

☑ BEAMCHEK™ EXAMPLES

NOTE: The BeamChek interface is often updated and buttons are occasionally relocated. The functions remain the same, but it may be necessary for you adjust between these examples and the current BeamChek interface.

RIDGE BEAM SIMPLE SPAN

EXAMPLE No. 1

ACTUAL MATERIALS, LOADS AND CODE REQUIREMENTS MAY VARY.
THIS IS AN ILLUSTRATION ONLY.

1. ENTER SPAN HERE

2. CLICK HERE TO CYCLE THRU PRESET LOADS OR ENTER PSF LOADS DIRECTLY HERE

3. ENTER THE TRIBUTARY LENGTH HERE

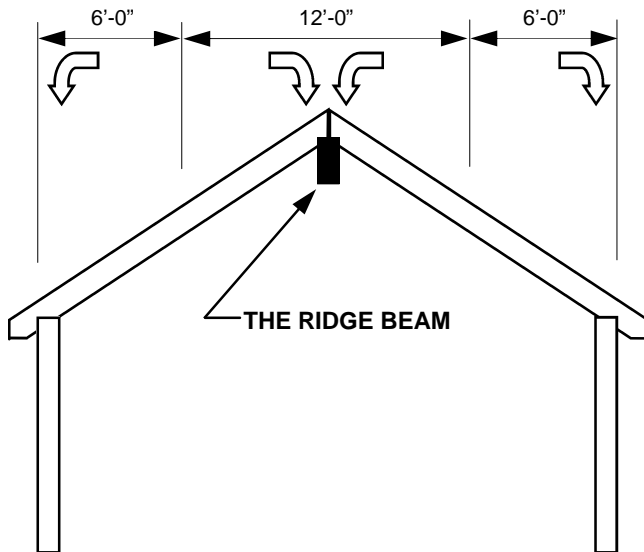
4. CLICK HERE TO MULTIPLY

5. CLICK HERE TO CALCULATE

THESE ARE THE INSTANT HELP BUTTONS

AUTOMATICALLY FILLED

Selection: None



SECTION VIEW

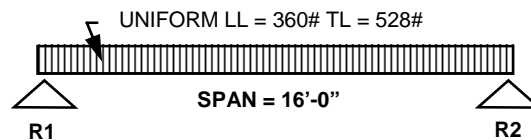
RIDGE BEAM DATA:

LIVE LOAD = 30 PSF
DEAD LOAD = 14 PSF
(DEAD LOAD MANUALLY INCREASED FOR ROOF SLOPE)
TOTAL LOAD = 44 PSF

SPAN IS 16'-0" TO CENTER OF POSTS SUPPORTING RIDGE BEAM.

DURATION OF LOAD IS 1.15 (SNOW)

TRIBUTARY LENGTH = 12'-0"
(EXCLUDE OUTER 6 FT OF RAFTERS WHICH BEAR ON OUTSIDE WALLS)



LOADING DIAGRAM

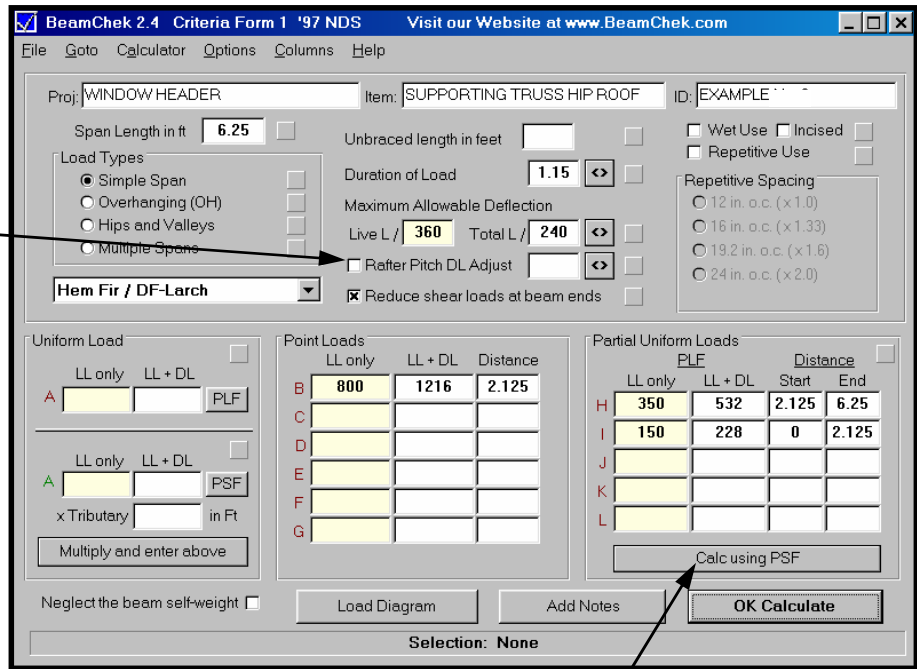
WINDOW HEADER EXAMPLE SIMPLE SPAN

EXAMPLE No. 2

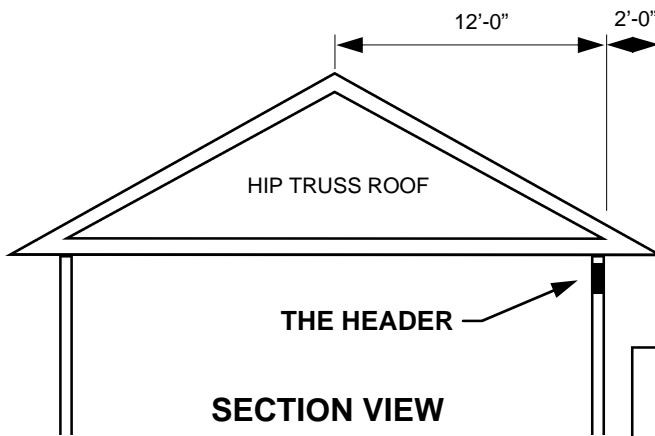
ACTUAL MATERIALS, LOADS AND CODE REQUIREMENTS MAY VARY. THIS IS AN ILLUSTRATION ONLY.

NOTE: SLOPE ADJUSTMENT WAS NOT USED IN THIS CASE. INSTEAD, THE DEAD LOAD WAS MANUALLY INCREASED TO ADJUST FOR THE ROOF SLOPE (ADDED TO THE LOADS BEFORE THEY WERE ENTERED).

THE AUTOMATIC RAFTER SLOPE DEAD LOAD ADJUSTMENT WOULD HAVE MULTIPLIED THE LOADS BY ADJUSTING THE ACTUAL LENGTH OF THE SPAN. IN THIS CASE, THE SPAN IS THE HEADER LENGTH, NOT THE LENGTH OF THE RAFTER.



Click here for window to multiply Partial Uniform Loads in PSF x tributary length



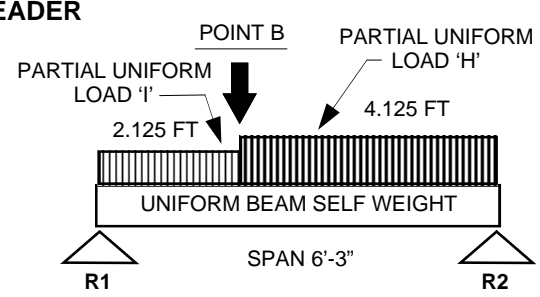
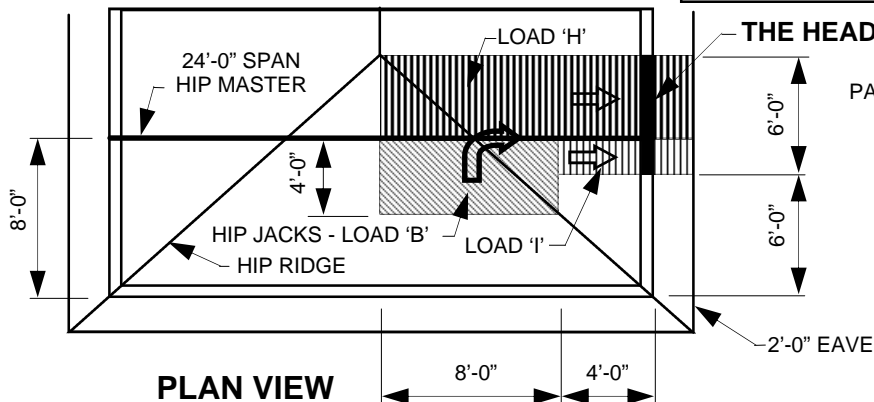
HEADER LOCATION: SUPPORTING HIP TRUSS ROOF LOAD AND UNDER HIP MASTER CONCENTRATED LOAD.

HEADER SPAN = 6'-3" (6"-0" ROUGH OPENING PLUS 1-1/2" AT EACH END FOR MINIMUM BEARING.)

LOAD DATA: LIVE = 25 PSF, DEAD = 13 PSF, TOTAL = 38 PSF
DURATION OF LOAD = 1.15 (SNOW)

LOAD H TRIBUTARY LENGTH = 12 FT + 2 FT EAVE = 14 FT
LOAD I TRIBUTARY LENGTH = 4 FT + 2 FT EAVE = 6 FT
LOAD B AREA = 8' x 4' = 32 SQ FT X 25# = 800# LIVE LD POINT
 32 SQ FT X 38# = 1216# TOTAL LD POINT

APPROXIMATE LOAD CONDITIONS BASED ON A TRUSS CONFIGURATION THAT CAN VARY. EXAMPLE IS TO ILLUSTRATE THE USE OF PARTIAL UNIFORM LOADS. MORE ACCURACY COULD BE ACHIEVED BY TAKING EACH TRUSS AS AN INDIVIDUAL PT LOAD.



FLOOR JOIST EXAMPLE SIMPLE SPAN

EXAMPLE No. 3

ACTUAL MATERIALS, LOADS AND CODE REQUIREMENTS MAY VARY. THIS IS AN ILLUSTRATION ONLY.

QUICKLY CYCLE THRU TYPICAL SETTINGS BY CLICKING HERE

ENTER SPAN HERE

SET DURATION ADJUSTMENT

SET DEFLECTION REQUIREMENTS

ENTER LIVE AND TOTAL LOADS PER LINEAL FOOT

JOIST SELF-WEIGHT HAS ALREADY BEEN MANUALLY ADDED TO TOTAL LOAD. NO NEED TO ADD IT AUTOMATICALLY

CLICK HERE TO SEE A LOADING DIAGRAM

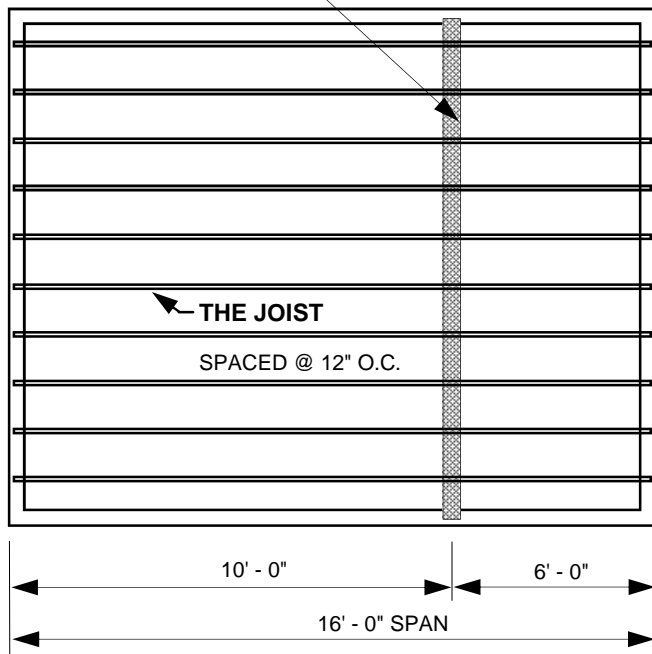
CLICK HERE TO ADD NOTES TO PRINT-OUT

THESE ARE INSTANT HELP BUTTONS

THESE JOISTS QUALIFY FOR REPETITIVE USE ADJUSTMENT

IF YOU SET THE JOIST SPACING TO ANOTHER SETTING, **ALL** YOUR LOADS WILL BE AUTO INCREASED APPROPRIATELY WHEN YOU CLICK "OK CALCULATE"

8 FT. HIGH NON-BEARING PARTITION ABOVE. THIS IS POINT LOAD "B"



PLAN VIEW

JOIST LOCATION:

FLOOR OVER NON-HEATED SPACE. ASSUME JOIST SPACING OF 12' O.C.

LOAD DATA: LIVE = 40 PSF DEAD = 10 PSF TOTAL = 50 PSF

FLOOR DEAD LOAD:

3/4" PLYWD SUBFLOOR	2.2 PSF
JOISTS	3.8 APPROXIMATE
6" INSULATION BATTS	1.5
5/8" WALLBOARD	2.5
TOTAL	10.0 PSF

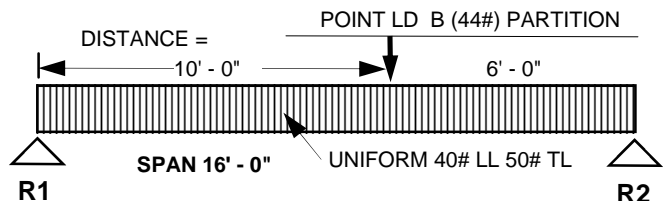
NOTE: JOIST SELF-WEIGHT IS ALREADY INCLUDED.

PARTITION DEAD LOAD:

2X4S @ 16" O.C.	1.5 PSF
1/2" WALLBOARD	2.0
1/2" WALLBOARD	2.0
TOTAL	5.5 PSF

PARTITION HEIGHT:

8 FT X 5.5 PSF = 44 PLF THIS IS POINT LOAD 'B'
(44# DEAD LOAD + 0# LIVE LOAD = 44# TOTAL POINT LOAD)



LOAD DIAGRAM

RAFTER EXAMPLE SIMPLE SPAN

EXAMPLE No. 4

ACTUAL MATERIALS, LOADS AND CODE REQUIREMENTS MAY VARY. THIS IS AN ILLUSTRATION ONLY.

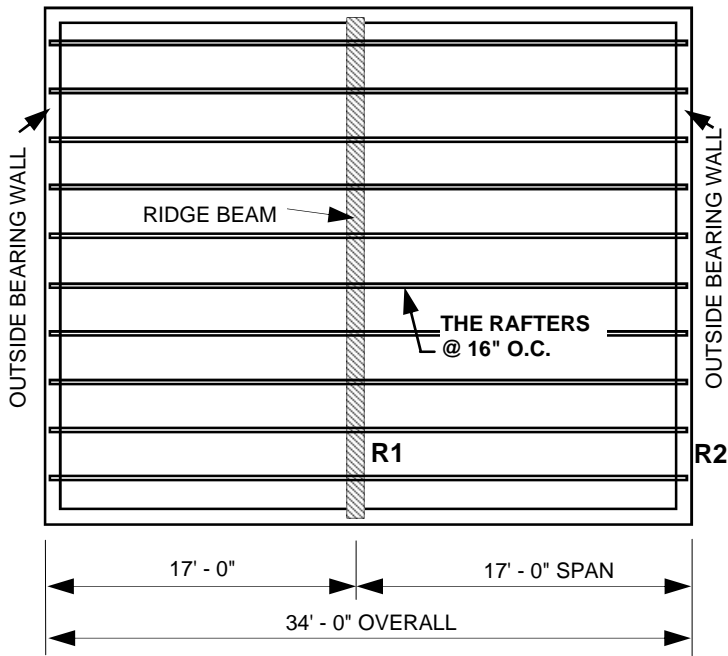
NO SNOW, DURATION OF LOAD SET FOR 7 DAY DURATION

DEAD LOAD WILL BE AUTOMATICALLY INCREASED FOR ACTUAL LENGTH OF RAFTER AT 7:12 PITCH

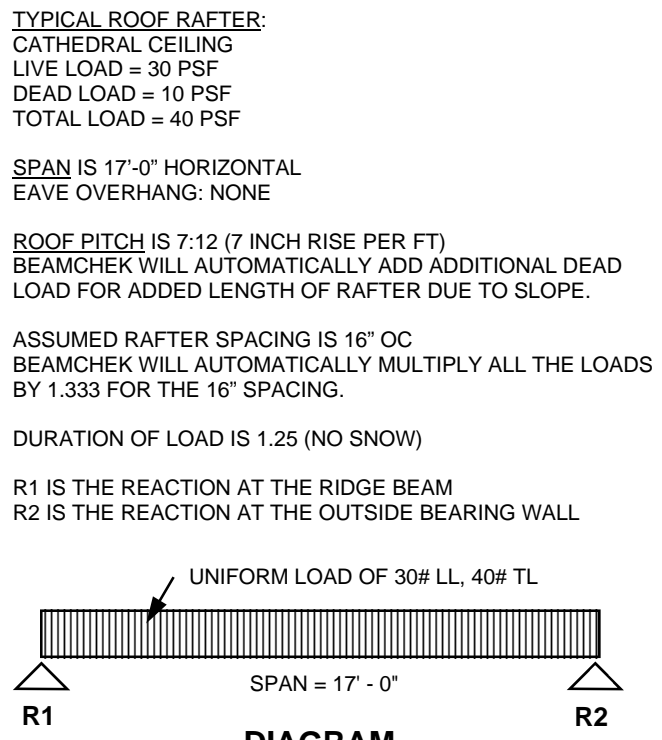
ENTER UNIFORM LOADS HERE

BEAM SELF-WEIGHT HAS BEEN INCLUDED IN THE UNIFORM LOAD. NO NEED TO DUPLICATE IT

QUALIFIES FOR REP USE, TEST AT 16" OC SPACING (ALL LOADS WILL BE AUTO MULTIPLIED BY 1.33)



PLAN VIEW



DIAGRAM

OVERHANGING JOIST EXAMPLE

EXAMPLE No. 5

ACTUAL MATERIALS, LOADS AND CODE REQUIREMENTS MAY VARY. THIS IS AN ILLUSTRATION ONLY.

ENTER BACKSPAN

SELECT OVERHANGING

SELECT DEFLECTION LIMIT FOR LIVE AND TOTAL LOADS

ENTER UNIFORM LOAD ON BACKSPAN

LETTERS ARE FOR LOAD IDENTIFICATION ON PRINT-OUT AND NOTES

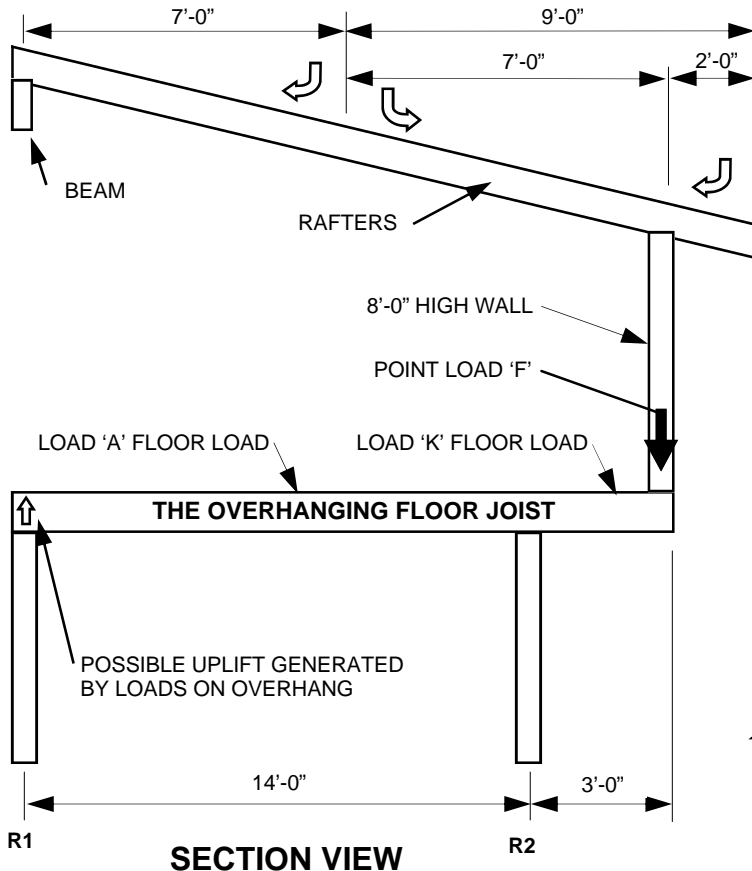
ENTER OVERHANG POINT LOAD IN BLUE POINT LOAD BOXES

JOIST WEIGHT HAS ALREADY BEEN INCLUDED IN LOADS

OVERHANGING DESIGNS MUST BE CHECKED FOR THE MOST CRITICAL CONDITION. CLICK HERE TO UNBALANCE OR RESTORE BACKSPAN AND OVERHANG LIVE LOADS AND RE-TEST YOUR BEAM CANDIDATE.

ALL LOADS WILL BE AUTO-MULTIPLIED BY 1.33

ENTER UNIFORM LOAD ON OVERHANG IN BLUE PARTIAL UNIFORM LOAD BOXES



OVERHANGING FLOOR JOIST DATA:

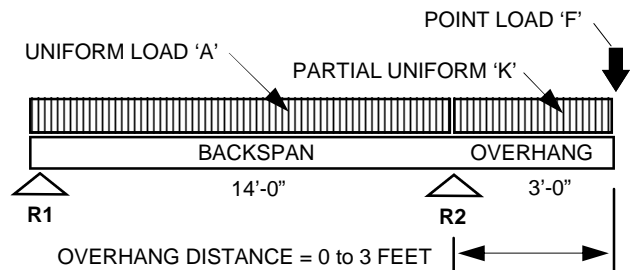
FLOOR PSF: LIVE = 40, DEAD = 10, TOTAL = 50
 BACKSPAN = 14 FT, OVERHANG = 3 FT

ROOF TRIBUTARY LENGTH = 9 FT
 ROOF PSF LIVE = 25, DEAD = 13, TOTAL = 38

LOAD F ROOF POINT LOAD

LIVE 9 FT X 25 = **225 LBS LIVE LOAD**
 TOTAL 9 FT X 38 = 342 LBS
 WALL DEAD LOAD = 8 PSF X 8 FT = 64 LBS
 ROOF POINT LOAD TOTAL: 342 + 64 = **406 LBS TOTAL**
 ASSUMED JOIST SPACING AT 16" O.C.
 (LOADS WILL BE AUTO-MULTIPLIED BY 1.33)

TEST UNBALANCED LOADS: CALCULATE A JOIST WITH ALL LOADS FIRST, THEN REMOVE THE LIVE LOADS FROM BACKSPAN (**CHECK FOR UPLIFT AT R1**), THEN REMOVE ONLY LIVE LOADS FROM OVERHANG AND CHECK AGAIN. YOU ARE LOOKING FOR THE MOST RESTRICTIVE LOAD COMBINATION OF LOADS.



LOAD DIAGRAM

HIP RAFTER UNIFORMLY INCREASING LOAD
 ACTUAL MATERIALS, LOADS AND CODE REQUIREMENTS MAY VARY. THIS IS AN ILLUSTRATION ONLY.

EXAMPLE No. 6

AUTOMATICALLY CALCULATED AFTER CLICKING 'OK' BUTTON BELOW

SELECT HIPS AND VALLEYS

ROOF SLOPE IS 9:12 PITCH. ADJUSTMENT WILL INCREASE THE DEAD LOAD

AUTOMATICALLY CALCULATED 'ETL' IS THE EQUIVALENT TABULAR LOAD

HIP SELF-WEIGHT AUTOMATICALLY ADDED TO LOADS

BeamChek 2.4 Criteria Form 1 '97 NDS Visit our Website at www.BeamChek.com

File Goto Calculator Options Columns Help

Proj: HIP RAFTER (BEAM) Item: UNIFORMLY INCREASING LOAD ID: EXAMPLE

Span Length in ft: 14.14 Unbraced length in feet: [] Wet Use [] Incised [] Repetitive Use []

Load Types: Simple Span [], Overhanging (OH) [], **Hips and Valleys [x]**, Multiple Spans []

Duration of Load: 1.15 Maximum Allowable Deflection: []

Live L / 240 Total L / 180 Rafter Pitch DL Adjust: 9 Reduce shear loads at beam ends []

Material: Hem Fir / DF-Larch

Uniform Load: LL only: 90.721 LL + DL: 154.22 ETL: []

Uniformly Increasing Load from R1 to R2: LL Only: 25 LL + DL: 42.5 PSF PLF: []

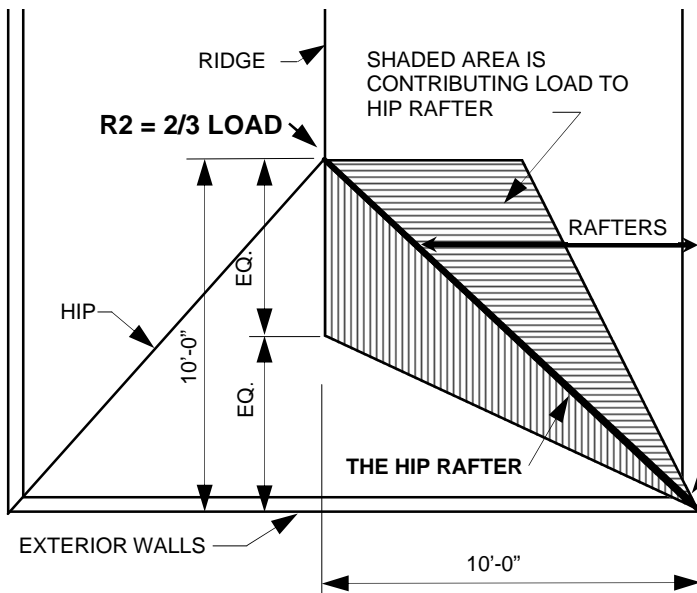
Plan View of Hip or Valley: [Diagram showing hip geometry with 'X' marks on contributing areas]

Selection: None

DURATION OF LOAD IS SET TO 1.15 FOR SNOW

ENTER PSF 25 LL, 39 TL. CLICK 'OK' BUTTON AND 39 IS INCREASED TO 42.5 FOR ROOF PITCH ADJUSTMENT

AREAS WITH 'X' ARE CONTRIBUTING WEIGHT TO THE HIP IN THIS EXAMPLE.



PLAN VIEW

HIP RAFTER DATA:

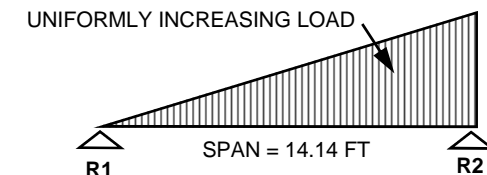
LIVE = 25 PSF (SNOW), DEAD = 14 PSF
 TOTAL = 39 PSF

ROOF PITCH = 9:12 (9 INCH RISE PER FOOT)
 BEAMCHEK WILL AUTOMATICALLY ADJUST THE DEAD LOAD FOR SLOPING INCREASE IN LENGTH OF THE RAFTERS.

SPAN: BEAMCHEK WILL AUTOMATICALLY CALCULATE THE HORIZONTAL LENGTH OF THE HIP.

LOADS ARE ENTERED IN PSF, BEAMCHEK WILL AUTOMATICALLY CALCULATE THE AREA CONTRIBUTING LOAD TO THE HIP RAFTER.

R1 = 1/3 LOAD



DIAGRAM

HEADER BELOW HIP INCREASING LOAD + UNIFORM LOAD EXAMPLE No. 7

ACTUAL MATERIALS, LOADS AND CODE REQUIREMENTS MAY VARY. THIS IS AN ILLUSTRATION ONLY.

ENTER SPAN

SEE NOTE BELOW

AUTO-FILLED WHEN 'OK' BUTTON IS CLICKED

AUTOMATIC BEAM SELF-WT TO BE ADDED

SPAN AUTO-CALC SWITCHED OFF. SPAN IS LENGTH OF HEADER, NOT THE DIAGONAL LENGTH OF HIP.

CLICK HERE FOR ETL CALC THEN CLICK 'OK CALCULATE'

AREAS CONTRIBUTING AN INCREASING LOAD TO HEADER. (HALF OF RECTANGLE, NOT HALF OF SQUARE)

PSF LOAD x TRIBUTARY LENGTH OF 3'-6", (1'-6" ROOF PLUS 2'-0" EAVE = 3'-6")
 $25LL \times 3.5 = 87.5\#, 38TL \times 3.5 = 133\#$

ROOF LOAD DATA:
 LIVE = 25 PSF (SNOW), DEAD = 13 PSF
 TOTAL LOAD = 38 PSF

NOTE: DEAD LOAD WAS MANUALLY INCREASED FOR ROOF SLOPE ADJUSTMENT TO DEAD LOAD. AUTOMATIC RAFTER SLOPE ADJUSTMENT DOES NOT APPLY BECAUSE IT MULTIPLIES BY AN ADJUSTED SPAN WHICH IS THE HEADER LENGTH, NOT THE TRIBUTARY LENGTH!

