.	Jack Rafter Length
1	1⅝"
2	3¼"
3	4¾"
4	6⅜"
5	8"
6	9⅝"
7	11¼"
8	1' 0¾"
9	1' 2⅜"
10	1' 4"
11	1' 5⅝"
12	1' 7¼"

Spacing In.	Jack Rafter Length
13	1' 8⅝"
14	1' 10⅜"
15	2' 0"
16	2' 1⅝"
17	2' 3¼"
18	2' 4⅞"
19	2' 6⅜"
20	2' 8"
21	2' 9⅝"
22	2' 11¼"
23	3' 0⅞"
24	3' 2⅞"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅝"	1⅝"	4"	5"
1¾"	1⅜"	6"	7⅞"
1⅞"	1½"	8"	1⅞"

## 16 INCH RISE 16-12 PITCH 53¼° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 8"	1' 11½"
2	3' 4"	3' 10⅝"
3	5' 0"	5' 10"
4	6' 8"	7' 9¼"
5	8' 4"	9' 8⅝"
6	10' 0"	11' 8"
7	11' 8"	13' 7¼"
8	13' 4"	15' 6⅝"
9	15' 0"	17' 5⅝"
10	16' 8"	19' 5¼"
11	18' 4"	21' 4⅝"
12	20' 0"	23' 3⅝"
13	21' 8"	25' 3¼"
14	23' 4"	27' 2½"
15	25' 0"	29' 1⅝"
16	26' 8"	31' 1⅛"
17	28' 4"	33' 0½"
18	30' 0"	34' 11⅝"
19	31' 8"	36' 11⅛"
20	33' 4"	38' 10½"
21	35' 0"	40' 9⅝"
22	36' 8"	42' 9⅛"
23	38' 4"	44' 8½"
24	40' 0"	46' 7¾"
25	41' 8"	48' 7⅛"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	⅞"	1"
1	1⅝"	2"
1½	2½"	2⅞"
2	3⅝"	3⅝"
2½	4⅛"	4⅞"
3	5"	5⅝"
3½	5⅝"	6¾"
4	6⅝"	7¾"
4½	7½"	8¾"
5	8⅝"	9¾"
5½	9⅝"	10¾"
6	10"	11⅝"
6½	10⅝"	12⅝"
7	11⅝"	13⅝"
7½	12½"	14½"
8	13⅝"	15½"
8½	14⅝"	16½"
9	15"	17½"
9½	15⅝"	18⅝"
10	16⅝"	19⅝"
10½	17½"	20⅝"
11	18⅝"	21⅝"
11½	19⅝"	22⅝"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1⅝"	13	1' 9⅝"
2	3⅝"	14	1' 11⅝"
3	5"	15	2' 1"
4	6⅝"	16	2' 2⅝"
5	8⅝"	17	2' 4⅝"
6	10"	18	2' 6"
7	11⅝"	19	2' 7⅝"
8	1' 1⅝"	20	2' 9⅝"
9	1' 3"	21	2' 11"
10	1' 4⅝"	22	3' 0⅝"
11	1' 6⅝"	23	3' 2⅝"
12	1' 8"	24	3' 4"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅝"	1⅝"	4"	5⅝"
1¾"	1⅞"	6"	8⅞"
1⅞"	1⅞"	8"	10⅞"

## 17 INCH RISE 17-12 PITCH 54¼° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 8¾"	2' 0"
2	3' 5⅝"	4' 0"
3	5' 2⅜"	6' 0⅛"
4	6' 11¼"	8' 0⅛"
5	8' 8"	10' 0⅛"
6	10' 4⅞"	12' 0⅛"
7	12' 1⅝"	14' 0⅛"
8	13' 10½"	16' 0⅛"
9	15' 7¼"	18' 0¼"
10	17' 4⅞"	20' 0¼"
11	19' 0⅞"	22' 0¼"
12	20' 9¾"	24' 0¼"
13	22' 6½"	26' 0¼"
14	24' 3⅜"	28' 0¼"
15	26' 0⅝"	30' 0⅝"
16	27' 9"	32' 0⅝"
17	29' 5⅜"	34' 0⅝"
18	31' 2½"	36' 0⅝"
19	32' 11⅜"	38' 0⅝"
20	34' 8⅞"	40' 0⅝"
21	36' 5"	42' 0⅝"
22	38' 1¾"	44' 0½"
23	39' 10⅝"	46' 0½"
24	41' 7⅜"	48' 0½"
25	43' 4¼"	50' 0½"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	⅞"	1"
1	1¾"	2"
1½	2⅝"	3"
2	3½"	4"
2½	4⅜"	5"
3	5¼"	6"
3½	6⅞"	7"
4	7"	8"
4½	7¾"	9"
5	8⅝"	10"
5½	9½"	11"
6	10⅜"	12"
6½	11¼"	13"
7	12⅞"	14"
7½	13"	15"
8	13⅞"	16"
8½	14¾"	17"
9	15⅝"	18"
9½	16½"	19"
10	17⅞"	20"
10½	18⅞"	21"
11	19"	22"
11½	19⅞"	23"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1¾"	13	1' 10½"
2	3½"	14	2' 0¼"
3	5¼"	15	2' 2"
4	6⅞"	16	2' 3¼"
5	8⅝"	17	2' 5½"
6	10⅜"	18	2' 7¼"
7	1' 0¼"	19	2' 9"
8	1' 1⅞"	20	2' 10⅝"
9	1' 3⅝"	21	3' 0⅝"
10	1' 5⅜"	22	3' 2⅞"
11	1' 7⅞"	23	3' 3⅝"
12	1' 8¾"	24	3' 5⅝"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅝"	1⅞"	4"	5⅛"
1¾"	1½"	6"	8½"
1⅝"	1⅝"	8"	11⅛"



## 18 INCH RISE 18-12 PITCH 56¼° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 9 <sup>5</sup> / <sub>8</sub> "	2' 0 <sup>3</sup> / <sub>4</sub> "
2	3' 7 <sup>1</sup> / <sub>4</sub> "	4' 1 <sup>1</sup> / <sub>2</sub> "
3	5' 4 <sup>3</sup> / <sub>8</sub> "	6' 2 <sup>1</sup> / <sub>4</sub> "
4	7' 2 <sup>1</sup> / <sub>2</sub> "	8' 3"
5	9' 0 <sup>1</sup> / <sub>8</sub> "	10' 3 <sup>3</sup> / <sub>8</sub> "
6	10' 9 <sup>3</sup> / <sub>8</sub> "	12' 4 <sup>3</sup> / <sub>8</sub> "
7	12' 7 <sup>3</sup> / <sub>8</sub> "	14' 5 <sup>1</sup> / <sub>4</sub> "
8	14' 5 <sup>5</sup> / <sub>8</sub> "	16' 5 <sup>7</sup> / <sub>8</sub> "
9	16' 2 <sup>3</sup> / <sub>4</sub> "	18' 6 <sup>5</sup> / <sub>8</sub> "
10	18' 0 <sup>3</sup> / <sub>8</sub> "	20' 7 <sup>3</sup> / <sub>8</sub> "
11	19' 10"	22' 8 <sup>1</sup> / <sub>8</sub> "
12	21' 7 <sup>5</sup> / <sub>8</sub> "	24' 8 <sup>3</sup> / <sub>8</sub> "
13	23' 5 <sup>1</sup> / <sub>4</sub> "	26' 9 <sup>5</sup> / <sub>8</sub> "
14	25' 2 <sup>5</sup> / <sub>8</sub> "	28' 10 <sup>3</sup> / <sub>8</sub> "
15	27' 0 <sup>1</sup> / <sub>2</sub> "	30' 11 <sup>1</sup> / <sub>8</sub> "
16	28' 10 <sup>1</sup> / <sub>8</sub> "	32' 11 <sup>7</sup> / <sub>8</sub> "
17	30' 7 <sup>1</sup> / <sub>4</sub> "	35' 0 <sup>1</sup> / <sub>2</sub> "
18	32' 5 <sup>3</sup> / <sub>8</sub> "	37' 1 <sup>1</sup> / <sub>4</sub> "
19	34' 3"	39' 2"
20	36' 0 <sup>5</sup> / <sub>8</sub> "	41' 2 <sup>3</sup> / <sub>4</sub> "
21	37' 10 <sup>1</sup> / <sub>4</sub> "	43' 3 <sup>1</sup> / <sub>2</sub> "
22	39' 7 <sup>5</sup> / <sub>8</sub> "	45' 4 <sup>1</sup> / <sub>4</sub> "
23	41' 5 <sup>1</sup> / <sub>8</sub> "	47' 5"
24	43' 3 <sup>1</sup> / <sub>4</sub> "	49' 5 <sup>3</sup> / <sub>4</sub> "
25	45' 0 <sup>7</sup> / <sub>8</sub> "	51' 6 <sup>1</sup> / <sub>2</sub> "

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	7 <sup>1</sup> / <sub>8</sub> "	1"
1	1 <sup>3</sup> / <sub>4</sub> "	2"
1½	2 <sup>3</sup> / <sub>4</sub> "	3 <sup>1</sup> / <sub>8</sub> "
2	3 <sup>3</sup> / <sub>8</sub> "	4 <sup>1</sup> / <sub>8</sub> "
2½	4 <sup>1</sup> / <sub>2</sub> "	5 <sup>1</sup> / <sub>8</sub> "
3	5 <sup>3</sup> / <sub>8</sub> "	6 <sup>1</sup> / <sub>8</sub> "
3½	6 <sup>1</sup> / <sub>4</sub> "	7 <sup>1</sup> / <sub>4</sub> "
4	7 <sup>1</sup> / <sub>4</sub> "	8 <sup>1</sup> / <sub>4</sub> "
4½	8 <sup>3</sup> / <sub>8</sub> "	9 <sup>1</sup> / <sub>4</sub> "
5	9"	10 <sup>1</sup> / <sub>4</sub> "
5½	9 <sup>5</sup> / <sub>8</sub> "	11 <sup>3</sup> / <sub>8</sub> "
6	10 <sup>1</sup> / <sub>8</sub> "	12 <sup>3</sup> / <sub>8</sub> "
6½	11 <sup>1</sup> / <sub>4</sub> "	13 <sup>3</sup> / <sub>8</sub> "
7	12 <sup>3</sup> / <sub>8</sub> "	14 <sup>3</sup> / <sub>8</sub> "
7½	13 <sup>5</sup> / <sub>8</sub> "	15 <sup>1</sup> / <sub>2</sub> "
8	14 <sup>1</sup> / <sub>2</sub> "	16 <sup>1</sup> / <sub>2</sub> "
8½	15 <sup>5</sup> / <sub>8</sub> "	17 <sup>1</sup> / <sub>2</sub> "
9	16 <sup>1</sup> / <sub>4</sub> "	18 <sup>1</sup> / <sub>2</sub> "
9½	17 <sup>5</sup> / <sub>8</sub> "	19 <sup>5</sup> / <sub>8</sub> "
10	18 <sup>1</sup> / <sub>8</sub> "	20 <sup>5</sup> / <sub>8</sub> "
10½	19"	21 <sup>5</sup> / <sub>8</sub> "
11	19 <sup>5</sup> / <sub>8</sub> "	22 <sup>5</sup> / <sub>8</sub> "
11½	20 <sup>3</sup> / <sub>4</sub> "	23 <sup>3</sup> / <sub>4</sub> "

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1 <sup>3</sup> / <sub>4</sub> "	13	1' 11 <sup>1</sup> / <sub>2</sub> "
2	3 <sup>5</sup> / <sub>8</sub> "	14	2' 1 <sup>1</sup> / <sub>4</sub> "
3	5 <sup>3</sup> / <sub>8</sub> "	15	2' 3"
4	7 <sup>1</sup> / <sub>4</sub> "	16	2' 4 <sup>3</sup> / <sub>8</sub> "
5	9"	17	2' 6 <sup>5</sup> / <sub>8</sub> "
6	10 <sup>7</sup> / <sub>8</sub> "	18	2' 8 <sup>1</sup> / <sub>2</sub> "
7	1' 0 <sup>5</sup> / <sub>8</sub> "	19	2' 10 <sup>1</sup> / <sub>4</sub> "
8	1' 2 <sup>3</sup> / <sub>8</sub> "	20	3' 0"
9	1' 4 <sup>1</sup> / <sub>4</sub> "	21	3' 1 <sup>1</sup> / <sub>8</sub> "
10	1' 6"	22	3' 3 <sup>3</sup> / <sub>8</sub> "
11	1' 7 <sup>5</sup> / <sub>8</sub> "	23	3' 5 <sup>1</sup> / <sub>2</sub> "
12	1' 9 <sup>3</sup> / <sub>8</sub> "	24	3' 7 <sup>1</sup> / <sub>4</sub> "

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1 <sup>1</sup> / <sub>8</sub> "	1 <sup>1</sup> / <sub>16</sub> "	4"	6"
1 <sup>3</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>16</sub> "	6"	9"
1 <sup>1</sup> / <sub>2</sub> "	1 <sup>1</sup> / <sub>16</sub> "	8"	11 <sup>1</sup> / <sub>16</sub> "

## 19 INCH RISE 19-12 PITCH 57¼° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 10½"	2' 1½"
2	3' 9"	4' 3"
3	5' 7⅞"	6' 4⅞"
4	7' 5⅞"	8' 5⅞"
5	9' 4⅞"	10' 7⅞"
6	11' 2⅞"	12' 8⅞"
7	13' 1¼"	14' 10⅜"
8	14' 11¾"	16' 11¾"
9	16' 10¼"	19' 1¼"
10	18' 8¾"	21' 2¾"
11	20' 7¼"	23' 4¼"
12	22' 5⅞"	25' 5¾"
13	24' 4⅞"	27' 7⅞"
14	26' 2⅞"	29' 8⅞"
15	28' 1⅞"	31' 10⅞"
16	29' 11½"	33' 11⅞"
17	31' 10"	36' 1⅞"
18	33' 8½"	38' 2⅞"
19	35' 7"	40' 4"
20	37' 5½"	42' 5½"
21	39' 3⅞"	44' 7"
22	41' 2⅞"	46' 8½"
23	43' 0⅞"	48' 9⅞"
24	44' 11⅞"	50' 11⅞"
25	46' 9¾"	53' 0⅞"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	⅞"	1"
1	1⅞"	2⅞"
1½	2¾"	3⅞"
2	3¾"	4¾"
2½	4⅞"	5¼"
3	5⅞"	6⅞"
3½	6½"	7⅞"
4	7½"	8½"
4½	8⅞"	9½"
5	9⅞"	10⅞"
5½	10¼"	11⅞"
6	11¼"	12¾"
6½	12⅞"	13¾"
7	13⅞"	14⅞"
7½	14"	15⅞"
8	15"	17"
8½	15⅞"	18"
9	16⅞"	19⅞"
9½	17¾"	20⅞"
10	18¾"	21¼"
10½	19⅞"	22¼"
11	20⅞"	23⅞"
11½	21½"	24⅞"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	1⅞"	13	2' 0⅞"
2	3¾"	14	2' 2¼"
3	5⅞"	15	2' 4⅞"
4	7½"	16	2' 6"
5	9⅞"	17	2' 7⅞"
6	11¼"	18	2' 9¾"
7	1' 1⅞"	19	2' 11⅞"
8	1' 3"	20	3' 1½"
9	1' 4⅞"	21	3' 3⅞"
10	1' 6¾"	22	3' 5¼"
11	1' 8⅞"	23	3' 7⅞"
12	1' 10½"	24	3' 9"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅞"	1½"	4"	6⅞"
1¾"	1⅞"	6"	9½"
1⅝"	1¾"	8"	12⅞"

## 20 INCH RISE 20-12 PITCH 59° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	1' 11 $\frac{3}{8}$ "	2' 2 $\frac{1}{4}$ "
2	3' 10 $\frac{5}{8}$ "	4' 4 $\frac{1}{2}$ "
3	5' 10"	6' 6 $\frac{3}{4}$ "
4	7' 9 $\frac{1}{4}$ "	8' 8 $\frac{5}{8}$ "
5	9' 8 $\frac{5}{8}$ "	10' 11 $\frac{1}{8}$ "
6	11' 8"	13' 1 $\frac{3}{8}$ "
7	13' 7 $\frac{1}{4}$ "	15' 3 $\frac{5}{8}$ "
8	15' 6 $\frac{5}{8}$ "	17' 5 $\frac{7}{8}$ "
9	17' 5 $\frac{7}{8}$ "	19' 8 $\frac{1}{8}$ "
10	19' 5 $\frac{1}{4}$ "	21' 10 $\frac{1}{4}$ "
11	21' 4 $\frac{1}{2}$ "	24' 0 $\frac{1}{2}$ "
12	23' 3 $\frac{7}{8}$ "	26' 2 $\frac{3}{4}$ "
13	25' 3 $\frac{1}{4}$ "	28' 5"
14	27' 2 $\frac{1}{2}$ "	30' 7 $\frac{1}{4}$ "
15	29' 1 $\frac{7}{8}$ "	32' 9 $\frac{1}{2}$ "
16	31' 1 $\frac{1}{8}$ "	34' 11 $\frac{5}{8}$ "
17	33' 0 $\frac{1}{2}$ "	37' 1 $\frac{7}{8}$ "
18	34' 11 $\frac{1}{8}$ "	39' 4 $\frac{1}{8}$ "
19	36' 11 $\frac{1}{8}$ "	41' 6 $\frac{3}{8}$ "
20	38' 10 $\frac{1}{2}$ "	43' 8 $\frac{5}{8}$ "
21	40' 9 $\frac{3}{4}$ "	45' 10 $\frac{7}{8}$ "
22	42' 9 $\frac{1}{8}$ "	48' 1"
23	44' 8 $\frac{1}{2}$ "	50' 3 $\frac{1}{4}$ "
24	46' 7 $\frac{3}{4}$ "	52' 5 $\frac{1}{2}$ "
25	48' 7 $\frac{1}{8}$ "	54' 7 $\frac{3}{4}$ "

Run In.	Common Rafter Length	Hip or Val. Rafter Length
$\frac{1}{2}$	1"	1 $\frac{1}{8}$ "
1	2"	2 $\frac{1}{8}$ "
1 $\frac{1}{2}$	2 $\frac{3}{8}$ "	3 $\frac{1}{4}$ "
2	3 $\frac{3}{8}$ "	4 $\frac{3}{8}$ "
2 $\frac{1}{2}$	4 $\frac{3}{8}$ "	5 $\frac{1}{2}$ "
3	5 $\frac{3}{8}$ "	6 $\frac{1}{2}$ "
3 $\frac{1}{2}$	6 $\frac{3}{4}$ "	7 $\frac{7}{8}$ "
4	7 $\frac{3}{4}$ "	8 $\frac{3}{4}$ "
4 $\frac{1}{2}$	8 $\frac{3}{4}$ "	9 $\frac{7}{8}$ "
5	9 $\frac{3}{4}$ "	10 $\frac{7}{8}$ "
5 $\frac{1}{2}$	10 $\frac{3}{4}$ "	12"
6	11 $\frac{5}{8}$ "	13 $\frac{1}{8}$ "
6 $\frac{1}{2}$	12 $\frac{5}{8}$ "	14 $\frac{1}{4}$ "
7	13 $\frac{5}{8}$ "	15 $\frac{1}{4}$ "
7 $\frac{1}{2}$	14 $\frac{1}{2}$ "	16 $\frac{3}{8}$ "
8	15 $\frac{1}{2}$ "	17 $\frac{1}{2}$ "
8 $\frac{1}{2}$	16 $\frac{1}{2}$ "	18 $\frac{3}{8}$ "
9	17 $\frac{1}{2}$ "	19 $\frac{3}{8}$ "
9 $\frac{1}{2}$	18 $\frac{3}{8}$ "	20 $\frac{3}{4}$ "
10	19 $\frac{3}{8}$ "	21 $\frac{1}{8}$ "
10 $\frac{1}{2}$	20 $\frac{3}{8}$ "	23"
11	21 $\frac{3}{8}$ "	24"
11 $\frac{1}{2}$	22 $\frac{3}{8}$ "	25 $\frac{1}{8}$ "

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	2"	13	2' 1 $\frac{1}{4}$ "
2	3 $\frac{3}{8}$ "	14	2' 3 $\frac{1}{4}$ "
3	5 $\frac{1}{8}$ "	15	2' 5 $\frac{1}{8}$ "
4	7 $\frac{1}{4}$ "	16	2' 7 $\frac{1}{8}$ "
5	9 $\frac{1}{4}$ "	17	2' 9"
6	11 $\frac{1}{8}$ "	18	2' 11"
7	1' 1 $\frac{5}{8}$ "	19	3' 0 $\frac{1}{8}$ "
8	1' 3 $\frac{1}{2}$ "	20	3' 2 $\frac{1}{8}$ "
9	1' 5 $\frac{1}{2}$ "	21	3' 4 $\frac{1}{8}$ "
10	1' 7 $\frac{3}{8}$ "	22	3' 6 $\frac{1}{4}$ "
11	1' 9 $\frac{3}{8}$ "	23	3' 8 $\frac{1}{4}$ "
12	1' 11 $\frac{3}{8}$ "	24	3' 10 $\frac{5}{8}$ "

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1 $\frac{3}{8}$ "	1 $\frac{1}{16}$ "	4"	6 $\frac{1}{16}$ "
1 $\frac{1}{4}$ "	1 $\frac{1}{16}$ "	6"	10"
1 $\frac{1}{8}$ "	1 $\frac{13}{16}$ "	8"	13 $\frac{5}{16}$ "

## 21 INCH RISE 21-12 PITCH 60¼° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	2' 0⅛"	2' 3"
2	4' 0⅜"	4' 6"
3	6' 0½"	6' 9"
4	8' 0¾"	9' 0"
5	10' 0⅞"	11' 3"
6	12' 1⅛"	13' 6"
7	14' 1¼"	15' 9"
8	16' 1½"	18' 0"
9	18' 1⅞"	20' 3"
10	20' 2"	22' 6"
11	22' 2⅜"	24' 9"
12	24' 2½"	27' 0"
13	26' 2⅞"	29' 3"
14	28' 2⅞"	31' 6"
15	30' 2¾"	33' 9"
16	32' 3"	36' 0"
17	34' 3⅛"	38' 3"
18	36' 3⅜"	40' 6"
19	38' 3½"	42' 9"
20	40' 3⅞"	45' 0"
21	42' 3⅞"	47' 3"
22	44' 4⅛"	49' 6"
23	46' 4¼"	51' 9"
24	48' 4½"	54' 0"
25	50' 4⅝"	56' 3"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	1"	1⅛"
1	2"	2¼"
1½	3"	3⅜"
2	4"	4½"
2½	5"	5⅝"
3	6"	6¾"
3½	7"	7⅞"
4	8⅛"	8¾"
4½	9⅛"	9"
5	10⅛"	10⅞"
5½	11⅛"	11¼"
6	12⅛"	12⅜"
6½	13⅛"	13⅝"
7	14⅛"	14⅝"
7½	15⅛"	15¾"
8	16⅛"	16⅞"
8½	17⅛"	18"
9	18⅛"	19⅞"
9½	19⅛"	20¼"
10	20⅛"	21⅞"
10½	21¼"	22⅞"
11	22¼"	22⅞"
11½	23¼"	23⅝"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	2"	13	2' 2¼"
2	4"	14	2' 4¼"
3	6"	15	2' 6¼"
4	8⅞"	16	2' 8¼"
5	10⅞"	17	2' 10¼"
6	1' 0⅞"	18	3' 0¼"
7	1' 2⅞"	19	3' 2¼"
8	1' 4⅞"	20	3' 4⅜"
9	1' 6⅞"	21	3' 6⅜"
10	1' 8⅞"	22	3' 8⅞"
11	1' 10⅞"	23	3' 10⅞"
12	2' 0¼"	24	4' 0⅞"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅝"	1⅞"	4"	7"
1¾"	1¾"	6"	10½"
1⅞"	1⅞"	8"	14"

## 22 INCH RISE 22-12 PITCH 61½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	2' 1"	2' 3¼"
2	4' 2½"	4' 7⅝"
3	6' 3⅝"	6' 11¾"
4	8' 4¾"	9' 3⅝"
5	10' 5¼"	11' 6⅞"
6	12' 6⅜"	13' 10¾"
7	14' 7⅝"	16' 2½"
8	16' 8½"	18' 6¼"
9	18' 9½"	20' 10⅞"
10	20' 10⅝"	23' 1⅞"
11	22' 11⅝"	25' 5⅝"
12	25' 0¾"	27' 9⅝"
13	27' 1¾"	30' 1¼"
14	29' 2⅞"	32' 5"
15	31' 3⅞"	34' 8¾"
16	33' 5"	37' 0½"
17	35' 6"	39' 4⅜"
18	37' 7⅞"	41' 8⅞"
19	39' 8⅞"	43' 11⅞"
20	41' 9¼"	46' 3⅝"
21	43' 10¼"	48' 7½"
22	45' 11⅝"	50' 11¼"
23	48' 0⅝"	53' 3"
24	50' 1½"	55' 6⅞"
25	52' 2½"	57' 10⅝"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	1"	1⅞"
1	2⅞"	2⅝"
1½	3⅞"	3⅝"
2	4⅞"	4⅞"
2½	5¼"	5¾"
3	6¼"	7"
3½	7¼"	8⅞"
4	8⅝"	9¼"
4½	9⅝"	10⅝"
5	10½"	11⅝"
5½	11½"	12⅝"
6	12½"	13⅝"
6½	13½"	15"
7	14⅝"	16¼"
7½	15⅝"	17⅝"
8	16⅝"	18½"
8½	17¾"	19⅝"
9	18¾"	20⅞"
9½	19¾"	22"
10	20⅞"	23⅞"
10½	21⅞"	24¼"
11	23"	25½"
11½	24"	26⅝"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	2⅞"	13	2' 3¼"
2	4⅞"	14	2' 5¼"
3	6¼"	15	2' 7⅝"
4	8⅜"	16	2' 9⅝"
5	10½"	17	2' 11½"
6	1' 0½"	18	3' 1⅝"
7	1' 2⅝"	19	3' 3⅝"
8	1' 4¾"	20	3' 5¾"
9	1' 6¾"	21	3' 7⅞"
10	1' 8⅞"	22	3' 10"
11	1' 11"	23	4' 0"
12	2' 1"	24	4' 2⅞"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅝"	1¼"	4"	7⅞"
1¾"	1⅜"	6"	11¼"
1⅞"	1½"	8"	14¾"

## 23 INCH RISE 23-12 PITCH 62½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	2' 2"	2' 4⅝"
2	4' 3⅞"	4' 9⅞"
3	6' 5⅞"	7' 1⅜"
4	8' 7¾"	9' 6⅞"
5	10' 9¾"	11' 10⅞"
6	12' 11⅝"	14' 3½"
7	15' 1⅝"	16' 8⅞"
8	17' 3½"	19' 0⅝"
9	19' 5½"	21' 5¼"
10	21' 7⅝"	23' 9⅞"
11	23' 9⅝"	26' 2⅜"
12	25' 11¼"	28' 7"
13	28' 1¼"	30' 11⅝"
14	30' 3¼"	33' 4⅞"
15	32' 5⅞"	35' 8¾"
16	34' 7⅞"	38' 1⅜"
17	36' 9"	40' 5⅞"
18	38' 11"	42' 10½"
19	41' 0⅞"	45' 3⅞"
20	43' 2⅞"	47' 7⅞"
21	45' 4¾"	50' 0¼"
22	47' 6¾"	52' 4⅞"
23	49' 8⅞"	54' 9⅞"
24	51' 10⅞"	57' 2"
25	54' 0½"	59' 6⅞"

Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	1⅞"	1¼"
1	2⅞"	2⅜"
1½	3¼"	3⅝"
2	4⅞"	4¾"
2½	5⅞"	6"
3	6½"	7⅞"
3½	7⅝"	8⅜"
4	8⅝"	9½"
4½	9¾"	10¼"
5	10¾"	12"
5½	11⅞"	13⅞"
6	13"	14¼"
6½	14⅞"	15½"
7	15⅞"	16⅝"
7½	16¼"	17⅞"
8	17⅝"	19"
8½	18⅝"	20¼"
9	19½"	21⅝"
9½	20⅝"	22⅝"
10	21⅞"	23¾"
10½	22¾"	25"
11	23¾"	26¼"
11½	24⅞"	27⅞"

Spacing In.	Jack Rafter Length
1	2¼"
2	4⅜"
3	6½"
4	8⅞"
5	10¾"
6	1' 1"
7	1' 3⅞"
8	1' 5¼"
9	1' 7⅞"
10	1' 9⅞"
11	1' 11¾"
12	2' 2"

Spacing In.	Jack Rafter Length
13	2' 4⅞"
14	2' 6¼"
15	2' 8¾"
16	2' 10⅞"
17	3' 0¾"
18	3' 2⅞"
19	3' 5⅞"
20	3' 7¼"
21	3' 9⅞"
22	3' 11½"
23	4' 1¾"
24	4' 3⅞"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1⅝"	1¾"	4"	7⅞"
1¾"	1⅞"	6"	11½"
1⅞"	2"	8"	15⅞"

## 24 INCH RISE 24-12 PITCH 63½° DEGREES

Run Ft.	Common Rafter Length	Hip or Val. Rafter Length
1	2' 2½"	2' 5⅝"
2	4' 5⅝"	4' 10¾"
3	6' 8½"	7' 4⅞"
4	8' 11⅝"	9' 9⅝"
5	11' 2⅞"	12' 3"
6	13' 5"	14' 8⅜"
7	15' 7⅝"	17' 1¾"
8	17' 10⅝"	19' 7⅞"
9	20' 1½"	22' 0½"
10	22' 4⅜"	24' 6"
11	24' 7⅞"	26' 11⅜"
12	26' 10"	29' 4¾"
13	29' 0⅞"	31' 10⅞"
14	31' 3⅝"	34' 3½"
15	33' 6½"	36' 8⅞"
16	35' 9⅜"	39' 2¼"
17	38' 0⅞"	41' 7¾"
18	40' 3"	44' 1⅞"
19	42' 5⅞"	46' 6½"
20	44' 8⅞"	48' 11⅞"
21	46' 11½"	51' 5¼"
22	49' 2⅜"	53' 10⅞"
23	51' 5⅞"	56' 4"
24	53' 8"	58' 9½"
25	55' 10⅞"	61' 2⅞"

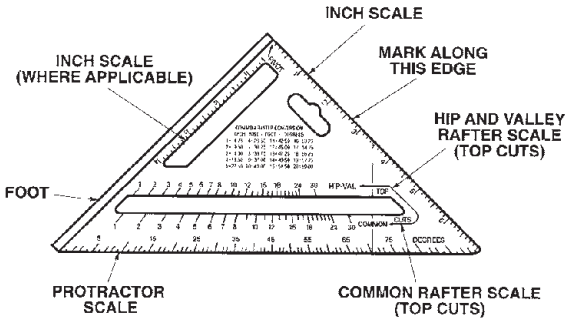
Run In.	Common Rafter Length	Hip or Val. Rafter Length
½	1⅞"	1¼"
1	2¼"	2½"
1½	3⅜"	3⅝"
2	4½"	4⅞"
2½	5⅞"	6⅞"
3	6¾"	7⅞"
3½	7⅞"	8⅞"
4	9"	9¾"
4½	10"	11"
5	11⅞"	12¼"
5½	12¼"	13½"
6	13⅜"	14⅝"
6½	14½"	15⅞"
7	15⅞"	17⅞"
7½	16¾"	18¼"
8	17⅞"	19½"
8½	19"	20¾"
9	20⅞"	22"
9½	21¼"	23¼"
10	22⅞"	24⅞"
10½	23⅞"	25⅝"
11	24½"	26⅞"
11½	25⅞"	28⅞"

Spacing In.	Jack Rafter Length	Spacing In.	Jack Rafter Length
1	2¼"	13	2' 5⅞"
2	4½"	14	2' 7¼"
3	6¾"	15	2' 9½"
4	9"	16	2' 11¾"
5	11⅞"	17	3' 2"
6	1' 1⅞"	18	3' 4¼"
7	1' 3⅞"	19	3' 6½"
8	1' 5⅞"	20	3' 8¾"
9	1' 8⅞"	21	3' 11"
10	1' 10⅞"	22	4' 1¼"
11	2' 0⅞"	23	4' 3⅞"
12	2' 2⅞"	24	4' 5⅞"

Rafter Thickness	Miter Allowance for Hip and Valley Rafters	Rafter Depth	Bottom Allowance
1½"	1⅜"	4"	8"
1¾"	1⅝"	6"	12⅞"
1⅞"	2⅞"	8"	16⅞"

# RAFTER SQUARE AND FRAMING SQUARE DIAGRAMS

## Rafter Square



## Framing Square

