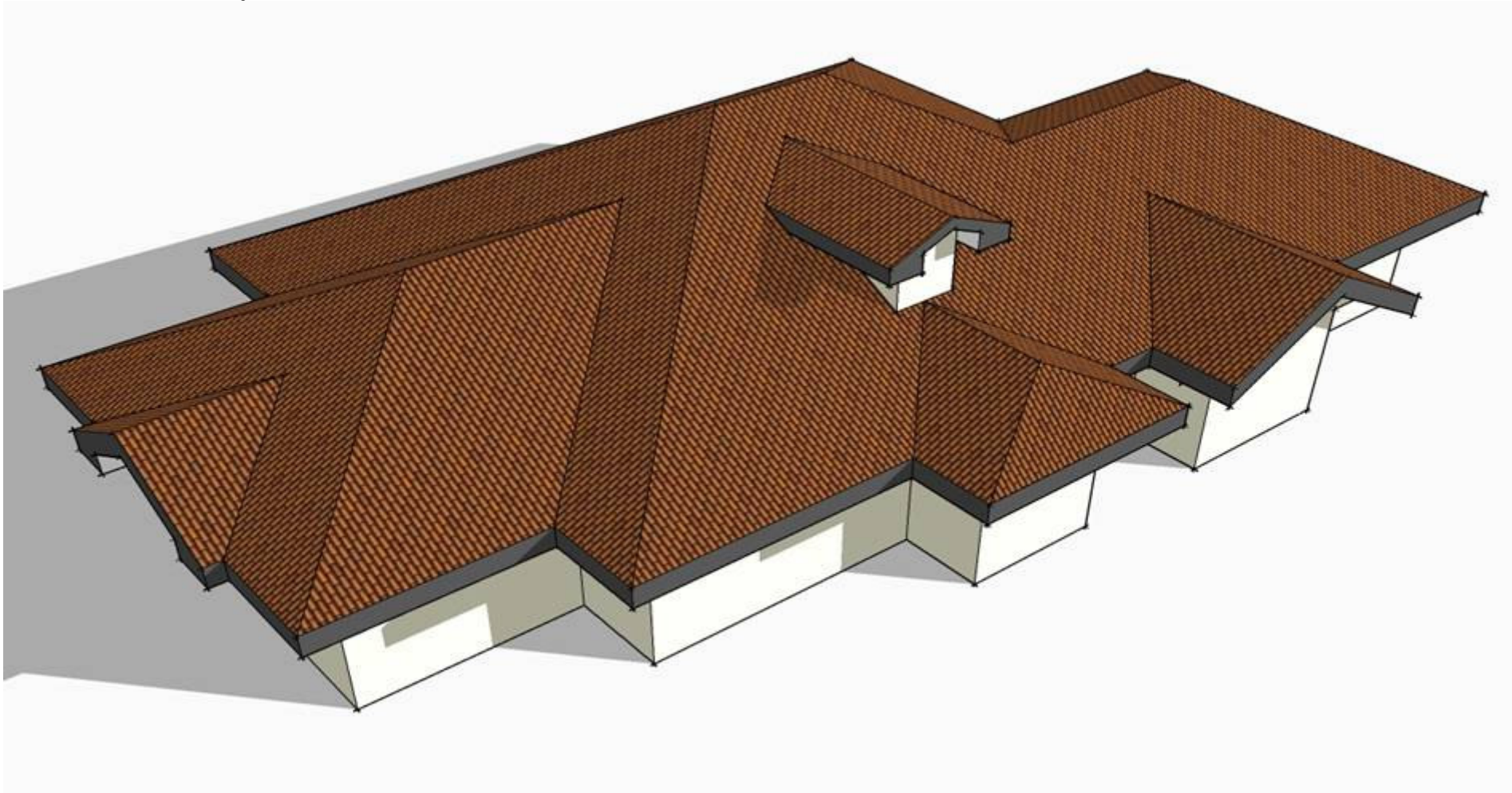
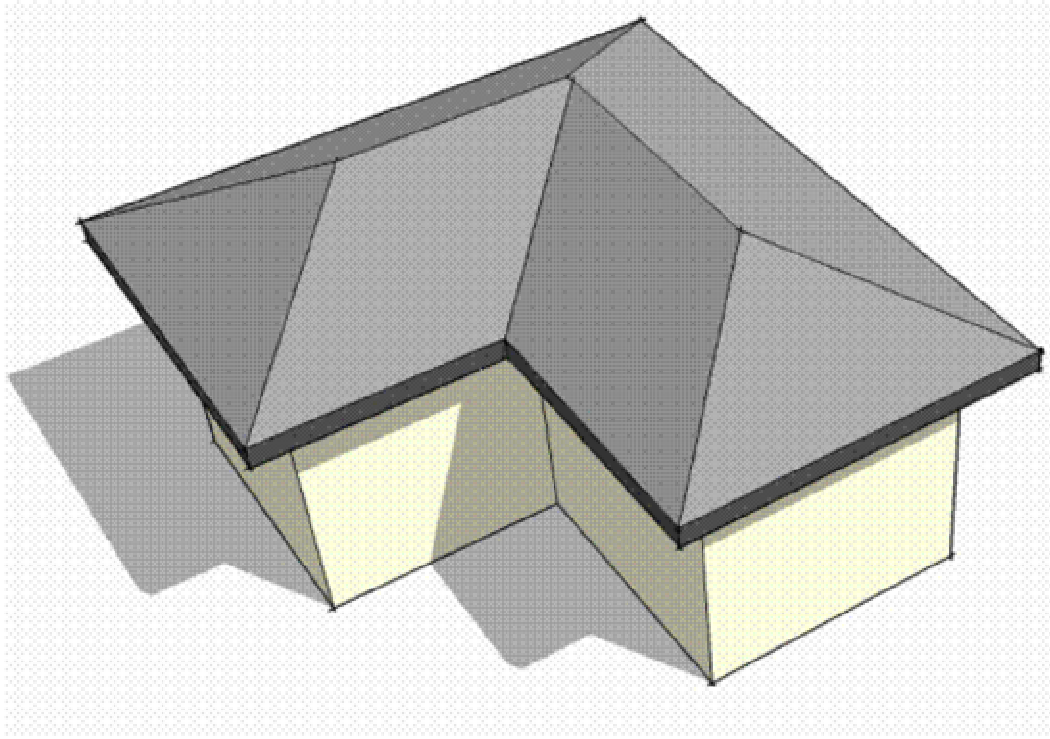


Roof Help



Name : Roof.rb © Version 3
Author : TIG
Description : A set of Roof Making Tools.
Menu Item : Plugins > Roof... > Sub-Menus... see below...

Hipped Roof:



Select a face.

Pick the tool on the menu.

Hipped Roof Settings ✕

Roof Slope (Degrees OR A:B):

Eaves Fascia Size (mm):

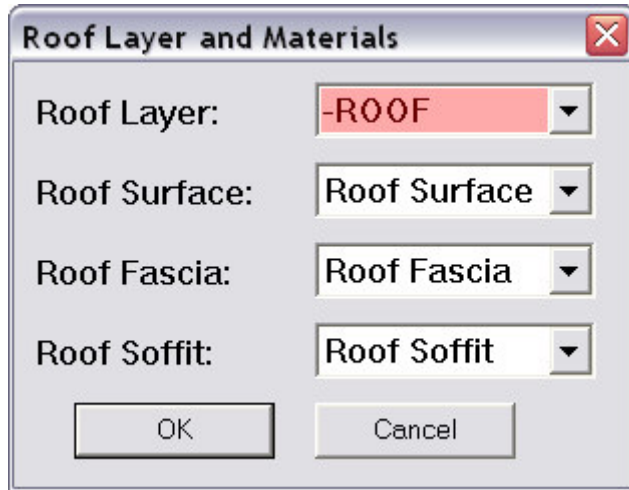
Eaves Soffit Size (mm):

Fascia+Soffit Type: ▼

Set Layer and Materials ? : ▼

In the resulting dialog enter the roof slope as an angle in degrees [e.g. 30], OR as a pitch A:B, [e.g. 2:5], then give the overall eaves height (+/-ve) & overhang (+ve only) [both zero = none], note that these are in 'current units' - shown here as 'mm'. Set 'fascia+soffit type': default is Vertical+Horizontal; sloping permutations of each are possible.

If additional settings are required (layer, materials etc) answer 'Yes' to the last question...



In a second dialog suggested layer/material names are shown with <default>s and pre-existing layers/materials listed. If the layer or material ('Roof xxx') that is picked does not exist then it will be made. You can pre-make or edit these later and they will be then used as you've set them. The default colours are:

Roof Surface = mid-grey Roof Fascia = dark-grey Roof Soffit = light-grey

Within a session the chosen roof dialogs settings are remembered and reused.

A percentage complete progress appears in the bottom bar as the roof is calculated and made.

Simple faces roof very quickly, but complex ones will take several seconds to process, and because the processing is exponential very complex ones can take much longer!

Faces with holes will only use the loop's outer edges as the eaves path.

Some faces - like crooked stars - can't form a single slope hipped roof. Sometimes the face/edge relationships get muddled in the model's database. Try re-making the original face:

Delete it and redraw over one edge to try to remake it -

Or copy the face to one side, delete the original and move the copy back, these methods might now make the face 'roof'.

Some failed face shapes will 'roof' on a second attempt.

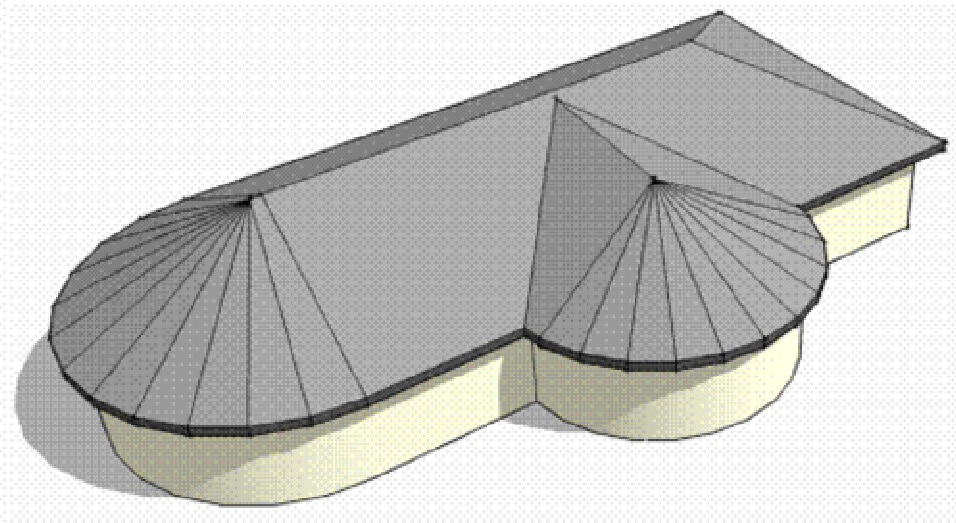
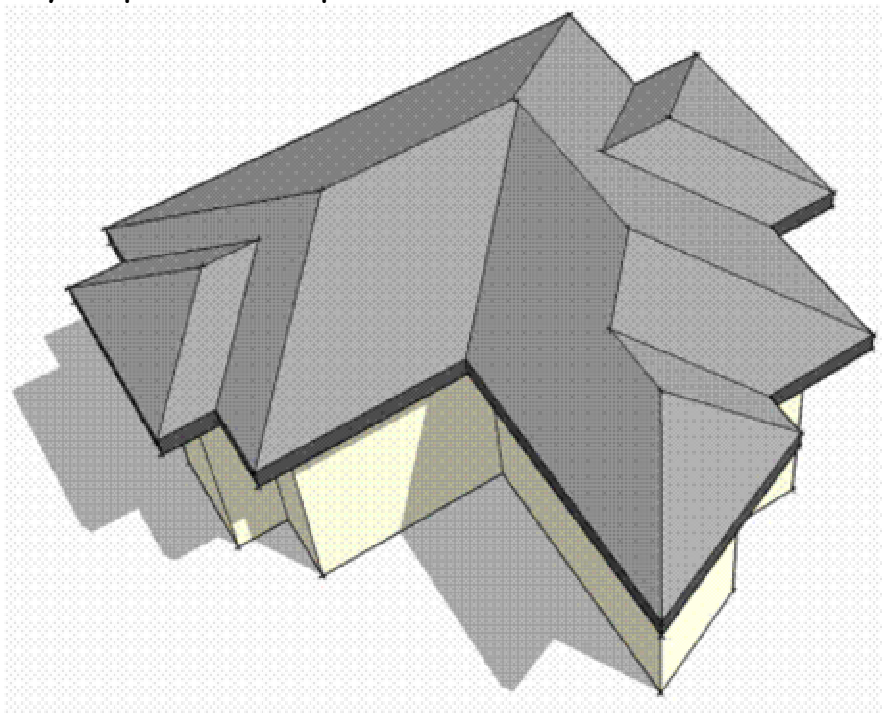
Some face shapes can never have a single pitch hipped roof applied to them - it is not geometrically possible - e.g. crooked stars.

Some very complex roofs might occasionally get made with a face [or faces] missing etc... but they will sometimes roof on a second attempt - inexplicably - try making a mirrored-copy [use Mirror.rb] of the problem face, then try roofing it and mirroring it and its roof back over the original works; or such problems are usually fixable by manually adding or drawing over some edges so that they face: if this happens please report the bug with details...

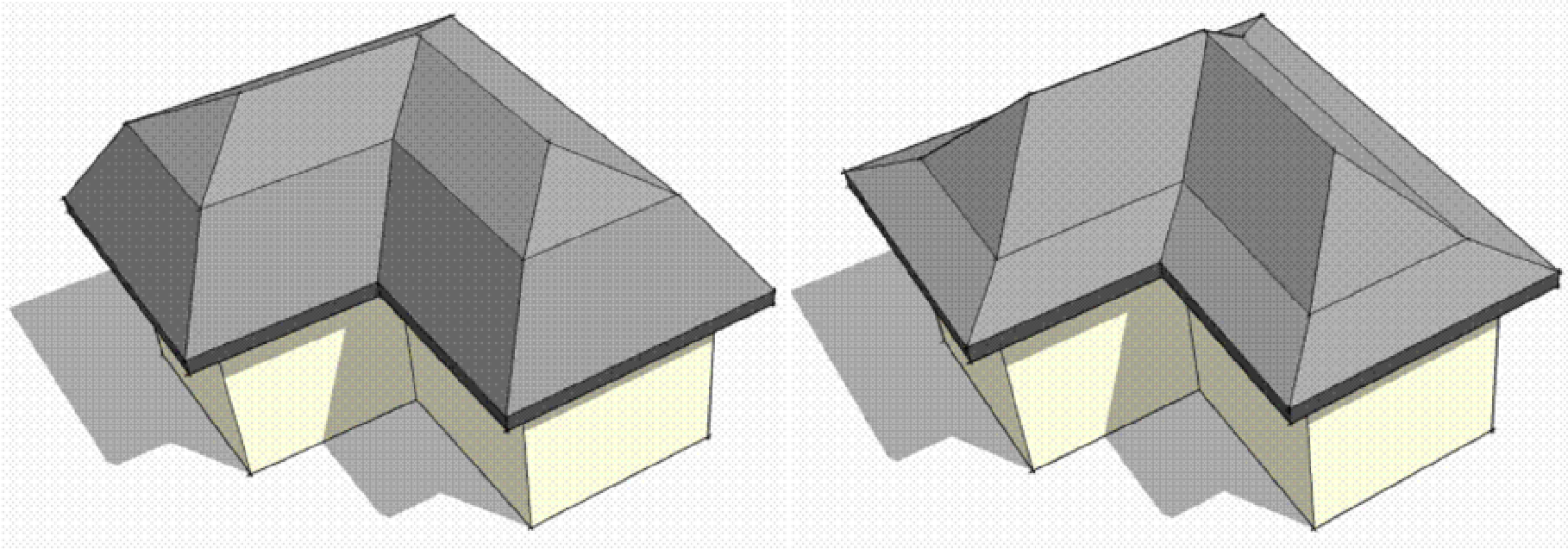
The new roof is a group.

Only equal pitched hipped/valleyed roofs are made, if you want to change these - e.g. make a hip into a gable - then you can use the SketchUp Tools to add edges, faces and move vertices etc....

Very Complex roofs are possible...



Mansard / Sprocket Roof:



See the general guidance for Hipped Roof above... This tool gives a roof with two pitches, with a crank at a given height above the eaves. The dialog differs from the Hipped Roof Tool in that two angles are entered for the lower and upper roof pitches and you also enter a height above the eaves level for the crank in the two pitches...

Mansard/Sprocket Roof Settings ✕

Lower Slope (Degrees OR A:B):

Upper Slope (Degrees OR A:B):

Height of Lower Roof (mm):

Eaves Fascia Size (mm):

Eaves Soffit Size (mm):

Fascia+Soffit Type:

Set Layer + Materials ? :

The Material dialog is as shown in the Hipped Roof guidance above...

Gable-Ended Roof:

Select the tool on the menu.

You now need to pick three points...

Follow the prompts on the Bottom-Line and as Tool-tips at the cursor. Most types of inference are available.

It's recommended that you pick Ends, Intersections, Edges, Clines etc, otherwise picking freely on a Face or in space along an axis might give some unexpected roof sizes.

- Pick 1st Corner of the First Gable - this also sets the Z-level.
- Pick 2nd Corner of the First Gable - this determines the gable width in plan. Note this point need not be 'level' with the 1st corner, it will be transformed to an equal Z-level anyway.
- Pick a Point on the Line of the Second Gable. Note this point need not be 'level' with the other points, it will be transformed to an equal Z-level anyway: it also need not be perpendicular to the first two points as this is calculated anyway.

A dialog appears.

In this dialog enter the details: firstly the roof slope - as an angle in degrees [e.g. 30] OR as a pitch A:B [e.g. 2:5], OR alternatively as a height above the fascia [e.g. ^1234.5]. Note how it must be pre-fixed with a ^ (caret/circumflex symbol) and how it must be in your current units (sorry decimal feet/inches only - 1.5 NOT 1'6"). Then enter the overall eaves fascia height & soffit overhangs (both +ve only) [zero=none]. Set 'fascia+soffit type': default is Vertical+Horizontal; sloping permutations of each are possible. Then set the overhangs for the first and second gables [zero=none], and 'gable-type' for the first and second gables from the pull-downs [see below for details*]. For additional settings (layer, materials etc) say 'Yes' to the last question...

Gable Roof Settings ✕

Roof Slope (in Degrees or A:B or ^Height(mm)):

Eaves Fascia Size(mm):

Eaves Soffit Size(mm):

Fascia+Soffit Type:

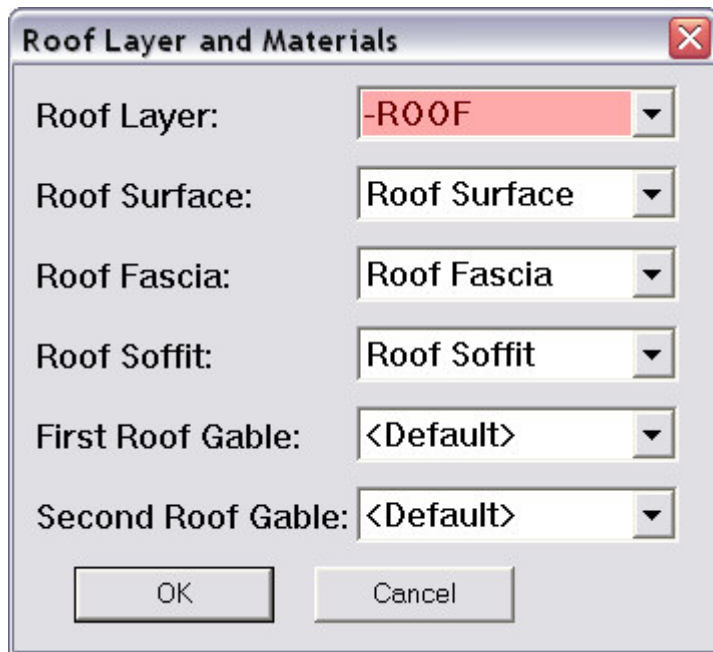
First Gable Size(mm):

Second Gable Size(mm):

First Gable Type:

Second Gable Type:

Set Layer and Materials ? :



Roof Layer and Materials

Roof Layer: -ROOF

Roof Surface: Roof Surface

Roof Fascia: Roof Fascia

Roof Soffit: Roof Soffit

First Roof Gable: <Default>

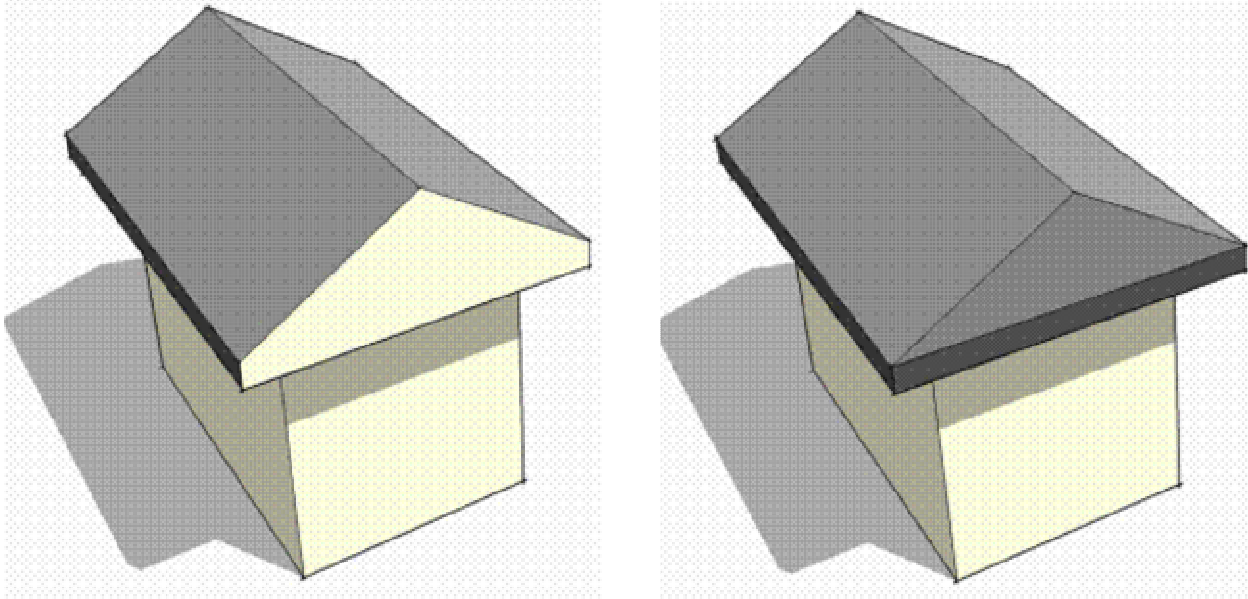
Second Roof Gable: <Default>

OK Cancel

In a second dialog suggested layer/material names are shown with the layers/materials listed. If the layer or material ('Roof xxx') that is picked does not exist then it will be made. . You can pre-make or edit these later and they will be then used as you've set them. The default colours are:

Roof Surface = mid-grey Roof Fascia = dark-grey Roof Soffit = light-grey Roof Gable 1 = white Roof Gable 2 = white

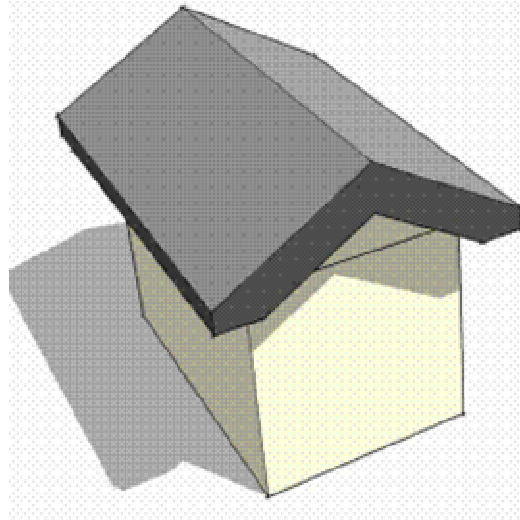
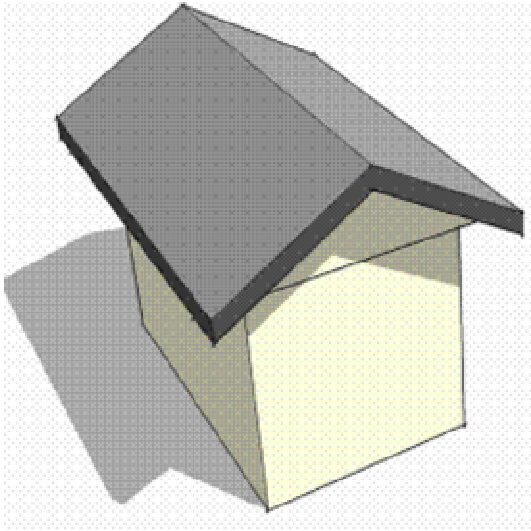
*The gable-types on the pull-down options (each available for either gable) are:



'Blank' - this gives a blank gable that can be useful later:

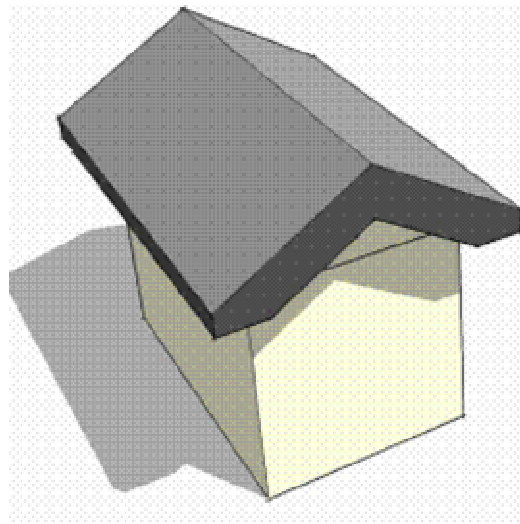
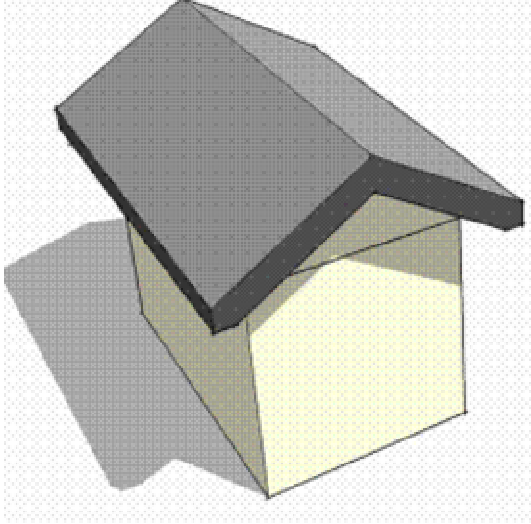
for example when used in combination with a zero overhang, if you want later to edit the roof and move its gable apex over onto a second roof's slope to make a valley - or for example it's useful if you want to put dormers with a steeper pitch into a larger roof etc. To do this edit the group and manually delete the gable face, then move the gable's apex (constrained to apex ridge's vector), exit the group edit; now edit the second roof group, select all and intersect with the gable-group to form valley lines etc, if necessary briefly exit the group edit and hide the gable-group, go back to editing the second roof group and delete unwanted faces and edges which will be inside the whole, exit the edit: select the gable-roof group and the second roof group and explode them, immediately group them back together as one you should now have a valley where the two roofs are combined.

'Blank with Fascia' - as above BUT adds a fascia below the blank gable end... As above this option is useful for later editing - e.g. for making a gable into a hip - give the gable desired the Roof Surface material (or use the material browser and eyedropper later) - when you edit the group you have a vertical piece of roof that you can manually change to a hipped face by moving its apex vertex. To get an exact angle draw a construction (guide) line with the protractor on the side fascia and then select and move it to the gable/fascia's mid-point. When you relocate the apex snap it to the intersection of the ridge and this temp guide line.



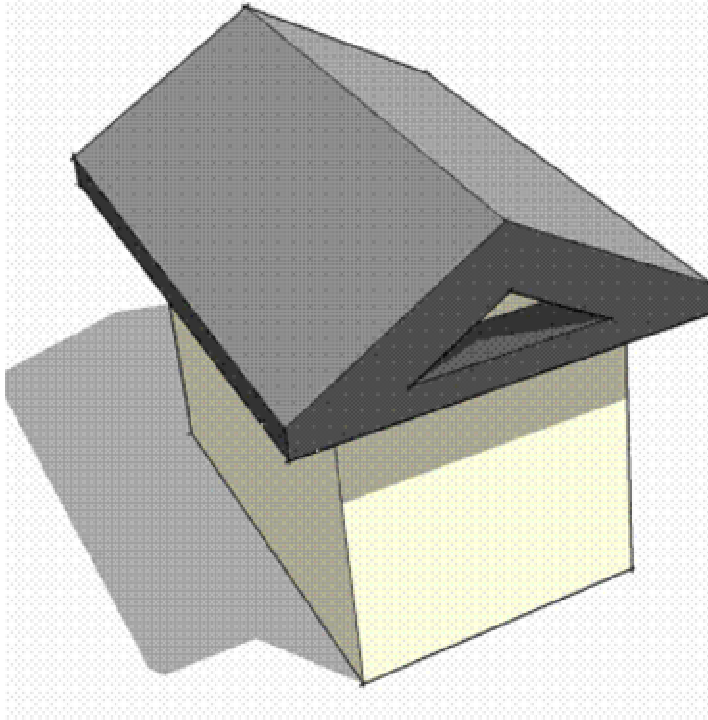
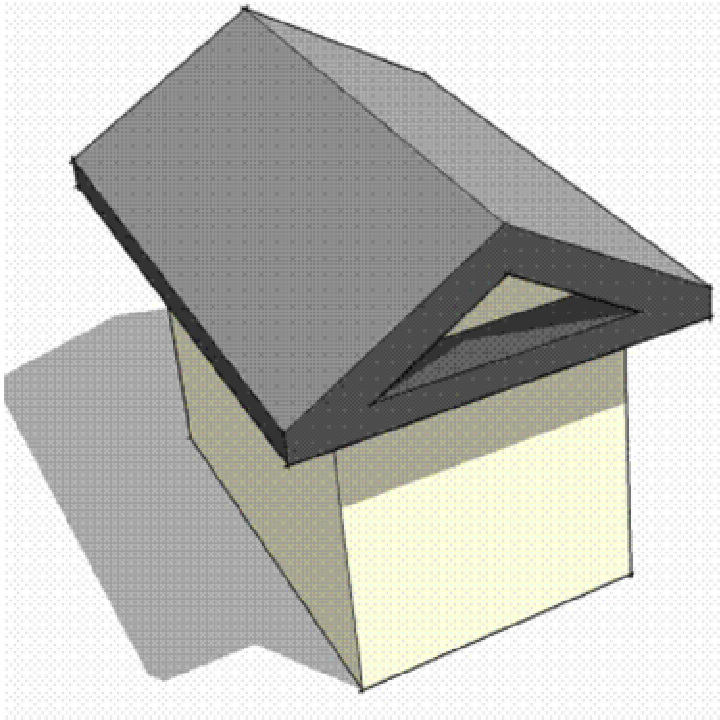
'Verge from Fascia' - this uses the eaves-fascia depth to make the verge (barge-board), its material [if any] will match the fascia.

'Verge from Soffit' - this uses the eaves-soffit overhang to make the verge (barge-board), its material [if any] will match the fascia.

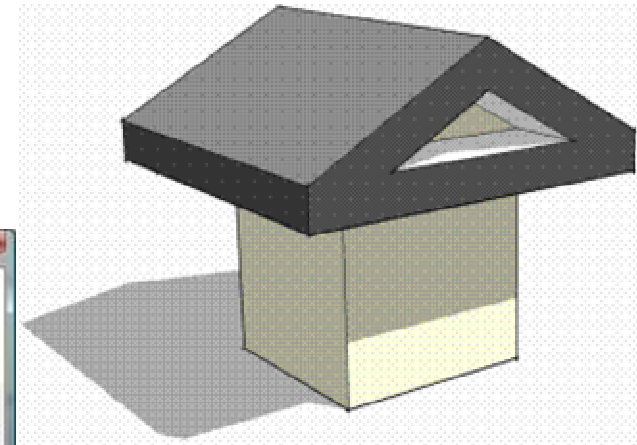
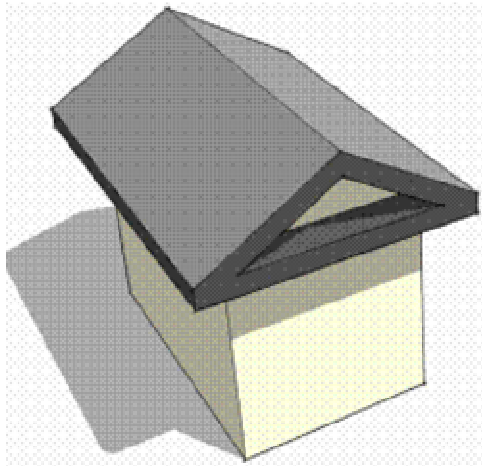


'Verge by Height' - this defaults to the eaves-fascia depth (or if this is 0 to 100mm/4") to make the verge (barge-board), you must enter a new value > 0 and $< \text{'height of roof apex above fascia'}$, its material [if any] will match the fascia.

'Verge by Width' - this is measured perpendicular to the roof slope, this defaults to the eaves-fascia depth (or if this is 0 to 100mm/4") to make the verge (barge-board), you must enter a new value > 0 and $< \text{'height of roof apex above fascia'}$, its material [if any] will match the fascia.

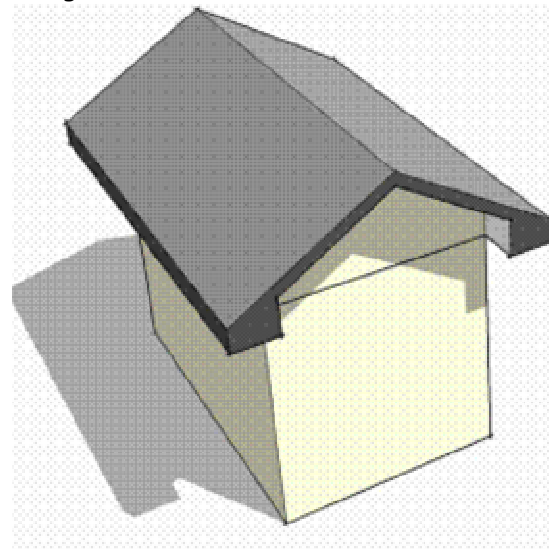
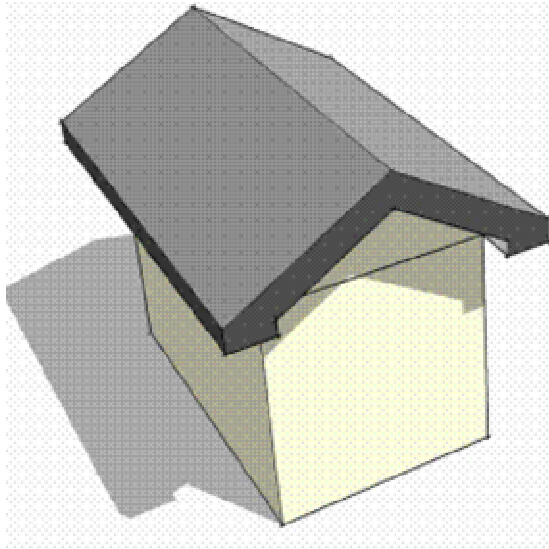


'Verge by Height, with Fascia' - As 'Verge by Height' above but also makes a fascia along the bottom edge, its material [if any] will match the fascia.
'Verge by Width, with Fascia' - As 'Verge by Width' above but also makes a fascia along the bottom edge, its material [if any] will match the fascia.



'Verge with Fascia [All Equal]' - As 'Verge by Width, with Fascia' above but also makes a fascia along the bottom edge with the same dimension (no dialog), its material [if any] will match the fascia.

'Lids': with Roof Materials set there's a closing dialog as above: answer 'Yes' to make the Lid(s) grey as shown left; or 'No' to match the soffit (white) as shown right.



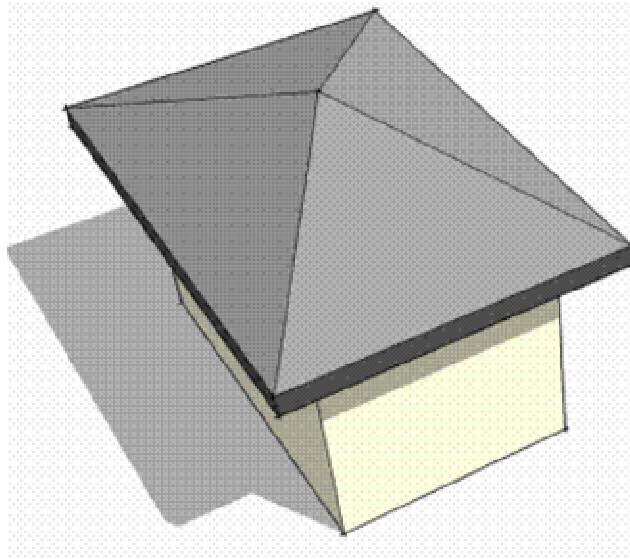
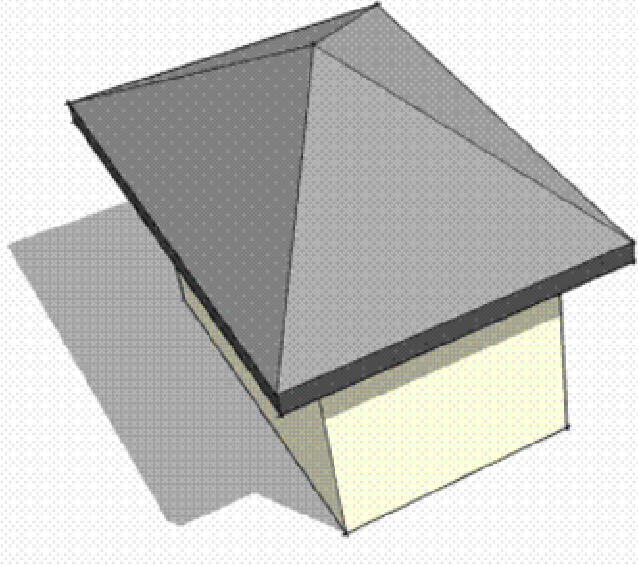
'Verge by Height, with Box-Eaves' - As 'Verge by Height' above, but also makes a boxed fascia using the fascia and soffit sizes along the bottom edge, its material [if any] will match the fascia.

'Verge by Width, with Box-Eaves' - As 'Verge by Width' above, but also makes a boxed fascia using the fascia and soffit sizes along the bottom edge, its material [if any] will match the fascia.

Note: some options aren't available with some permutations and you will get warning dialogs and newly reset main dialogs reopening - e.g. set the fascia depth to 0 and you then can't use any of the verge options 'from fascia' etc...

Pyramid Roof:

These two pyramid roofs below are the same footprint - one with a 30 degree slope short-edge and the other set on the long-edge chosen...



Select the tool on the menu.

You now need to pick three points...

Follow the prompts on the Bottom-Line and as Tool-tips at the cursor. Most types of inference are available.

It's recommended that you pick Ends, Intersections, Edges, Clines etc, otherwise picking freely on a Face or in space along an axis might give some unexpected roof sizes.

- Pick 1st Corner of the Pitch-Side - this also sets the Z-level.
- Pick 2nd Corner of the Pitch-Side - this determines the edge from which the slope is set. Note this point need not be 'level' with the 1st corner, it will be transformed to an equal Z-level anyway.
- Pick a Point on the Line of the Other Side. Note this point need not be 'level' with the other points, it will be transformed to an equal Z-level anyway: it also need not be perpendicular to the first two points as this is calculated anyway.

A dialog appears.

Pyramid Roof Settings

Roof Slope (in Degrees or A:B or ^Height(mm)):

Eaves Fascia Size (mm):

Eaves Soffit Size (mm):

Fascia+Soffit Type:

Set Layer and Materials ? :

In this dialog enter the details: firstly the roof slope - as an angle in degrees [e.g. 30] OR as a pitch A:B [e.g. 2:5], OR alternatively as a height above the fascia [e.g. ^1234.5]. Note how it must be pre-fixed with a ^ (caret/circumflex symbol) and how it must be in your current units (sorry decimal feet/inches only - 1.5 NOT 1'6").


For additional settings (layer, materials etc) say 'Yes' to the last option. See the Hipped Roof Material guidance above...

A pyramid roof is made to the specified parameters. It differs from the hipped roof version - since you can select the overall height (like with a gable roof) and if it is given a slope/pitch it is applied to the face abutting the edge specified by the first two points you picked, and the other perpendicular faces will have different angled slopes to suit; there is never a ridge to a pyramid, only an apex.

Get Slope:

Select a sloping face and this tool opens a dialog that gives you the Face's Angle in degrees and as a Slope (Pitch) in A:B format.

SketchUp

 Angle = 30 degrees
Slope = 1:1.73205080756888

Help:

Opens this file...

Additional Notes on Sloping Fascias and Soffits:

The default 'Fascia and Soffit Type's are 'Vertical' and 'Horizontal' respectively. Either, or both of these can be changed to 'Sloping' in the dialogs.

A Sloping Fascia is set square to the Roof's Slope. A Sloping Soffit follows the Roof's Slope.

You cannot have a sloping fascia that has zero height or a sloping soffit that has zero width.

You cannot have a sloping soffit in conjunction with a zero height fascia etc...

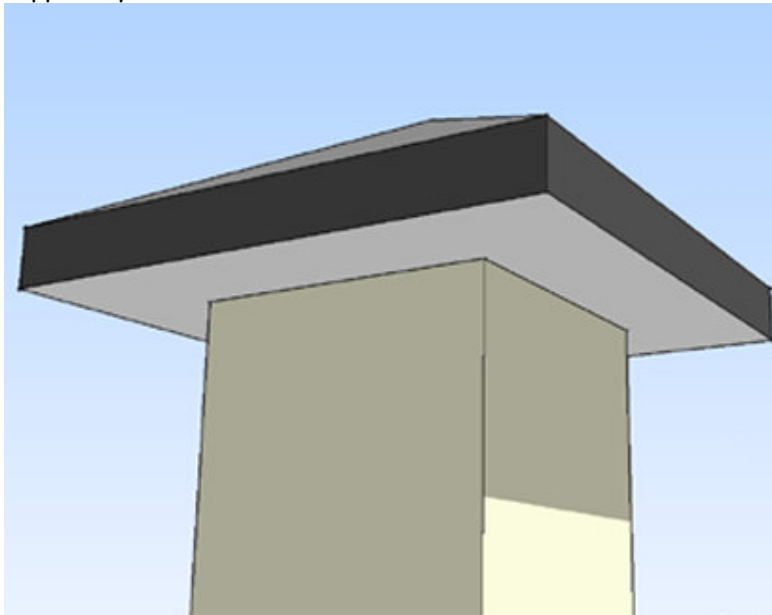
Some types of Gable Roofs do not allow Sloping Soffits as these could not then have appropriate geometry.

A gable with a fascia applied to it can have unexpected geometry made if the sloping soffit rises more than the fascia height

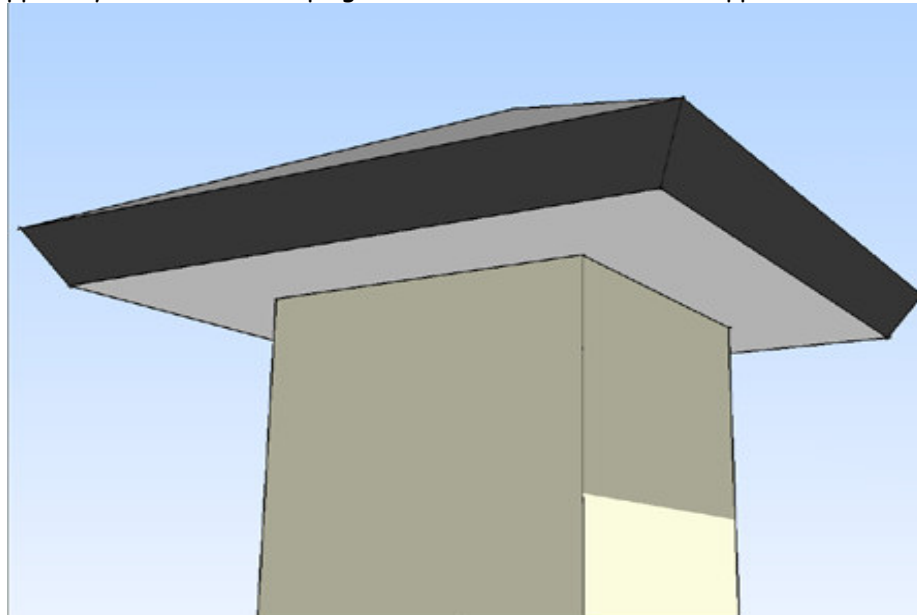
- if this occurs a warning dialog advises how to change either the slope, or the fascia or the soffit values to avoid this...

The following are examples of various roof forms with sloping fascia and soffit permutations:

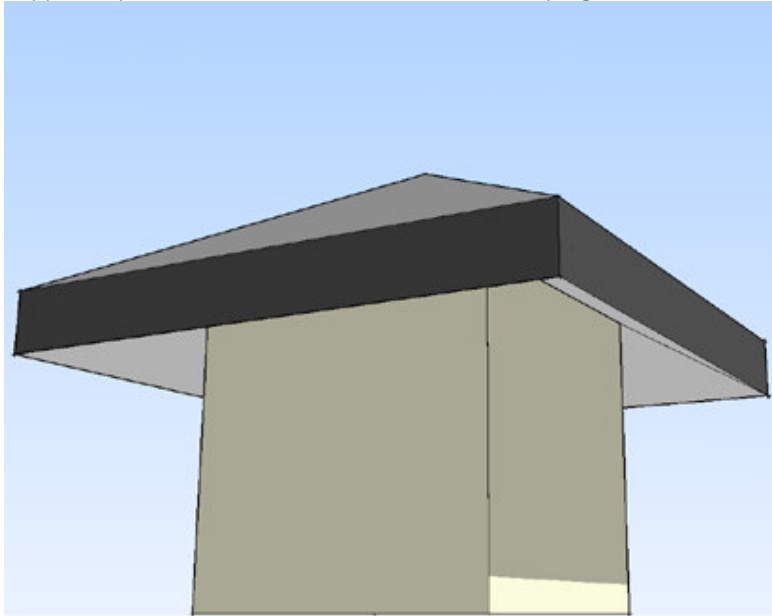
Hipped/Pyramid Roof: Vertical Fascia + Horizontal Soffit



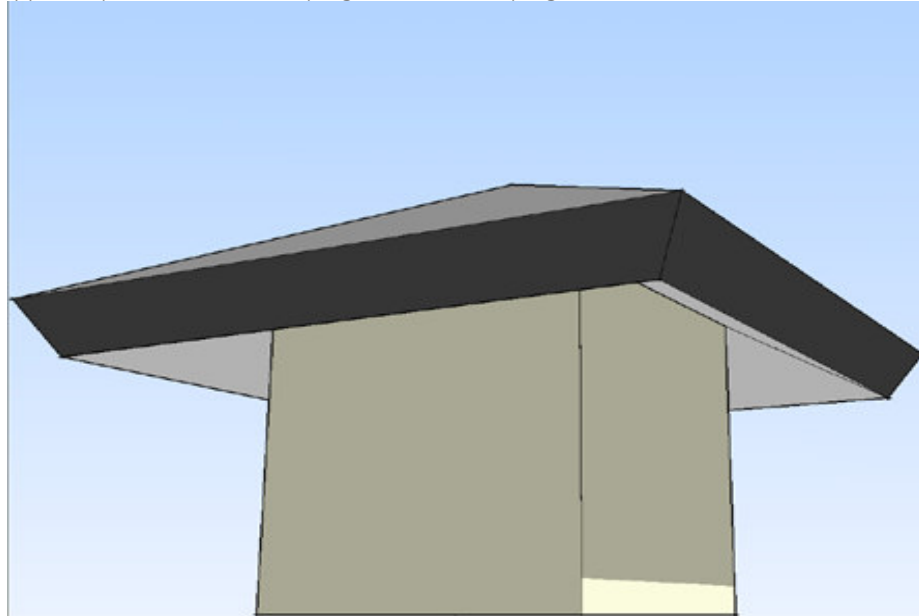
Hipped/Pyramid Roof: Sloping Fascia + Horizontal Soffit Hipped



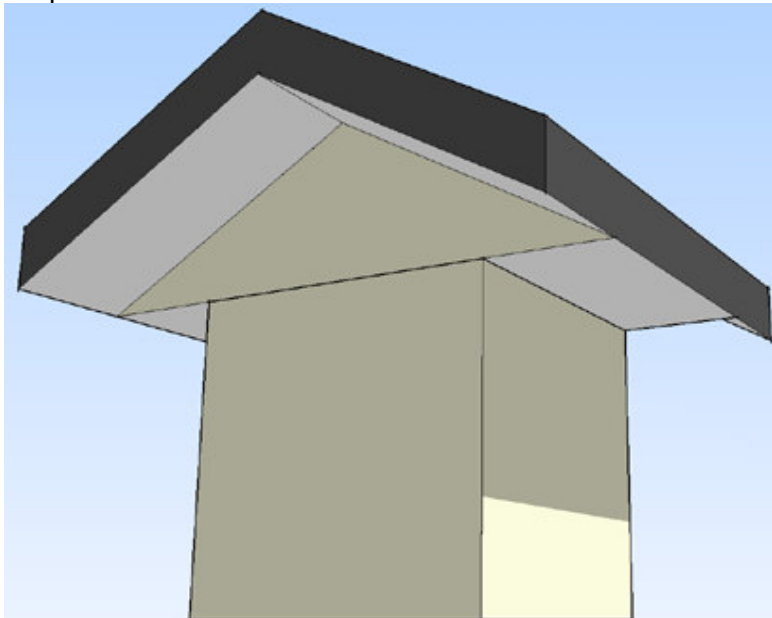
Hipped/Pyramid Roof: Vertical Fascia + Sloping Soffit



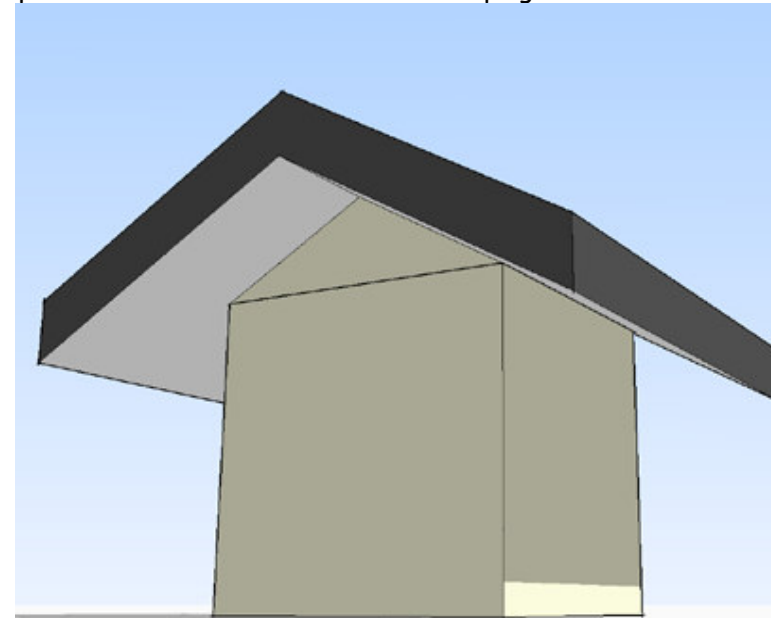
Hipped/Pyramid Roof: Sloping Fascia + Sloping Soffit



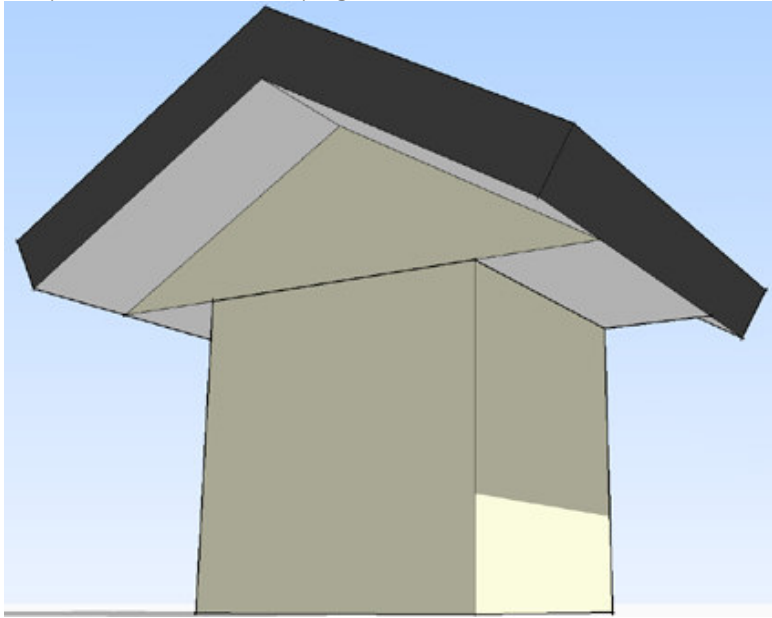
Simple Gabled Roof: Vertical Fascia + Horizontal Soffit



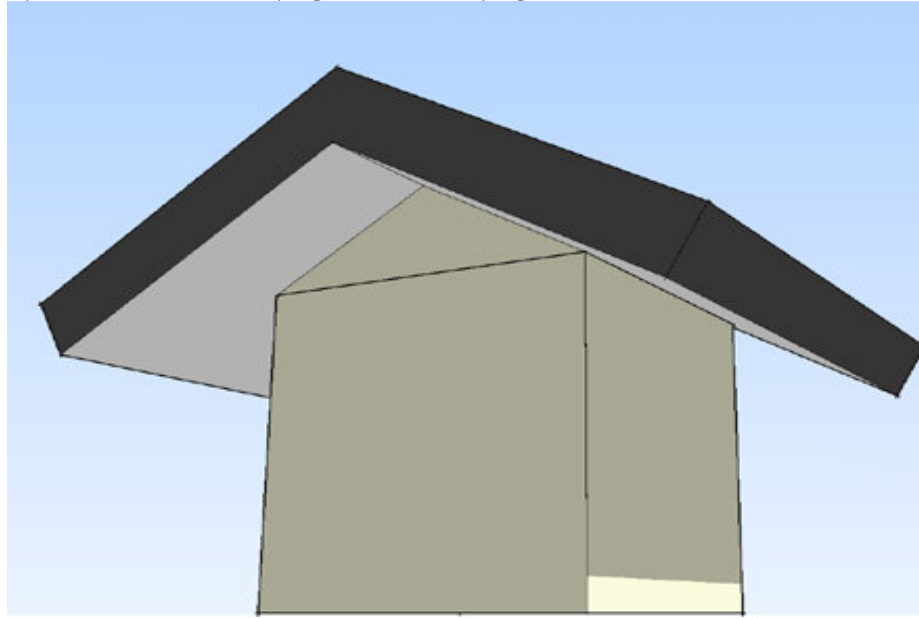
Simple Gabled Roof: Vertical Fascia + Sloping Soffit



Simple Gabled Roof: Sloping Fascia + Horizontal Soffit



Simple Gabled Roof: Sloping Fascia + Sloping Soffit



Note how eaves height above picked plane varies with horizontal and sloping soffits.
Also note how soffit width remains constant and fascia leans out if sloping.