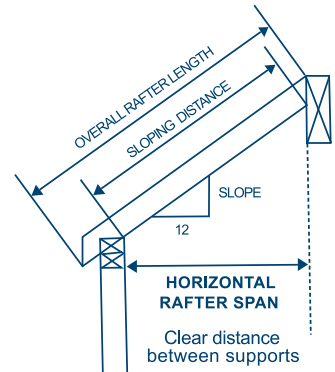


ROOF RAFTER LENGTH

Determining Roof Rafter Length

Conversion Factors for Roof Rafters

SLOPE (IN 12)	SLOPE FACTOR	SLOPE (IN 12)	SLOPE FACTOR
3	1.031	12	1.414
4	1.054	13	1.474
5	1.083	14	1.537
6	1.118	15	1.601
7	1.158	16	1.667
8	1.202	17	1.734
9	1.25	18	1.803
10	1.302	19	1.873
11	1.357	20	1.944



- To convert "Rafter Span" to Sloping Distance:
1. Select slope factor for given slope in table
 2. Multiply Horizontal Span by "Slope Factor".

Example:

If slope is 4 in 12 and rafter span is 12'-6", then sloping distance = 12.5 x 1.054 = 13.175' or 13'-2".
 (Note: the overall rafter length depends on the length of the overhang.)

Cutting a Rafter Birdsmouth

1. Determine the rafter length using table above: Ex: Run = 20', slope = 4.
Rafter Length = 21'-1" using table above.
2. Measure θ (from Table 1) at top edge of rafter.
3. Draw the building line.
4. Draw $2/3$ width line from top edge of rafter.
5. Use square to draw seat cut line from bottom edge of rafter to intersect building line.

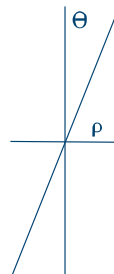
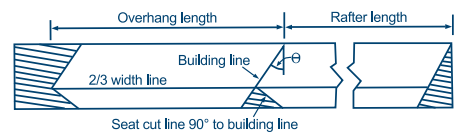


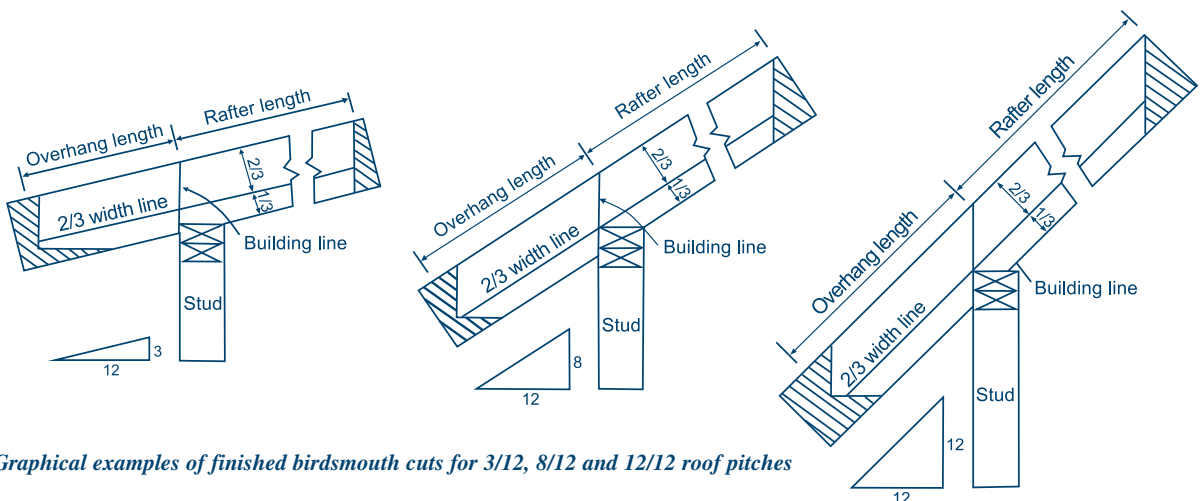
Table 1

Slope	3	4	5	6	7	8	9	10	11	12
0°	14	18	23	27	30	34	37	40	43	45
p°	76	72	67	63	60	56	53	50	47	45

Layout lines for a common rafter



Note: the birdsmouth notch should be limited to $1/3$ the rafter width to maintain $2/3$ of the rafter section.



Graphical examples of finished birdsmouth cuts for 3/12, 8/12 and 12/12 roof pitches

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