

Structural Engineering

Originating region: United States Category: Engineering Sub-category: Structural Engineering

I need to size a wood header

Sent to [Structural Engineering](#) Experts 3/28/2013 at 8:07 PM

I need to size a wood header - it spans an opening 6' 5" wide, is in a 2 x 6 stud wall, and will have a structural ridge ending in the wall above the opening. The ridge calculates out to have a 6,000 lb roof load on that end, and is centered on the opening in question. The drawings have the center of the 30' ridge supported with a 6 x 6, at the center joint in the ridge, but no detail shows this header sizing. The roof is 1200 sq ft in area, on a 24 x 30 house, and we are working to 10 dead and 30 lb live load specs. The currently installed header is a double 2 x 10, blocked every 16 inches or so, and capped with a 2 x 6 laid flat. I feel this is too light, and our contractor doesn't have a clue. Any thoughts?

Already Tried:
header tables etc, but can't find one that applies to point loads on a header

Detail Required: HIGH

[JACUSTOMER-kfini66w-](#) (Online) -- 1 Positive Rating / 1 Question (0 Open)

Status: **Closed** Value: **\$19** Source: **Web**

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3/28/2013 at 8:57 PM (50 minutes and 44 seconds later)

walkereng : I can help

walkereng : I am away from my computer right now, can I get back to you within about an hour?

JACUSTOMER-kfini66w- :

Yea I will be up, can call my cell if you want 724 967 4261 I can talk way faster than I type!

walkereng : can you attach any of your drawings to the chat window with the paperclip in the toolbar?

walkereng : Let me know when you come back online

walkereng :

The site rules do not allowed us to contact customers by phone or personal e-mails, sorry, so we have to use the Chat Format.

JACUSTOMER-kfini66w- :

We are using plans purchased at www.sheldondesigns.com, the Cohutta Conventional, #C980. You can go there and see the drawings, details, sections, etc. Looking is free, just don't build a house without paying.

JACUSTOMER-kfini66w- :

We are using stick framing, no post and beam, and the alternate roof design on page A-7.

walkereng : Let me take a look, hold on

JACUSTOMER-kfini66w- :

We (our framing contractor) have substituted two LP LVL 2.0E glue lam members, 1.75 x 12 inches, for the 6 x 12 SYP member shown in the drawings. All that is good, but the end of that ridge is carried by the gable ends of the house. Right end by fireplace, fine. Left end has a window in the second floor. Currently, it has a header made of two 2 x 10s with blocking between to make up 5.5 inches, then a 2

JACUSTOMER-kfini66w- : x

JACUSTOMER-kfini66w- : 6

JACUSTOMER-kfini66w- :

go to www.sheldon designs.com we are building plan #C980, The Cohutta Conventional

JACUSTOMER-kfini66w- : I hate chat, standing by....

JACUSTOMER-kfini66w- :

LP has free software to design their engineered lumber systems, I ran the LVL members thru that. Among other things, those two beams together have a long term deflection of 0.020 inches under load - I think they will be fine....

walkereng : I am just looking at the website right now, sorry for the delay

JACUSTOMER-kfini66w :

The ridge members are laying on the floor of the shingled and partially sided house - for some reason the building inspector failed the framing!!! I have been telling the contractor it would not fly, but now I have the inspector behind me - it is a big mess. I am a retired union carpenter, so I have some experience..... Also have 120 credits toward a civil eng degree - never finished. I wanted to swing the hammer, not draw the house....

walkereng : So you are talking about the window in the loft on the left side of the plan?

JACUSTOMER-kfini66w :

Any way, this fellow would not listen to me, and I kept telling him we will see at inspection time - we did!

JACUSTOMER-kfini66w : You got it

walkereng : What city and state are you located in so I can look at possible snow load?

JACUSTOMER-kfini66w :

The ridge member will transfer its load down and the window header will need to carry that, transferring the load to each side of the window, and down from there. I ran a rough calc on the roof load and using 40 lb per sq ft, figure around 6000lb roof load on the end of the ridge.

JACUSTOMER-kfini66w : We are in Venango County, PA, and inspector is good with 30 lb live load on the roof.

JACUSTOMER-kfini66w : Grove City PA is 8 miles west of us

JACUSTOMER-kfini66w :

I figured roof at 32 by 42 (includes overhang) and at 40 lb total roof load per sqft gives 54,000 lb.

walkereng : What are the loft dimensions?

JACUSTOMER-kfini66w :

half of that carried by the front and back walls, half to the ridge. 50% of that on the center post, 25% on each end wall. 6750 lb load on end of ridge? been many years for me and static problems.

JACUSTOMER-kfini66w :

12 foot on the front side, 15 on the back - NOTE the contractor did not use balloon framing, also added 2 feet to the height of the house

JACUSTOMER-kfini66w :

loft side is 8 foot walls with a floor deck on top, then short 3' walls on top of that. AT NO POINT is there a tie from wall to wall at the square, other than the end walls

walkereng : OK, I did not see the post in the middle

JACUSTOMER-kfini66w : Neither did my *****contractor, don't feel bad!

walkereng : So the ridge beam has two approximate 15' spans?

JACUSTOMER-kfini66w :

What kills me is I was right and this pro was so far wrong. He added the two foot without asking - we think he flat out made a mistake. the siding on the gable ends costs 340 a square alone, plus the LVL and hardware - he is not happy...

JACUSTOMER-kfini66w : yes 15 spans, sorry

JACUSTOMER-kfini66w : I know the drawings you are looking at are small and lack important things...

JACUSTOMER-kfini66w : All is good here in the woods but the size of that window header....

walkereng :

Before we get started I'd like to point out that a Professional Engineer's standard of care typically includes a site visit to assess field conditions and get an overall understanding of the structure. This can obviously not be accomplished through the internet. The information provided here is meant for **planning purposes only (general sizing and budgeting)** and is based on the information provided by you. All loading cases considered are for vertical loads only, no lateral analysis has been completed. The information should be verified by a professional engineer who can visit the site to ensure that potentially important information has not been overlooked or omitted.

walkereng : hold on, let me run a few numbers

JACUSTOMER-kfini66w :

i got all the fine print, it is a simple question of a point load on a header not a skyscraper.

JACUSTOMER-kfini66w : Curious to compare my roof load to yours.

walkereng : one last question, what species of lumber are you planning on using?

JACUSTOMER-kfini66w- : conventional SPF framing lumber

walkereng : You are looking at a 6x14 SPF #1 grade beam for your header

JACUSTOMER-kfini66w- :

So I thought 3 2 x 12s would not be enough - what did you get for load on end of ridge?

walkereng : I used 6,720 pounds

JACUSTOMER-kfini66w- :

Ha! I feel good! What would it take for 2 x 12 LVL members - would two of them carry the load?

JACUSTOMER-kfini66w- : I can run the program but while your pencil is sharp...

JACUSTOMER-kfini66w- : How can I save the info in this chat is there a way?

JACUSTOMER-kfini66w- : I got the info - just highlite and copy dumped to a text file

walkereng : Let me check the LVL's

JACUSTOMER-kfini66w- : hey this is cheap advice at 38 bucks!

walkereng :

When we are done, I will switch over to the Q&A format and you can print it out. Did you give JustAnswer an e-mail address?

JACUSTOMER-kfini66w- :

my roof load was only 30 pounds diff from yours after all these years it is still in there my brain i mean

JACUSTOMER-kfini66w- : yes I did on the email

walkereng : You still got it!

walkereng : OK, one more minute

walkereng : You can go shallower than the 12". Is the wall 2x6? So you can go 5.5" wide on the header, correct?

JACUSTOMER-kfini66w- : Yes 2 x 6 wall

walkereng :

I can give you an engineered wood option for your header:

Triple 1-3/4" x 7-1/4" Versa-Lam 2.0 2800 DF

This is a Boise Cascade product and you can go to the following link to find distributors in your area.

<http://www.bc.com/wood/ewp/distributors.html>

JACUSTOMER-kfini66w- : Ok I am comfortable with that hunk of wood!

walkereng :

If you feel you have received a satisfactory answer to your question, click the Rating button that is appropriate. Experts are credited for each adequately rated answer they provide. If you have additional questions, please let me know. Thanks

I will then switch over to the Q&A process and then I will print out a PDF and send it to you in a reply. Will that work?

JACUSTOMER-kfini66w- :

Undercarry for that header will be standard, we can handle those framing aspects. You have answered my question I am happy with your answer!

If you feel you have received a satisfactory answer to your question, click the Accept button. Experts are credited for each accepted answer they provide. If you have additional questions, please let me know. Thanks

[walkereng](#) (Online)

[What's This?](#)

Consultant
Over 27 years of Structural
Engineering experience

JACUSTOMER-kfini66w- paid you 19 on 3/29/2013 at 12:14 AM
JACUSTOMER-kfini66w- Last Viewed on 3/29/2013 at 12:14 AM

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