Chapter 55: Side and End Overhang(s) - Enclosed

Most Common Mistakes:

1. Incorrect eave height.
2. Expecting end trusses to have “tails”.
3. Placing eave girt below truss tails.
4. Placing “standard heel” end truss tops at same height as interior trusses.
5. Eave girt and fascia board top edges not bevel cut to match roof slope.
6. Failure to notch end trusses into columns.
7. Not properly adjusting end truss first purlin spacing to compensate for lowered truss.
8. H-1/RT-15 brackets omitted or not fully nailed.
9. Purlin (soffit support) blocks not cut for a snug fit.
10. Purlin (soffit support) blocks not set to overhang end truss nailer by 2”.
11. End trusses not set to string line prior to cutting overhanging purlins to length.
12. Improper length of overhang(s).
13. Failure to install varge rafters and fascia boards with “crown” up.
14. Fascia boards not installed behind varge rafters.
15. Improper roof steel overhang past fascia board.
16. Inside closures omitted from on top of eave girt.
17. Truss tails not properly trimmed around prior to wall steel installation.
18. Fascia trims overlapped, or caulking not placed behind splices.
19. Improper trim used for varge lowers.
20. J Channel or Varge Lower trims overlapped, or caulking not placed behind splices.
21. Corner trims not properly cut at top.

***IMPORTANT*: “Eave height” is still the measure from skirt board bottom to roof steel intersection with sidewall column outside edge.**

Look carefully at building plans before going further. Make certain building’s height is correct and ***matched to plans***. **Failure to do this step correctly will result in costly errors** and may cause wall steel to not fit!

If the belief is “eave height” is from grade or concrete slab top to soffit underside or truss bottoms – the numerous earlier instructions and warnings given in this guide were ignored. Contact Technical Support immediately, and we can offer some solutions to this challenge.

Endwall trusses with standard heels are designed to be set lower than common (interior) trusses by purlin thickness. In cases where trusses have a “raised heel”, end truss overall height may have been adjusted to compensate for the purlin thickness. Measure end of raised heel trusses to verify. **See Figure 55-1**

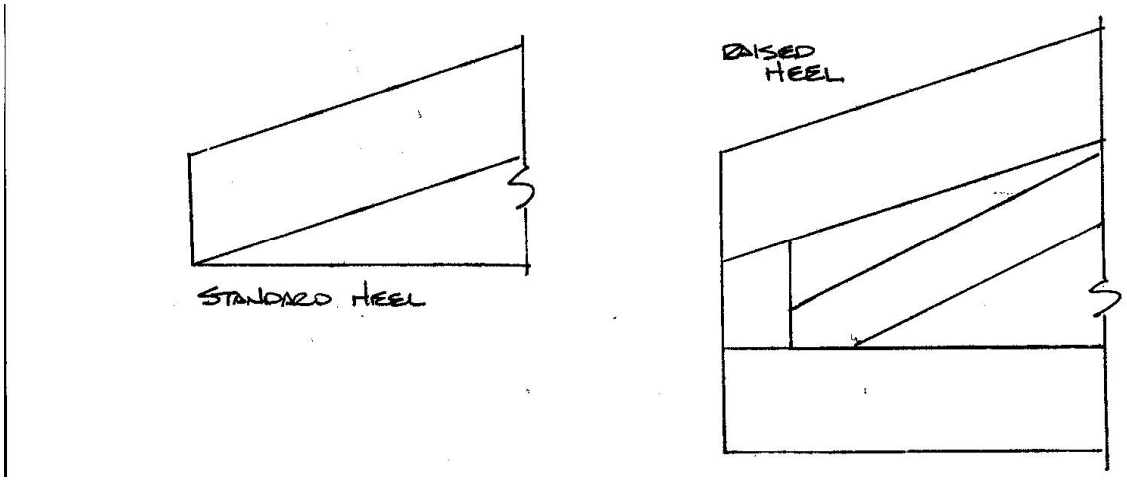


Figure 55-1

CAUTION With proper planning, easily made errors can be avoided.

Lower endwall trusses as follows:

First, determine difference in height, on posts, between interior and endwall trusses. **See Table 55-1 and Figure 55-2**

Table 55-1
Vertical Lowering Distance

	Purlins (inches)			
Roof Slope	2x6	2x8		2x10
2/12	5-9/16	7-3/8		9-3/8
3/12	5-11/16	7-1/2		9-1/2
4/12	5-13/16	7-5/8		9-3/4
5/12	5-15/16	7-7/8		10
6/12	6-1/8	8-1/8		10-5/16
7/12	6-3/8	8-3/8		10-11/16
8/12	6-5/8	8-3/4		11-1/8

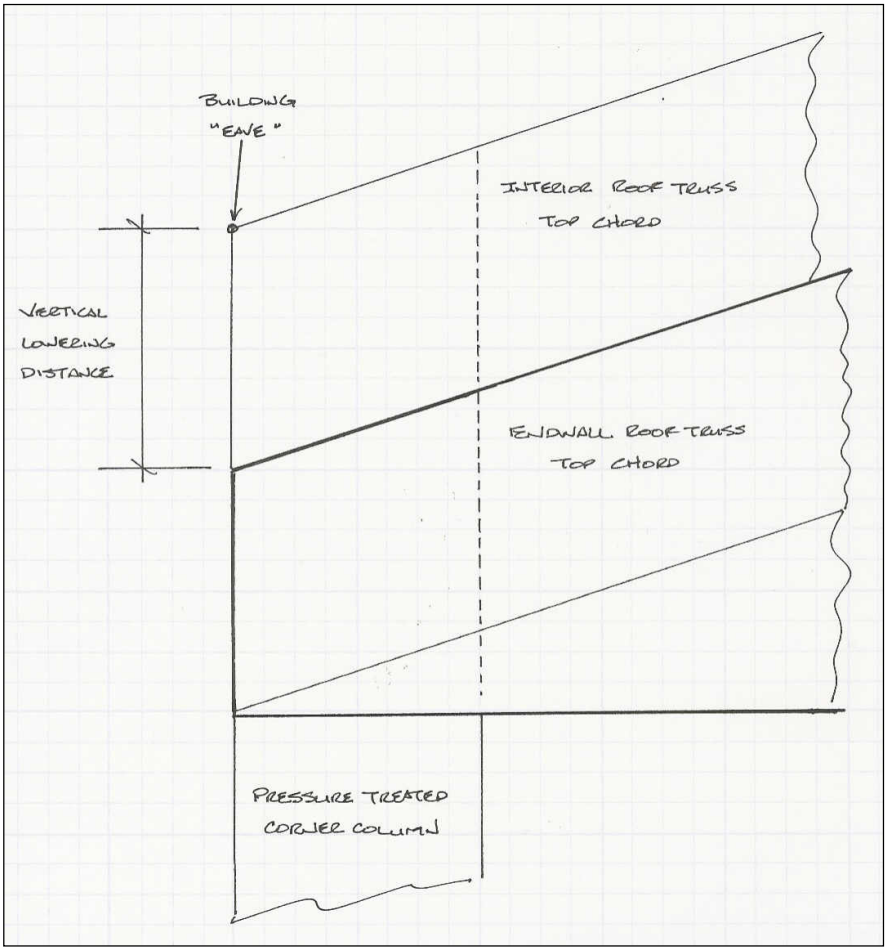


Figure 55-2

Example: At a 4/12 roof slope, with 2x6 purlins, end trusses will be placed 5-13/16" lower (measured vertically) than interior trusses.

Yes, we realize the vertical lowering distances may "not seem right". Trust us on this one, we've "done the math" and have also done thousands of buildings exactly this way - these dimensions DO work.

STOP Purlin layout still begins with eave girt location. **See Figure 55-3.**

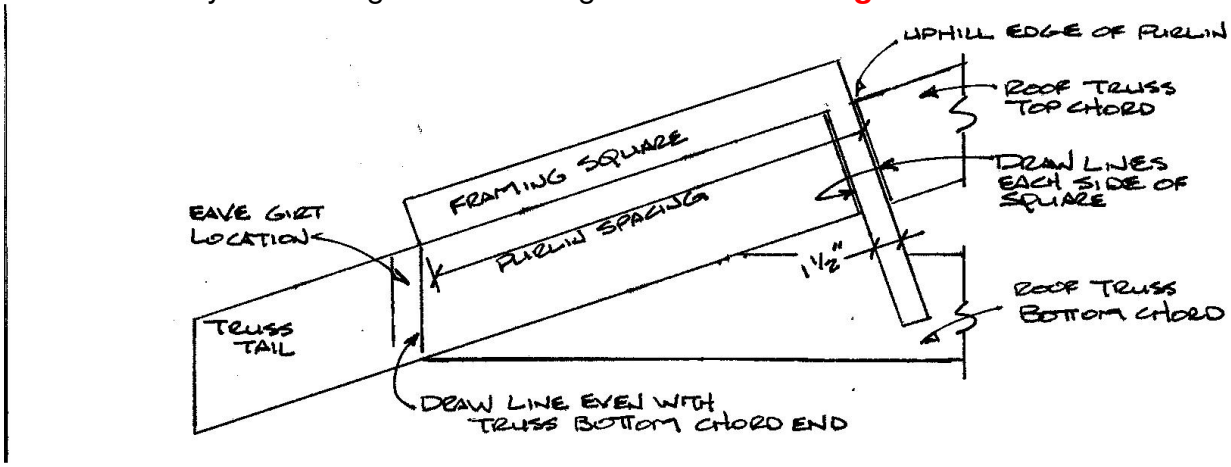


Figure 55-3

After laying out purlin locations on interior trusses lay one of the interior trusses flat on ground. Place an endwall truss on top of interior truss, holding end truss top chord the vertical lowering distance (indicated in table above) *lower than interior truss top*.

IMPORTANT: Align two truss ends.

Working from lines drawn on interior trusses for purlin locations, mark on endwall truss top where pencil lines on interior truss are at intersection of the two trusses. **See Figure 55-4**

This will be purlin locations as they cross endwall.

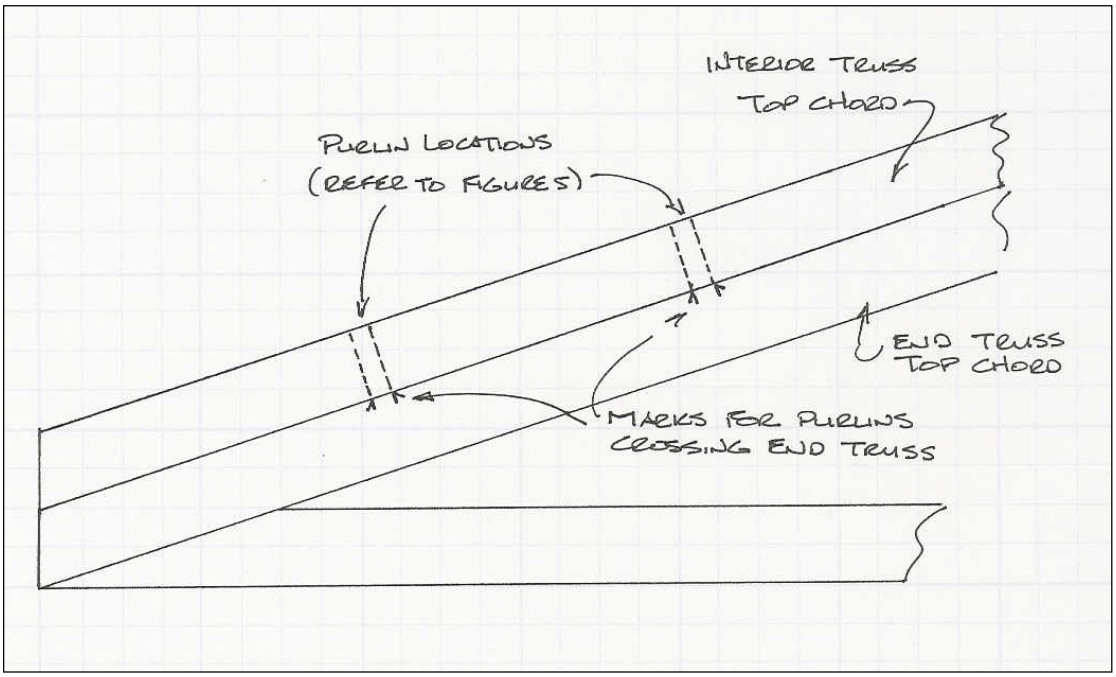


Figure 55-4

As an alternative to this marking, a similar procedure to **Chapter 9** can be followed.

Using **Table 55-2** ADD length shown (Example: 4/12 slope and 2x6 purlins = 1-13/16") to FIRST PURLIN SPACING ONLY, and draw marks on truss top accordingly.

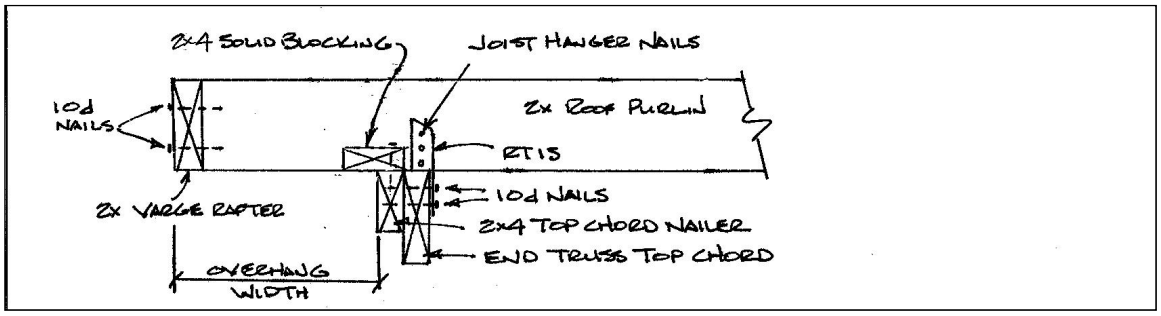
Balance of purlins will be on *standard purlin spacing* from **first pair of marks**.

Table 55-2

ADD TO FIRST PURLIN SPACING			
	Purlins (inches)		
Roof Slope	**2x6**	**2x8**	**2x10**
2/12	7/8	1-3/16	1-1/2
3/12	1-3/16	1-13/16	2-5/16
4/12	1-13/16	2-7/16	3-1/16
5/12	2-5/16	3	3-7/8
6/12	2-3/4	3-5/8	4-5/8
7/12	3-1/4	4-1/4	5-3/8
8/12	3-11/16	4-13/16	6-3/16

Install H-1 (or RT-15) hangers on endwall truss inside face at each purlin crossing location. The bracket portion which will receive purlin will point outward toward endwall.
See Figure 55-5

H-1 (RT-15) installed on inside of end truss



Install endwall truss into notches cut into corner and endwall columns. Remembering to have lowered end trusses on posts by appropriate distance below interior truss level.

Install eave girts level in end bays first. **See Figure 55-6**

Eave girts will project PAST corner post and help to support varge rafter.

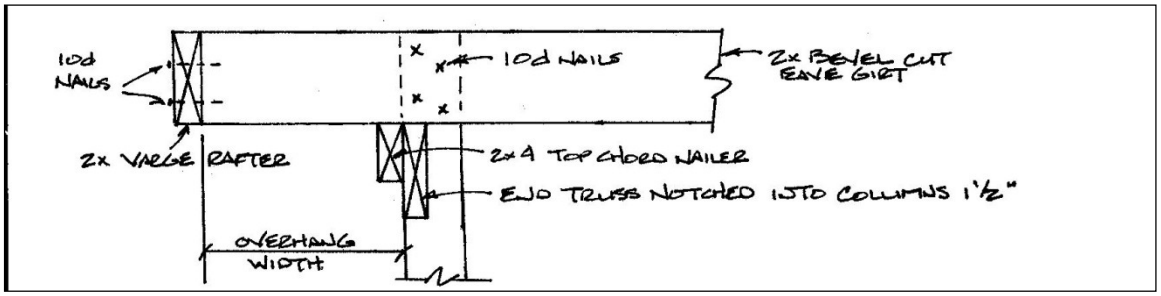


Figure 55-6

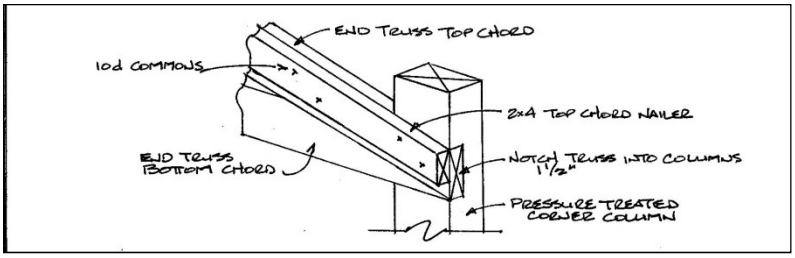


Figure 55-7

Install purlins over endwall truss top into earlier installed H-1/RT15 brackets.

CAUTION Before nailing purlins into place, verify endwall trusses are plumb and overall roof length (from end truss outside to end truss outside) is equal to building length.

Pre-cutting purlins to length now, will save trimming later.

IF corner column and next column along sidewall are perfectly plumb, and post spacing is “on the money”, this can save time.

Purlin length will be distance from first truss pair face, to endwall truss outside edge, **plus** overhang distance.

Cut “purlin blocks” to fit between purlins and above endwall truss. **See Figure 55-8**

The first block will be angle cut (on lower end) at roof slope to fit snug against eave girt (even with outside edge of corner column).

Balance of blocks (until getting to ridge) can be square cut to length at purlin spacing less 1-9/16".

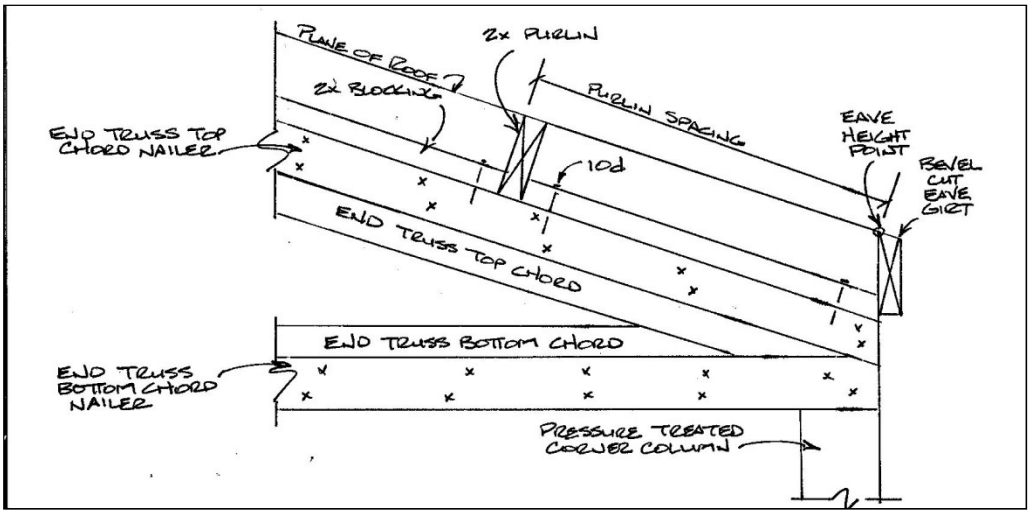


Figure 55-8

When installing purlin blocks, hold block inside face even with outside edge of end truss face. **See Figure 55-9**

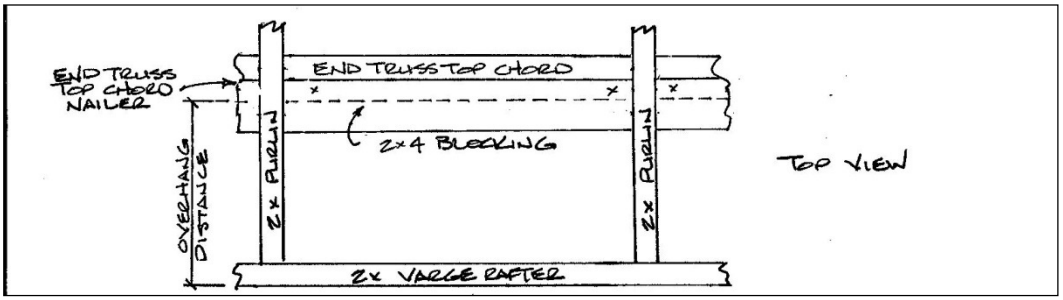


Figure 55-9

IMPORTANT! Do not neglect custom cutting small blocks to fit space between ridge purlin and peak. **See Figure 55-10**

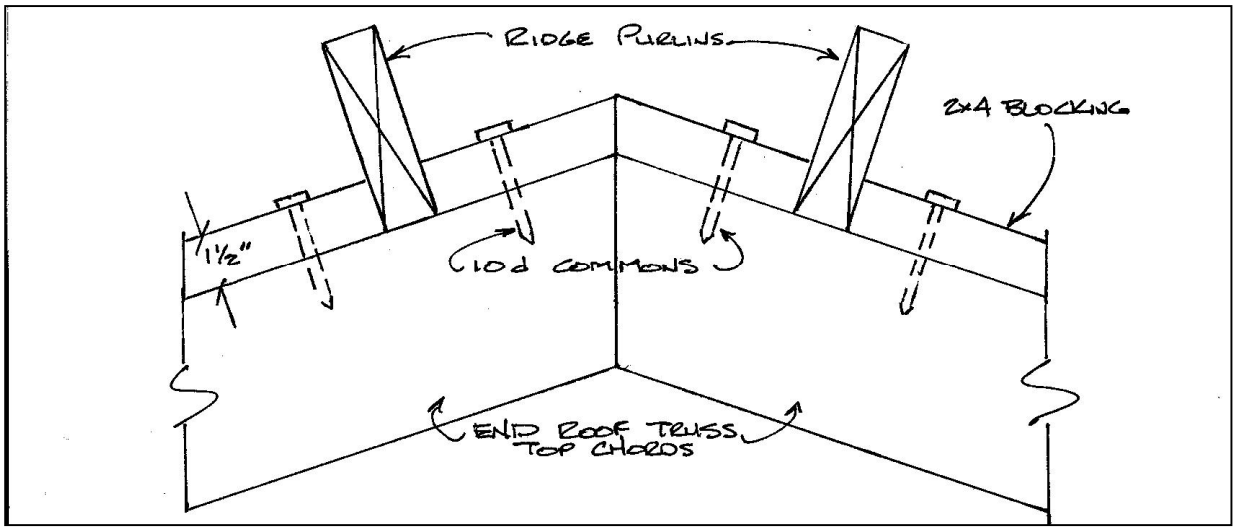


Figure 55-10

2x4 Purlin blocks installed

If purlins were not pre-cut to length earlier, now is the time to trim.

CAUTION Before cutting, square roof and plumb endwall truss.

From endwall truss outside face, measure out overhang distance on both eave girt and ridge purlin.

Run a string line between these two points and place a mark on each purlin. A chalk line is handy for this. **See Figure 55-11.** Trim purlins off vertically from this mark.

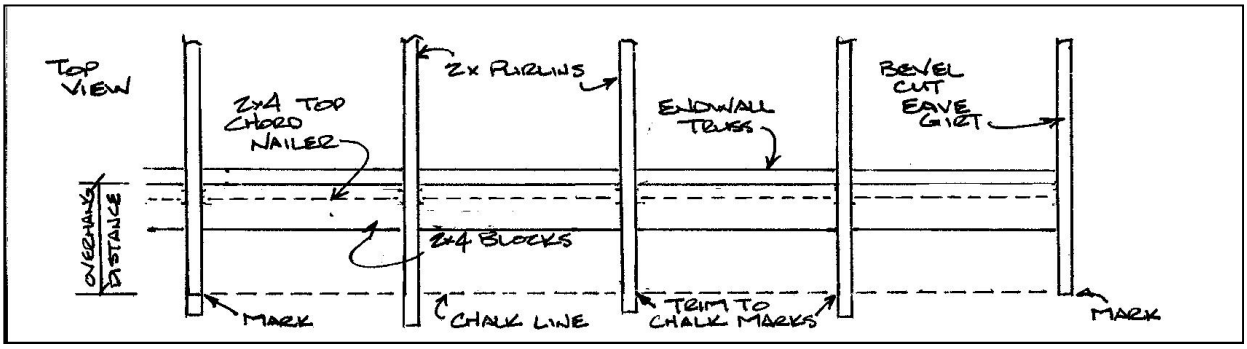


Figure 55-11

If a choice exists between several boards to use for varge rafters, select ones as straight as possible.

Place boards with crown up, cut an angle on upper end to match roof slope (example shown is for a 4/12 roof slope). **See Figure 55-12**

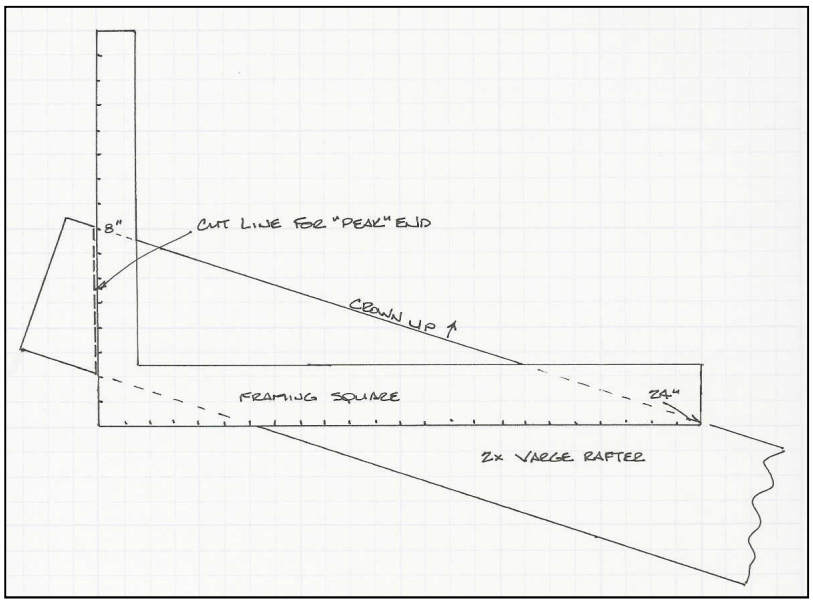


Figure 55-12

Nail varge rafter to overhanging purlin ends and eave girts.

If a choice exists between several boards to use for fascia boards, select ones as straight as possible.

Fascias are to have the upper edge bevel cut at an angle to follow the roof slope (same as eave girts). This is easiest done with a table saw. Make sure to cut off from the “crowned up” edge of fascia boards. **See Figure 55-13**

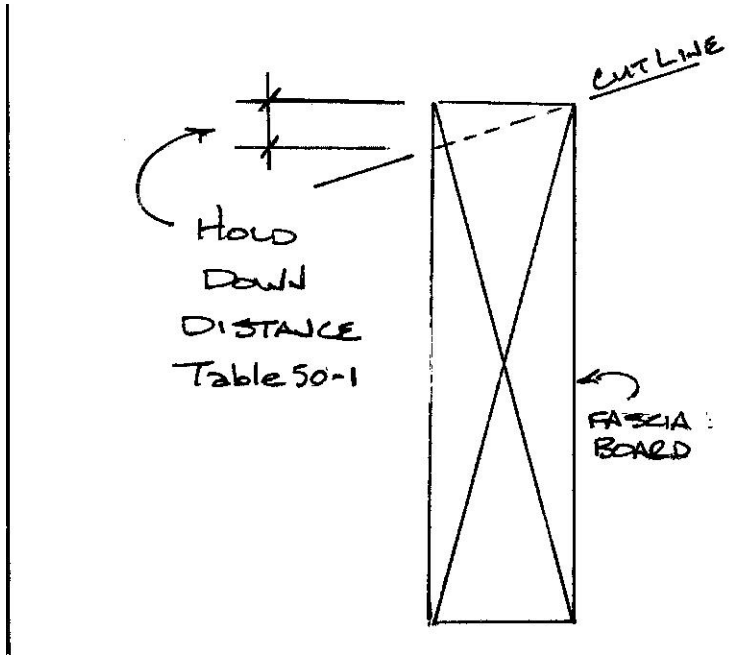


Figure 55-13

Table 55-3 **HOLD DOWN DISTANCE**

Roof Slope	Hold Down
2/12	1/4"
3/12	**3/8"**
4/12	1/2"
5/12	**5/8"**
6/12	3/4"
7/12	**7/8"**
8/12	1"
9/12	**1-1/8”**
10/12	1-1/4”
11/12	**1-3/8”**
12/12	1-1/2”

Fascia board is installed perpendicular to ground, not rotated to be perpendicular to roof angle.

LOOK Fascia boards are installed with top edge in same plane as roof purlins. Fascia boards are only on eave sidewalls, not on endwalls.

DANGER ***If this step is not followed carefully, roof steel will not lie properly and may "kink" at eave or fascia.***

Any sidewall overhang "width" is measured parallel to ground, not with "roof run". The overhang distance will be the horizontal measure from sidewall column face to truss (or rafter) tail outside edge. **See Figure 55-14**

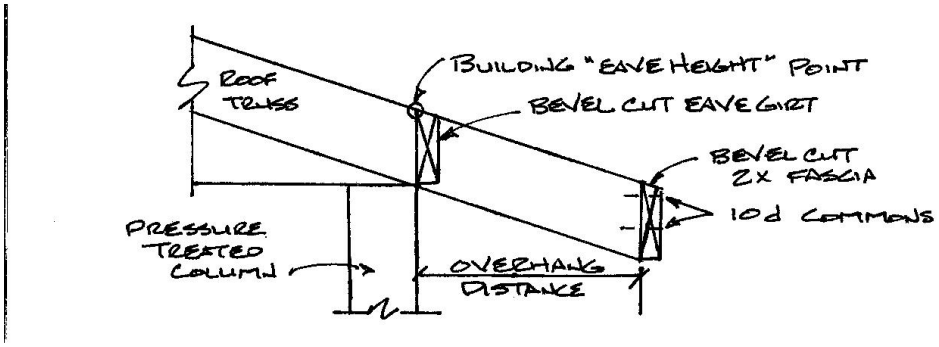


Figure 55-14

If necessary, trim truss "tails" off at the correct overhang distance measure.

Cut off bottom edge of interior truss tails to match fascia board inside height.
See Figure 55-15

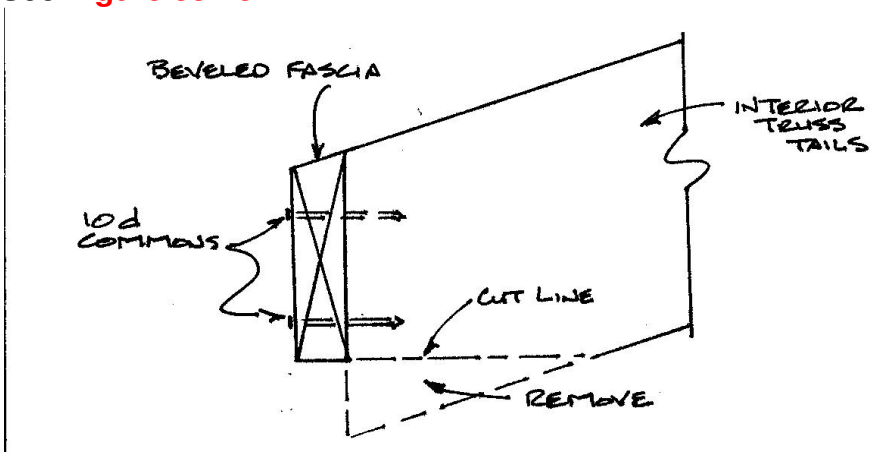


Figure 55-15

Cut off bottom edge of varge rafter to match bottom of fascia.**See Figure 55-16**

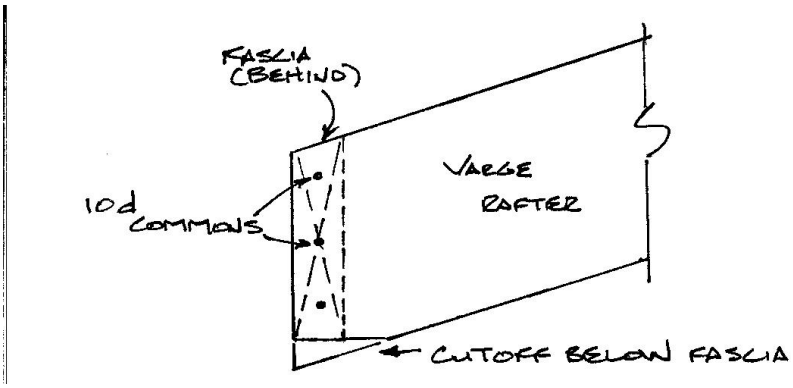


Figure 55-16

Nail fascia boards to interior truss tails ends (crowned up) with 10d commons. **See Figure 55-17**

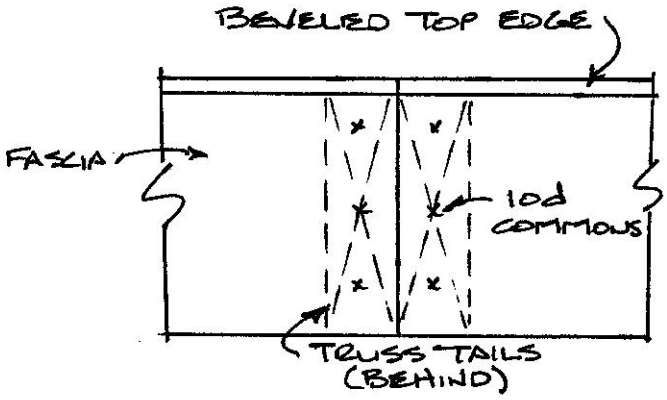


Figure 55-17

Install fascia board (crowned up) from first overhanging truss tail to fit behind varge rafter, nailing through end truss tail into fascia end with 10d commons. Trim varge rafter even with fascia board outside (downhill) edge. **See Figure 55-18**

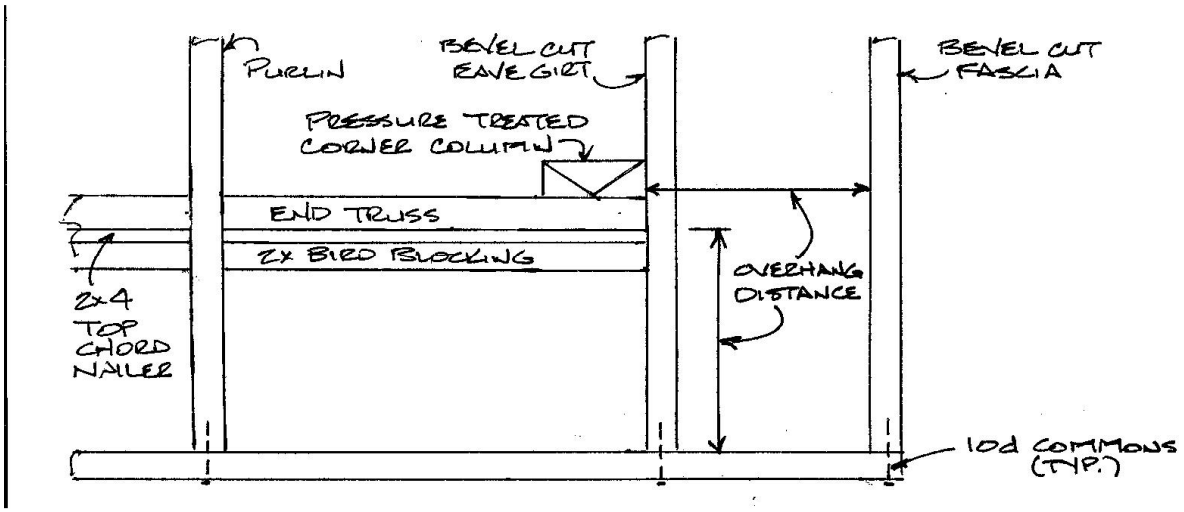


Figure 55-18

A 2x4 backing block installs from fascia back to corner column face.**See Figure 55-19**

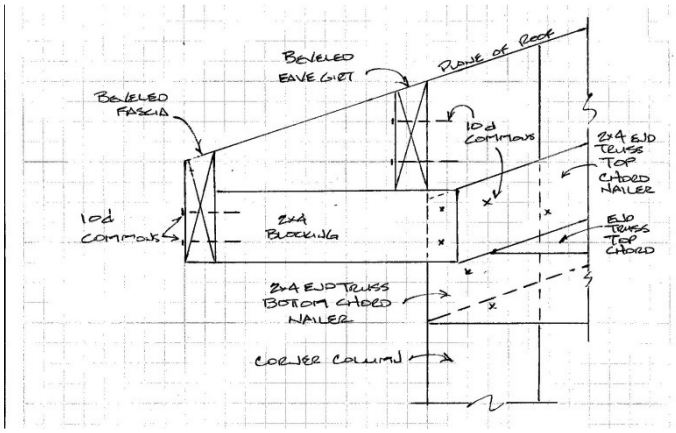


Figure 55-19

Roof steel MUST extend past fascia board ONLY by 1-1/2" to 1-3/4". See **Figure 55-20**

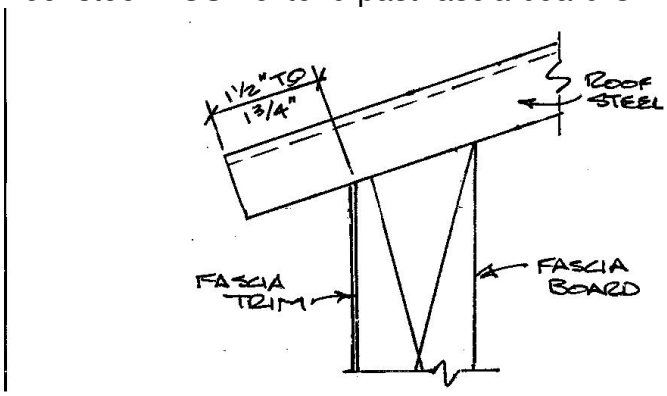


Figure 55-20

Failure to adhere to these dimensions *will* cause a plethora of problems, including one or more of the following: water to either flow behind or to shoot over any future gutter tops and/or the ridge cap will not properly fit.

Reflective building insulation is not placed in overhangs. If **reflective building insulation** is installed in overhangs, there will be an insulation ***SHORTAGE*** !

Place Inside (skinny) closure strips on eave girt tops below roof steel panels, other than in end overhang areas. Peel the paper backing strips off adhesive and work closure strips into place. Strip ends will interlock at a major roof steel rib. Do this prior to installing any screw fasteners.

Roof steel is installed PRIOR to placing any trims on fascias or varge rafters.

IMPORTANT: Install all soffit material and all wall trim (other than wainscot, eave light or corner trims) before installing any wall steel!

Cut soffit panels to overhang length (measured horizontally from end roof truss top chord nailer face to varge rafter outside edge) **less 1/2"**.

Install endwall soffit material BEFORE installing trim. Use galvanized roofing nails, or staples to attach soffit to 2x4 soffit blocking underside and varge rafters.

IMPORTANT – Soffit material ribs are at a 90-degree angle to building. On endwalls, ribs run same direction as purlins.

Install soffit panels, from one eave side to the other, starting flush with outside edge of fascia board. Provided temperatures are above freezing, an air-powered stapler may be used (set pressure low to avoid cracking soffit panels). Other acceptable fasteners are galvanized joist hangers or ½" drywall screws.

Position fasteners in nailing slot of underlap. Fully interlock each piece with earlier installed panel. **See Figure 55-21.**

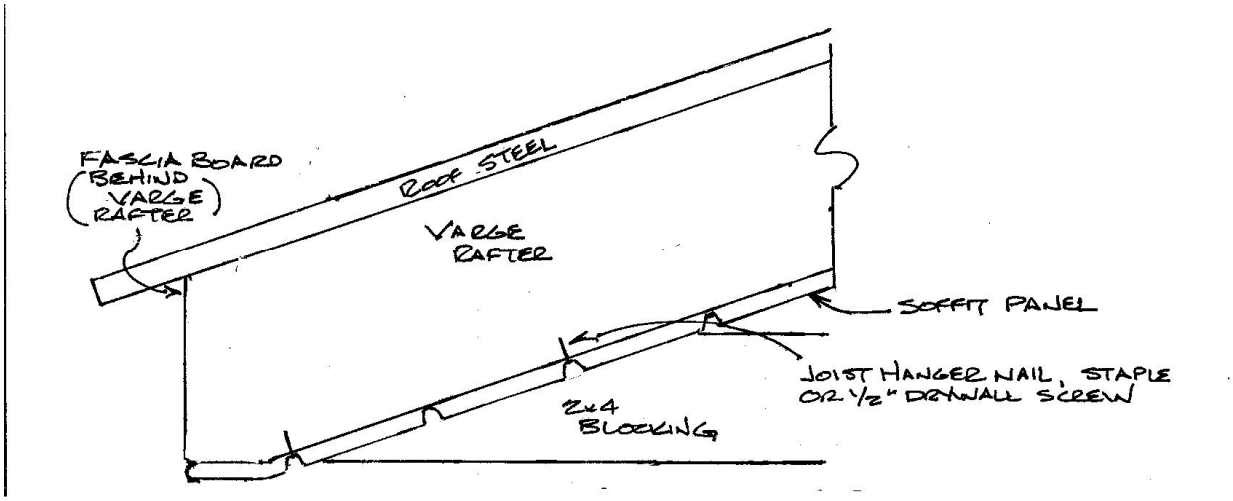


Figure 55-21

Bend soffit panel at peak and continue towards opposite eave. **See Figure 55-22.**

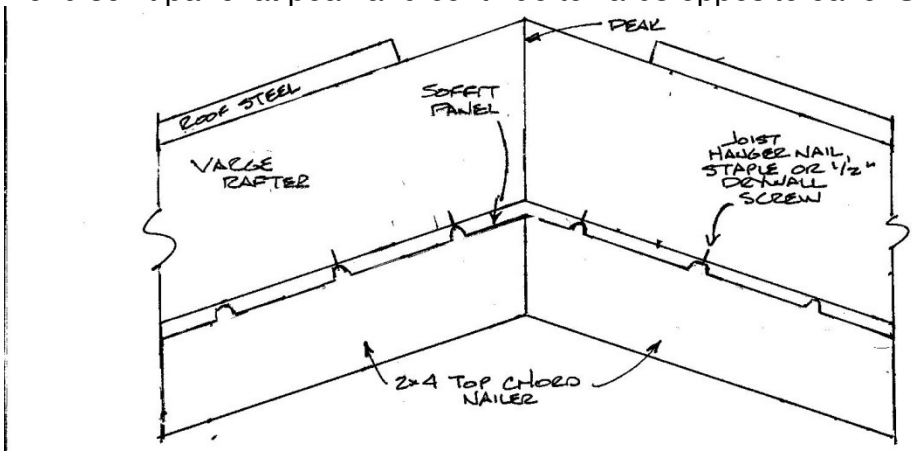


Figure 55-22

At opposite eave girt, cut last soffit panel flush with eave girt outside edge.

On building endwall face, tight below soffit panels, install J Channel with wide face against building and “open” side down (use joist hanger nails). Left side is installed with upper end square. **See Figure 55-23**

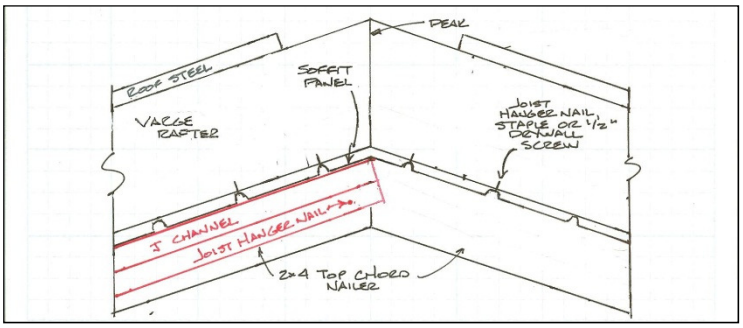


Figure 55-23

Right side J Channel will have outer face cut at roof slope and will overlap left side J Channel. **See Figure 55-24 & Figure 55-25**

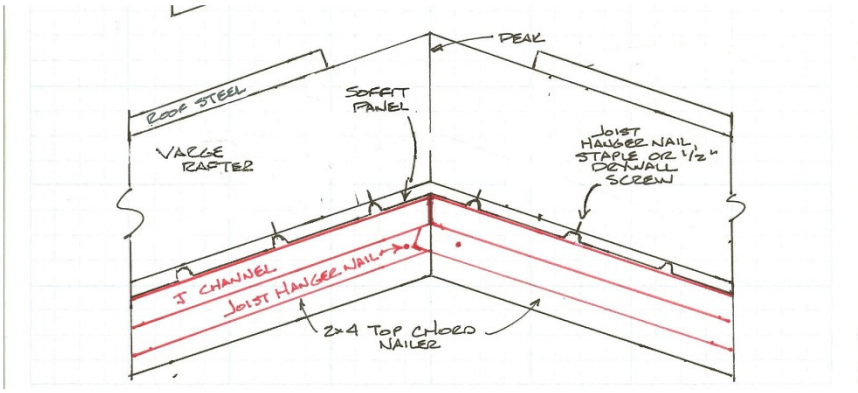


Figure 55-24

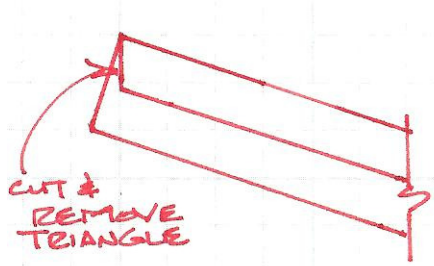


Figure 55-25

J Channel at low end will stop even with bottom of 2x4 blocking. **See Figure 55-26**

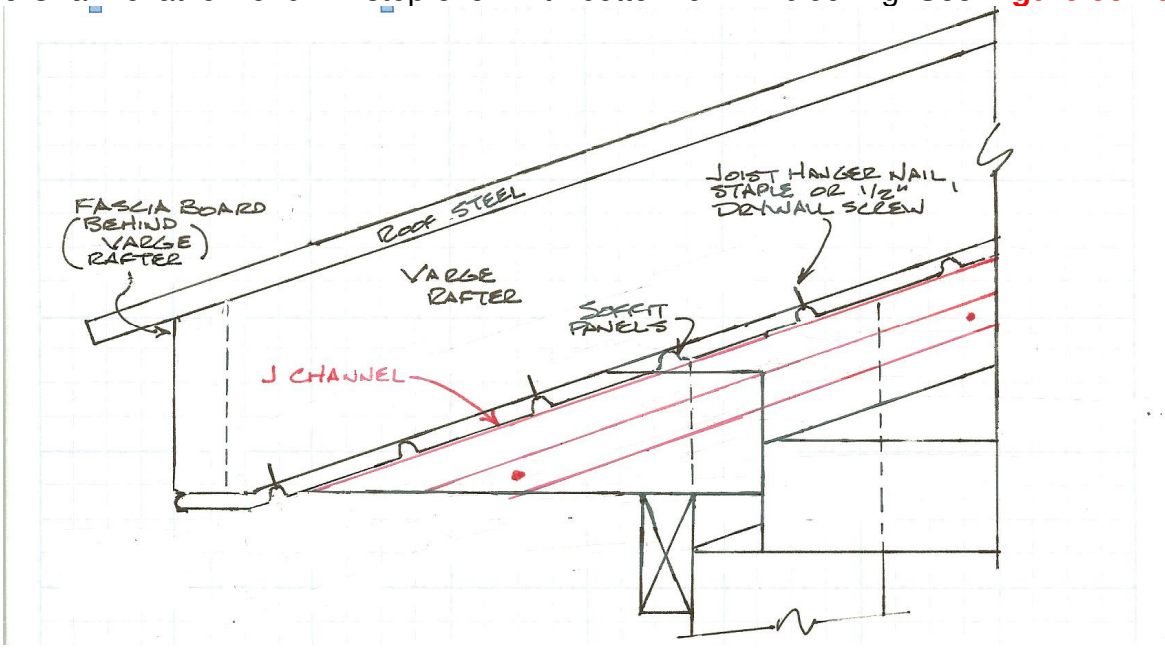


Figure 55-26

J Channel trims do NOT overlap, other than beneath peak. Apply liberal amounts of caulking behind trims at butt splices.

Install the lower varge trim. With a 2x6 varge rafter, this will be a 1-1/2" x 1-1/2" "L" shaped piece. With 2x8 varge rafter 1-1/2" x 3-1/2". **See Figure 55-27**

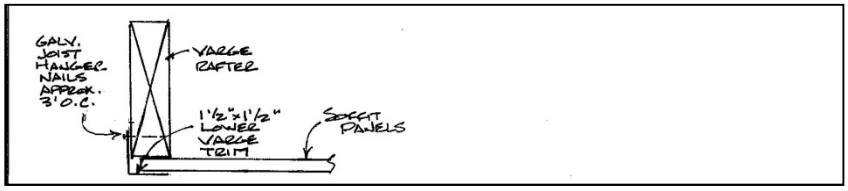


Figure 55-27

Push lower varge trim up tight to soffit panels and attach with joist hanger nails. Lower varge trims will be held in place by rake trim, to be installed after roofing is in place. **See Figure 55-28 & Figure 55-29**

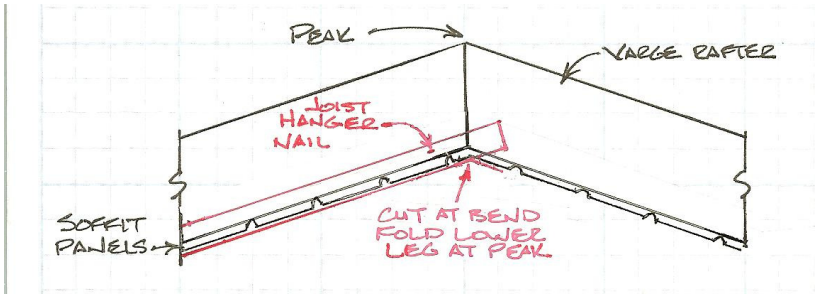


Figure 55-28

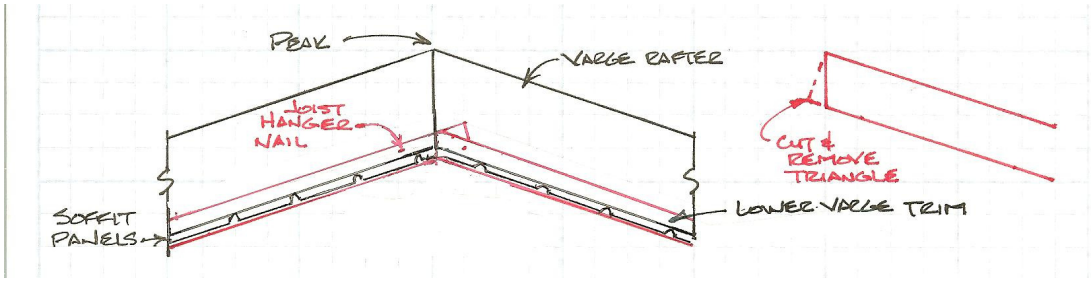


Figure 55-29

Lower Varge trims do NOT overlap, other than beneath peak. Apply liberal amounts of caulking behind trims at butt splices.

Cut “downhill” Lower Varge trim end flush with varge rafter end. Cut along Lower Varge Rafter bend to “bend” in soffit panels. **See Figure 55-30**

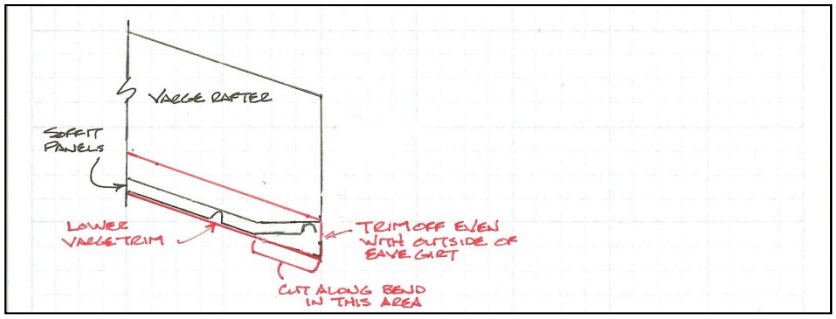


Figure 55-30

Fold bottom (horizontal) leg up to soffit at soffit panel bend. Cut off vertical face portion below the folded up leg. **See Figure 55-31**

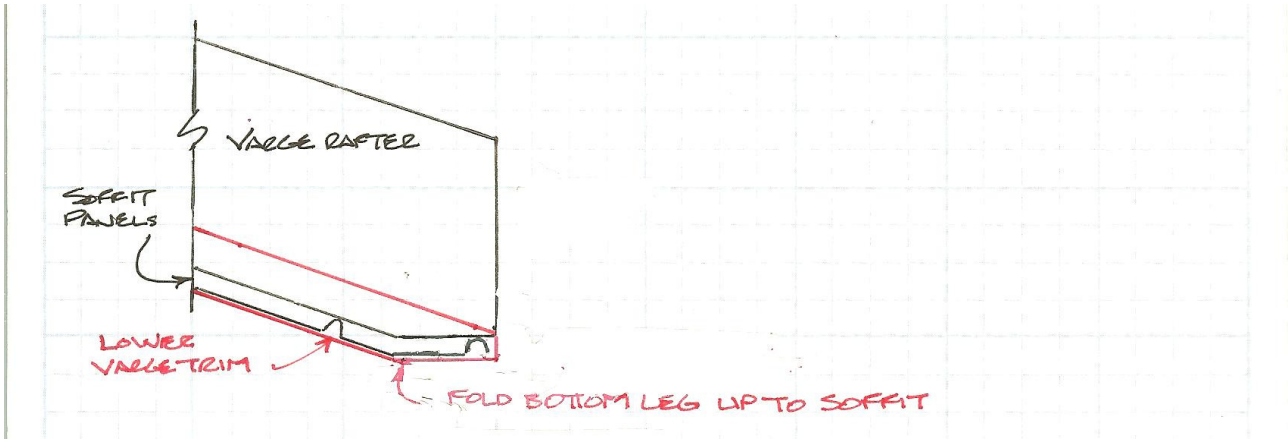


Figure 55-31

Install rake trim. **See Figure 55-32**

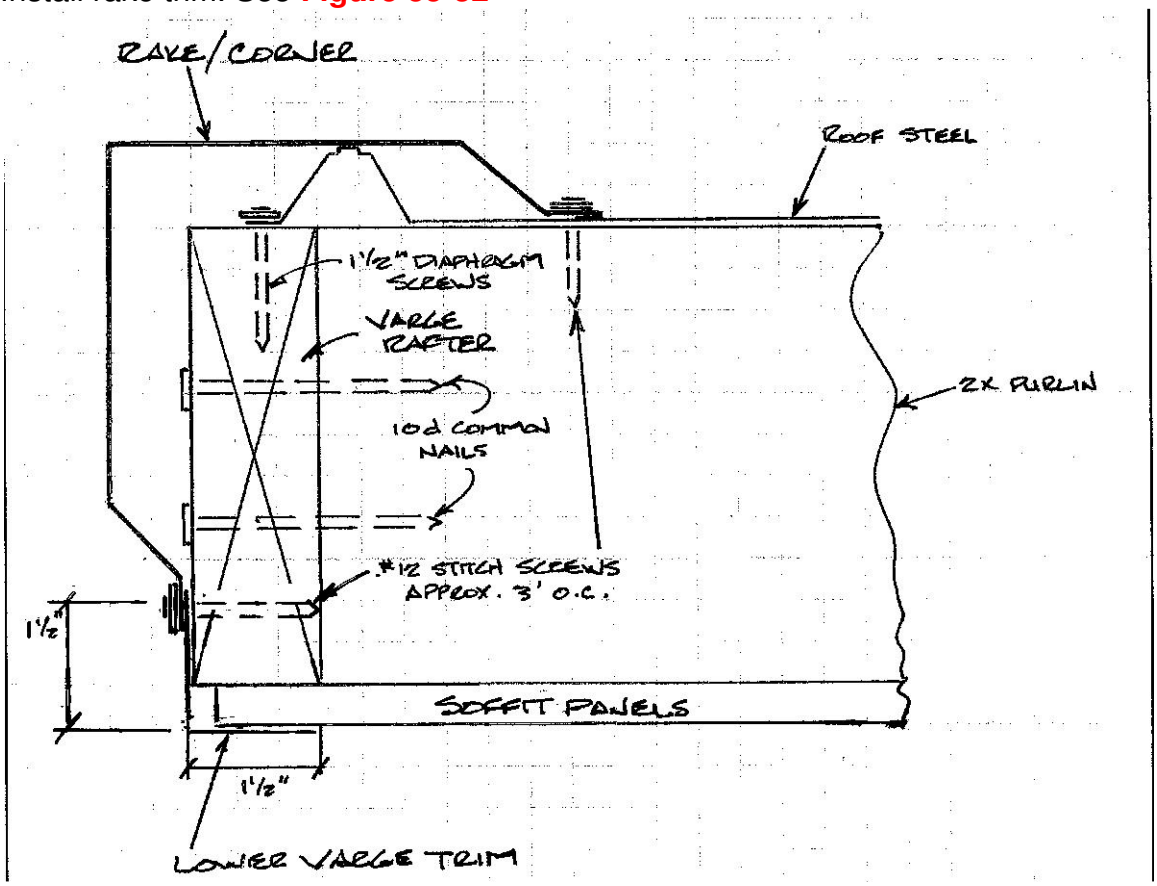


Figure 55-32

Install the 2x4 inverted “L” soffit supports to sidewall columns. **See Figure 55-33**

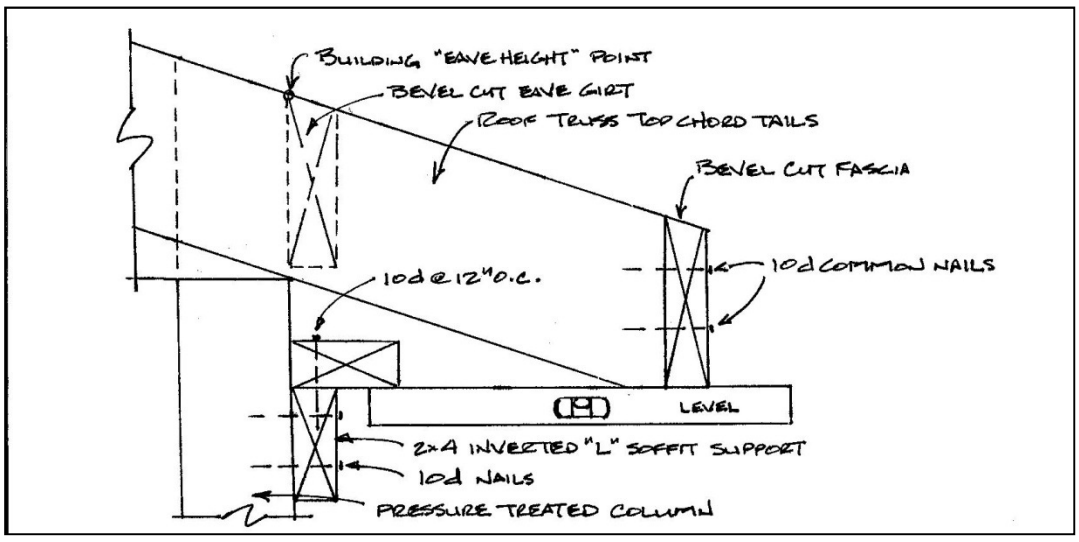


Figure 55-33

<u>For best results, level fascia board bottom edge and 2x4 inverted "L" soffit support “inside”</u>.

Before installing soffit panels straighten fascia boards and sidewall.

In any areas where fascia board is either "in" or "out" from a straight line, remove roof screws. Push or pull fascia board to straight, then reinstall screws.

Note: no framing is installed between eave girt and fascia board.

Cut two base trim pieces (one for each overhang end). Attach to 2x4 backing with 1-1/2" galvanized joist hanger nails. See Figure 55-34.

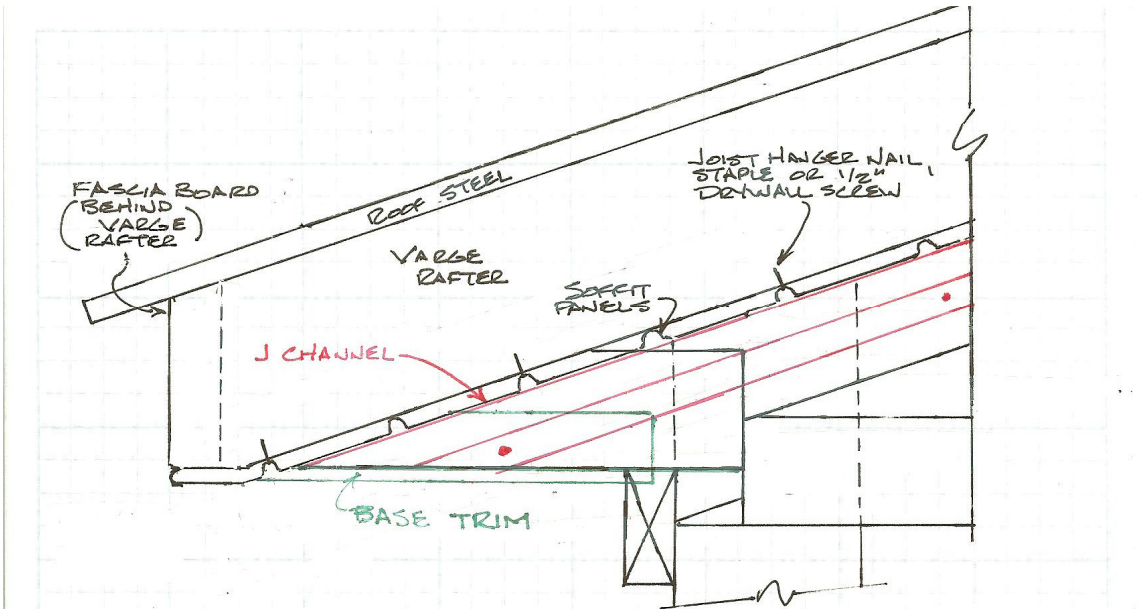


Figure 55-34

IMPORTANT: Install all soffit material and all wall trim (other than wainscot, eave light or corner trims) before installing any wall steel!

Cut soffit panels to overhang length (measured horizontally from soffit support face to fascia board outside edge) **less 1/2"**.

Install soffit panels, from one end to the other, starting flush with previously installed base trim outside edge. Provided temperatures are above freezing, an air-powered stapler may be used (set pressure low to avoid cracking soffit panels). Other acceptable fasteners are galvanized joist hangers or ½" drywall screws.

Position fasteners in nailing slot of underlap. Fully interlock each piece with earlier installed panel. **See Figure 55-35.**

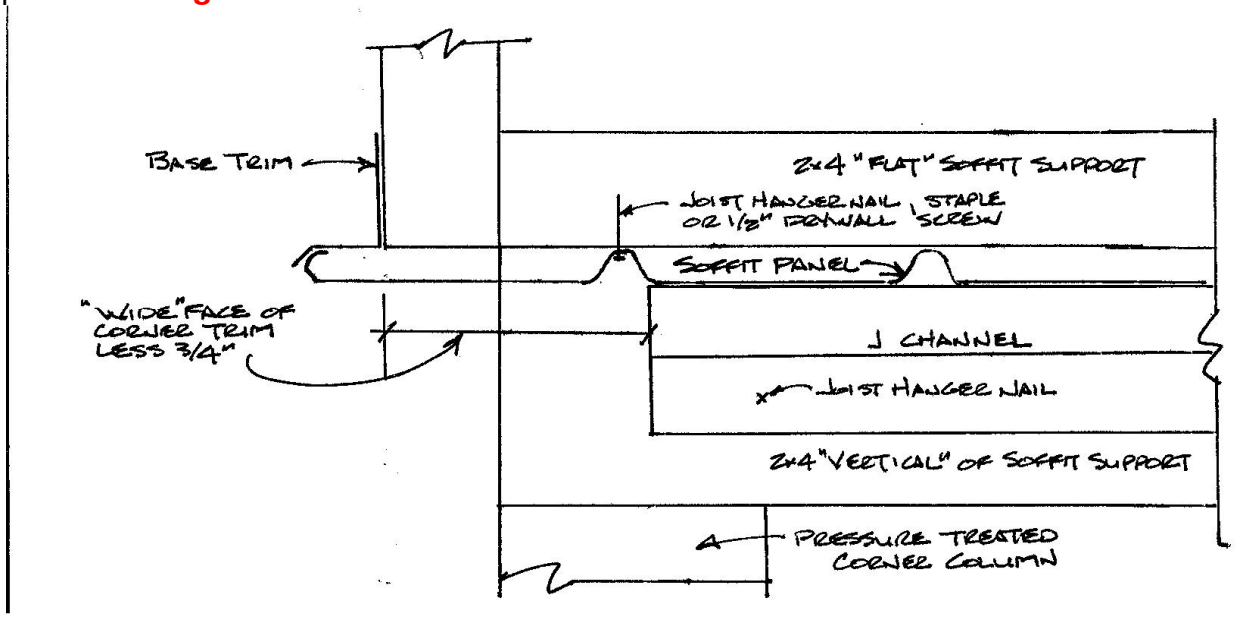


Figure 55-35

At sidewall far end, cut last soffit panel flush with base trim edge. Using joist hanger nails, install inverted J Channel to soffit support 2x4 vertical, holding tight to underside of soffit panels. **See Figure 55-36.**

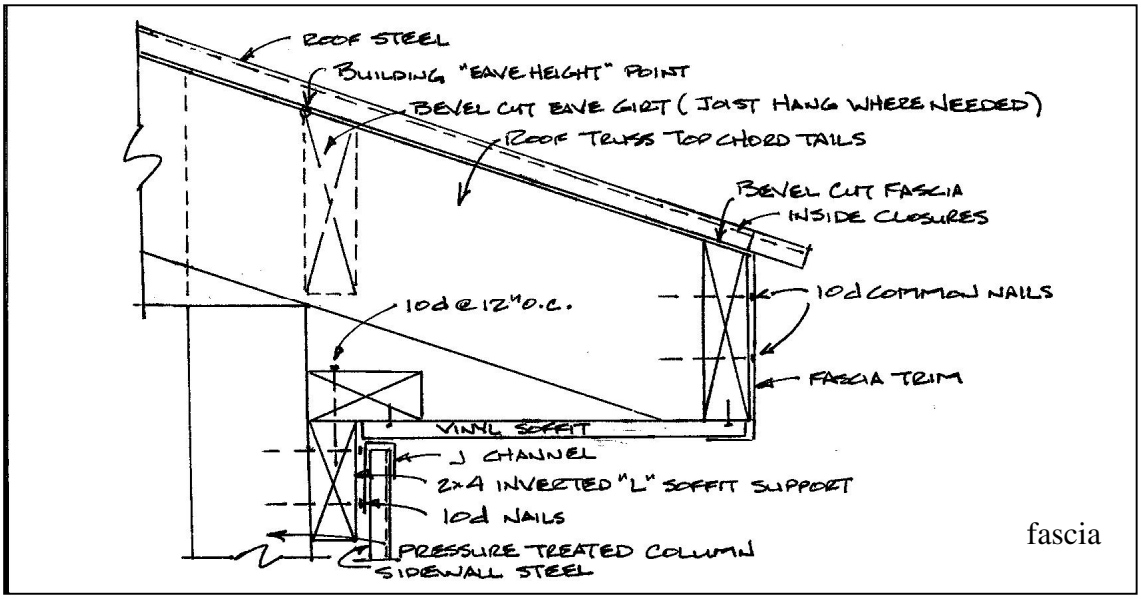


Figure 55-36

Install 1-1/2” x height of low side of fascia plus ½” trims. First piece begins at outside edge of 2x4 end truss top chord nailer. These trims are best installed with screws placed into wide face of fascia trims, place close to top edge of trim and use as few as possible to minimize oil canning. **See Figure 55-37.**

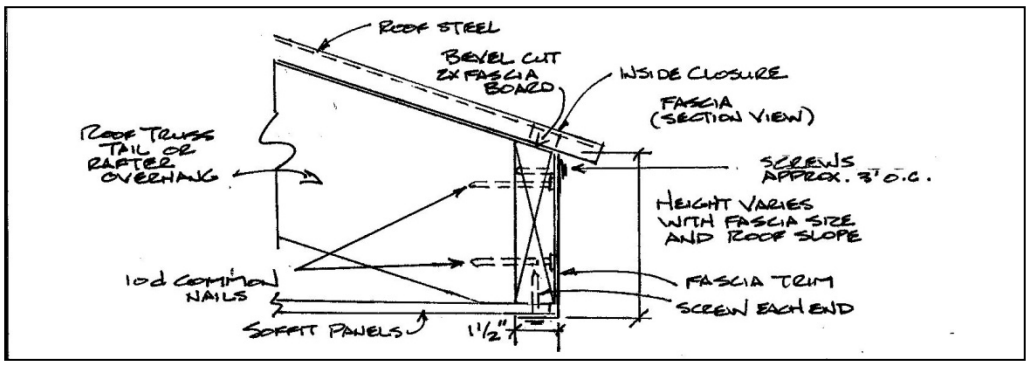


Figure 55-37

Fascia trims do NOT overlap. Apply liberal amounts of caulking behind trims at butt splices.

Gutters can easily be attached to fascias. For best results, use continuous seamless gutters.

Cover end of overhang with a piece of wall steel (good place to utilize a cutoff). Hold bottom up ¼” from base trim. **See Figure 55-38.** (Steel ribs shown in blue)

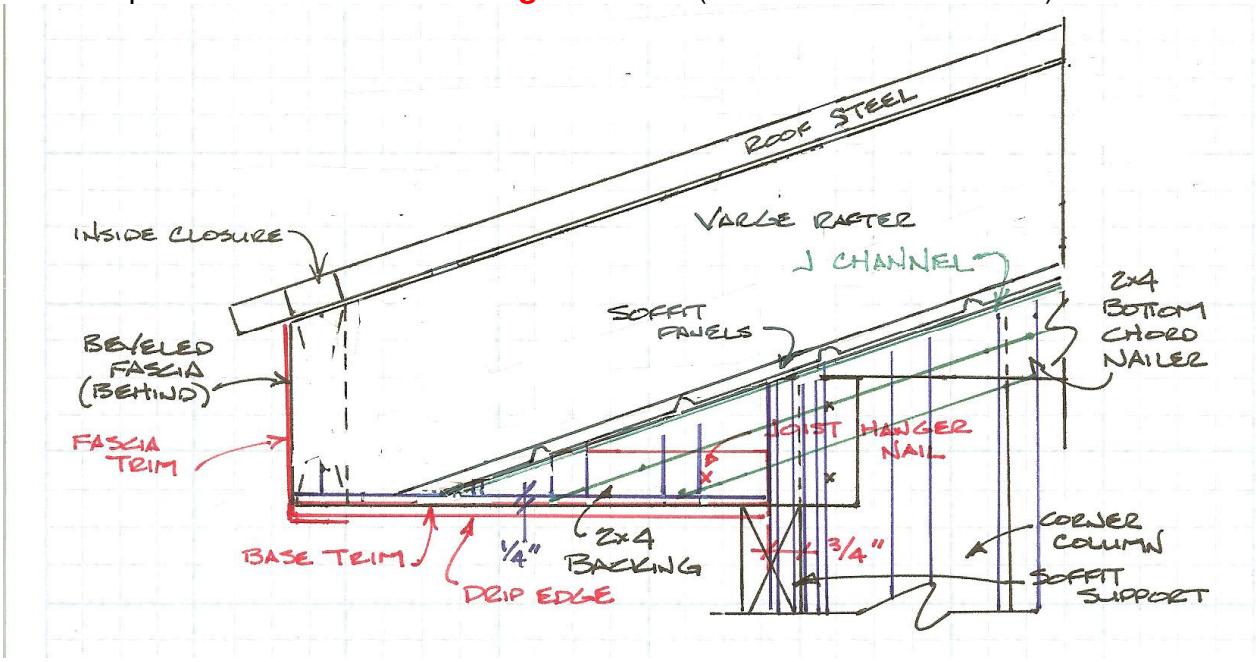


Figure 55-38

In cases where an enclosed sidewall overhang, is at an open bay, make the adjustments shown below. **See Figure 55-39.**

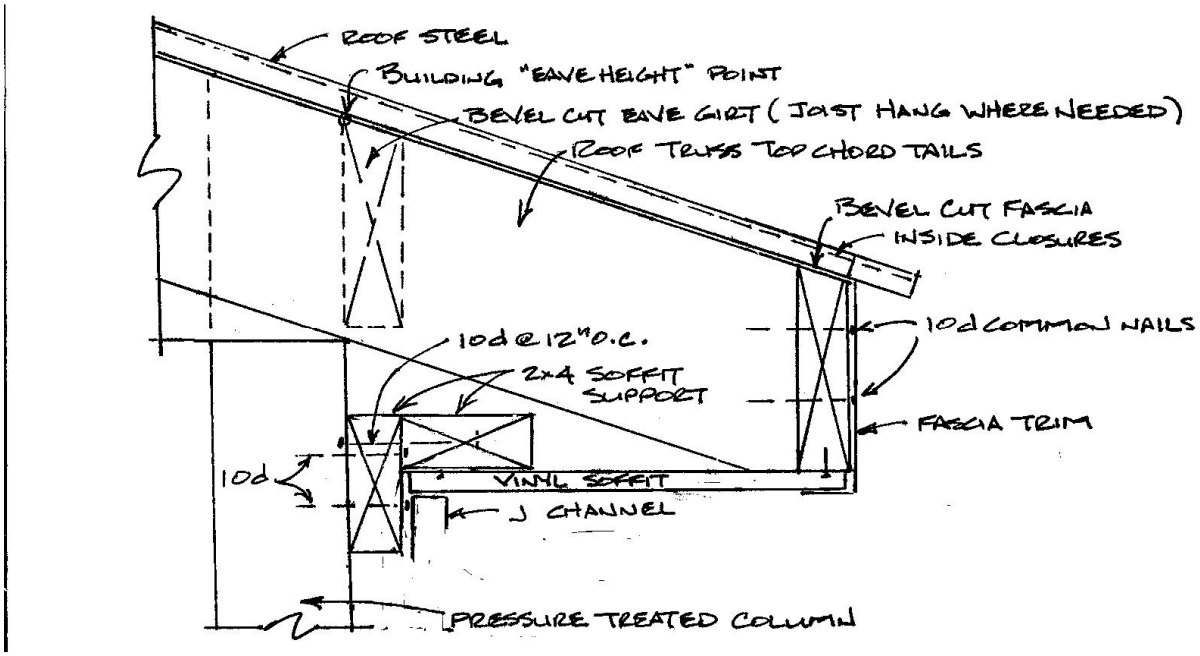


Figure 55-39

It is recommended to place screen material between soffit support and eave girt, to prevent birds or wasps from nesting in overhang area.

After siding is installed, place corner trims, with top edge of trim cut square and tight to underside of sidewall soffits. **See Figure 55-40.**

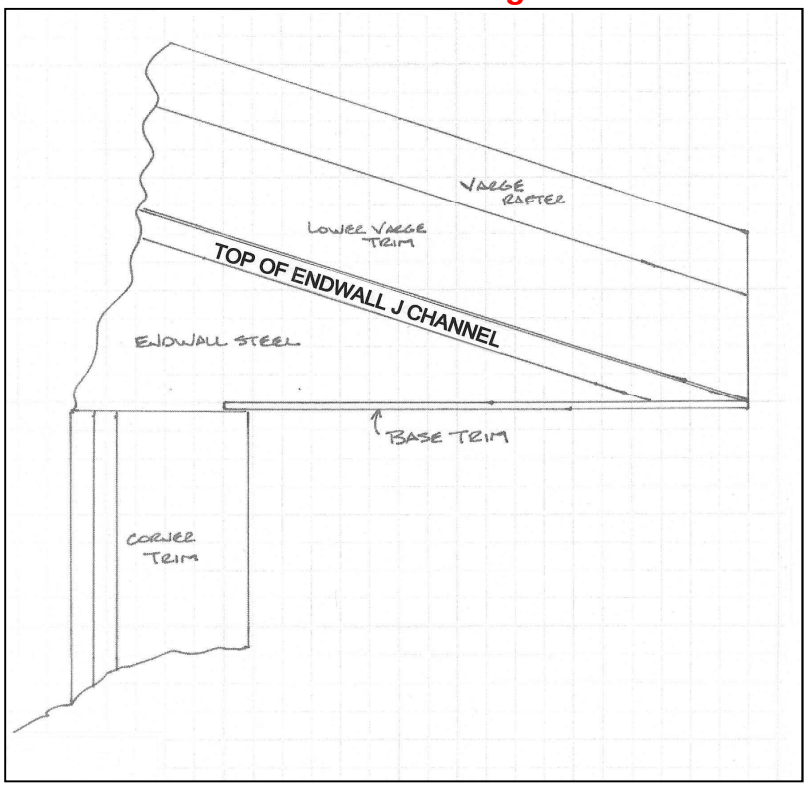


Figure 55-40

Correct example:

Incorrect example pictured below: