

# Irregular Hip Roof Calculations

Major Pitch 6:12

Minor Pitch 12:12

Framing Square Usage,  $\text{atan}(\text{tongue} \div \text{body}) = \text{Roof Framing Angles}$

Major Plan Angle =  $\text{atan}(24 \div 12) = 63.43^\circ$

Minor Plan Angle =  $\text{atan}(12 \div 24) = 26.56^\circ$

Major Pitch Angle =  $\text{atan}(12 \div 24) = 26.56^\circ$

Minor Pitch Angle =  $\text{atan}(12 \div 12) = 45^\circ$

Hip Rafter Pitch Angle =  $\text{atan}(12 \div 26.83) = 24.09^\circ$

Major Side Hip Rafter Backing Angle =  $\text{atan}(10.95 \div 53.67) = 11.54^\circ$

Minor Side Hip Rafter Backing Angle =  $\text{atan}(10.95 \div 13.42) = 39.23^\circ$

Major Side Hip Rafter Side Cut Angle =  $\text{atan}(53.67 \div 29.39) = 61.29^\circ$

Minor Side Hip Rafter Side Cut Angle =  $\text{atan}(13.42 \div 29.39) = 24.53^\circ$

Major Side Sheathing Angle =  $\text{atan}(26.83 \div 12) = 65.91^\circ$

Minor Side Sheathing Angle =  $\text{atan}(16.97 \div 24) = 35.26^\circ$

Major Side Jack Rafter Side Cut Angle =  $\text{atan}(12 \div 26.83) = 24.09^\circ$

Minor Side Jack Rafter Side Cut Angle =  $\text{atan}(24 \div 16.97) = 54.74^\circ$

Major Side Purlin Miter Angle =  $\text{atan}(12 \div 26.83) = 24.09^\circ$

Major Side Purlin Cross Cut Angle =  $\text{atan}(26.83 \div 12) = 65.91^\circ$

Major Side Frieze Block Miter Angle =  $\text{atan}(12 \div 53.67) = 12.60^\circ$

Major Side Frieze Block Saw Bevel Angle =  $\text{atan}(11.18 \div 4.88) = 23.58^\circ$

Minor Side Purlin Miter Angle =  $\text{atan}(24 \div 16.97) = 54.74^\circ$

Minor Side Purlin Cross Cut Angle =  $\text{atan}(16.97 \div 24) = 35.26^\circ$

Minor Side Frieze Block Miter Angle =  $\text{atan}(18.97 \div 13.42) = 54.74^\circ$

Minor Side Frieze Block Saw Bevel Angle =  $\text{atan}(11.55 \div 14.14) = 39.23^\circ$

12:12 Jack Rafter Difference

12" O.C. = 8.48"

16" O.C. = 11.31"

19.2" O.C. = 13.58"

24" O.C. = 16.97"

Plywood Sheathing Cut Dimension

67 7/8"

49"

Frieze Block Saw Bevel Angle

on face of Frieze Block

Perpendicular to Roof Plane

Frieze Block Miter Angle

on face of Frieze Block

Perpendicular to the Roof Plane

Purlin Cross Cut Angle

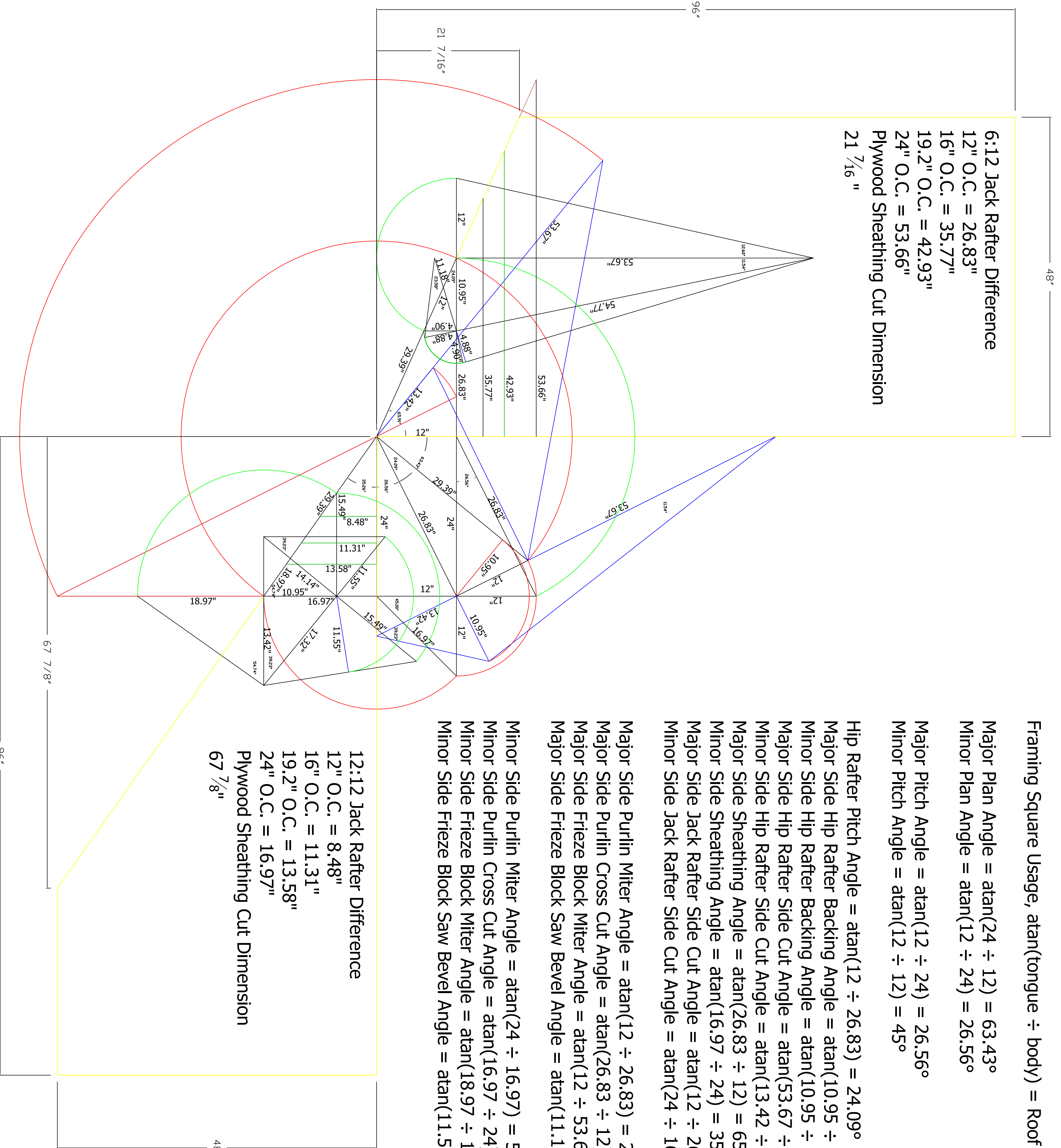
on top of Purlin

Perpendicular to Roof Plane

Purlin Miter Angle

on face of Purlin

Perpendicular to the Roof Plane



6:12 Jack Rafter Difference

12" O.C. = 26.83"

16" O.C. = 35.77"

19.2" O.C. = 42.93"

24" O.C. = 53.66"

Plywood Sheathing Cut Dimension

21 7/16"

48'

96'

67 7/8'

96'