appli-cad Australia

Roof Wizard

Advanced Software for Roof Modeling and Estimating

Tutorial for Curved Metal Roofs – Safintra Method

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Introduction

Using this manual

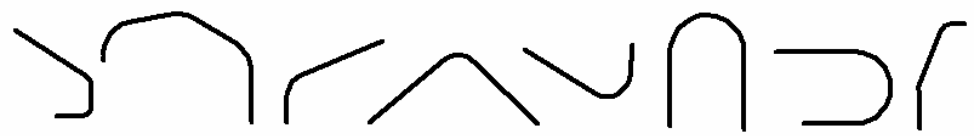
This tutorial is designed to explain, step by step, the process of estimating a curved metal roof and producing the fabrication work order for the roll forming shop.

While not essential, it is recommended that the basic Learning Guide for Sorcerer or Roof Wizard has been completed prior to attempting to work through this tutorial. An understanding of the process is helpful, as is a basic understanding of the construction of a roof.

Overview

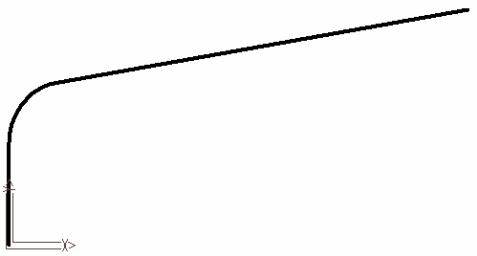
The software will automatically recognise any of the following base shapes and complete the fabrication table for you, with dimensions. Any other profile may also be created and dimensioned, but as the shape is not pre-determined, the dimensions may end up in an awkward location on the drawing.

"Standard Shapes"

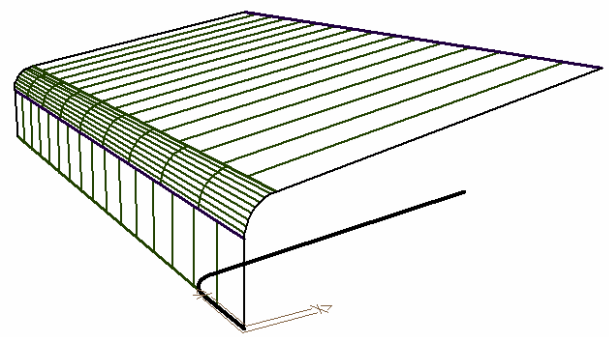


Once the roof profile is defined, we use the Gen-Roof | Section command to "extrude" the section drawing along the 'ridge' line (although strictly speaking, there may not be a ridge).

The material is selected that is to cover the roof. The material must be curved quality material, so you may have to select flat roof material as well as curved quality if you haven't selected a default material at the start.



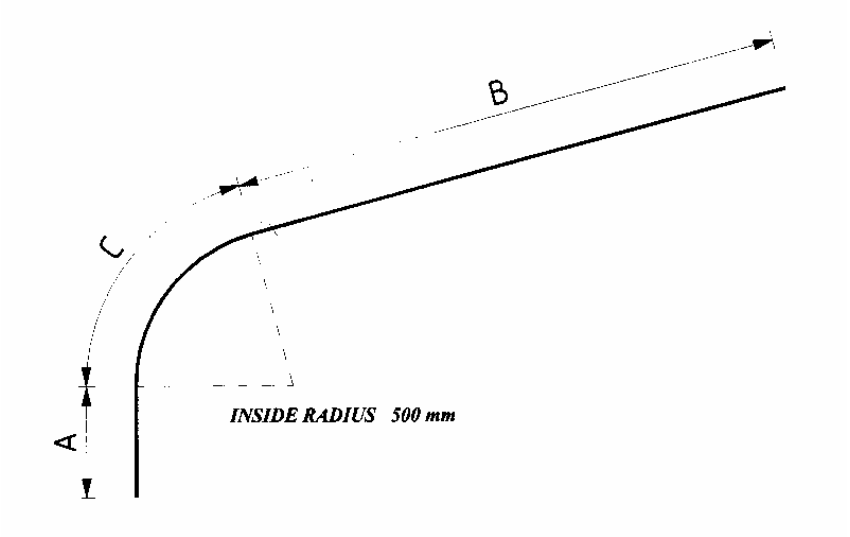
We will create a simple bullnose roof shape as shown here.



Once complete, the software will then cost the job and generate the workshop fabrication details, automatically.

NAME OF CUSTOMER							ORDER No.	
JOB DESCRIPTION DETAIL								
SPECIFICATIONS								
A	607	mm	COLOUR ON	NARROW FLUTE		BROAD FLUTE	(Tick one only)	Caulfield Green
B	2457	mm	TOTAL LENGTH OF SHEET (A+B+C)		3551	mm		
C	489	mm	QUANTITY REQUIRED		20	ea		
	80	Deg.	1 x CRANKS	Please mark critical dimension				

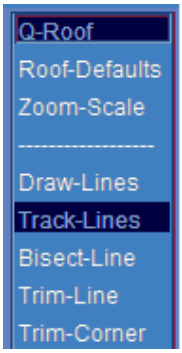
Fig: Example of the production details table, and below, the sketch that is automatically generated on the production report.



Drawing The Profile

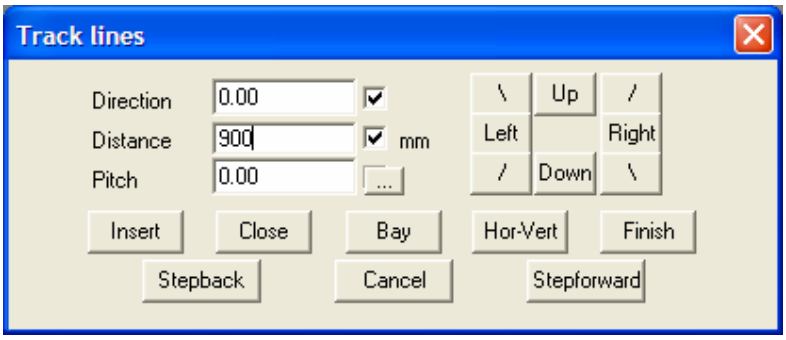
Before you can estimate a curved metal roof, first you must create the roof profile – the dark line in the sketch above. This may be done using any of the standard CAD drawing commands. It may also be done using the drawing commands in **Q-Roof.** For this exercise, since we are already familiar with the process of drawing a roof outline using Track-Outline, we will use the **Q-Roof | Track Line** command.

Use



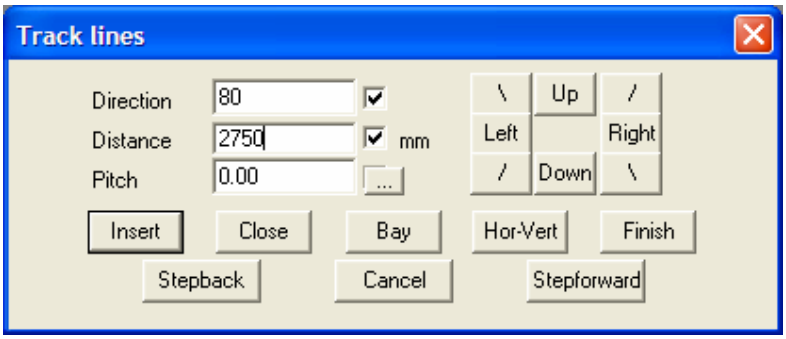
Q-Roof to Draw the Profile

Select Q-Roof from the main menu, and as always, type 0,0 as our start point. The direction will be up or 0, and the distance will be 900mm; then select insert.

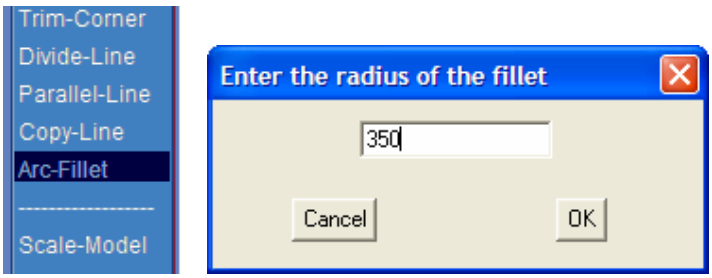


Then add the next line segment, direction 80 (degrees) remembering that we measure direction relative to the bearings of a compass – up is zero, down is 180, right is 90 etc. Using 80°, results in a pitch of 10° (90°-80°).

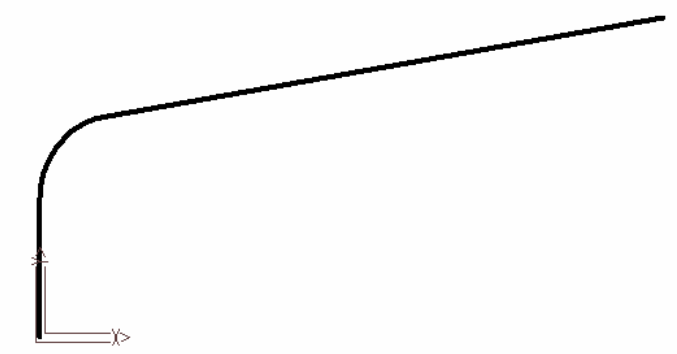
The distance, well, let's use 2750mm.



Now we add the bullnose, or curved section. To add this we use a new command under Q-Roof, Arc-Fillet. This command adds a filleting arc between the two lines, using a radius you define, and automatically trims the lines back to be a tangent to the arc.

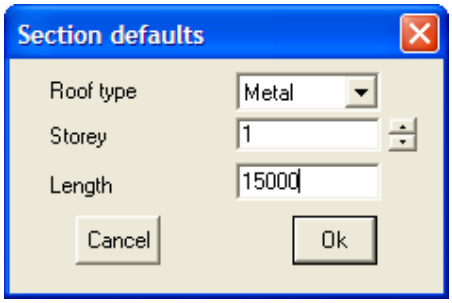


We will use an arc radius of 350mm. You should now have this shape drawn.



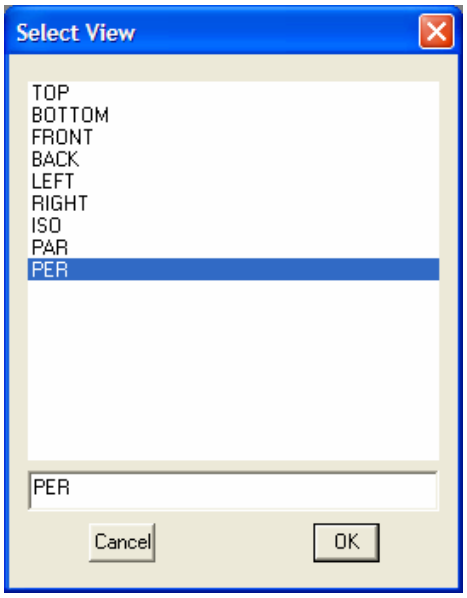
Projecting the Section

To actually create the roof using this profile, we use the Gen-Roof| Section option from the main menu. You are prompted to indicate the entities that define the section, and you will select the line and the arc and the line in our drawing. You are then prompted for the roof Section Defaults. We need to select metal, select a storey (so the correct pay scale is used) and the length of the roof – as below.

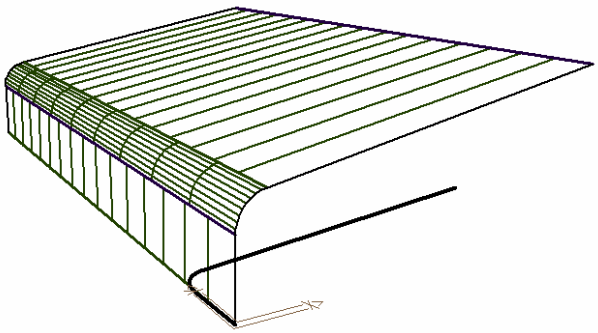


The section is then projected along the length, and this may best be seen by selecting the ISO (isometric) view. You may also find that the perspective view is helpful – Main Menu | View | Select | Perspective. You can choose between four predefined perspective views.

Perspective View

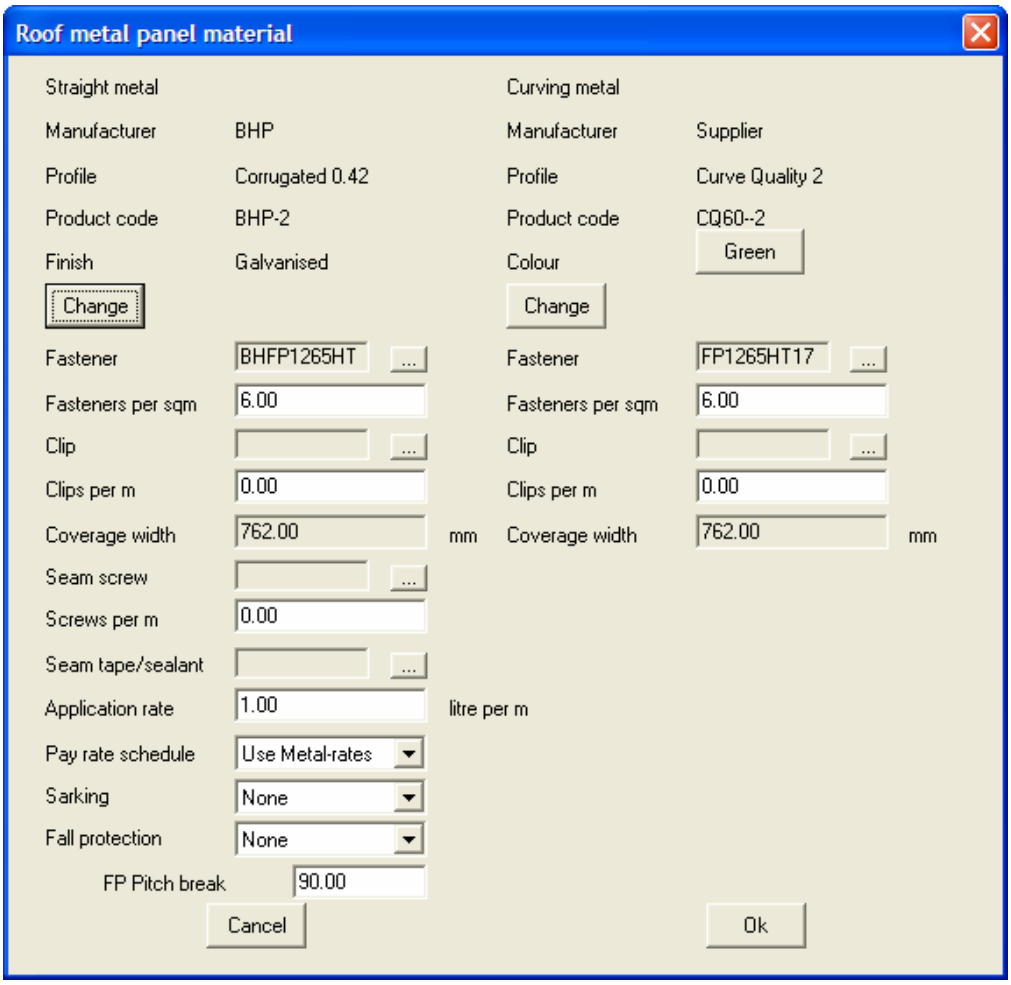


And you will get this view of your roof.

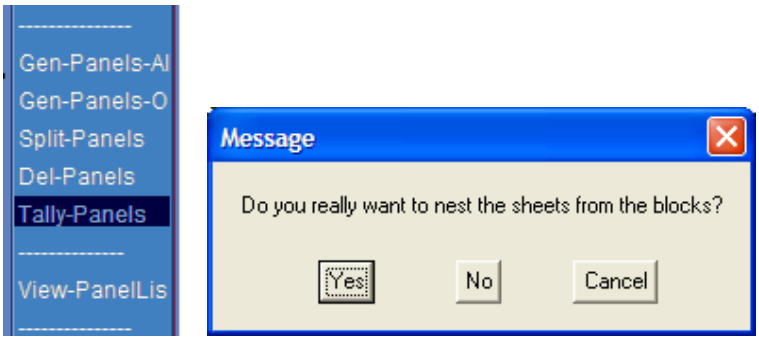


Select the Material

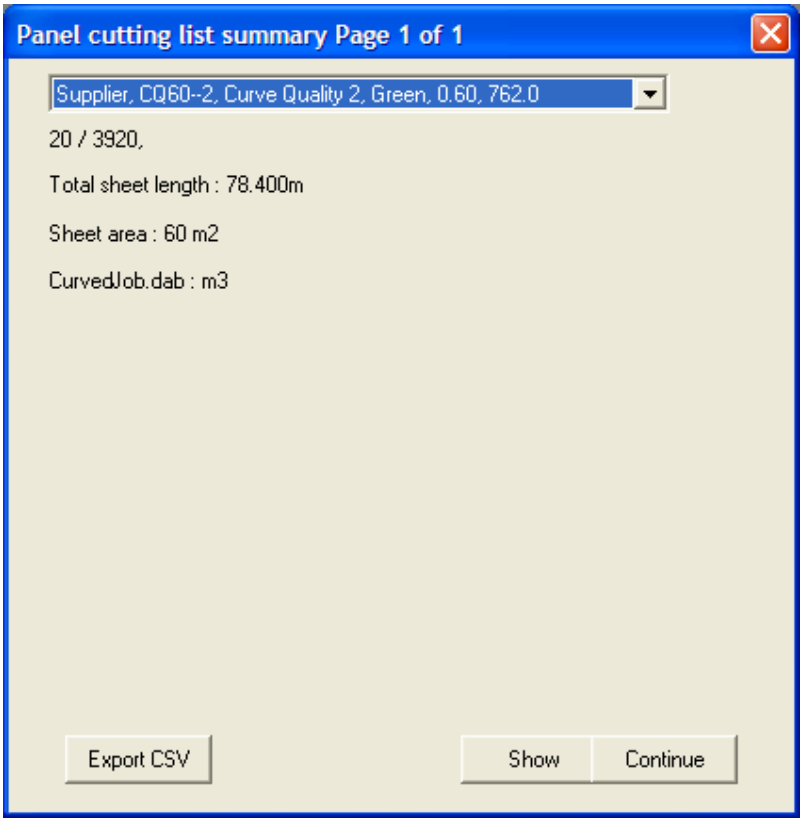
Once satisfied that the roof shape is correct, you must select your material. Because roll formed curved roofing material is usually a heavier gauge or higher tensile strength, we must have previously defined a curve quality material. As well as selecting regular material, you must now select curving metal – main menu | cover | select metal. The dialogue box below shows the material we selected, the curving metal on the right hand side.



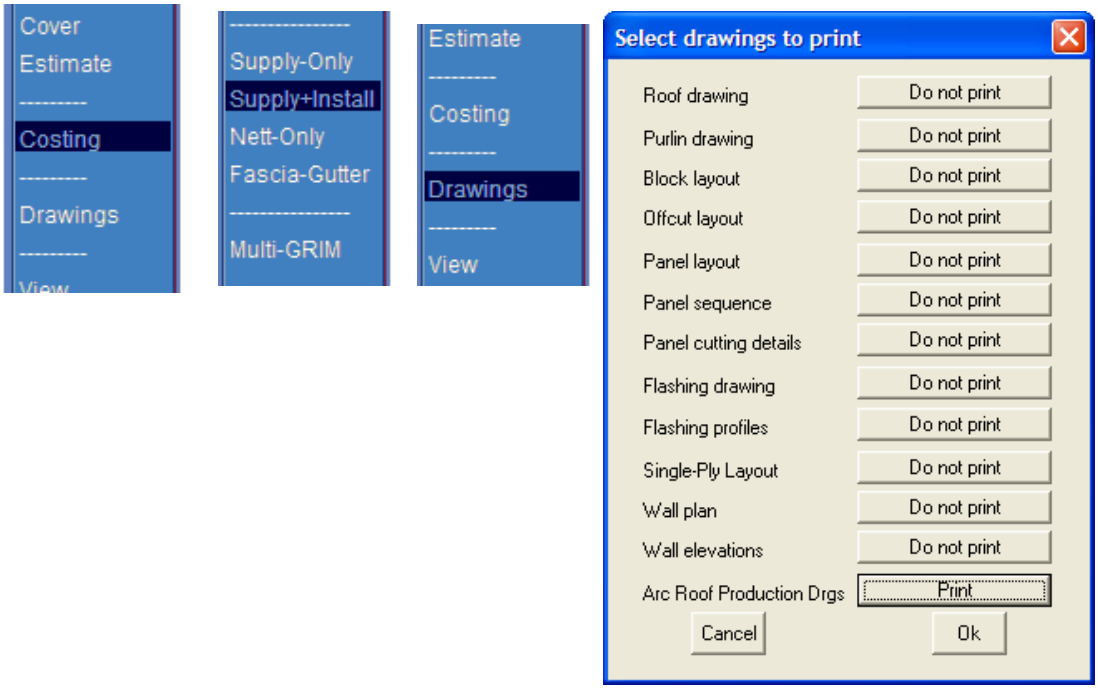
To quantify the panels, simply select from the main menu, **Estimate | Tally Panels**. Answer the question do you wish to tally panels, YES. And you're nearly done.



The panel list will be displayed as shown below.



The quotation is completed as for a regular roof, **Main menu | Costing** and select either Supply Only or Supply and Install. The print the fabrication report, select **Main menu | drawings** and at the item at the bottom, **Arc Roof Production Dwgs**.



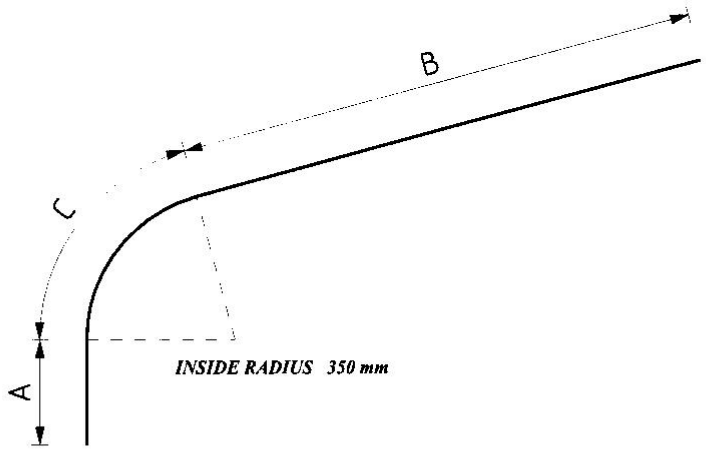
Output Sample

SAFINTRA (PTY) LTD

No. 4 Fabian Street
Hughes Ext. 38 Boksburg
South Africa

P.O. BOX 26060
1462 EAST RAND
Tel. + 27 (11) 823 4027
Fax. + 27 (11) 823 4288
e-mail: safintra@cis.co.za

NAME OF CUSTOMER								*ORDER No.*	
JOB DESCRIPTION DETAIL									
SPECIFICATIONS									
A	*607*	*mm*	*COLOUR ON*	*NARROW FLUTE*		*BROAD FLUTE*		*(Tick one only)*	*Caulfield Green*
B	*2457*	*mm*	*TOTAL LENGTH OF SHEET (A+B+C)*				*3551*	*mm*	
C	*489*	*mm*	*QUANTITY REQUIRED*				*20*	*ea*	
	80	*Deg.*	*1 x CRANKS*	*Please mark critical dimension*					



AS APPROVAL FOR WORK TO BE CARRIED OUT TO ABOVE SPECIFICATIONS:

SIGNATURE:	*CAPACITY:*	*DATE*

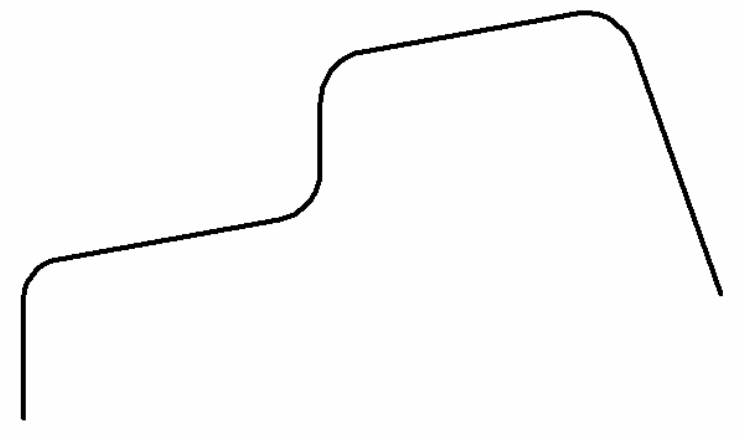
Date 22 September 2004 at 16:18: 4

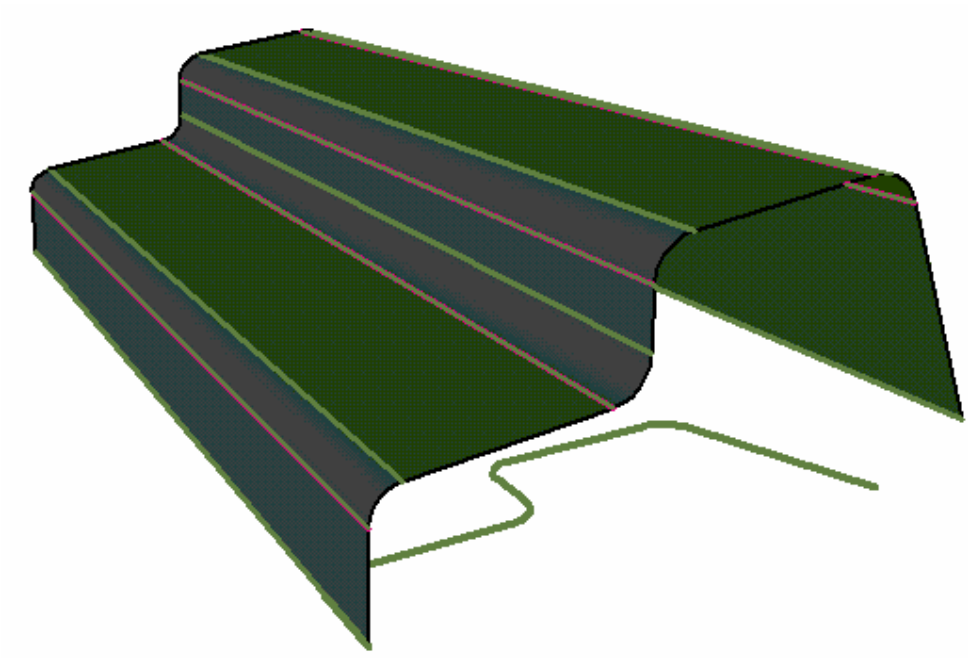
Example of a Fabrication Report for Safintra. The report may be edited just like a regular template, except that it is in a file called CRANKING.Dab in the User folder. There are two templates, one for the 'standard' curved shapes and the other for custom shapes that the software determines doesn't fit the constraints of a 'standard'

shape.

Draw Your Roof

There is no real constraint to the shape either. If you can make it, then draw it!





The software will still determine the number of sheets and how they're to be formed.

This ends the tutorial.