

## Chapter 44: Pitch Breaks – Steeper to Flatter

### Most Common Mistakes:

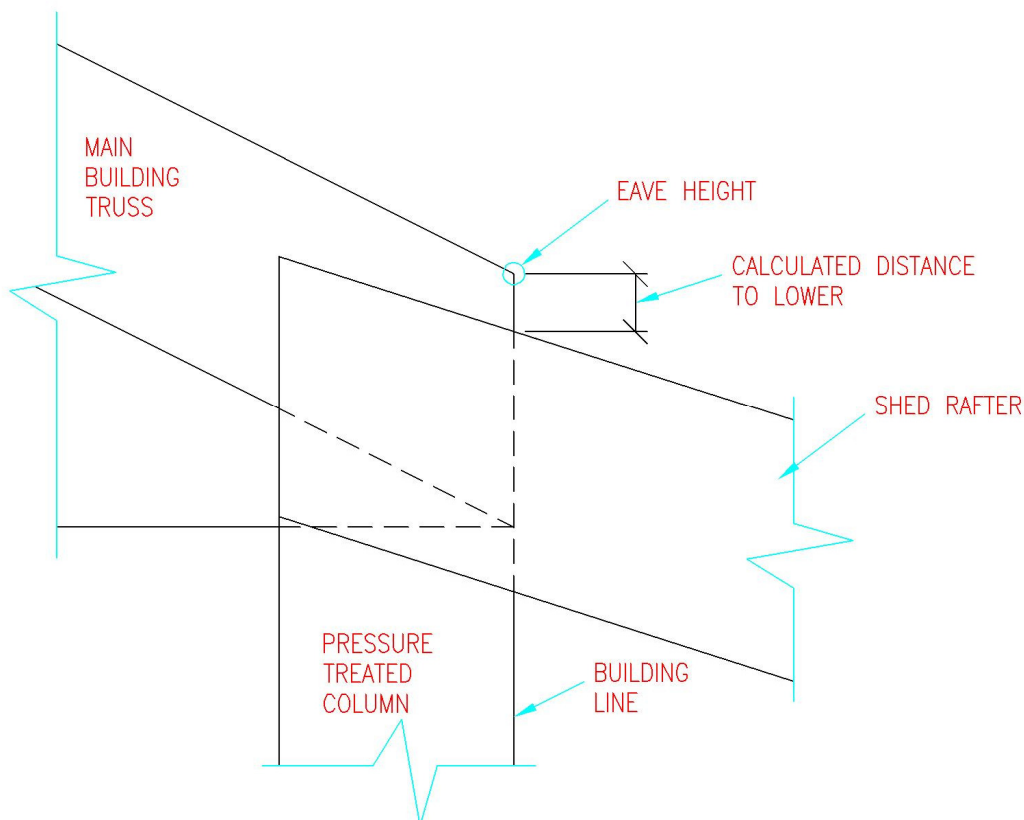
1. Failure to lower shed rafters at pitch break.
2. Installing uppermost shed purlin before wall between main building and shed.
3. Roofing, prior to sheathing wall between main building and shed.
4. Transition flashing set other than to stringline.
5. Omitting closure strips.
6. Neglecting caulking between transition flashing overlaps.

Pitch breaks occur at a transition between steeper (towards peak) and flatter roof slopes. Exercising care, this will be a painless and leak free area.

Calculate distance to lower shed roof at pitch break. Subtract flatter roof slope from steeper roof slope; divide result by 4 and add  $\frac{3}{4}$ ".

**Example:** from 6/12 to 4/12:  $6 - 4 = 2$ ;  $2 / 4 = \frac{1}{2}$ " +  $\frac{3}{4}$ " = 1-1/4"

Install flatter pitched rafter or truss, lower than steeper sloped truss or rafter (measure at outside edge of column), by calculated distance. **See Figure 44-1**



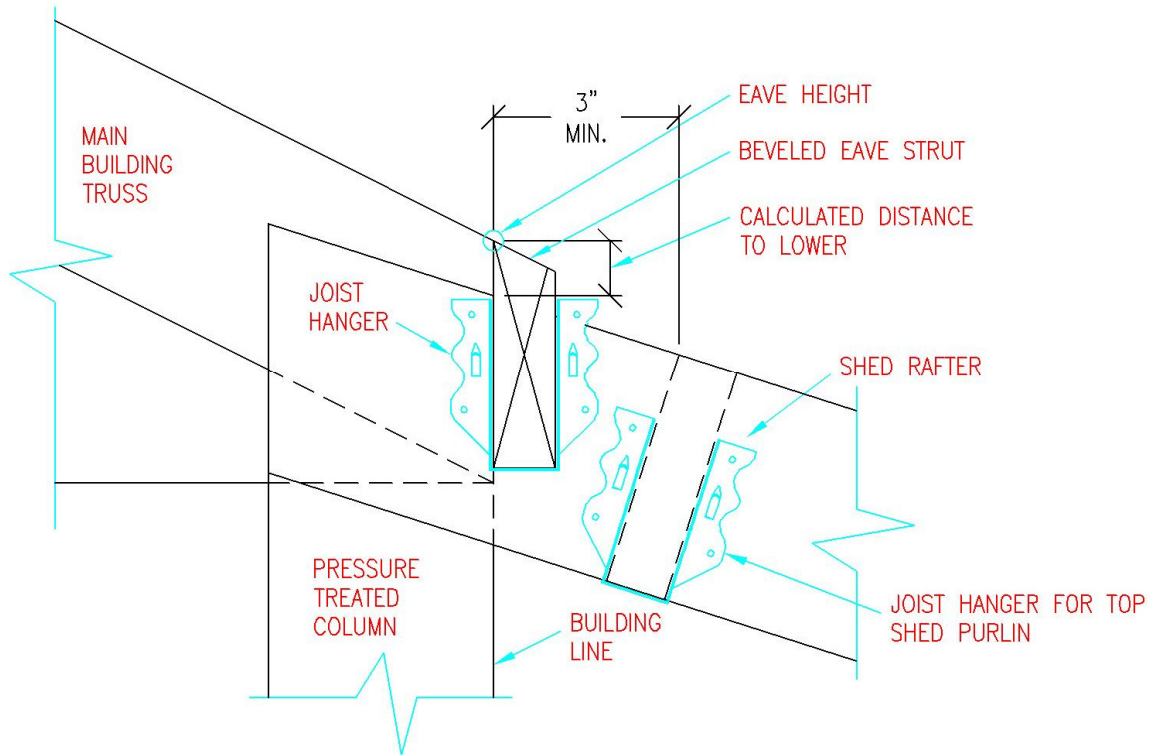
**Figure 44-1: Pitch Break Lowering Distance**



Following is an **exception** to basic rule of framing entire roof and installing all roofing first.

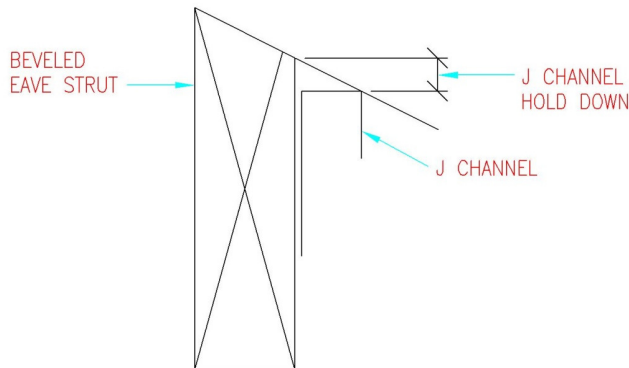
Install all framing in wall between main building and shed – this includes splash planks, all girts, as well as any door framing. Except uppermost shed purlin, to be placed after wall is sided.

**See Figure 44-2**



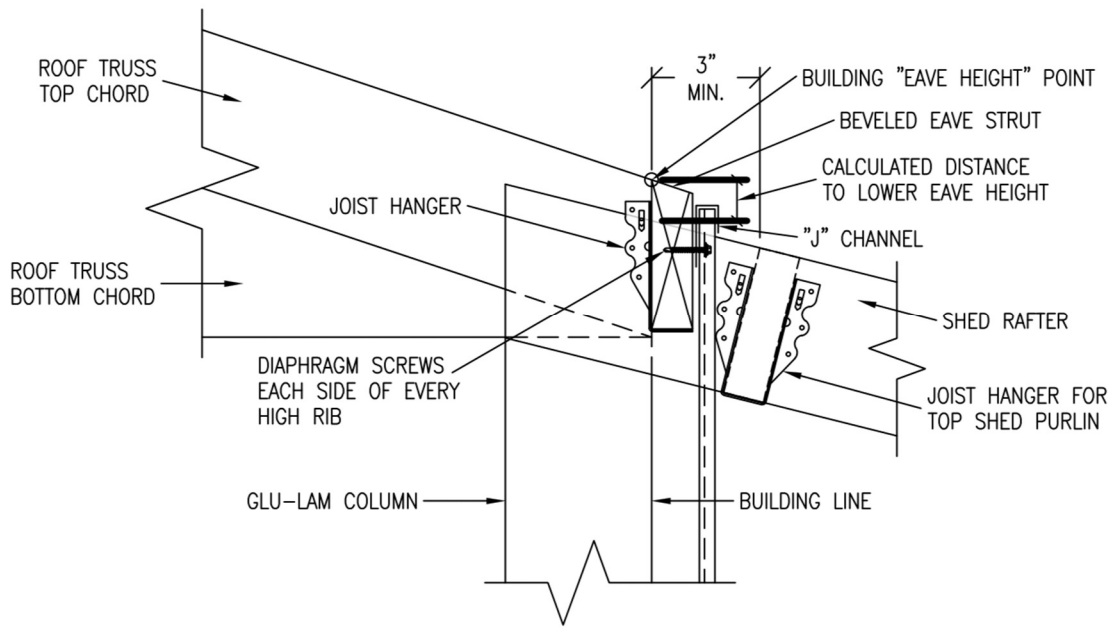
**Figure 44-2: Steeper to Flatter Roof Framing**

Place wall top inverted J Channel. Top of J will be lowered to compensate for continued slope of upper roof. **See Figure 44-3**



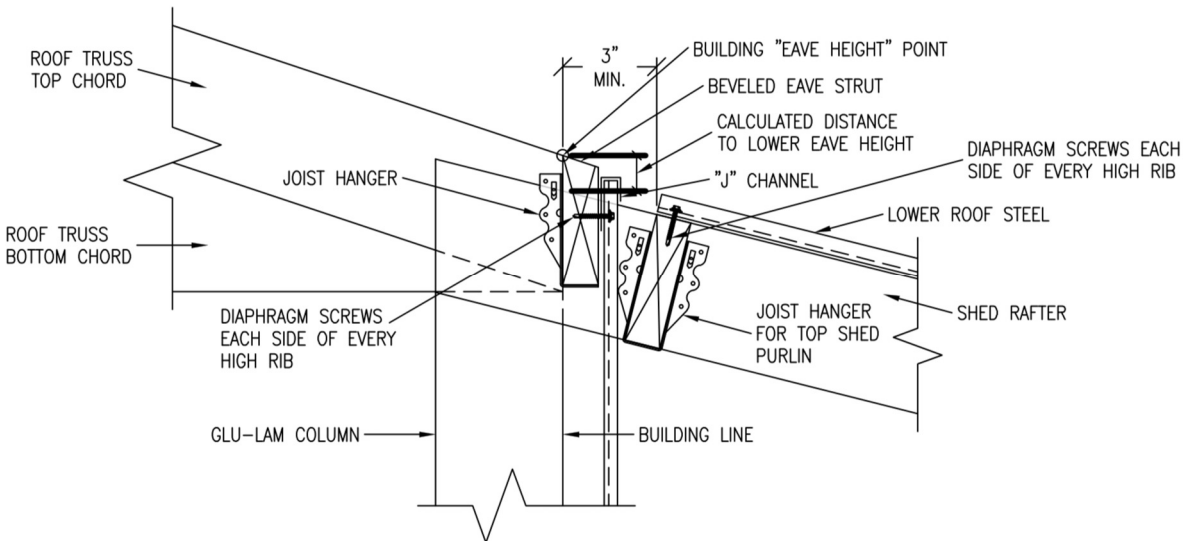
**Figure 44-3: J Channel to Beveled Eave Strut**

Plumb wall, install all trims, doors and siding. **See Figure 44-4**



**Figure 44-4: Pitch Break With Interior Wall**

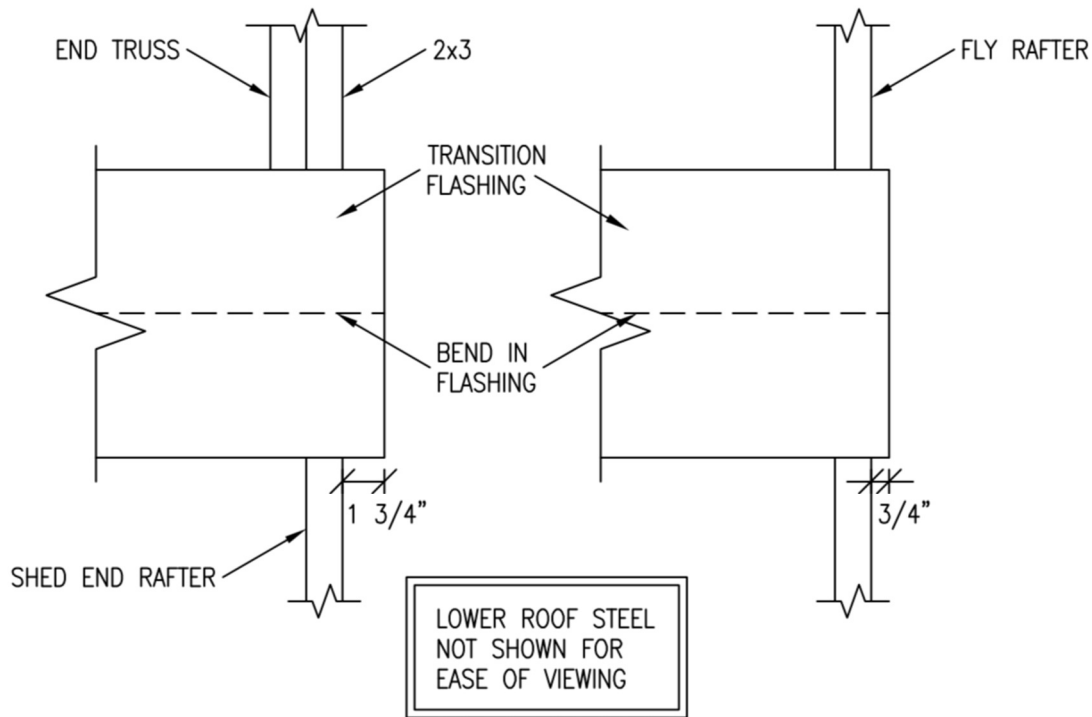
Install previously omitted upper shed roof purlin. Complete all roof framing. Square flatter (shed) roof and install roofing on flatter slope of roof. **See Figure 44-5**



**Figure 44-5: Shed Upper Purlin/Lower Roof Steel**

Place transition flashing on roof. "Bend" in flashing should be at, or close to, main building eave strut (purlin) lower edge. Make a pencil mark at lower edge at both building ends, on end truss/rafter or fly rafter tops. Partially drive nails at these marks and run stringline from end-to-end of building and attach to nail heads. Stringline will make transition flashing easier to align and provide a measuring point for locating form-fitted outside closure strips.

Press Outside Closure Strips into place, along building length. Closure low edge will be 1/4" up from string line. Install first transition flashing piece at building back, allowing an overhang beyond end truss/rafter 1-3/4" or fly rafter by 3/4". **See Figure 44-6**



**Figure 44-6: Pitch Break Transition Flashing**

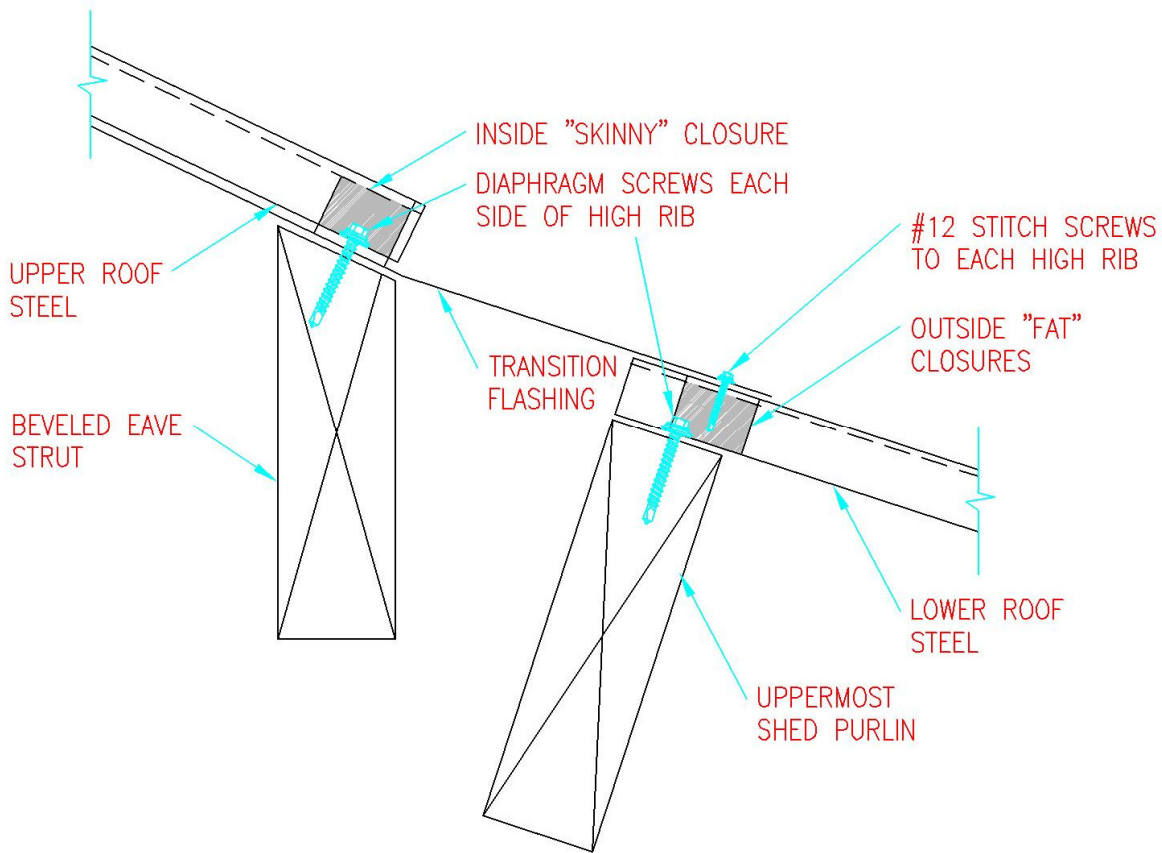
Fasten with #12 x 1-1/4" stitch screws through transition flashing edge flange and closure strips into all roof steel high ribs. Because stitch screws attach transition flashing directly to steel roofing, purlin location has no effect on transition flashing installation.

Run two caulk beads at first transition flashing piece end to seal to next overlapping piece. Lap next transition flashing a 3" minimum over first. Press seams together and so on down building. Trim last piece, if necessary, to overhang either end truss/rafter or fly rafter at building front end, identical to overhang on rear end.

Make a pencil mark at steeper slope eave strut (purlin) lower edge at both building ends, on end truss/rafter or fly rafter tops. Partially drive nails at these marks and run stringline from end-to-end of building and attach to nail heads. Stringline will make steeper slope roof steel easier to align and provide a measuring point for locating form-fitted inside closure strips.

Press Inside (skinny) Closure Strips into place, along building length. Closure low edge will be 1/4" up from string line. Steeper slope roof steel downhill edge, will be at stringline.

**See Figure 44-7**



**Figure 44-7: Transition Flashing (Pitch Break)**

(Dimensions may vary by vendor)

**Fabral: AT-1 ( 5" lower 7" upper )**

**McElroy: P-CL ( both 4-3/4" )**

**Metal Sales : Pitch Break ( 6" lower 4" upper )**

**Union Corrugating : Transition Flashing ( both 6-3/8" )**

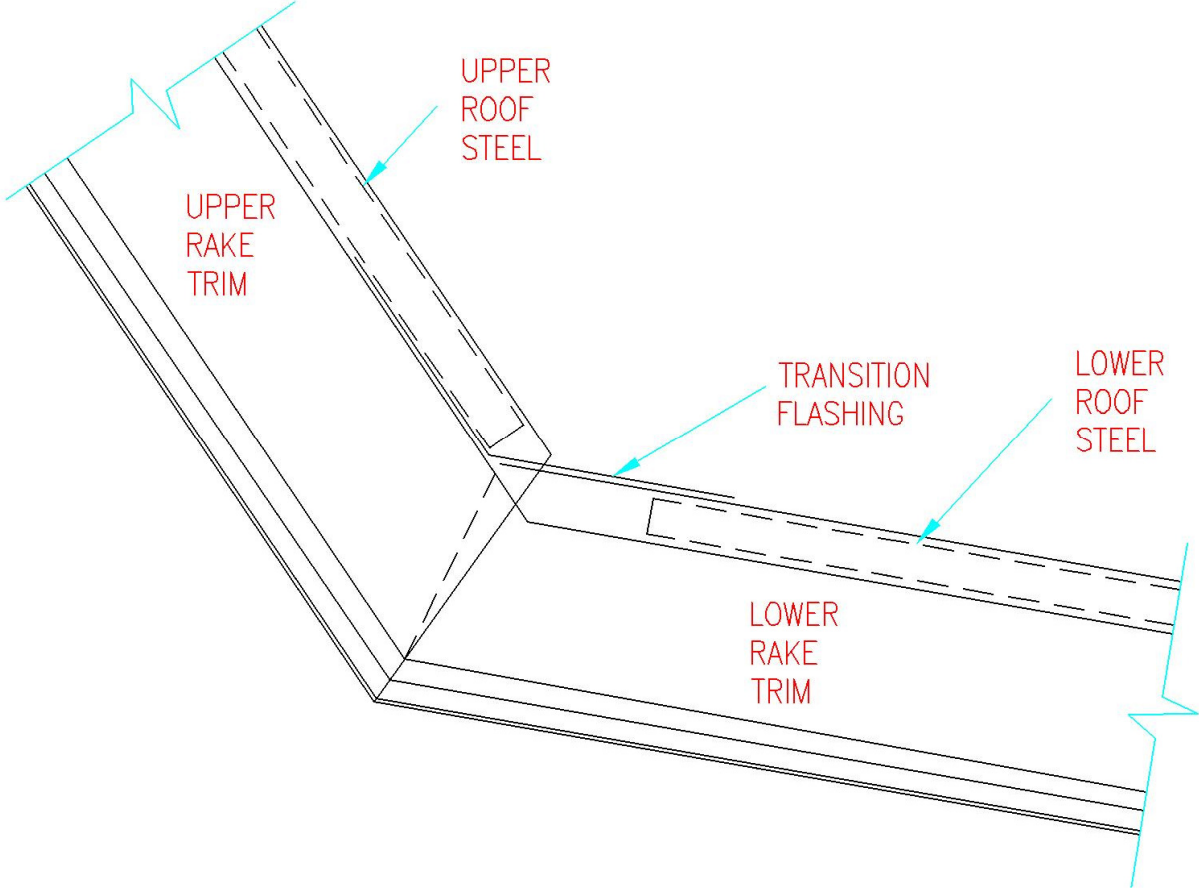
After lower roof steel is installed, angle cut lower rake trim "top" end so "face" edge is several inches longer than portion on roof (face side will be trimmed later, as needed).

Place lower rake trim, with roof side tight to upper fly rafter or end truss.

Install transition flashing, over lower roof steel and lower rake trim. Transition flashing leading edge will be flush with lower rake trim outside face.

Install upper roof steel.

Place upper rake trim over upper roof steel and transition flashing. On roof, rake trim low point will contact lower rake trim. Trim faces of rake trims to a smooth transition from upper to lower (any lap should leave lower rake behind upper). **See Figure 44-8**



**Figure 44-8: Rake Trim**