

Overhang and/or cantilever match points article.

Question of the day..."What do I use for a 'match point' when trying to align the finished fascia/trim when framing unequal pitched roof planes?"

This is an interesting – and very misunderstood – question, as it really pertains to information (and points in space) beyond the truss or rafter framing that you as a component manufacturer may be dealing with. Knowing the correct match point will make for a very happy finish/trim carpenter, as they will know that you had them in mind when you designed, cut and built the roof components.

Coming up with the correct match point involves picking the point where the architect and/or finish carpenter really wants his planes to match. Too often, a truss designer picks the end of the truss, whether that is the end of the overhang or the end of the cantilever, as the match point for unequal pitched roof planes. But is that the place where the architect and/or finish carpenter really wants his planes to match? No. On a shingled roof, the *edge of the roof shingles* is the place where the planes should meet so that the roof edge is at the same elevation across both affected planes. Therefore, the best match point is typically the edge of the drip edge installed under the shingles. To get this point, one needs to know the exact plans for the framing and trim detailing beyond the truss/rafter framing.

A couple of observations can be made from the graphics below. First, the further the "match point" gets from the end of the truss overhang/cantilever, the more of a height variance there can be (see Fig.1). Obviously, pitches that are nearly the same will cause for less variance, and larger pitch differences will cause for greater variance. [Editors note: This example assumes that the total overhang width is intended to be the same for both pitched planes.]

Second, the height of the framing, whether with a sub-fascia or without, is only going to be the same if the plane pitches are the same. If the plane pitches are different and all else is supposed to remain the same [i.e., the overhang width, roof edge elevation, etc.], then the framing height cannot possibly be the same (see Fig. 2). The lower of the two (or more) specified pitches will have the lowest heel height and the higher pitched planes will go up from there.

Unfortunately, if the finished eave trim detail gets very detailed or intricate, it can be somewhat cumbersome to get the correct framing elevations (heel heights). Sometimes, the Building Designer will actually specify the roof edge elevation along with the top-of-plate (bearing) elevation. When we are blessed with this information, then we only need to figure out what the actual framing overhang and/or cantilever distances should be.

Knowing where the match point is located both horizontally and vertically with reference to the top of the bearing, we can then determine the required heel height for each of our different pitches. Let's put some numbers to our graphic and run a quick example. Assume we have a standard 2x4 heel with ¼" butt cut on the 4/12 pitched roof. Assuming 1/2" thick roof sheathing, the overall height above the top-of-wall (TOW) would be 4.466" (including the sheathing). If we calculate the drop from there to the end of the roof plane some 20" away, we would find that our 'match point' is located at 2.201" below the TOW [$20"/12 \times 4 = 6.667" - 4.466"$]. When applying that location to the 12/12 plane, we see that this plane will rise 20", therefore making the top of the sheathing 17.799" above the TOW [$20" - 2.201"$]. Given that the ½" roof sheathing at the 12/12 pitch is 0.707" in plumb thickness, the heel height at the outside face-of-stud (FOS) is 17.092" [$17.799 - 0.707"$].

Looking at where the truss overhangs stop (behind the 2x sub-fascia), one can clearly see that the end of the truss overhangs should not be the match point, as that would cause for the 12/12 plane to be too low, and the fascia/trim would not align (see Fig. 3). Without re-framing the entire steeper roof, the only way to resolve the difference in elevation is to reduce the horizontal projection of the steeper pitched roof until the fascia/trim once again matches (see Fig. 4).

Note: Figures 1-4 are pdfs attached.

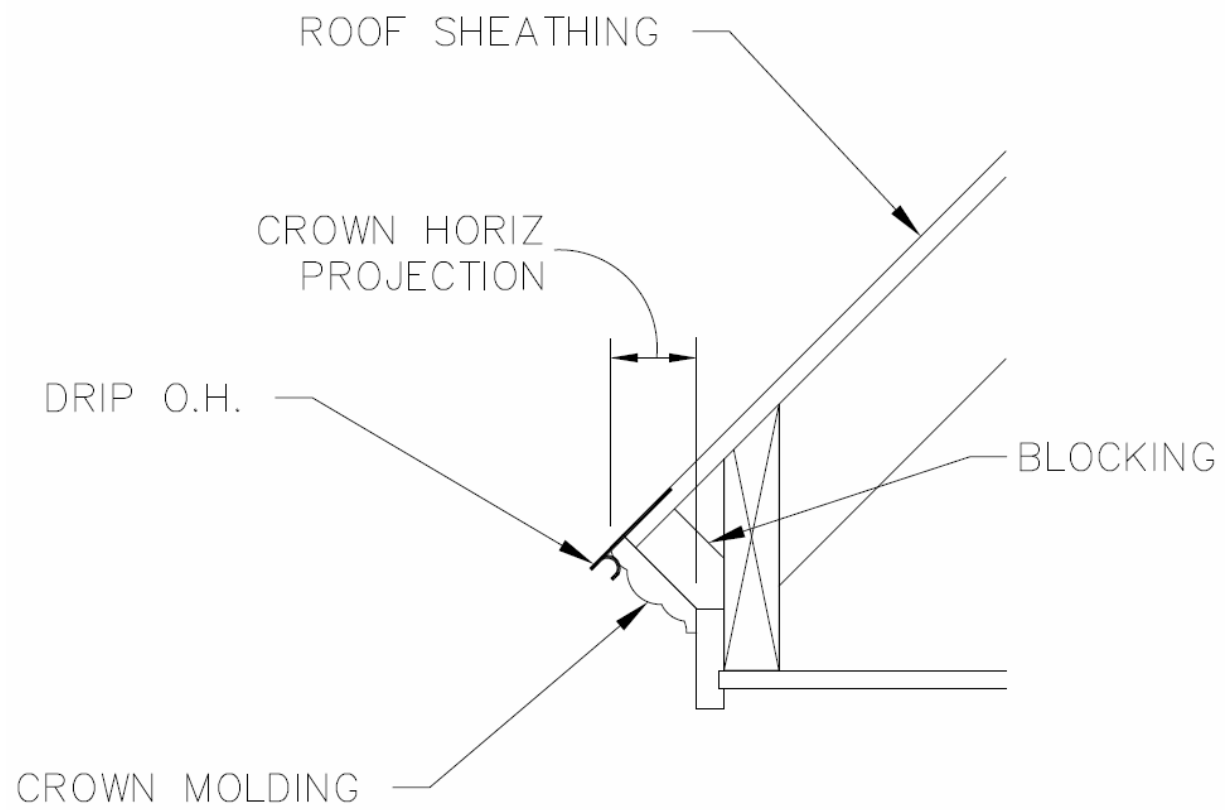


FIGURE 1

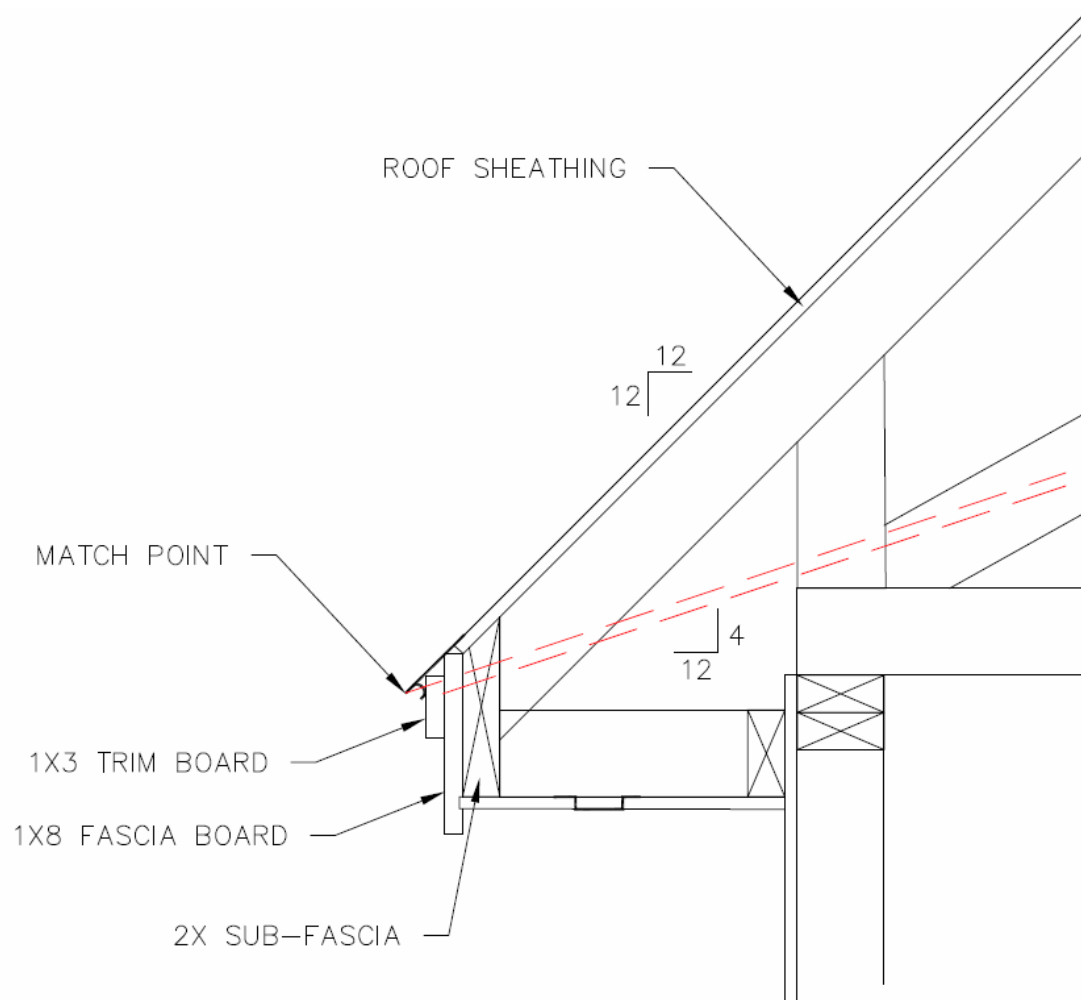


FIGURE 2

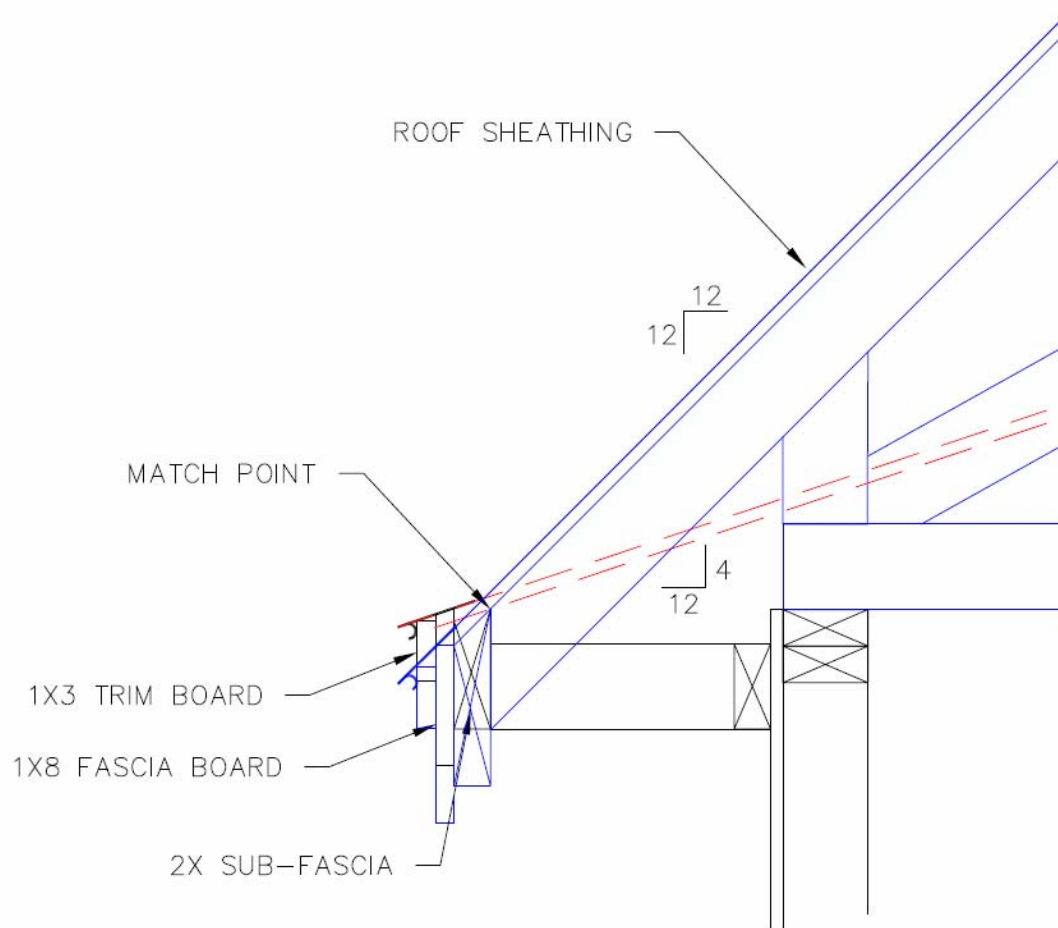


FIGURE 3. Mis-matched fascias resulting from incorrect match point.

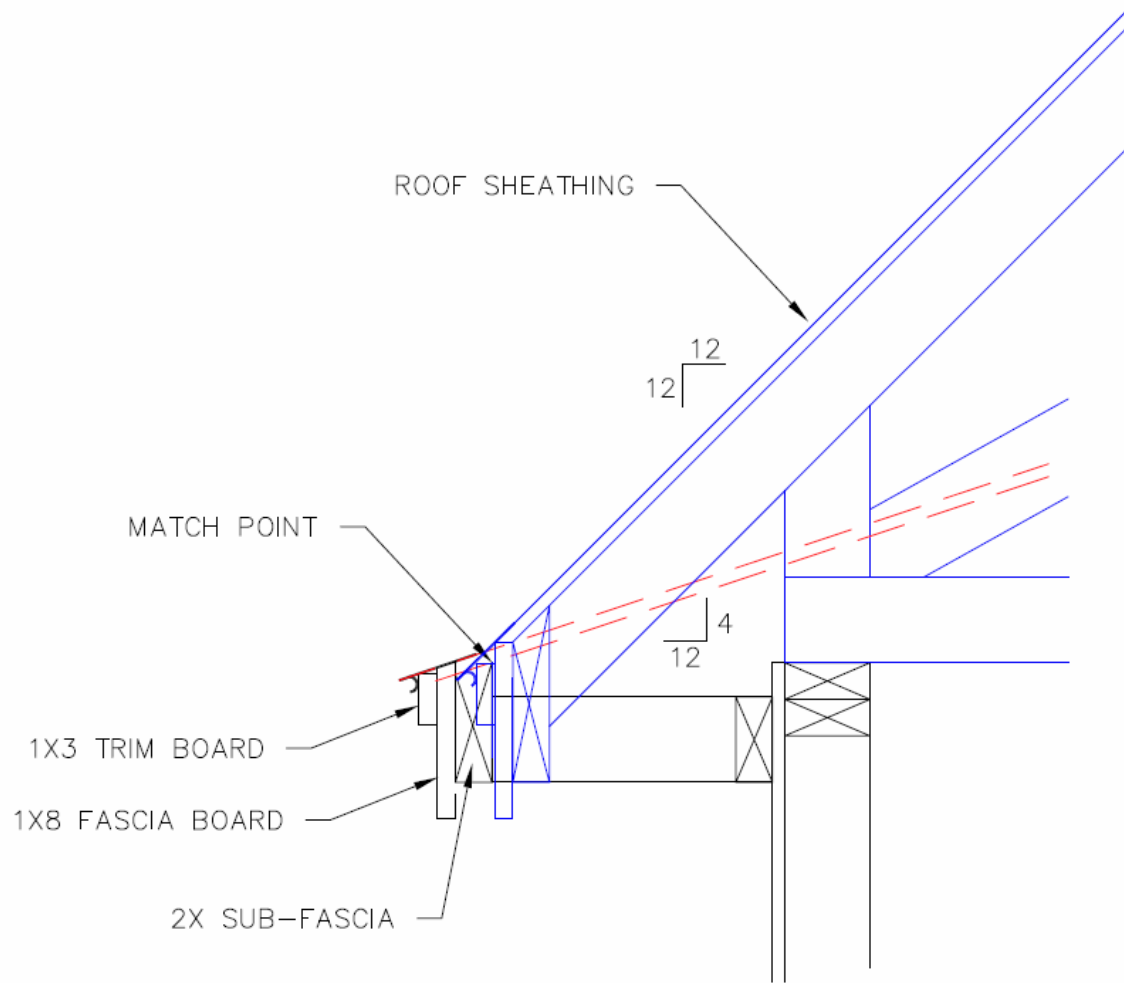


FIGURE 4. Reduced OH width to match fascias.