Tip Sheet

ArchiCAD 12
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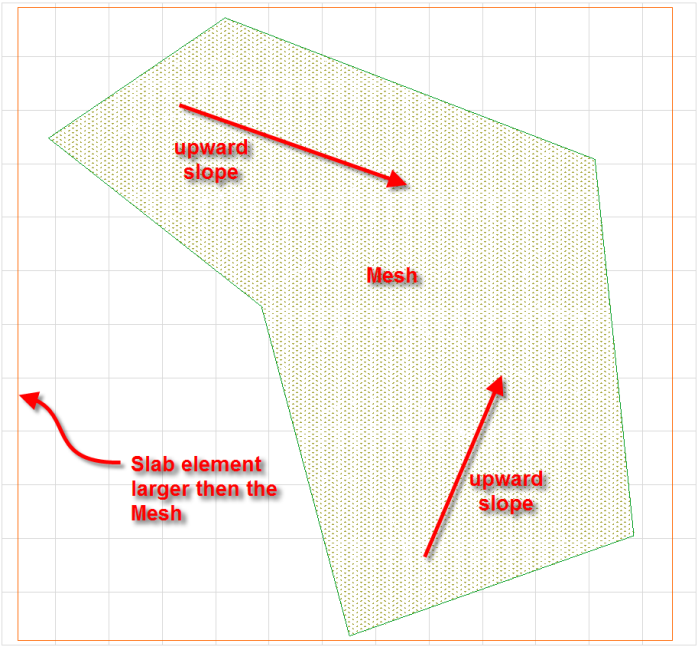
Creating Contour Lines

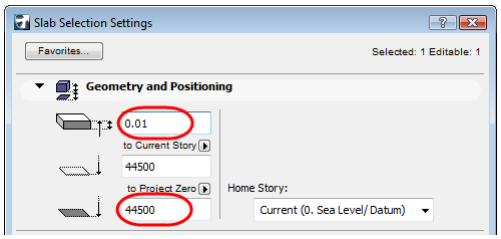
Once we have created a Site Mesh within ArchiCAD sometimes it is necessary to show the contour lines. If the Site has been created from a Surveyor's DWG/ DXF file we can simply Xref this file into a Worksheet and use their contours. If we have created a Mesh from Spot Levels (i.e. did not have Surveyor's Contours to trace), or we have amended the original Surveyed Mesh, or used XYZ file import from Cadimage Tools Site & Massing Tool, we can use the following procedure to create accurate contours at your desired R.L's.

In the following example our mesh has a low point of 44250 and a high point of 48150, and slopes up to the right hand corner. We want to produce contours at 500mm increments.



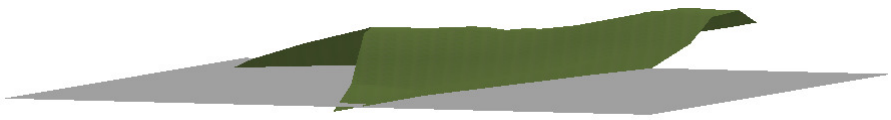
Using the Slab Tool create a slab that extends beyond the extents of the mesh.

Make the mesh very thin; set the depth to **0.09**. (This will default back to 0 if your working units have no decimal places.)

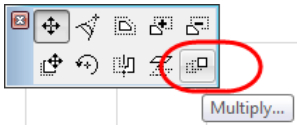


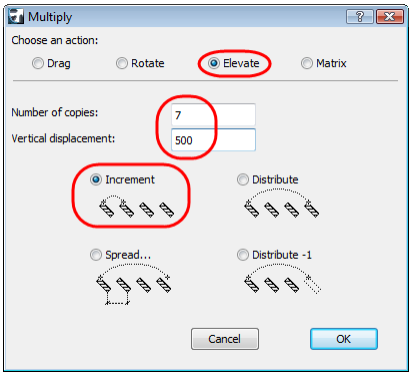
Also give the slab an R.L. that matches your lowest contour, in our case **44500**.

Have a look in 3D to see if the Slab and Mesh cut each other.



Navigate back to the plan view (**F2**) and select the **Slab**, click on one of the corner nodes to bring up the **Pet Palette** and select the **Multiply** button.

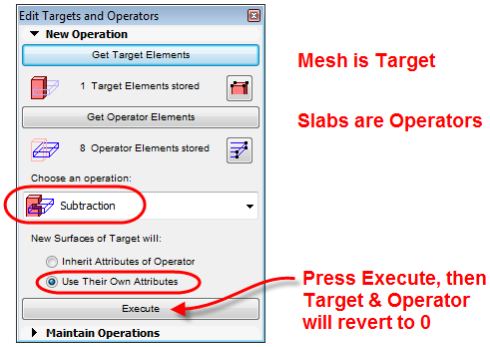




Within the Multiply dialog choose **Elevate** and **Increment**, and set the **Vertical displacement** to 500 (as this is the increment we require). A quick calculation (48150-44250/500 = 7.8) tells us we need 8 contours, and as we already have 1 we need to set **Number of Copies** to 7.

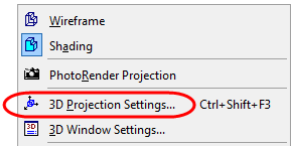
Go back to the 3D window (**F3** PC or **F4** Mac) and open the Solid Element Operation dialog; go to **Design > Solid Element Operations...**

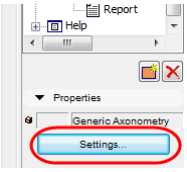
Select the **Slabs** and click **Get Operator Elements**, de-select these, then select the **Mesh** and click **Get Target Elements**. Within **Choose an operation:** select **Subtraction** and make sure that **Use Their Own Attributes** is highlighted under **New Surfaces of Target will:**. Hit **Execute**, the Target and Operator Elements will revert to 0 (none), and 0.09mm slivers of the mesh will have been removed.



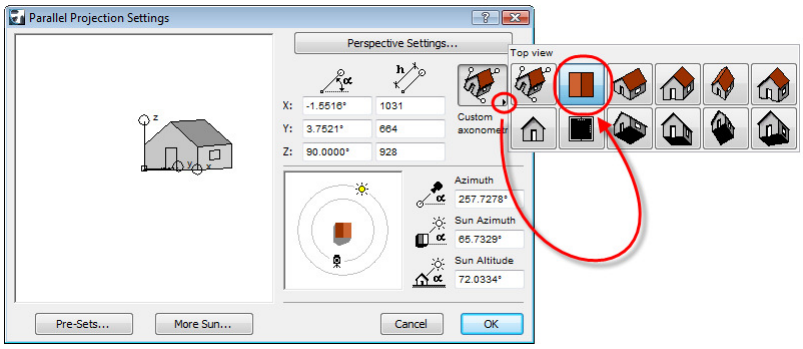
Close the Solid Element Operation dialog.

We now need to be looking directly down on top of our Mesh and Slabs. Open the 3D Projection Settings; either Right-click and choose **3D Projection Settings** or hit the **Settings** button in the **Navigator**.

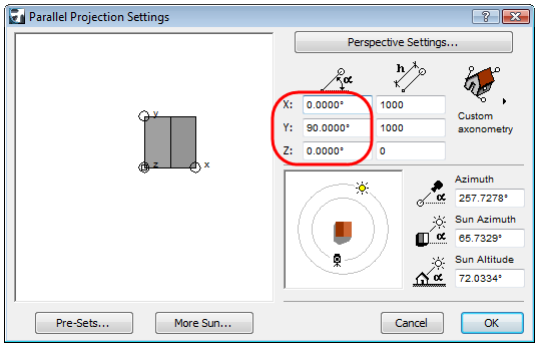


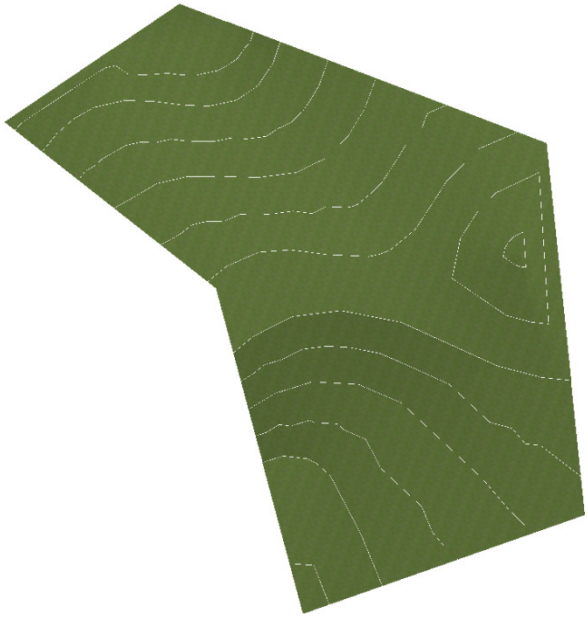


Within this new **Parallel Projection Settings** dialog select the **Top View** from the **Custom axonometry** pull-out.

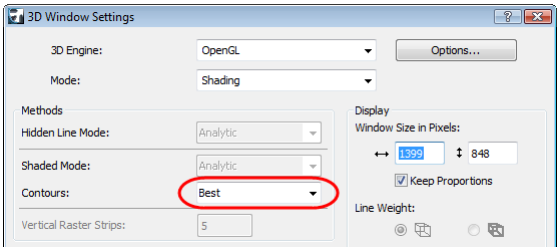


You will most likely need to amend the settings of the View so that it is orthogonal. Simply set the follow values **X:0.00**, **Y:90.00** & **Z:0.00**.



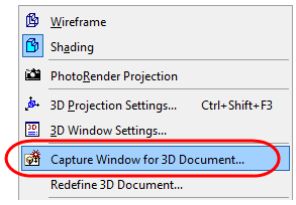


Turn off the Layer for your Slabs and you can clearly see the cuts that the slabs have made which represent our 500mm contours. If not, you may have your contours turned off in your **3D Window Settings**.



Back in our Plan View we cannot see these Contour lines, as Solid Element Operations are not visible in Plan View.

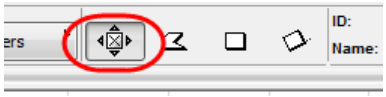
We need to use a method of turning the 3D lines into 2D and place them in the Plan View.



Right click in your Top down 3D View and select **Capture Window for 3D Document...**

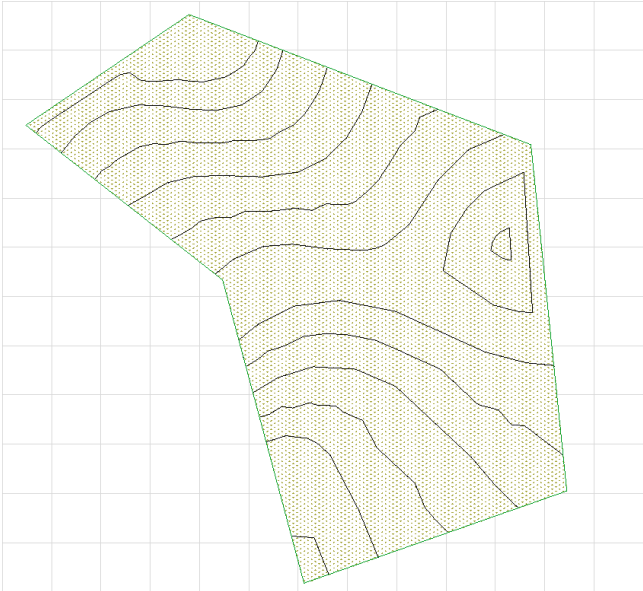
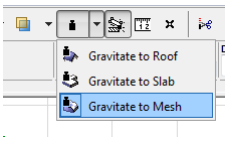
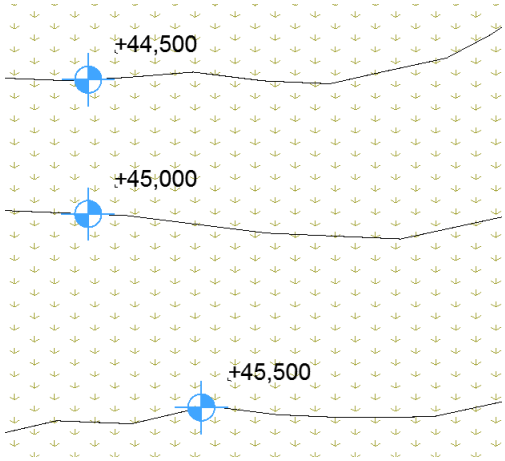
This creates a new 3D Document. **NOTE:** this is still a **Live** View of your project, exactly like a Section or Elevation, don't delete anything in this View unless you want it deleted for good.

For truly 2D Lines we can make a **Worksheet** of this newly created 3D Document.
A worksheet is simply lines and Fills. Go to the **Worksheet Tool** in the **ToolBox**, select the **No Boundary** Geometry Method from the **InfoBox** and place the Worksheet marker down.



A new Worksheet will appear in the Navigator, select all the Fills and delete them (have the **Fill** Tool selected in the ToolBox, hit **Ctrl+A** PC or **Command+A** Mac, then the **delete** key); now we are just left with Lines. Select All the lines (which are white) and change their pen to your desired colour. These lines can now be selected and copied (Copy and Paste) to your Site Plan Story.

The Result shows the 2D lines overlayed on our 3D Site Mesh.



Now that we have contour lines we can add accurate R.L. levels for each line. Activate the **Level Dimension** Tool from the **ToolBox**, from the Info Box turn on **Gravity** and select **Gravitate to Mesh**. Place Levels along your Contours.