Chapter 9: Truss Preparation

Most Common Mistakes:

1. Placing purlins at a spacing other than what is shown on building plans.
2. Not following a continuous layout (keep spacing the same, unless noted on building plans).
3. Failure to use a framing square to mark purlin locations.
4. Placing purlin joist hangers on wrong side of layout mark.
5. Placing ridge purlins too close to ridge (peak) of trusses.

 **IMPORTANT:** End trusses are often designed with a different interior truss web configuration than interior trusses. This allows for end trusses to bear upon some (or all) endwall columns.

Often, these bearing points will be labeled on truss with a tag, stamp, or permanent marker.

 If ***any question*** about truss orientation, contact your Project Coordinator *prior to installation.*

Improper installation, or end truss location (have on wrong end of building, flipped end for end, or using an end truss in building interior), could result in failure to pass building inspections, costly and time consuming repairs, building failure, property damage, injury, or death.

 **BEFORE GOING FURTHER:** Look carefully on building plans at purlin spacing. Any deviation and chances are there will be either *too many* or *not enough* purlins. **Neither one is the correct answer!**

Without turning end-for-end stack trusses one on top of another, carefully aligning them.

 The truss eave (or heel) end, will be the beginning measuring point for purlin locations. Avoid the temptation to work from peak down.

Starting at eave ends, place a mark on truss top at purlin spacing. This mark will be each purlin joist hanger's "uphill" side. **See Figure 9-1**

Paying attention to which truss faces will be each future truss pair's "outside", use a framing square to place marks for all purlin joist hanger locations on interior truss *outside faces*. Mark locations on *inside faces* of end trusses. **See Figure 9-2**

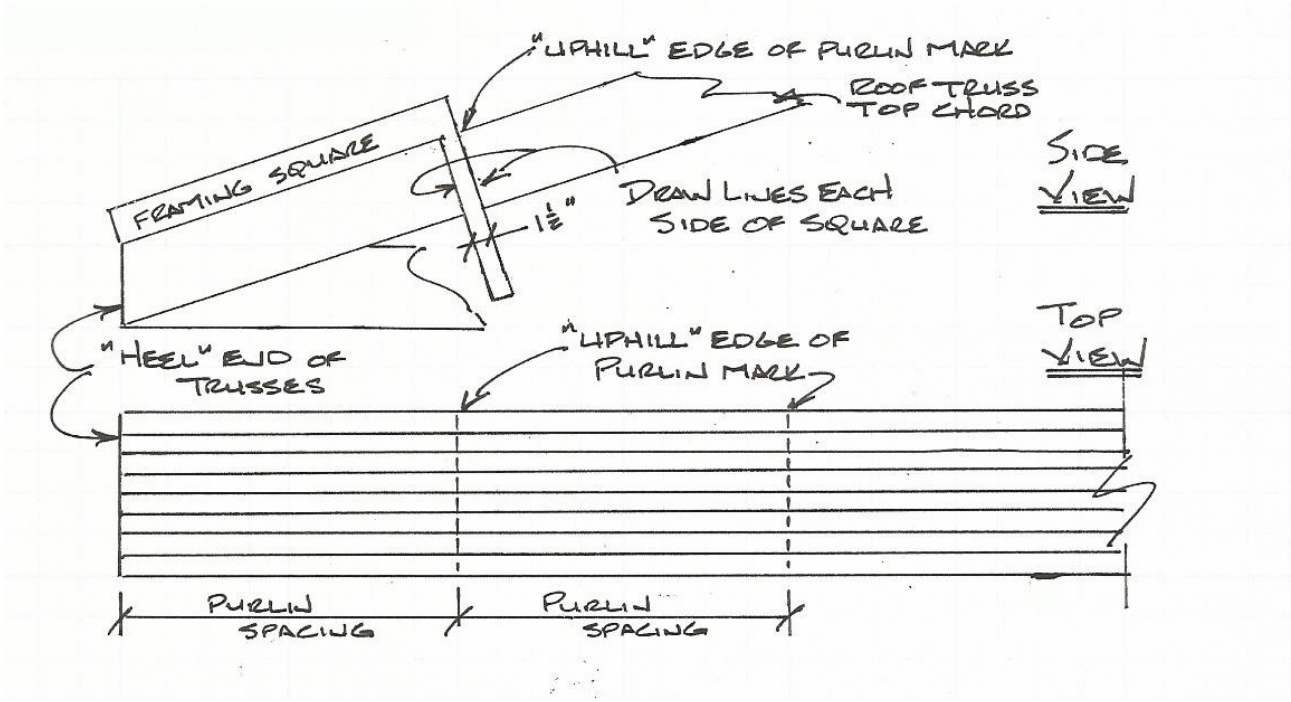


Figure 9-1

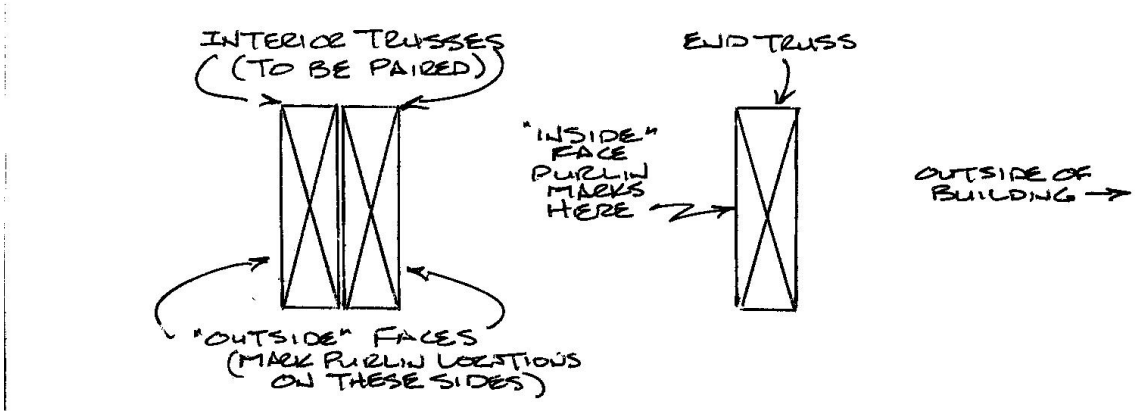


Figure 9-2

Ridge Purlins

Ridge Purlin "uphill" side can be *no closer* to peak than **five inches**. This may result in space between ridge purlin and next purlin "downhill" being decreased. Ridge purlins can be **further** from truss peak than the minimum distances, without negatively affecting building. Roof ridge caps attach to roof steel with metal-to-metal screws, not to ridge purlins, so ridge purlins need not align with future ridge cap fastener locations.
See Figure 9-3

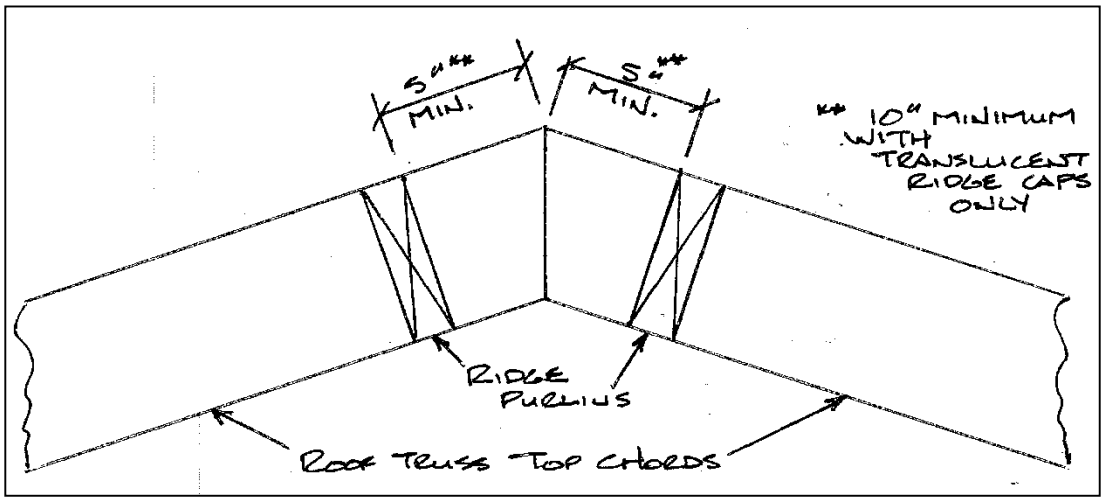


Figure 9-3

CAUTION If ridge purlins are "uphill" further than this, roof steel may not have an adequate overhang at eave and challenging situations will result!

LOOK Pay careful attention. Ridge purlins can be a *different grade or size* than other purlins.

If two purlins appear to be placed close together, double check building plans and material take-off list to verify more materials than anticipated are not used.

Interior Trusses

These **have to be** nailed into pairs. Refer to engineered truss drawing(s) for specifics.

Hansen Buildings feature a 2-ply minimum truss for interior clearspans. If attempting to use as single trusses, catastrophic building failure chances will be high. This could result in property damage, injury or death.

Before nailing, verify no truss has been turned end-for-end. While this usually has no structural effect, prefabricated trusses are built in a "jig" and can sometimes end up slightly asymmetrical. Nailing together in the same direction they were manufactured insures a greater interior (or "web") member alignment probability.

While "out of alignment" web members do not normally create structural problems, they can be less attractive.

The MINIMUM nailing requirement (more may be required, verify from truss drawing provided by manufacturer) will be for (2) 10d commons at 12" on center (o.c.), staggered through all members.

Next, stand trusses up at a level point inside building with a truss pair on each truss-bearing column's notched side.

Install purlin joist hangers on each side of truss pairs.

See Figure 9-4 (or **Figure 9-5** when purlins are larger dimensions than truss top chord.)

Bottom hanger edge is to be located below truss top chord top, by the purlin depth:

2x6 = 5-1/2”
2x8 = 7-1/4”

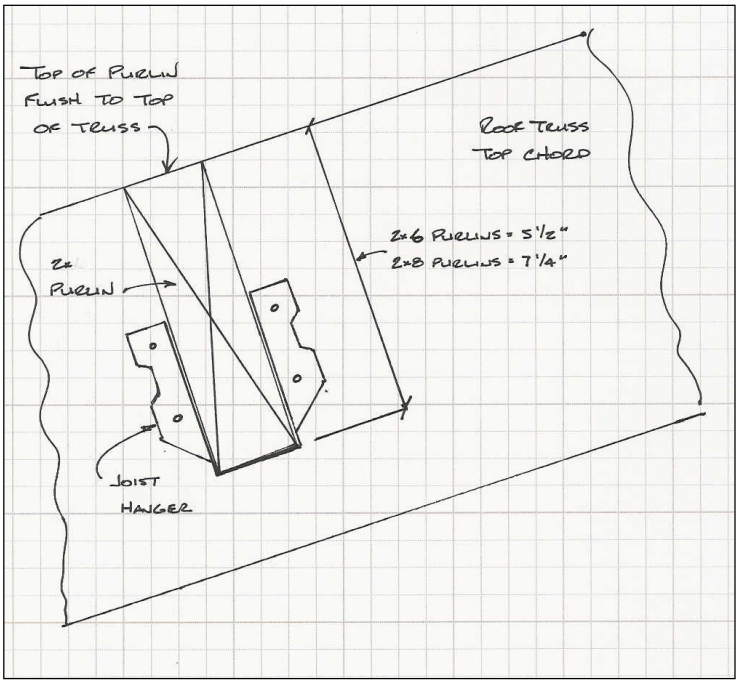


Figure 9-4

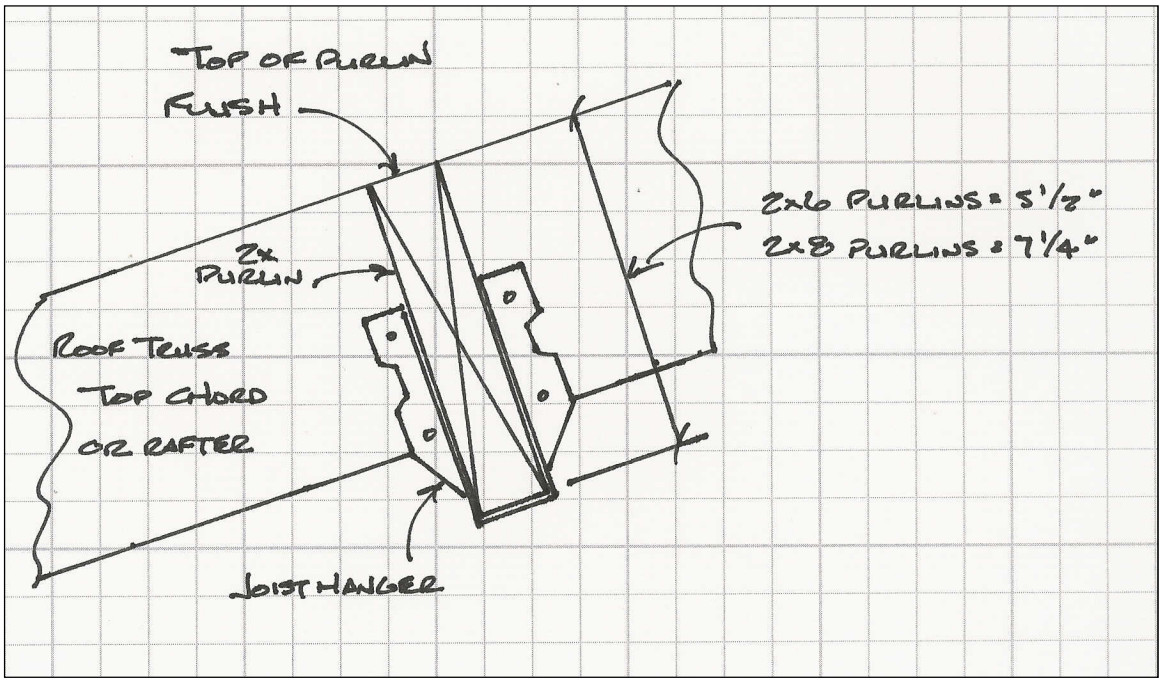


Figure 9-5

End Trusses

On end truss outside, starting 6" from heel, install 2x4 siding backing nailer flush to top of truss. Use two 10d nails every 12". If end truss "rise" is greater than five feet (e.g. 4/12 slope and span over 30') a ½ height nailer will also be required. Bottom chord nailer will be installed only *after* end truss is securely fastened to corner and endwall columns AND all endwall door framing is in place. **See Figure 9-6**

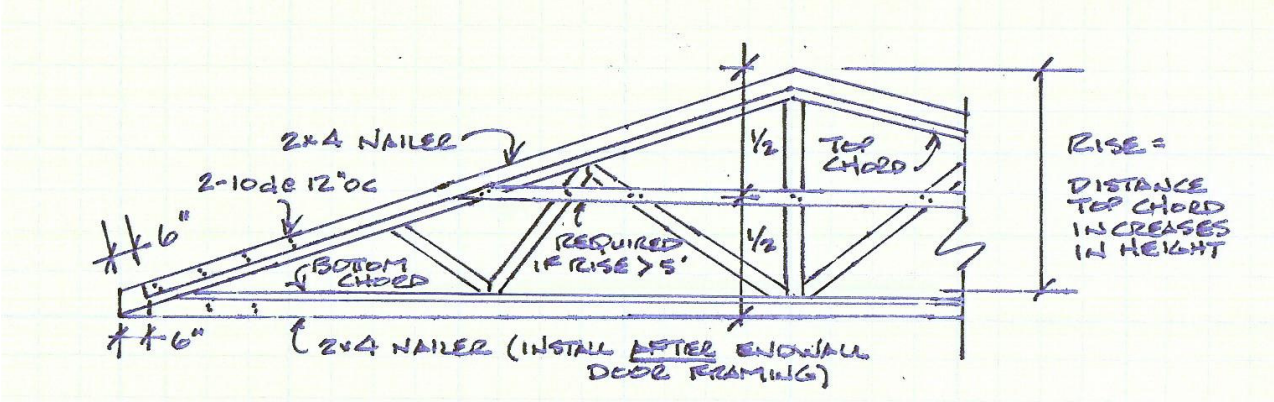


Figure 9-6

Install joist hangers to end truss inside face, except where their location conflicts with an end column. In this case hanger can later be installed on column, spaced appropriately.

Web Bracing

While great effort is made to include web bracing material with all building kits, each truss design program uses different parameters. Hansen Buildings does not see final engineered truss drawings prior to shipment so cannot verify, in advance, all web bracing requirements. Providing adequate web bracing material for every possible case, becomes impossible. Any excess materials for web bracing required, beyond what is originally shipped with building kit, will be up to building owner to provide.

Install truss web bracing as necessary. This bracing, when called for, is typically 1x4, and is usually installed as specified on building plan DTL 15/S-2. **See Figure 9-7** and **Figure 9-8**

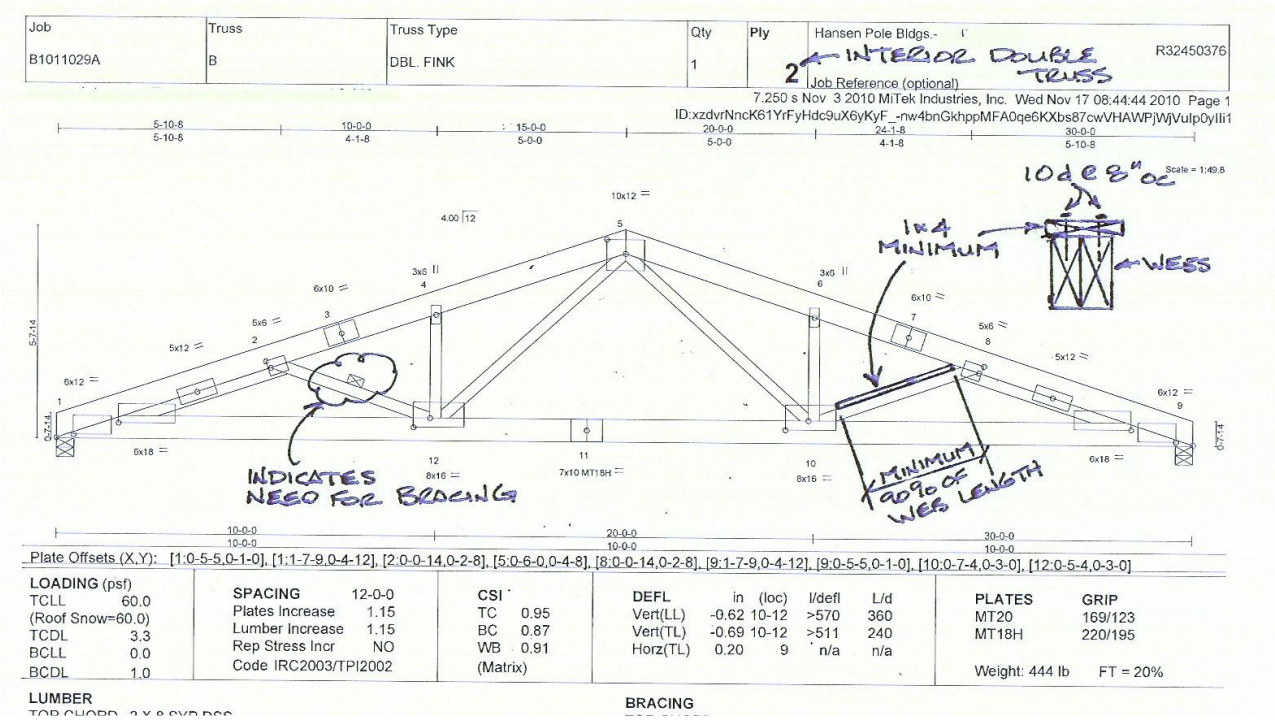


Figure 9-7 Interior Double Truss Web Bracing

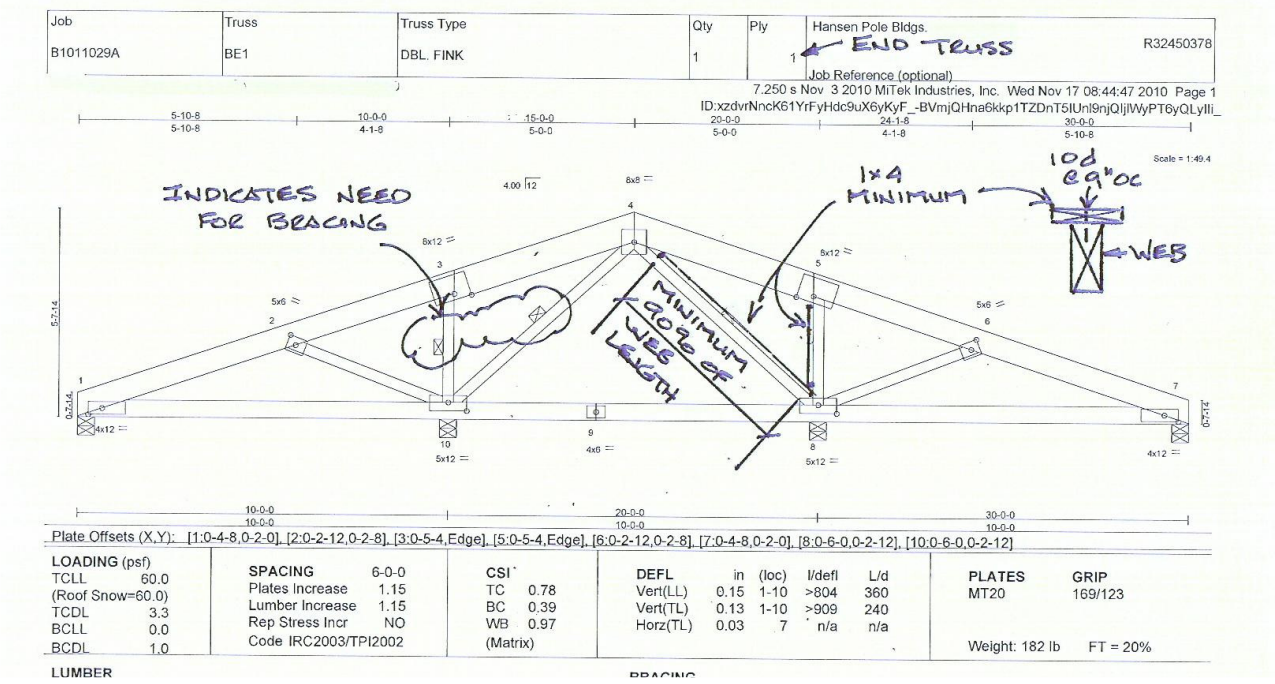
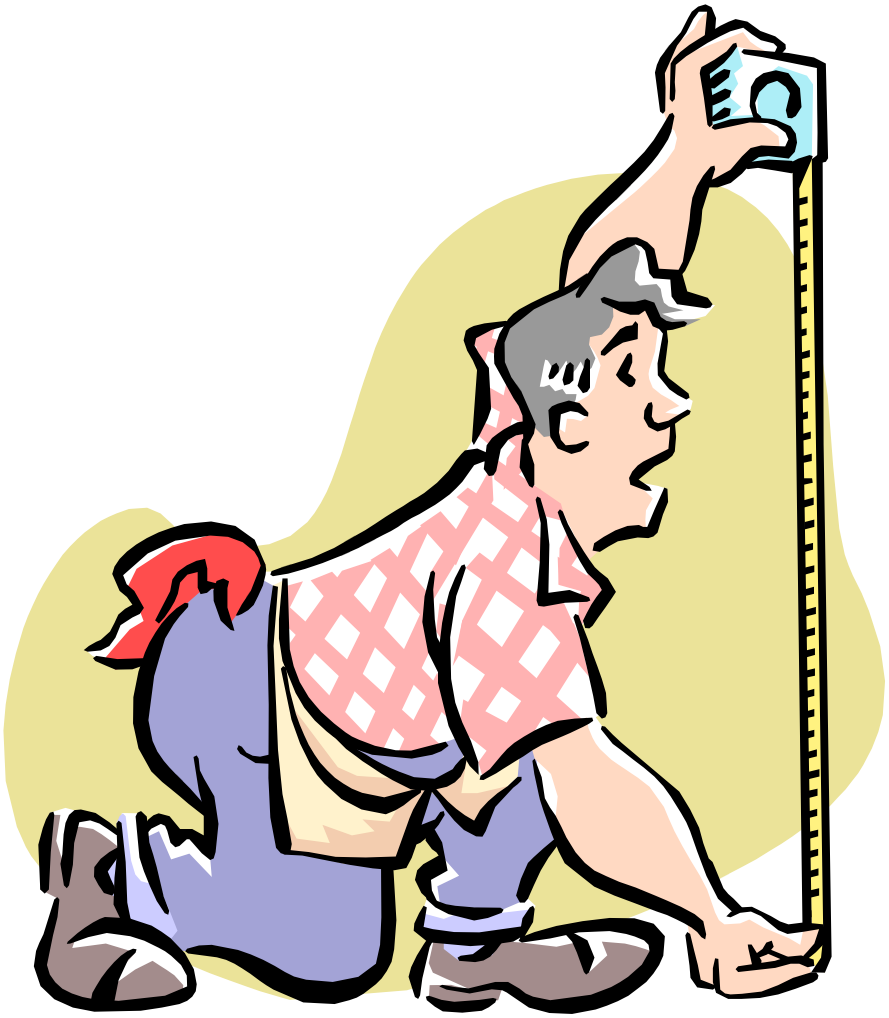


Figure 9-8 Endwall Single Truss Web Bracing

Humor us here.

Even though checked before (probably 6 or 8 times), check <u>once</u> more:



1.) Go to building **<u>eave side</u>**, **other than at a <u>corner</u>**.

2.) Hook a tape measure to **skirt board bottom** at a post.

3.) Measure up *post outside*, to **TRUSS TOP**. If this measurement is anything **other than eave height**, "Houston . . . we have a problem." If measurement and ordered eave height are same, "All is good"; happily continue building. If measurements do not match, contact Technical Support **BEFORE CONTINUING.**