☑ 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

THESE ARE THE INSTANT HELP BUTTONS

AUTOMATICALLY FILLED

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

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File Goto Calculator Options Columns Help

Proj: RIDGE BEAM   Item: CATHEDRAL CEILING RIDGE   ID: EXAMPLE

Span Length in ft **16**

Load Types
- ● Simple Span
- ○ Overhanging (OH)
- ○ Hips and Valleys
- ○ Multiple Spans

Hem Fir / DF-Larch

Unbraced length in feet

Duration of Load **1.15** <>

Maximum Allowable Deflection

Live L / **240**   Total L / **180** <>

☐ Rafter Pitch DL Adjust

☒ Reduce shear loads at beam ends

☐ Wet Use ☐ Incised
☐ Repetitive Use

Repetitive Spacing
- ○ 12 in. o.c. (x 1.0)
- ○ 16 in. o.c. (x 1.33)
- ○ 19.2 in. o.c. (x 1.6)
- ○ 24 in. o.c. (x 2.0)

Uniform Load
	LL only	LL + DL	
A	**360**	**528**	PLF
A	**30**	**44**	PSF

x Tributary **12** in Ft

Multiply and enter above

Point Loads
	LL only	LL + DL	Distance
B			
C			
D			
E			
F			
G			

Partial Uniform Loads
	PLF LL only	LL + DL	Start	End
H				
I				
J				
K				
L				

Calc using PSF

Neglect the beam self-weight ☐

Load Diagram   Add Notes   OK Calculate

Selection: None

6'-0"   12'-0"   6'-0"
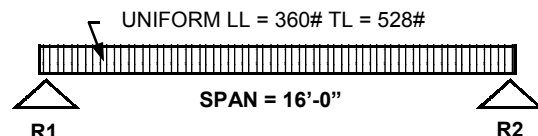
THE RIDGE BEAM

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)

UNIFORM LL = 360# TL = 528#

SPAN = 16'-0"

R1   R2
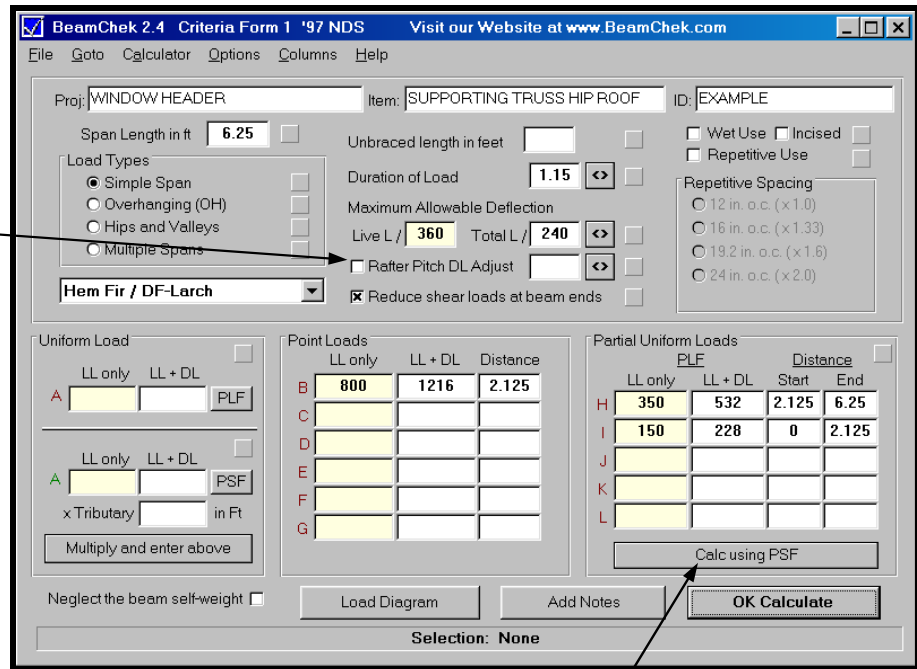
LOADING DIAGRAM

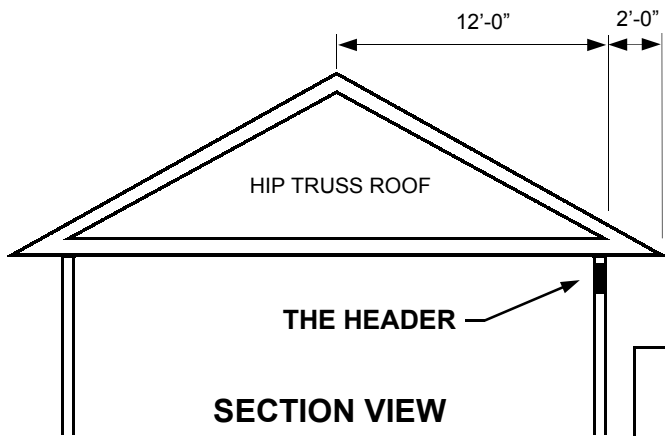# WINDOW HEADER EXAMPLE SIMPLE SPAN   EXAMPLE No. 3

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 <u>MANUALLY</u> 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, <u>NOT</u> THE LENGTH OF THE RAFTER.

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File   Goto   Calculator   Options   Columns   Help

Proj: WINDOW HEADER   Item: SUPPORTING TRUSS HIP ROOF   ID: EXAMPLE

Span Length in ft   **6.25**

Unbraced length in feet

Duration of Load   **1.15** ‹›

Maximum Allowable Deflection

Live L / **360**   Total L / **240** ‹›

☐ Rafter Pitch DL Adjust ‹›

☒ Reduce shear loads at beam ends

☐ Wet Use   ☐ Incised
☐ Repetitive Use

Repetitive Spacing
○ 12 in. o.c. (x 1.0)
○ 16 in. o.c. (x 1.33)
○ 19.2 in. o.c. (x 1.6)
○ 24 in. o.c. (x 2.0)

Load Types
● Simple Span
○ Overhanging (OH)
○ Hips and Valleys
○ Multiple Spans

Hem Fir / DF-Larch

Uniform Load

	LL only	LL + DL	
A			PLF

	LL only	LL + DL	
A			PSF
x Tributary		in Ft	

Multiply and enter above

Point Loads

	LL only	LL + DL	Distance
B	800	1216	2.125
C			
D			
E			
F			
G			

Partial Uniform Loads

	PLF LL only	LL + DL	Distance Start	End
H	350	532	2.125	6.25
I	150	228	0	2.125
J				
K				
L				

Calc using PSF

Neglect the beam self-weight ☐   Load Diagram   Add Notes   **OK Calculate**

Selection: None

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

---

12'-0"   2'-0"
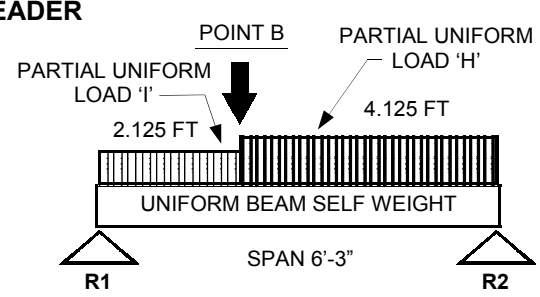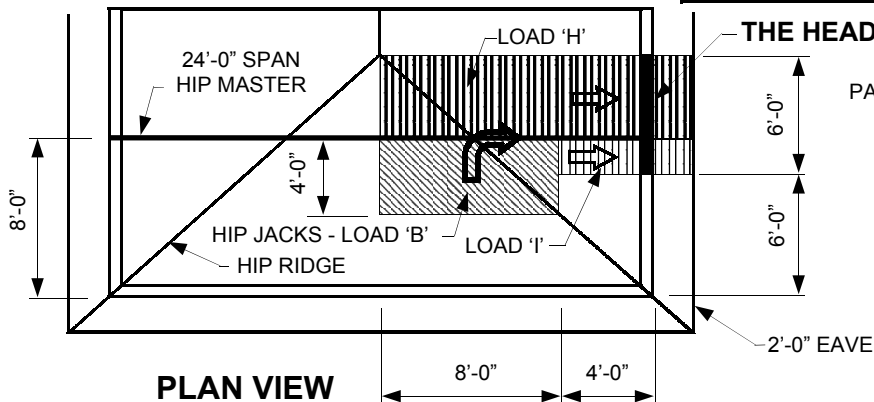
HIP TRUSS ROOF

THE HEADER

SECTION VIEW

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.

24'-0" SPAN HIP MASTER

LOAD 'H'

THE HEADER

6'-0"
6'-0"

4'-0"

8'-0"

HIP JACKS - LOAD 'B'
LOAD 'I'
HIP RIDGE

2'-0" EAVE

PLAN VIEW   8'-0"   4'-0"

POINT B

PARTIAL UNIFORM LOAD 'H'
PARTIAL UNIFORM LOAD 'I'

2.125 FT   4.125 FT

UNIFORM BEAM SELF WEIGHT
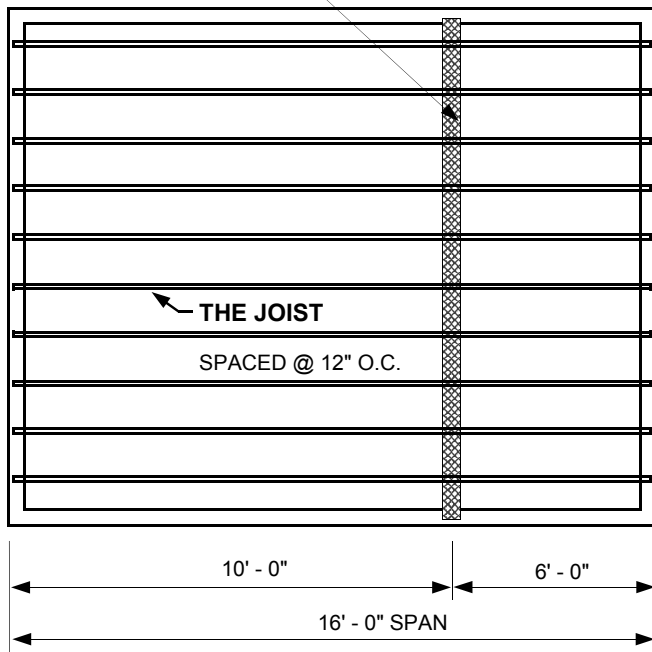
R1   SPAN 6'-3"   R2

DIAGRAM

FLOOR JOIST EXAMPLE SIMPLE SPAN   EXAMPLE No. 2

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"*

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Proj: FLOOR JOISTS   Item: OVER NON-HEATED AREA   ID: EXAMPLE

Span Length in ft **16**

Load Types
- ● Simple Span
- ○ Overhanging (OH)
- ○ Hips and Valleys
- ○ Multiple Spans

Hem Fir / DF-Larch

Unbraced length in feet ☐

Duration of Load **1.00** ◇

Maximum Allowable Deflection
Live L / **360**   Total L / **240** ◇
☐ Rafter Pitch DL Adjust ◇
☒ Reduce shear loads at beam ends

☐ Wet Use ☐ Incised
☒ Repetitive Use

Repetitive Spacing
- ● 12 in. o.c. (x 1.0)
- ○ 16 in. o.c. (x 1.33)
- ○ 19.2 in. o.c. (x 1.6)
- ○ 24 in. o.c. (x 2.0)

All loads auto multiplied

Uniform Load

	LL only	LL + DL	
A	**40**	**50**	PLF

	LL only	LL + DL	
A			PSF
x Tributary		in Ft	

Multiply and enter above

Point Loads

	LL only	LL + DL	Distance
B		44	10
C			
D			
E			
F			
G			

Partial Uniform Loads

	PLF LL only	LL + DL	Distance Start	End
H				
I				
J				
K				
L				

Calc using PSF

Neglect the beam self-weight ☒   Load Diagram   Add Notes   **OK Calculate**

Selection: None

---

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

THE JOIST

SPACED @ 12" O.C.

10' - 0"   6' - 0"

16' - 0" SPAN

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)

DISTANCE =
10' - 0"   6' - 0"

POINT LD B (44#) PARTITION

SPAN 16' - 0"   UNIFORM 40# LL 50# TL

R1   R2
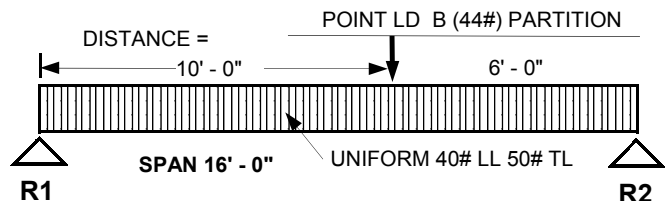
LOAD DIAGRAM

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

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File   Goto   Calculator   Options   Columns   Help

Proj: TYPICAL ROOF RAFTER   Item: CATHEDRAL CEILING   ID: EXAMPLE

Span Length in ft   17

Load Types
- Simple Span
- Overhanging (OH)
- Hips and Valleys
- Multiple Spans

SPF / SPF South

Unbraced length in feet

Duration of Load   1.25

Maximum Allowable Deflection

Live L / 240   Total L / 180

☒ Rafter Pitch DL Adjust   7

☒ Reduce shear loads at beam ends

☐ Wet Use ☐ Incised
☒ Repetitive Use

Repetitive Spacing
- 12 in. o.c. (x 1.0)
- ● 16 in. o.c. (x 1.33)
- 19.2 in. o.c. (x 1.6)
- 24 in. o.c. (x 2.0)
All loads auto multiplied

Uniform Load
	LL only	LL + DL	
A	30	40	PLF
A			PSF
x Tributary		in Ft

Multiply and enter above

Point Loads
	LL only	LL + DL	Distance
B			
C			
D			
E			
F			
G			

Partial Uniform Loads
	PLF LL only	LL + DL	Start	End
H				
I				
J				
K				
L				

Calc using PSF

Neglect the beam self-weight ☒

Load Diagram   Add Notes   OK Calculate

Selection: None

QUALIFIES FOR REP USE, TEST AT 16" OC SPACING
(ALL LOADS WILL BE AUTO MULTIPLIED BY 1.33)
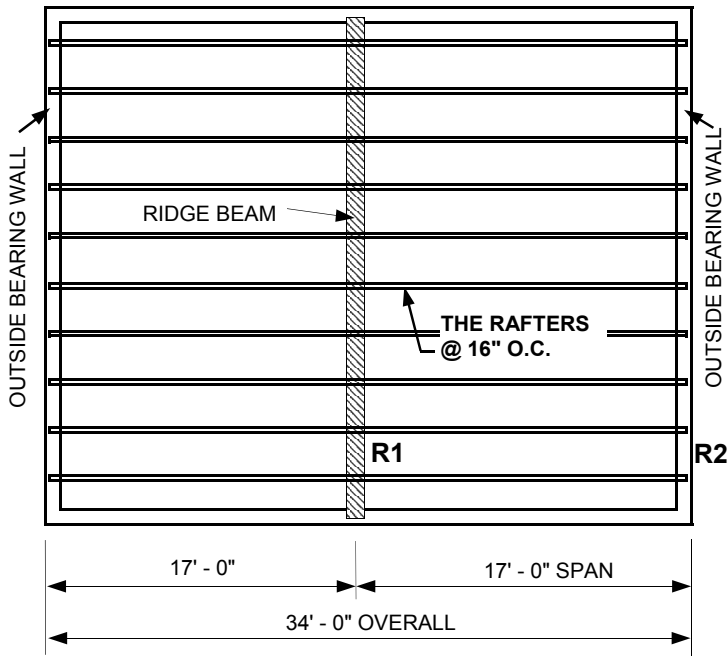
TYPICAL ROOF RAFTER:
CATHEDRAL CEILING
LIVE LOAD = 30 PSF
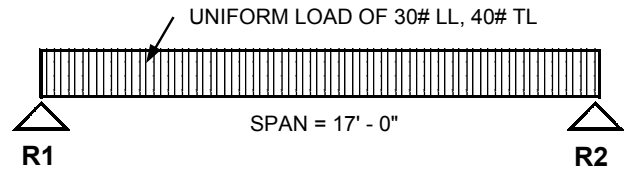DEAD LOAD = 10 PSF
TOTAL LOAD = 40 PSF

SPAN IS 17'-0" HORIZONTAL
EAVE OVERHANG: NONE

ROOF PITCH IS 7:12 (7 INCH RISE PER FT)
BEAMCHEK WILL AUTOMATICALLY ADD ADDITIONAL DEAD
LOAD FOR ADDED LENGTH OF RAFTER DUE TO SLOPE.

ASSUMED RAFTER SPACING IS 16" OC
BEAMCHEK WILL AUTOMATICALLY MULTIPLY ALL THE LOADS
BY 1.333 FOR THE 16" SPACING.

DURATION OF LOAD IS 1.25 (NO SNOW)

R1 IS THE REACTION AT THE RIDGE BEAM
R2 IS THE REACTION AT THE OUTSIDE BEARING WALL

RIDGE BEAM

THE RAFTERS
@ 16" O.C.

OUTSIDE BEARING WALL

R1   R2

17' - 0"   17' - 0" SPAN

34' - 0" OVERALL

PLAN VIEW

UNIFORM LOAD OF 30# LL, 40# TL

R1   SPAN = 17' - 0"   R2

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

ALL LOADS WILL BE AUTO-MULTIPLED BY 1.33

ENTER UNIFORM LOAD ON OVERHANG IN BLUE PARTIAL UNIFORM LOAD BOXES

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.

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Proj: OVERHANGING FLOOR JOIST   Item: SUPPORT ROOF AT OVERHANG   ID: EXAMPLE

Span Length in ft **14**

Load Types
- ○ Simple Span
- ● Overhanging (OH)
- ○ Hips and Valleys
- ○ Multiple Spans

DF South / DF North

Unbraced length in feet

Duration of Load **1.00**

Maximum Allowable Deflection
Live L / **360**   Total L / **240**

☐ Rafter Pitch DL Adjust

☒ Reduce shear loads at beam ends

☐ Wet Use ☐ Incised
☒ Repetitive Use

Repetitive Spacing
- ○ 12 in. o.c. (x 1.0)
- ● 16 in. o.c. (x 1.33)
- ○ 19.2 in. o.c. (x 1.6)
- ○ 24 in. o.c. (x 2.0)

All loads auto multiplied

Uniform Load
	LL only	LL + DL	
A	**40**	**50**	PLF

	LL only	LL + DL	
A			PSF

x Tributary _____ in Ft

Multiply and enter above

Point Loads
	LL only	LL + DL	Distance
B			
C			
D			
E			
F	225	406	3
G			

Unbalance Span   Unbalance OH

Partial Uniform Loads
	PLF		Distance	
	LL only	LL + DL	Start	End
H				
I				
J				
K	40	50	0	3
L				

Calc using PSF

☒ Neglect the beam self-weight

Load Diagram   Add Notes   **OK Calculate**

Selection: None

7'-0"   9'-0"
7'-0"   2'-0"

BEAM

RAFTERS

8'-0" HIGH WALL

POINT LOAD 'F'

LOAD 'A' FLOOR LOAD   LOAD 'K' FLOOR LOAD

THE OVERHANGING FLOOR JOIST

POSSIBLE UPLIFT GENERATED BY LOADS ON OVERHANG

14'-0"   3'-0"

R1   R2

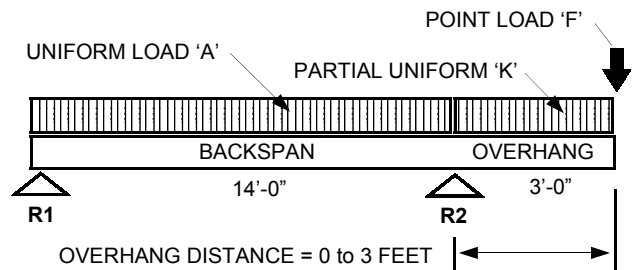**SECTION VIEW**

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.

POINT LOAD 'F'

UNIFORM LOAD 'A'   PARTIAL UNIFORM 'K'

BACKSPAN   OVERHANG

14'-0"   3'-0"

R1   R2

OVERHANG DISTANCE = 0 to 3 FEET

LOAD DIAGRAM

HIP RAFTER   UNIFORMLY INCREASING LOAD   EXAMPLE No. 6
ACTUAL MATERIALS, LOADS AND CODE REQUIREMENTS MAY VARY. THIS IS AN ILLUSTRATION ONLY.
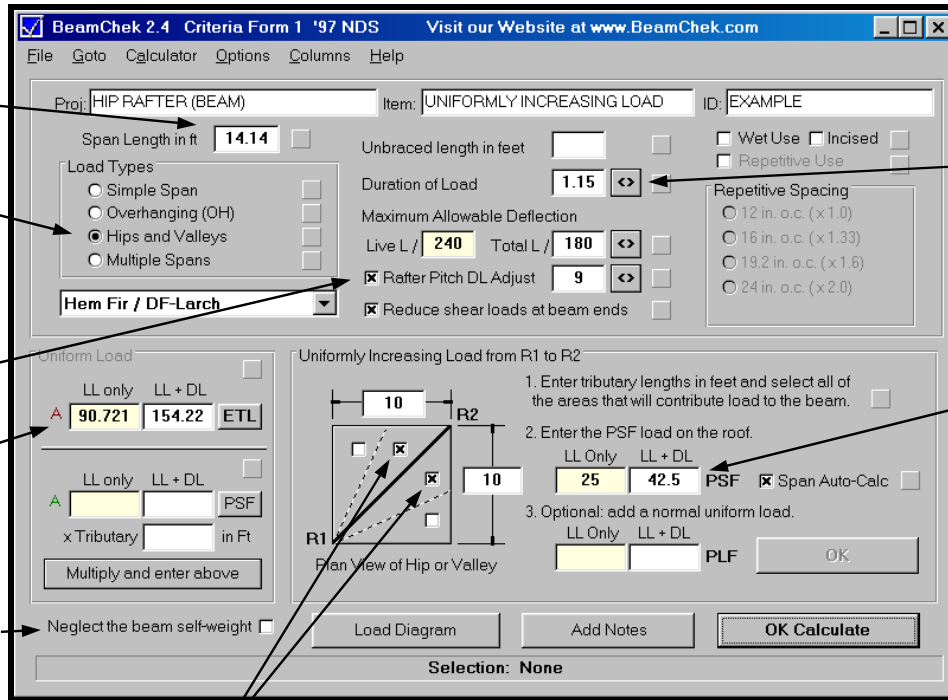
AUTOMATICALLY CALCULATED AFTER CLICKING 'OK' BUTTON BELOW

SELECT HIPS AND VALLEYS

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

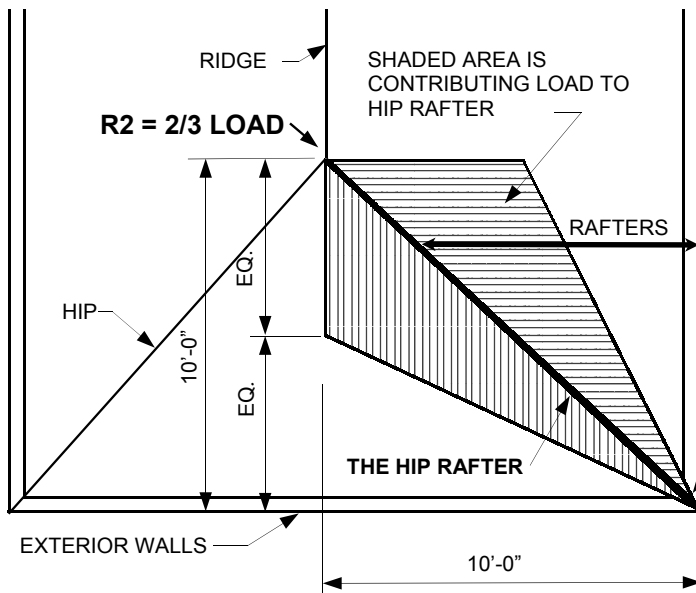AUTOMATICALLY CALCULATED 'ETL' IS THE EQUIVALENT TABULAR LOAD

HIP SELF-WEIGHT AUTOMATICALLY ADDED TO LOADS

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

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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
Duration of Load   1.15

☐ Wet Use ☐ Incised
☐ Repetitive Use

Load Types
○ Simple Span
○ Overhanging (OH)
● Hips and Valleys
○ Multiple Spans

Hem Fir / DF-Larch

Maximum Allowable Deflection
Live L / 240   Total L / 180
☒ Rafter Pitch DL Adjust   9
☒ Reduce shear loads at beam ends

Repetitive Spacing
○ 12 in. o.c. (×1.0)
○ 16 in. o.c. (×1.33)
○ 19.2 in. o.c. (×1.6)
○ 24 in. o.c. (×2.0)

Uniform Load
LL only   LL + DL
A   90.721   154.22   ETL

LL only   LL + DL
A   ___   ___   PSF
x Tributary   ___   in Ft

Multiply and enter above

Uniformly Increasing Load from R1 to R2
10   R2

1. Enter tributary lengths in feet and select all of the areas that will contribute load to the beam.
2. Enter the PSF load on the roof.
   LL Only   LL + DL
   25   42.5   PSF ☒ Span Auto-Calc
10
3. Optional: add a normal uniform load.
   LL Only   LL + DL
   ___   ___   PLF   OK

R1
Plan View of Hip or Valley

Neglect the beam self-weight ☐

Load Diagram   Add Notes   **OK Calculate**

Selection: None

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

RIDGE

SHADED AREA IS CONTRIBUTING LOAD TO HIP RAFTER

R2 = 2/3 LOAD

HIP

EQ.

10'-0"

EQ.

THE HIP RAFTER

EXTERIOR WALLS

RAFTERS

10'-0"

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

UNIFORMLY INCREASING LOAD

R1   SPAN = 14.14 FT   R2
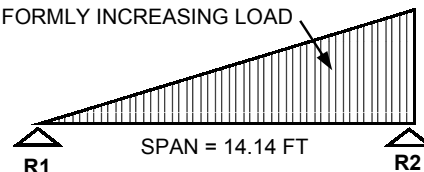
DIAGRAM

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

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

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File   Goto   Calculator   Options   Columns   Help

Proj: HEADER UNDER A HIP ROOF   Item: INCREASING + UNIFORM LOAD   ID: EXAMPLE

Span Length in ft 7.25

Load Types
- ○ Simple Span
- ○ Overhanging (OH)
- ● Hips and Valleys
- ○ Multiple Spans

Hem Fir / DF-Larch

Unbraced length in feet

Duration of Load 1.15

Maximum Allowable Deflection

Live L / 240   Total L / 180

☐ Rafter Pitch DL Adjust

☒ Reduce shear loads at beam ends

☐ Wet Use ☐ Incised
☐ Repetitive Use

Repetitive Spacing
- ○ 12 in. o.c. (x 1.0)
- ○ 16 in. o.c. (x 1.33)
- ○ 19.2 in. o.c. (x 1.6)
- ○ 24 in. o.c. (x 2.0)

Uniform Load

LL only   LL + DL
A 130.85   198.90   ETL

LL only   LL + DL
A   PSF
x Tributary   in Ft

Multiply and enter above

Neglect the beam self-weight ☐

Uniformly Increasing Load from R1 to R2

7   R2

3.5

R1

Plan View of Hip or Valley

1. Enter tributary lengths in feet and select all of the areas that will contribute load to the beam.

2. Enter the PSF load on the roof.
LL Only   LL + DL
25   38   PSF   ☐ Span Auto-Calc

3. Optional: add a normal uniform load.
LL Only   LL + DL
87.5   133   PLF   OK

Load Diagram   Add Notes   OK Calculate

Selection: None

Annotations (left side):
- ENTER SPAN
- SEE NOTE BELOW
- AUTO-FILLED WHEN 'OK' BUTTON IS CLICKED
- AUTOMATIC BEAM SELF-WT TO BE ADDED
- AREAS CONTRIBUTING AN INCREASING LOAD TO HEADER. (HALF OF RECTANGLE, NOT HALF OF SQUARE)

Annotations (right side):
- 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'
- PSF LOAD x TRIBUTARY LENGTH OF 3'-6", (1'-6" ROOF PLUS 2'-0" EAVE = 3'-6") 25LL x 3.5 = 87.5#, 38TL x 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!

RIDGE

SHADED AREAS ARE CONTRIBUTING LOAD TO HEADER

THE HEADER

HIP

EAVE

5'-0"   5'-0"

R2 MAX LOAD

12'-0"

HIP

R1

EXTERIOR WALL

12'-0"   3'-6"   1'-6"   2'-0"

7'-0"

3'-0"

SPAN = 7'-3" TO INCLUDE BEARING AREA (1-1/2" EA. END)

PLAN VIEW

UNIFORMLY INCREASING LOAD

UNIFORM LOAD

R1   R2

LOAD DIAGRAM