

**Number:** 30

**Objective:** How to define and model 'Texas' roofs

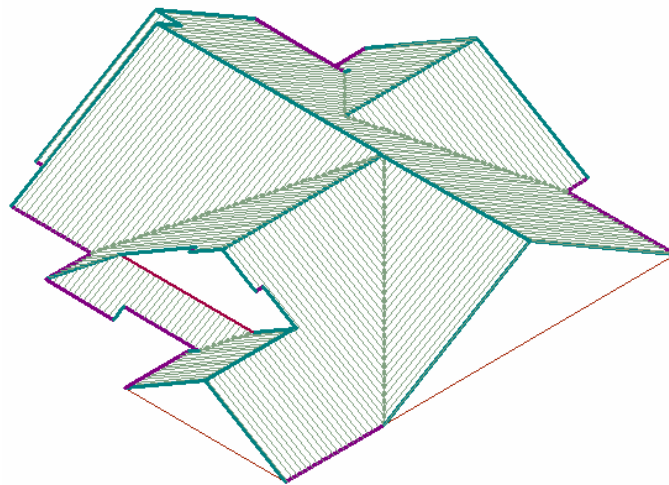
**Commands used:** Construct Roof & Modify a Roof

(You should be aware that these exercises do assume that you have acquired considerable experience with the AppliCad software.)

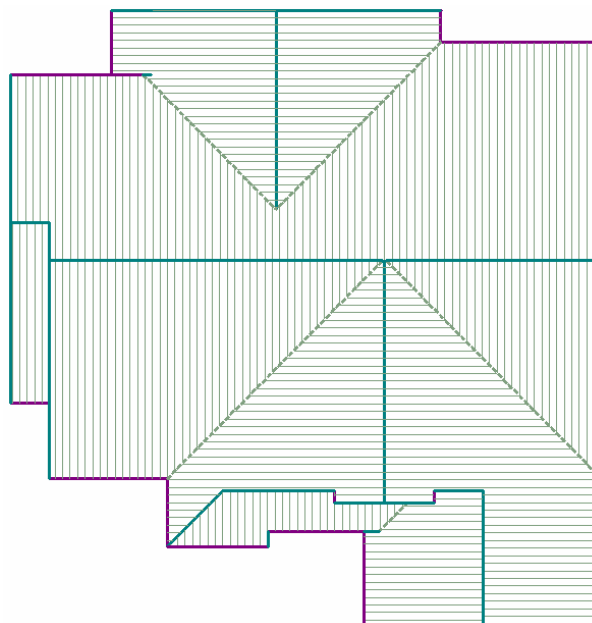
The object of this exercise is to create a roof shape that is, sadly for more and more roofers, becoming quite common. The difficulty is not that the roof is large it is that the shapes are complex.

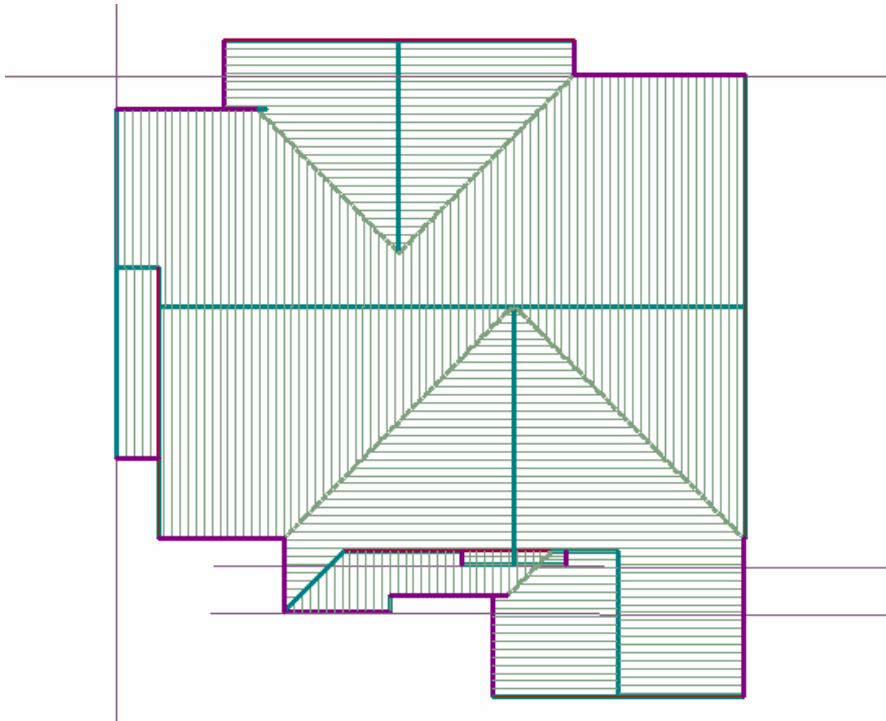
As we do for all complex roof shapes, carefully analyse the roof to break it into a series of simple roofs. Bear in mind that you might have to make more roof than you need and remove parts as well as join roof parts.

*ISO View*

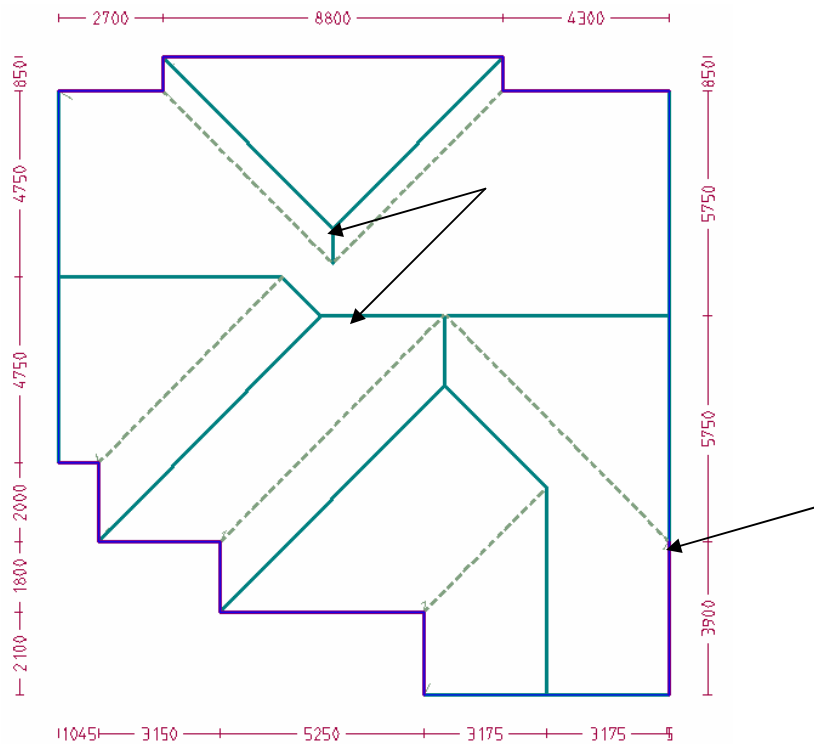


*Plan View*



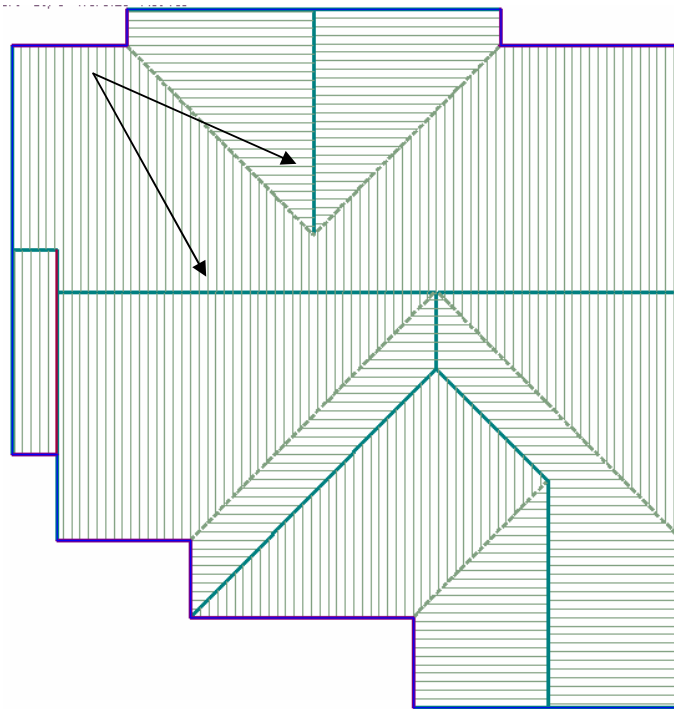
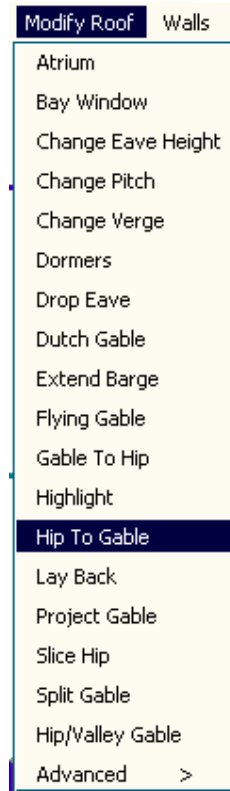


After reviewing the shapes, you should have 'squared off' ends that will subsequently be cut back using **ModRoof | Cut out**. Now **Construct Roof | Track Outline** using dimensions as shown. Don't forget to insert the little 5mm left step line down the right edge where indicated by the arrow below, to force the valley to be inserted. Indicate the ends that you need to be created as gable ends at the left and right, and at the bottom.



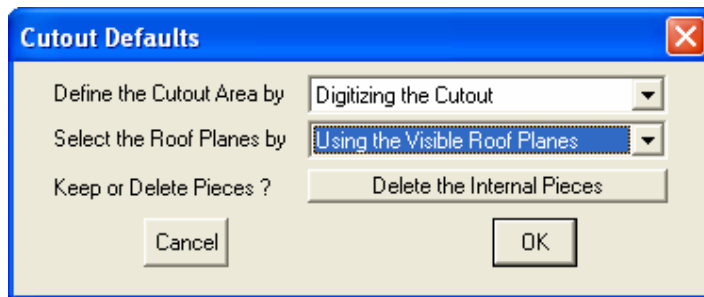
**Sorcerer, Roof Magician and Roof Wizard.**

Then convert the two remaining gables using the **Mod Roof | Hip To Gable** command. Select the ridge lines as instructed and the new shape is created as shown below.

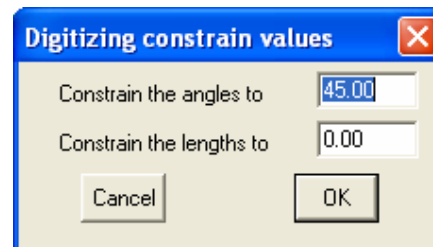


Now have to cut the corner off at the top left. Using **Mod Roof | Advanced | Cut Out** cut the corner off as shown. You will need to use the inline menu reference command to establish the precise starting location of the cut out. Follow these steps carefully:

Select **Mod Roof | Advanced | Cut Out** – the dialogue will pop up asking for the cut out defaults:



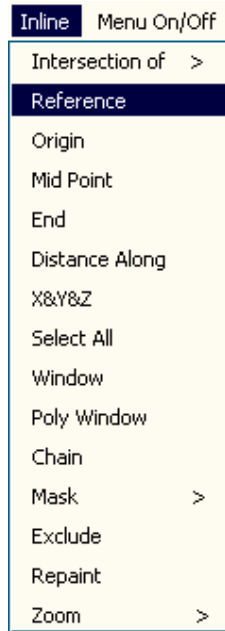
Change the options to those shown and then click **OK**. You will then be asked to set the digitising constraints. We typically use the numbers shown unless you have a reason to change it to something else.



# Tips and Tricks

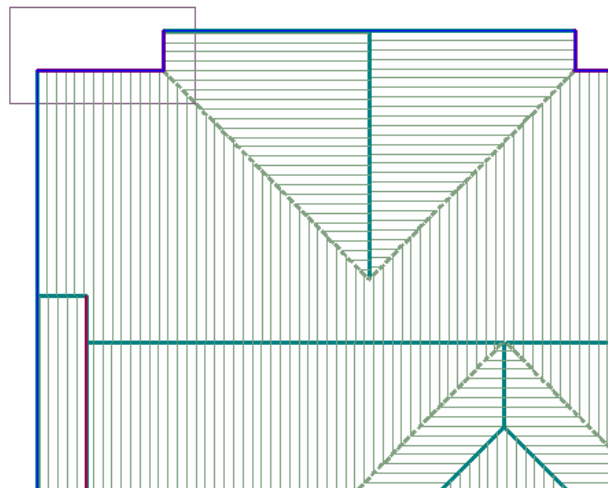
Items drawn from AppliCad's Customer Service file

Click **OK** and the cross hairs will be displayed and the prompt area will ask you to select the first cut out boundary point that will define the cut out.

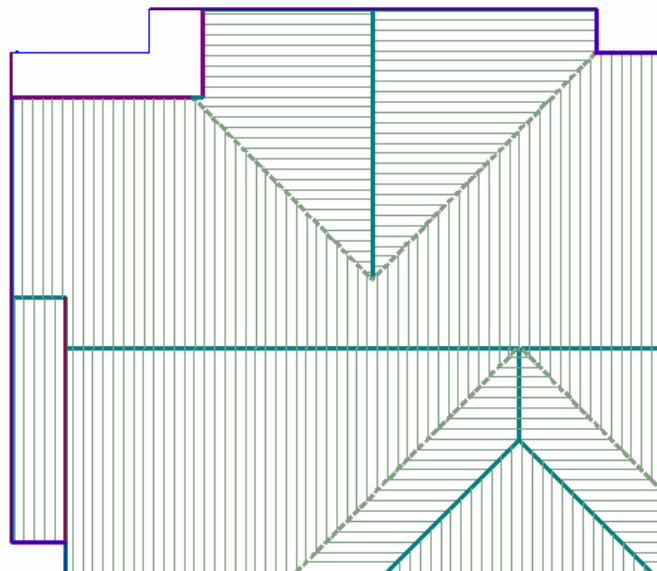


Now, what we want is a start point for the cut out to be a little away from the corner, say 500mm. Use the Inline **Reference** option from the pulldown menu then middle button snap the corner of the roof. Now type the start point as i-500, -1050. This stands for Incremental, in the **X** axis, minus 500mm and in the **Y** axis minus 1050mm.

The new start point will be set and then you can digitise or type the coordinates for the other corners of the cut out. Obviously, if you need an accurate cut out, you need to type the coordinates of the corners.



After the start point, type ix4400. Then iy2200, then right click and select Close Square to complete the rectangle cut out shape.

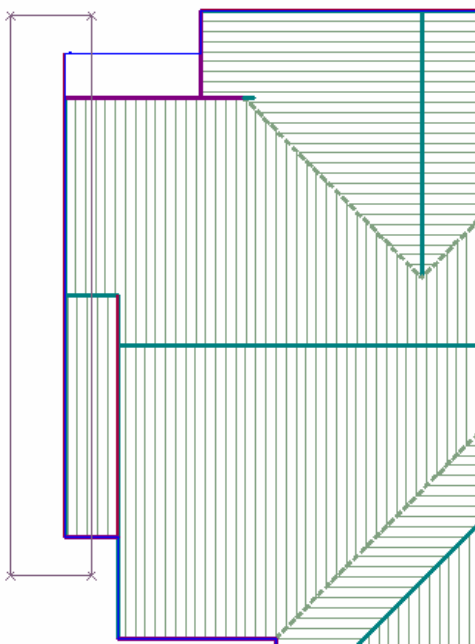


**Sorcerer, Roof Magician and Roof Wizard.**

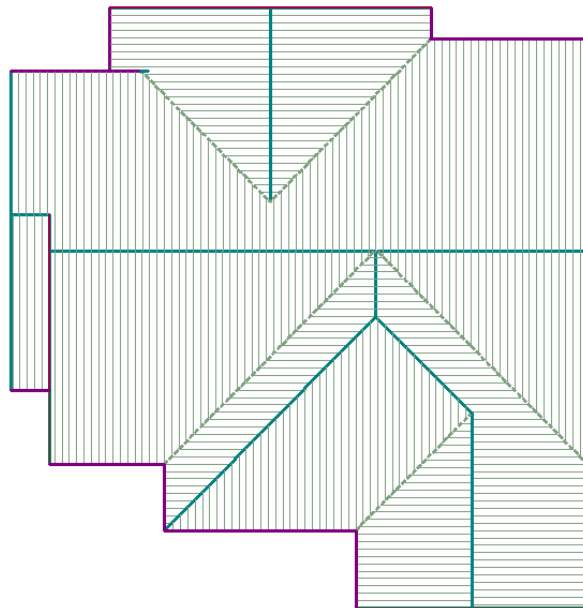
Next, we have to use the **Mod Roof** option, **Drop Eave**, select the eave to extend in the direction of the roof line and then define the new eave offset – 1050.



Select **OK** and the eave line is adjusted.



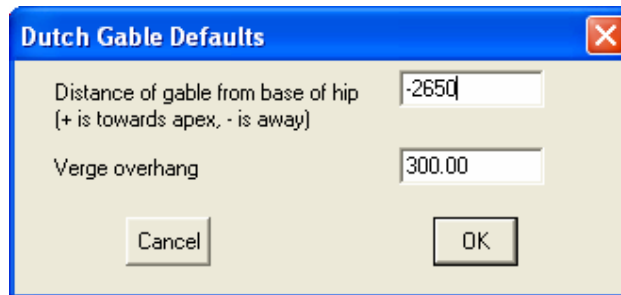
The cut out function may leave redundant lines on the gable end and these can be cleaned up by simply selecting delete, and drawing a box around the whole gable end as shown. All free entities will be deleted and the gable end will look cleaner.



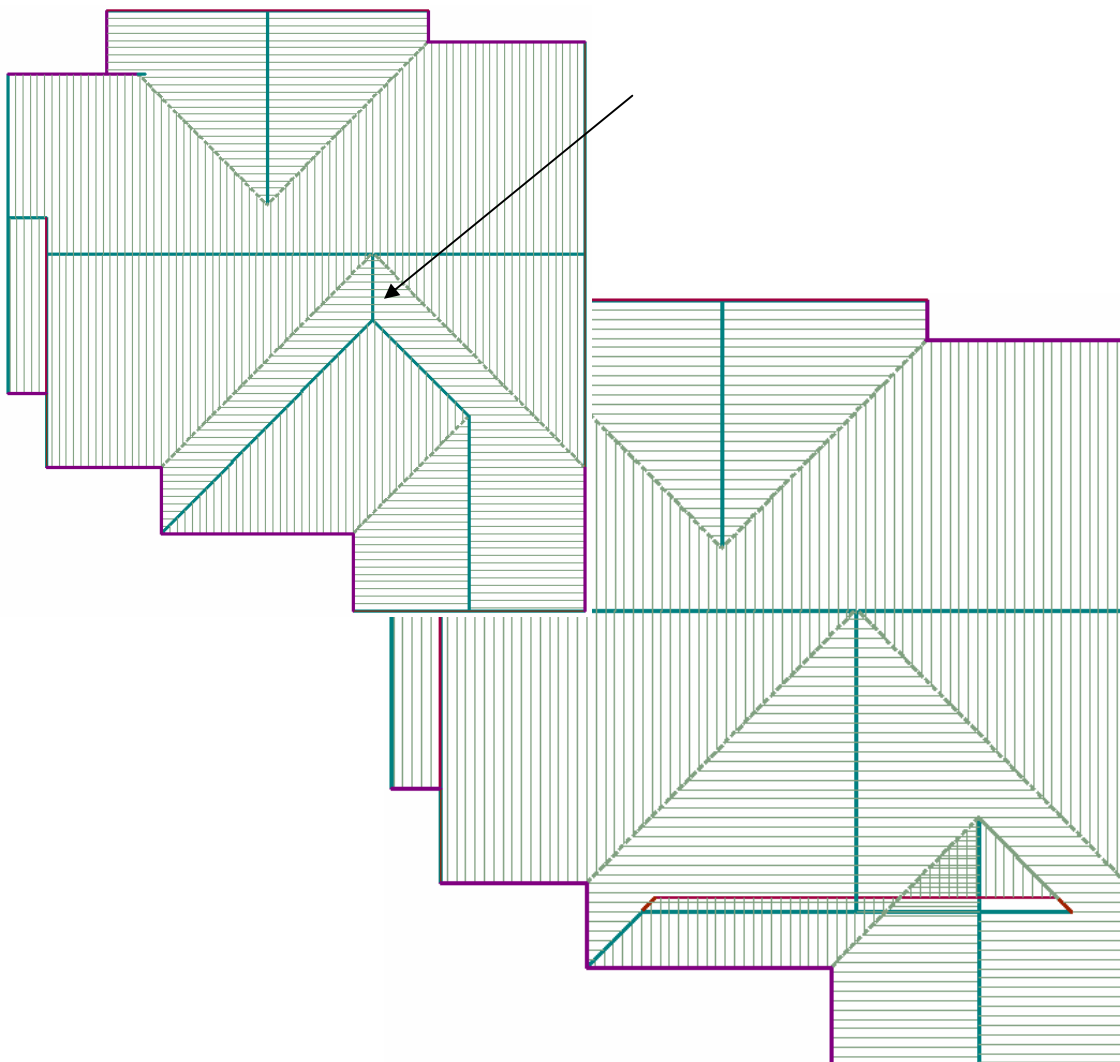
Now we have to deal with the big dutch gable at the bottom end of the roof. This is more difficult as we have to use tools to delete plane, delete, trim and copy lines, then re-insert the roof planes to create the right geometry. This is a process that requires practice and if at first it doesn't work correctly, simply **undo** it and try again. The more of these you do the more accomplished an operator you will become.

And the more valuable you will be to the business!

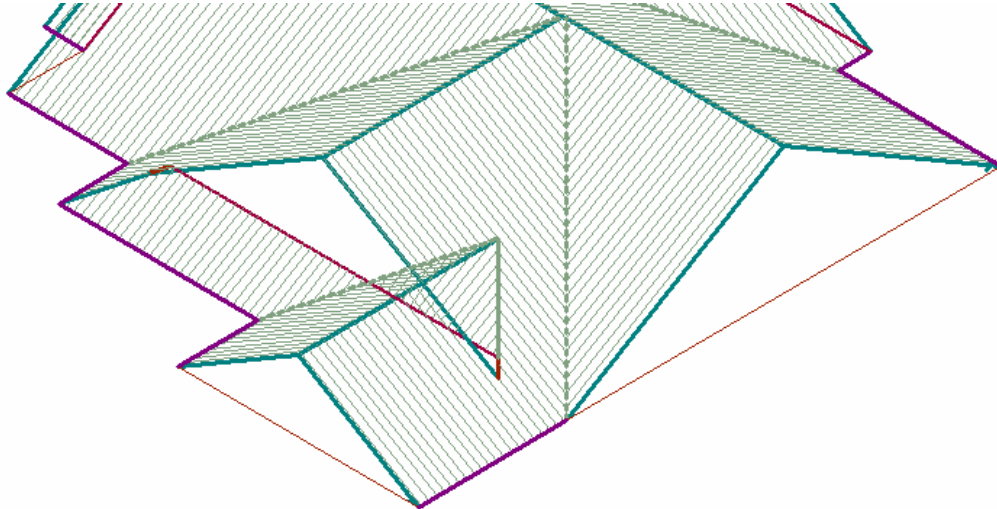
Now we add a dutch gable to the hip end that currently exists. Select the command **Mod Roof | Dutch Gable**. Select the ridge line at the hip end and the following dialogue box is displayed asking for default values for the dutch gable. There is a trick with option that suits our purpose in just such a scenario as this. You will notice that we have a flashing line about where the gable is to be built. This is the line from which the gable set back will be measured from and as prompted on the dialogue.



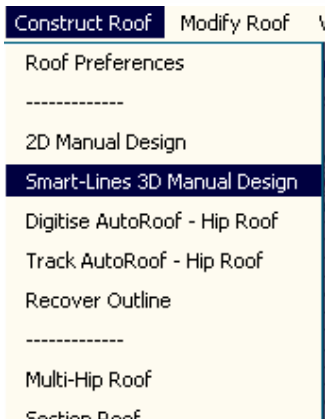
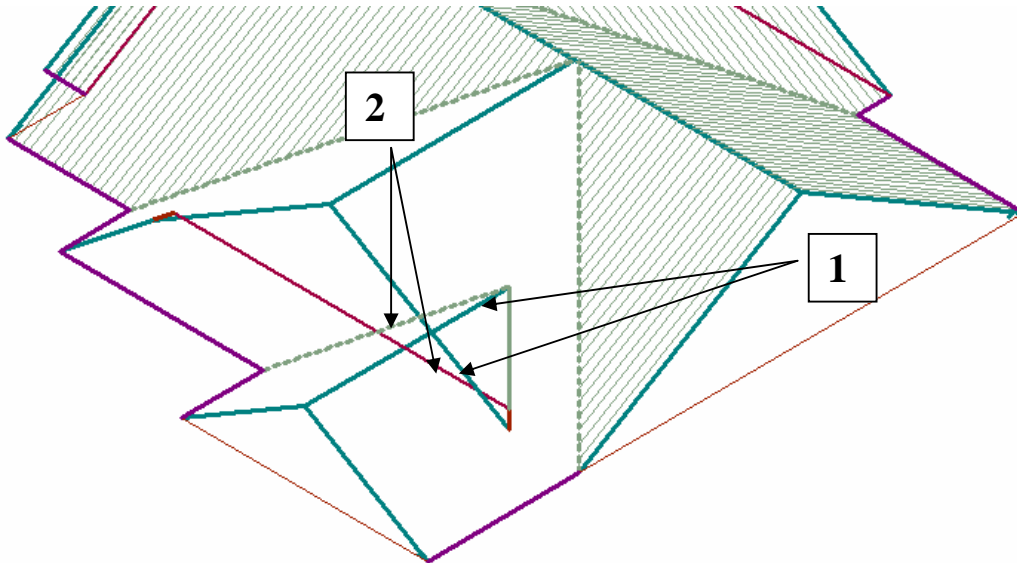
Instead of using a + number, use a negative number ie -1800. Now set the verge overhang to 300 and click **OK**. The gable is built, albeit a bit messed up as shown below.



This looks a lot worse than it is. Indeed, what the software has now created saves us a lot of work. All we have to do now is clean up the mess. Go to the **ISO** view and **zoom** into the area in question.

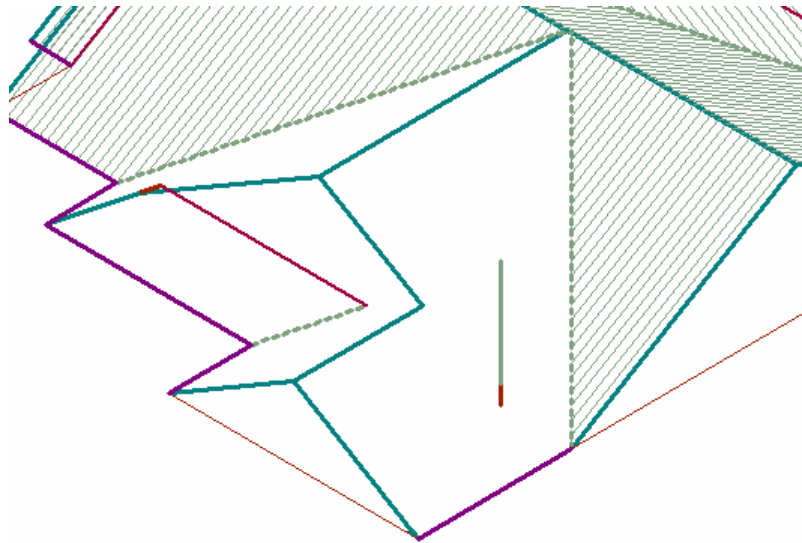


Now delete the planes that will be changed by fixing the line work.



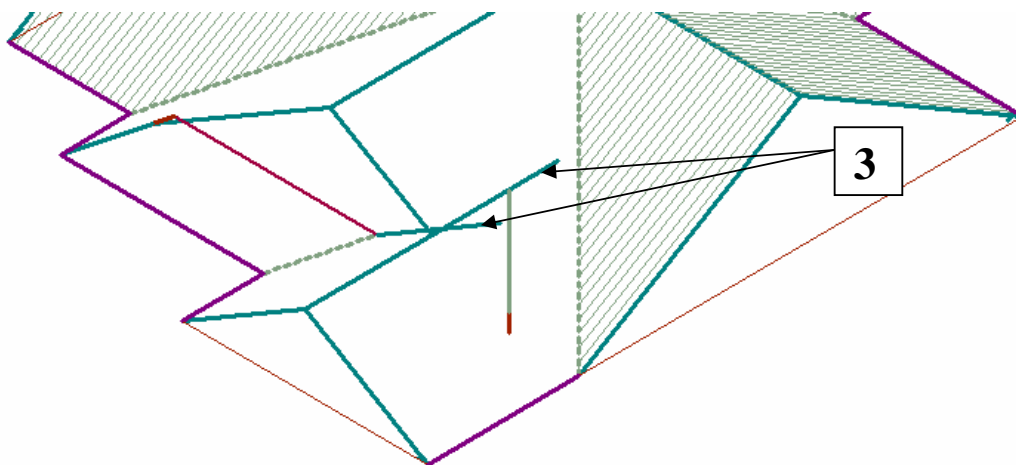
Now select the Smartlines option from the menu and using the option there, **Trim to Corner**, cut the lines back to logical intersections of the roof elements.

Remember that to trim a line to a corner, we're trimming the lines back to where they intersect to make a corner. To re-create the gable and the ridge, select the lines as indicated at **1**. To re-create the valley and the apron (roof to wall), select the lines as indicated at **2**.



Now we must re-create the space in between. Using the Smartline option, **Copy Line**, copy the ridge line and snap it to the new gable/ridge corner. Then copy the gable line and snap it to the new valley/apron corner.

Then use Trim to Corner to tidy up the two lines.



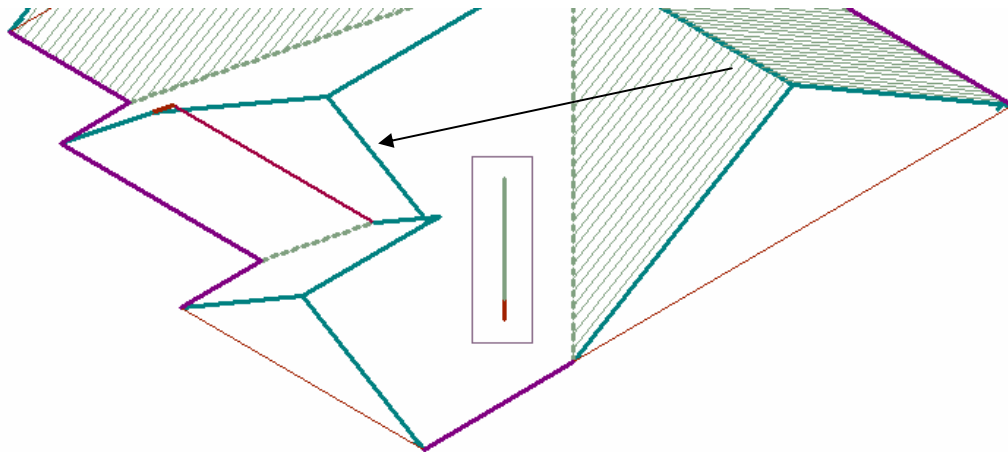
You will be left with a couple of lines that are now completely redundant. Simply delete these by selecting delete and drawing a box around them to totally enclose them, and confirm the deletion.



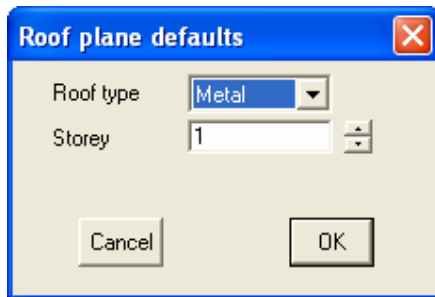
## Tips and Tricks

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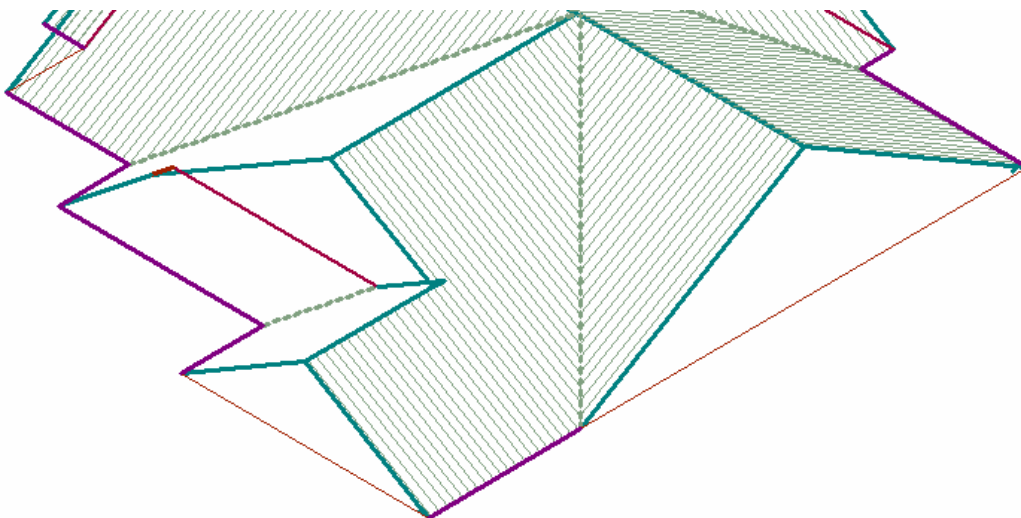
Items drawn from AppliCad's Customer Service file



Now we can reinsert the roof planes. Using Smartlines, **Insert Planes** option. Select a boundary line and the software will automatically track around a closed polygon assuming that it makes up a roof plane boundary.

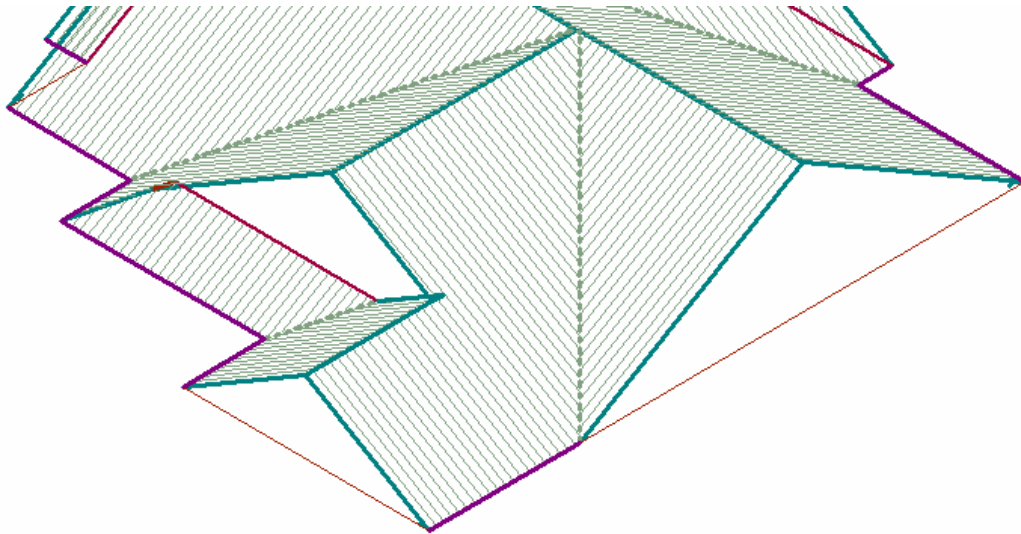


Once a closed polygon has been found, the dialogue box shown pops up to set the Roof plane defaults – the category of roof and the storey number (to ensure the correct pay scales are used as determined by the storey). Select **OK** and the plane is inserted.

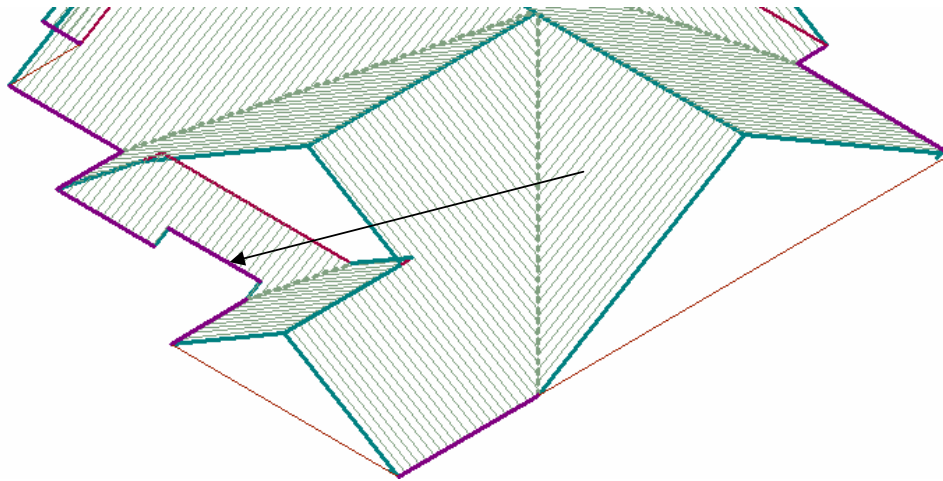


Now complete the remaining plane boundaries and complete this stage of our roof drawing.

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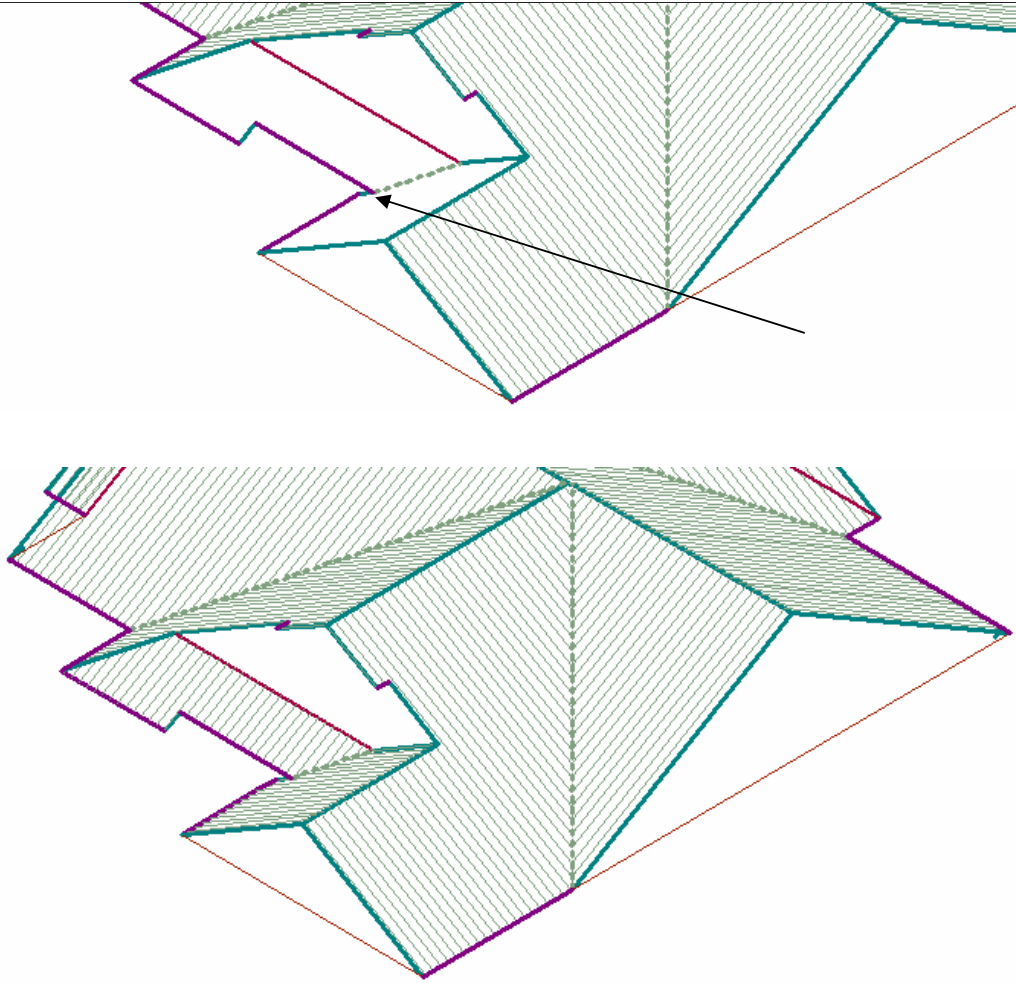


Now we must cut out the small areas at the front that finally define this shape. As described above, use **Mod Roof | Advanced | Cut out** option and then the **Inline | Reference** to select the start point and the defining points of the boundary of the cut out to remove the rectangle of roof as shown below.

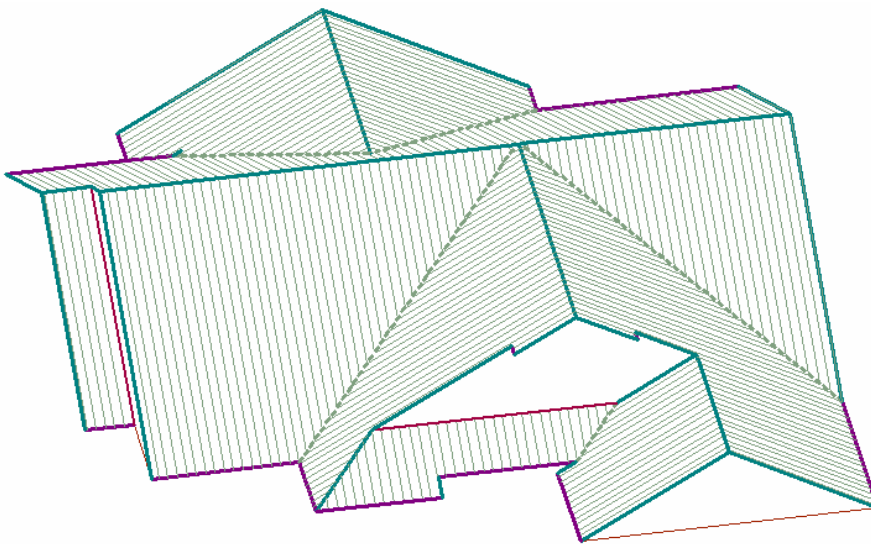


Then using the same Smartlines options as described above (delete the planes, trim to corner, delete the lines, re-insert the planes), re-create the intersection of the eave and the valley.

Then using the same commands, cut out the rectangles over the gable.



This completes the task. Now you use the regular tools to check dimensions, check roof pitch (slope), check that all line types (categories) are correct and view from all points of view to ensure that you haven't missed anything. Maybe even render it.



Well done.

***Sorcerer, Roof Magician and Roof Wizard.***