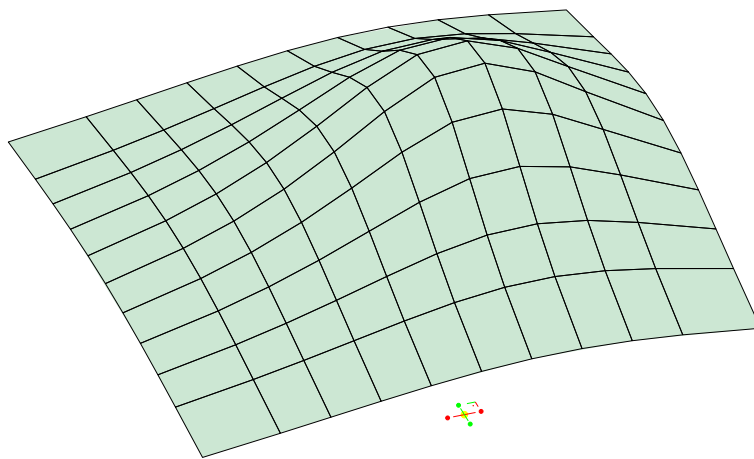
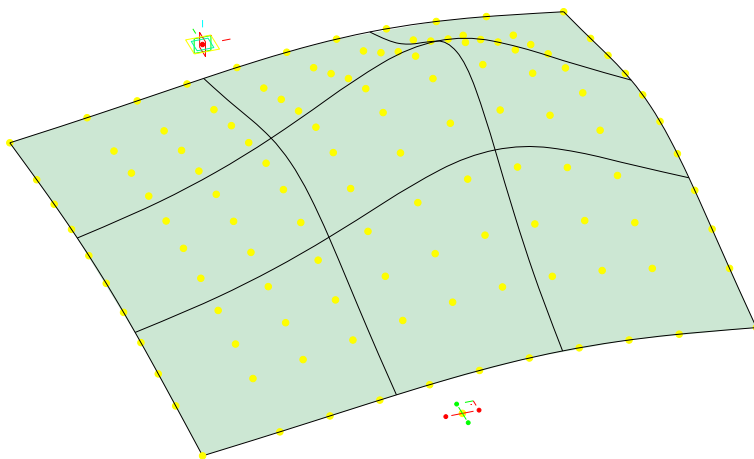



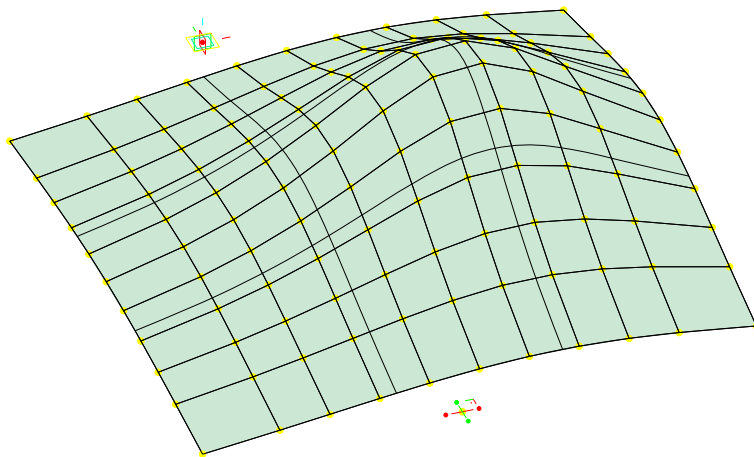
Unfolding your model for laser cutting



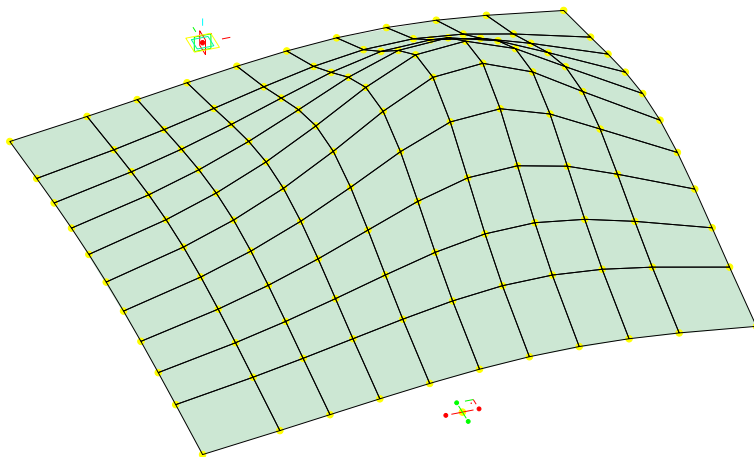
Starting with the familiar toy model/test bed of the 'tree under a roof' example, hide everything except the surface and the control point.



Stick a point onto the surface and replicate it using a series for it's x and y properties i.e. `Series(0, 1, 0.1)`
Then toggle it's replication with this button 



Apply a Polygon, using the `ByPointGrid` update method.




Then hide the underlying surface, and we are left with a polygon grid.

While it is possible to do a fabrication planning layout in the default model, it is much more usual to do it in a new model.

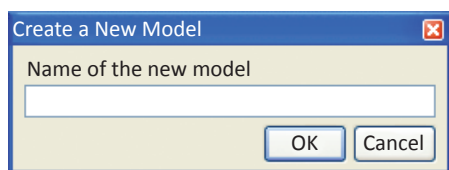
Microstation allows the use of multiple model spaces. They are like parallel universes, they live in the same file, but you can't draw a line from one to the other. They can however communicate with each other through GC.

This can be really useful for making controllers and other such helper stuff.

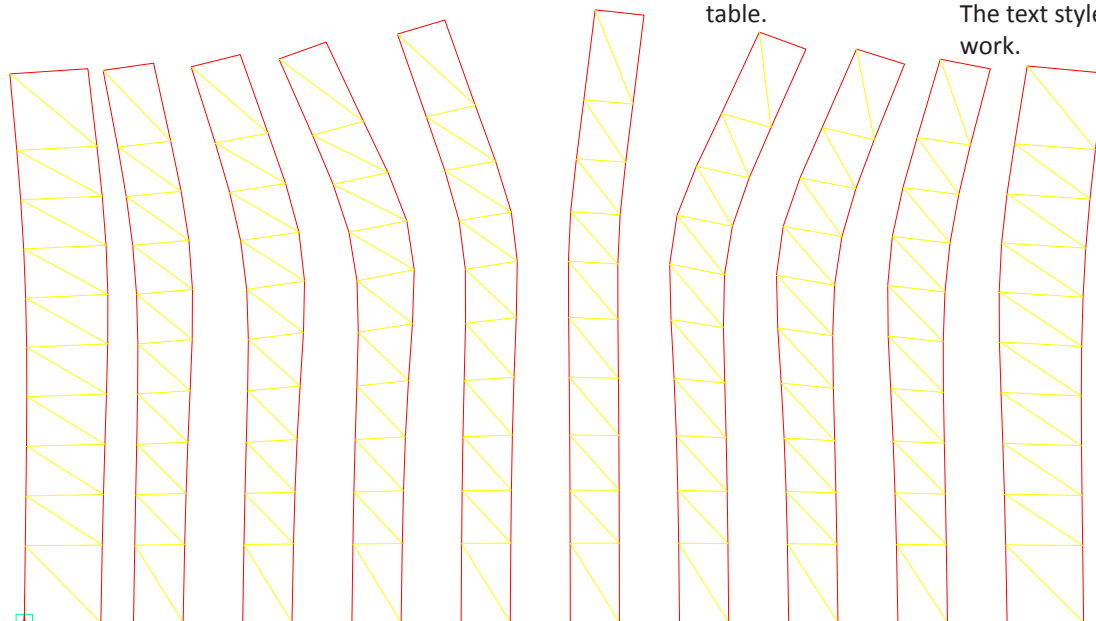
In our case though, we just want a way that we can see the flat unfolded panels in one view, and exercise the model in the other so that we can see the implications of our actions.

Anyway, enough of the theorising. To make the new model, click the 'create model' button 

This will pop up the new model dialogue. All you need to do is give it a name, and then a window with a new CS in it will appear.



We're ready to make a Fabrication Planning feature. The excitement is palpable isn't it!



So, once you've hit 'apply' you'll get a lovely layout like the one above. (You may need to zoom out)

It will update in real time (unless you toggle it's dynamics) so you can see

Unfolding your model for laser cutting

Unsurprisingly the tools for planning fabrication are under the heading of 'FabricationPlanning'.

There are several quite confusing options, but the one we want it at the bottom - 'Unfold Polygons Into Planar Strips'

This will make shapes like the ones below, ready to be sent straight to the laser cutter for your assembly pleasure!

So, in terms of inputs...

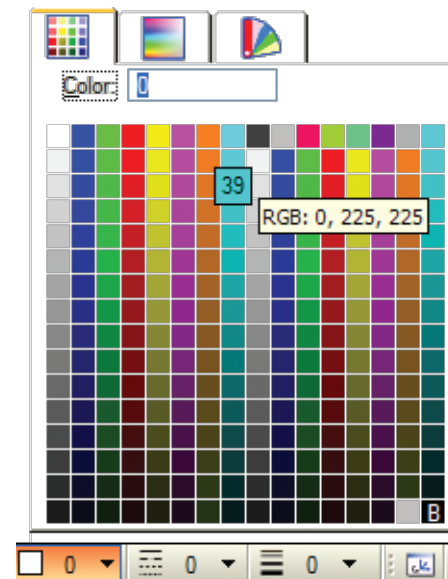
FabricationPlanning	
Update Method	
UnfoldPolygonsIntoPlanarStrips	
Property	Expression
CoordinateSystem:	fab_baseCS
Polygons: Polygon[]	polygon01
BoundaryEdgeColor: int	3
InternalEdgeColor: int	4
InterRowDistance: double	3.8
IndecesOfVertecesDef...	null
IndecesOfVertecesDef...	null
CorrectForNonPlanarQuad:	true
TextStyle: TextStyle:	null

The Coordinate system is the one you want to use for your layout, it will put the first point down on 0,0, and use the XY plane to draw on.

Polygons is the array of polygons that you want to unfold. it needs to be a 2d array, but as we have created the polygons as a grid already, it is inherently a [][] 2d array, so we can leave off the {} that define a list.

The edge colours are just the number of the colour from the Microstation colour table.

Generally people have their laser cutters setup quite lazily, so you'll only be interested in the first 8 or so colours.



'InterRowDistance' does exactly what it say on the tin, it controls the distance between the rows to help avoid overlapping.

I have to admit that I have no idea what the next two options do, so if anyone does, let me know and I'll include them in the new version of this tutorial.

If 'Correct For Non Planar Quads' is true, then the diagonals are drawn, If false, then it is assumed that you have made sure that your quads are guaranteed planar and that you don't need the lines

The text style option doesn't appear to work.

As always, if you have any comments, suggestions, good recipes, cafe recommendations or just want a chat, email me, and hopefully version 2 of this will be even better!

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