Plate 'n' Sheet
PROFESSIONAL 4

Module 4

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Pattern Information

Getting additional information from the pattern and the model.

Measure Distance

You may find the distance between any two points on **either the pattern or the 3D model** by clicking the measure button on the tool bar. Move the cursor over the first point press down the left mouse button, release the button over the second point. The point-to-point distance is displayed in a dialogue in addition the coordinates of each point, the angle in the X-Y plane, the distance in the X, Y and Z directions (delta X, delta Y, delta Z) are displayed.
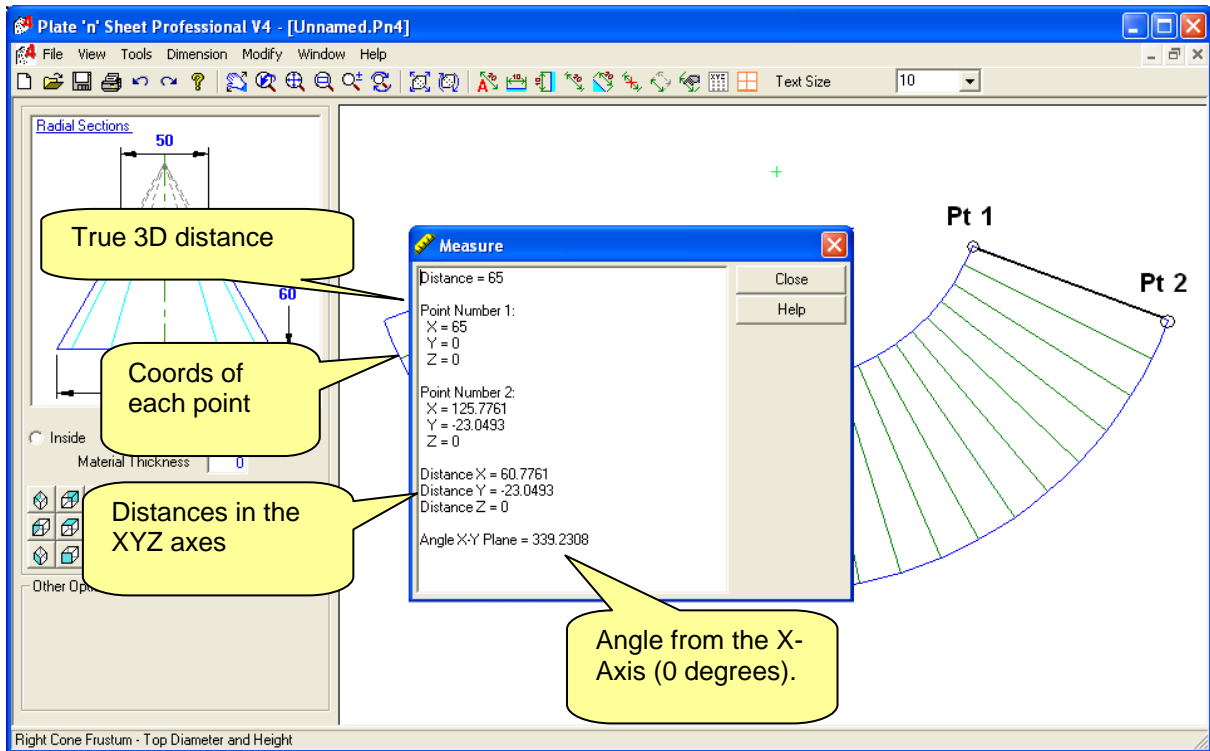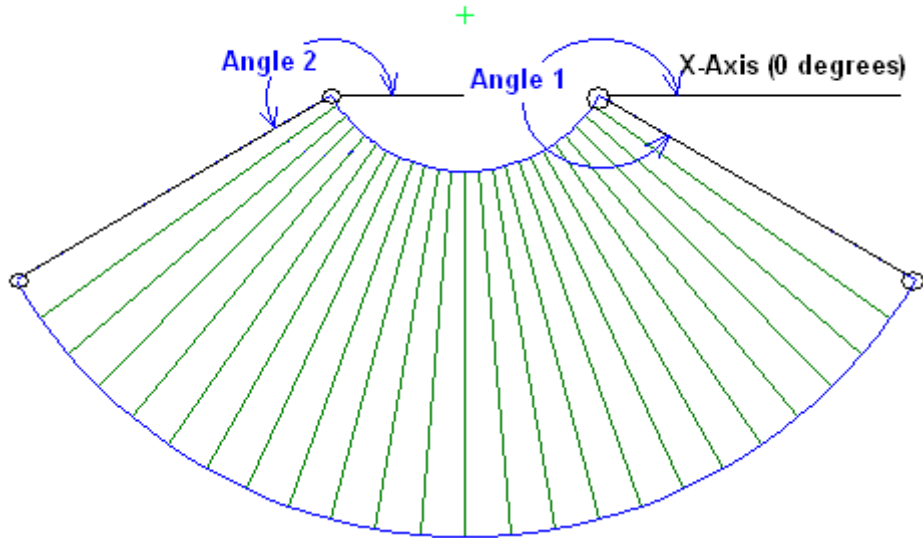

Measure Angle

Similarly, the angle formed by the two points is also displayed in the "Measure" dialog box. This value is the angle between first point picked and the second point measured from the X axis (0.0 degrees).
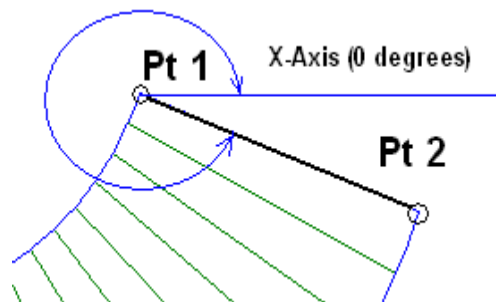
To find the angle between two lines: Measure the angle of each line and note the angle from the X- Axis. . Subtract the smaller angle from the larger angle to find the included angle between the two lines. Make certain that you pick the corresponding end of each line. For example:

Angle 1   **Angle 2**

Subtract Angle 2 from Angle 1. [329.4631 - 210.5369 = 118.9262]. The included angle between the two lines is 118.9262 degrees

Mass Properties

Information to assist estimating the cost of a project is available through the Mass Properties feature. See **Training Module 6** for instructions about obtaining Area, Mass and Cost and using the Materials Editor.

Project Identification

Click the project identification button on the tool bar to display the identification dialogue box.

You may enter a project identification name or number, project description and the name or initials of the person who has produced it.
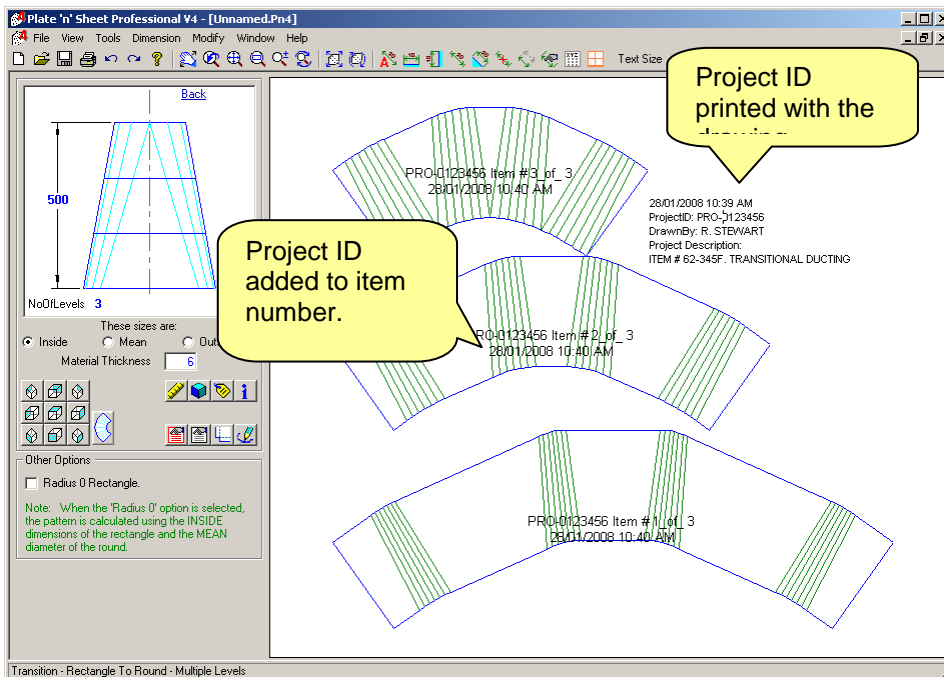
This information will be saved with the shape and can be recalled at any time. It is added to the Label and may be printed with the drawing. In addition, if you have the Auto-Dimension option "Item Numbers" selected the Project ID will be printed on each part.

Label
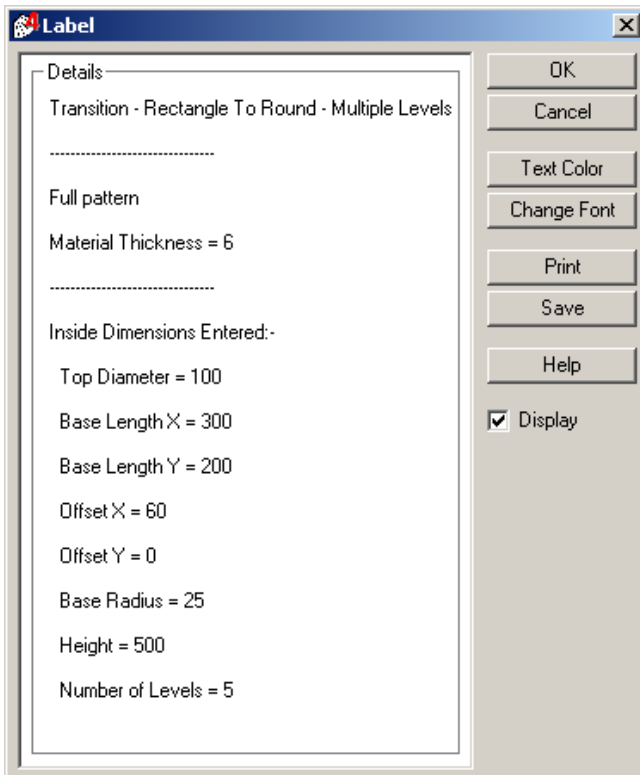
A label may be positioned on the drawing to show the parameters entered to create to the shape.

This can be printed with the pattern as a way of identifying the pattern and so the fabricator can check that the dimensions are correct during the rolling or pressing operation.

Click "Display" check-box to hide or display the label on the drawing.

If the "**Display**" check box is ticked, the label information will be printed onto the drawing.

Once the label is on the drawing, it can be moved simply by clicking on it and holding down the left mouse button while dragging.

Double click the label text to re-open the label dialog box. You may change the text color, font size or hide the label by de-selecting the "**Display**" check box. The label may also be printed separately for attachment to the cut material.

Label after positioning on the drawing
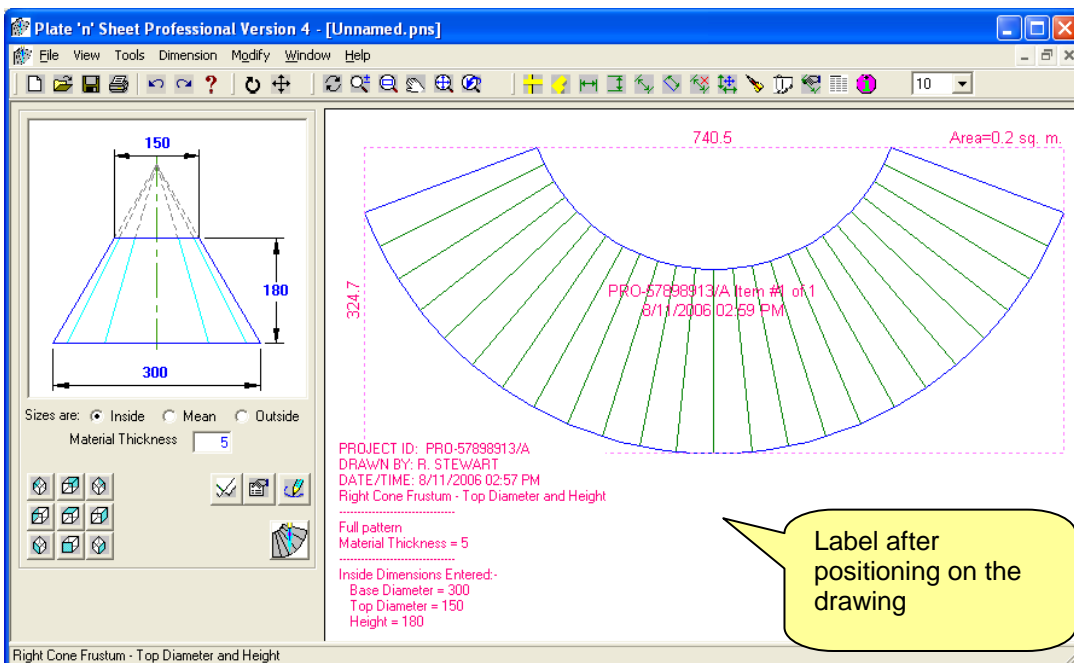
Do not be concerned if the label hides lines on the drawing. When it is printed the text will be transparent. If you click the print button and view the Print Preview, you will see what the drawing will look like after printing.

Export DXF, Send to AutoCAD or IntelliCAD

Overview

The DXF is a common format for exchanging CAD data between programs. Use the '**Export DXF**' you wish to export the unfolded pattern or 3D model to a CAD program or other software for further drafting.

For example, you may wish to add the unfolded pattern or views of the model into an existing CAD drawing for further dimensioning. Select '**Export DXF**' and save the file with a meaningful name. Open this file with the CAD program you are using and continue to work on it.

These tasks are selected from the "File" pull-down menu.

If you are using **AutoCAD** (the "full" version 2000 or later) you can transfer the pattern or view directly onto the AutoCAD screen.

If you are using **AutoCAD LT** you must save the DXF, as described above, and open it with AutoCAD LT. You may also insert the DXF into an existing drawing as a block.

If you are using **IntelliCAD** (Professional Edition version 6 or later) you can transfer the pattern or view directly onto the IntelliCAD screen.
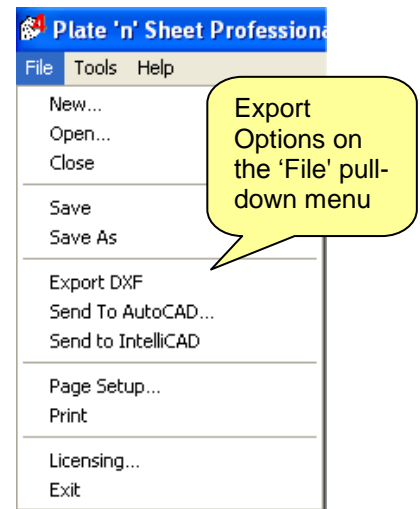
Many NC profile cutters also use software that can read a DXF file and generate the NC code. Nesting programs can also usually read a DXF exported from Plate 'n' Sheet.

The options available for 'Export DXF', 'Send to AutoCAD' and 'Send to IntelliCAD' are the same. In each case you may export:

The Unfolded Pattern.

The 3D Model.

The current view of the 3D model as a 2D drawing.

In addition, you may choose to export the shape only or include dimensions and text.

Note that the current view determines what is exported and the options that are available. If the current view is of the unfolded pattern, the available options will be a little different than if the view is of the model.

In either case, when you select 'Export DXF', you will be prompted for a filename. Make a note of the name and the folder. Meaningful names are usually best – use the Job Number, or client name, etc.

Exporting a Pattern

The following options are available if the current view is of the unfolded pattern.
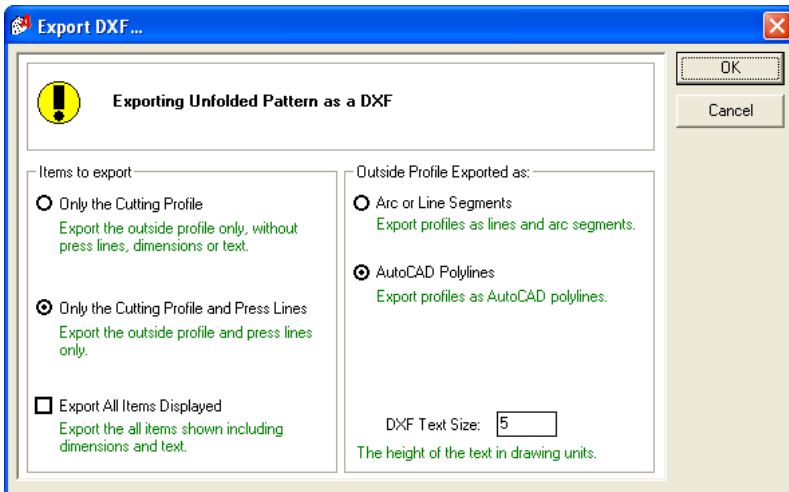
The available options are grouped as follows:

'***Items to Export***': You may choose to export the cutting profile only, the cutting profile with press lines. In addition, by clicking the 'Export All Items Displayed' checkbox any dimensions, labels or text may be exported as part of the DXF.

'***Outside Profile Exported As***': These options determine the entity type used for the outside profiles. Polylines are a continuous sequence of connected points. It behaves as a single entity. This has some advantages to AutoCAD/IntelliCAD users but is not always compatible with other CAD programs.

Note: The 'Arc and line' option uses a series of arcs of best fit around curves. Polylines, on the other hand, connect each point with straight-line segments. Consider increasing the number of press lines to get a smoother curve around radii if using this option.

The DXF text size may be set at this point. The default value is determined by the Global Options setting. This size is a dimension in drawing units. For example, if you are creating a cone that is 2400 mm in diameter, the text may have to be 50 mm high to be legible on the printed drawing. Once the shape has been imported into a CAD program it may be modified.

Exporting a Model

The following options are available if the current view is of the unfolded pattern.
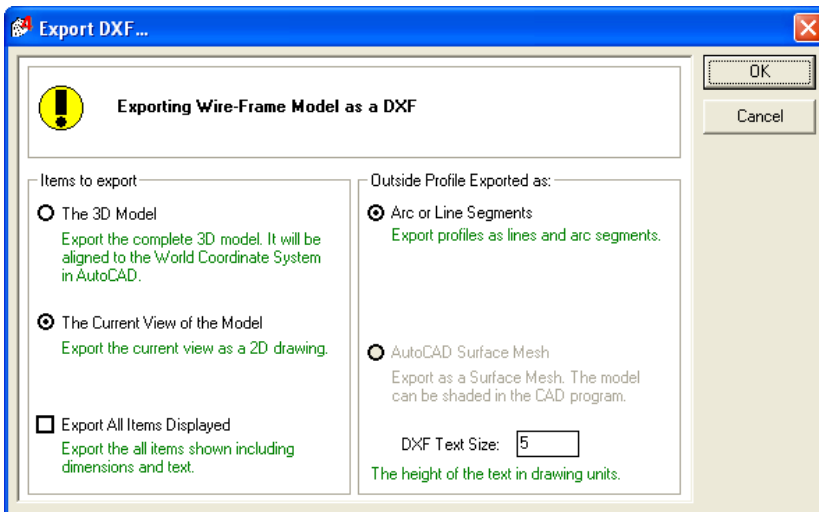
The available options are grouped as follows:

'***Items to Export***': You may choose to export the full 3D Model, where each point is an X,Y,Z coordinate. Alternatively, you may export the current view as a 2D drawing. In addition, by clicking the '**Export All Items Displayed**' checkbox any dimensions, labels or text will be exported as part of the DXF.

'***Outside Profile Exported As***': These options determine the entity type used to construct the shape. If you are exporting the 3D model you may export it as a surface mesh or as line segments. A surface mesh can be shaded or rendered in some CAD software but may not be compatible with all CAD programs. A 3D model exported as lines and arcs is more compatible but is a "wire-frame" model and cannot be shaded.
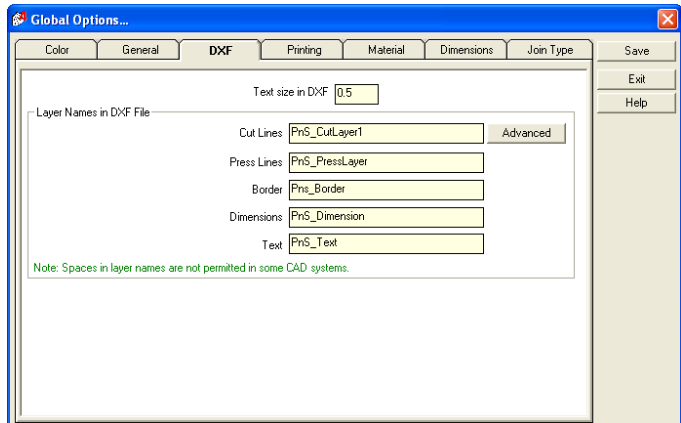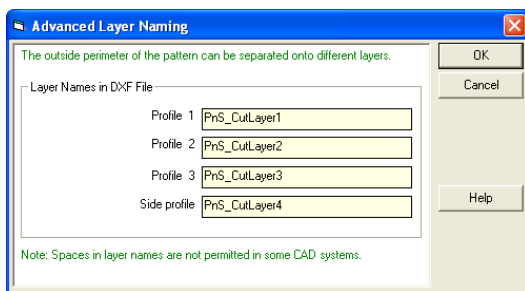
Layers

Lines on the pattern are separated onto different layers to allow more control when the pattern is exported into a CAD program or NC controlling software. For example, by default, Outlines are on a layer named, "PnS_CutLayer1" and Text is on a layer "PnS_Text".

The names of the layers may be changed in the "**Tools**" \ "**Global Options**" dialog box by selecting the "**DXF**" tab.

Note the button labeled "**Advanced**" adjacent to the "Cut Lines" layer name.

This allows the outline (the line to be cut to be further separated onto different layers.

For example if you wanted all objects to be exported on the same layer, replace the default layer names with a single layer name of your choosing.

Click the "**Advanced**" button and changed these layers to the layer name of your choosing.
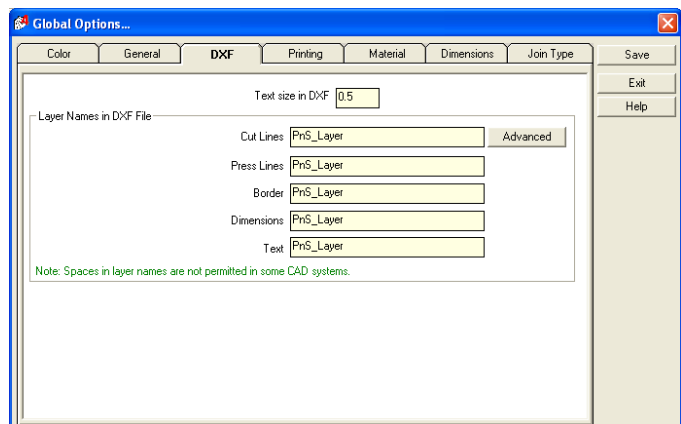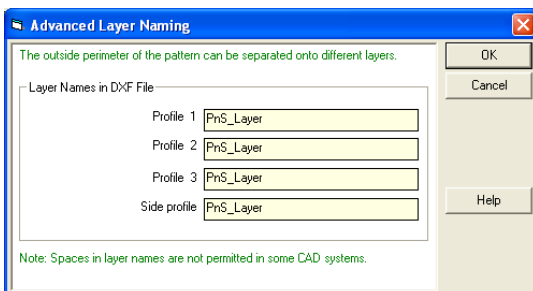
Make sure you click the "**Save**" button to save your changes.

Printing

Print Setup

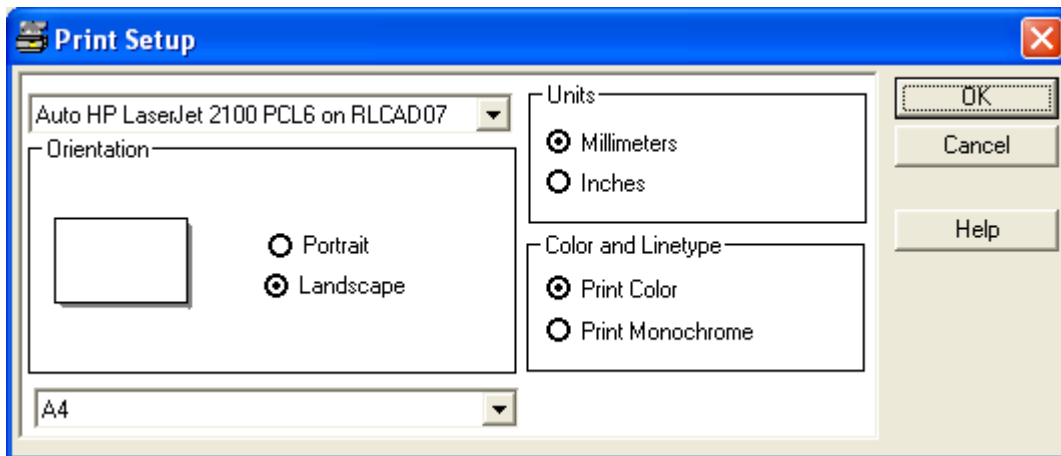The Print Setup dialog box is provided so that you can:

Select a printer

Set a page size

Set the page orientation (portrait or landscape mode)

Set the units to be either inches or millimeters

Decide whether the printed drawing is in color or monochrome (black and white).

You will find access to the Print Setup dialog from the 'File' pull-down menu.. The initial (default) settings may be set and saved in 'Global Options'.

Print Frames

Print frames, representing the limits of your printer can be superimposed over the pattern. This shows how the pattern is positions relative to the sheet. Sometimes rotating or moving the pattern can save sheets of paper prior to printing.

The Two Modes of Printing

Printing a Template: Select this option if you wish to print the unfolded pattern to scale to use as a template. The first preview will show the extents of the shape and the number of pages required to print it.


Print the Current View: Selecting this option allows the user to print the current view including a 3D model view or a pattern view but it will not be to scale. It will be printed at the current zoom scale.
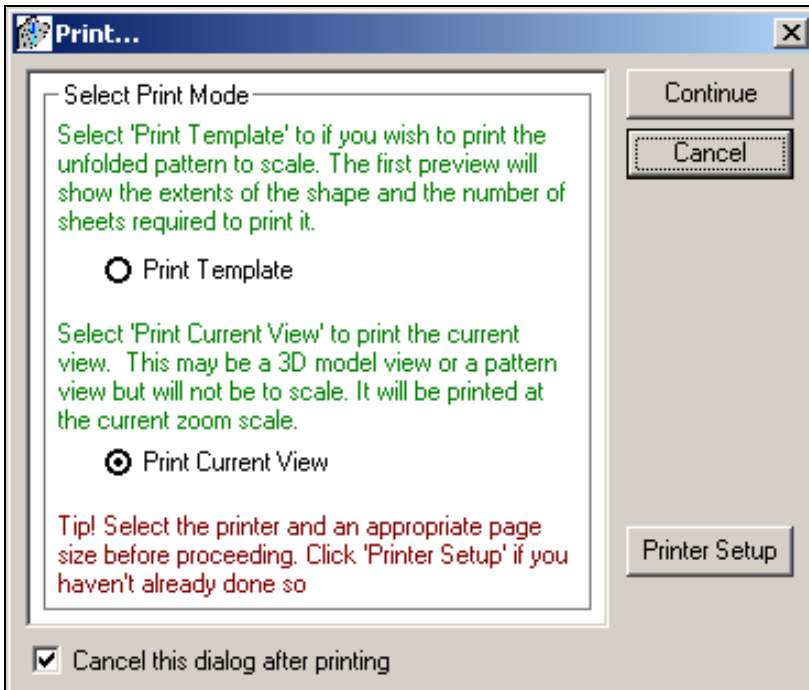
Selecting an option will automatically display the '**Print Preview**' window. The preview window will have different options depending on whether you have chosen to print a template or a view.

Printing the Current View

Select "**Print current view**" to print what is shown on the screen. By clicking the "**Display/Hide Scale on Border**" button you can choose to print showing the border and/or ruler marks. There is only one "**Select Printing Operation**" option when in this mode and that is to print what displayed.
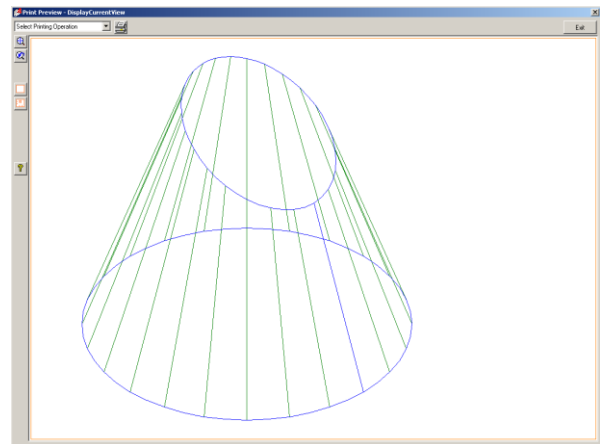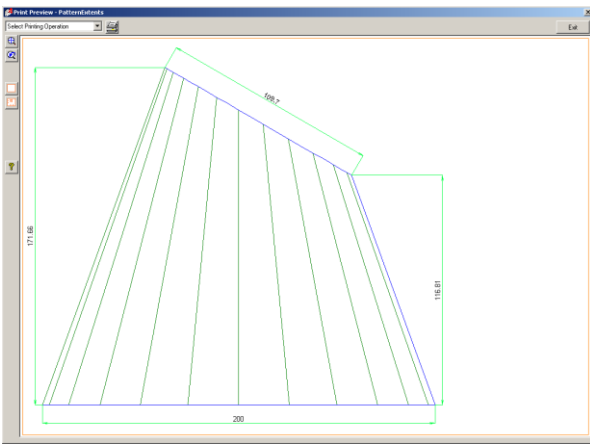
Printing a Template

Select "**Print template**" if you wish to print a full-size pattern. You can choose to print the template with or without scale marks by toggling the "**Show/hide Scale on Borders**" button.

If the shape is larger than the sheet size selected in '**Printer Setup**', the outline of multiple sheets will be superimposed over the shape. You may print individual sheets, all of the sheets or the entire shape scaled down to fit on a single sheet. This selection is made from the drop-down list in the upper left corner of the "**Print Preview**" window.

You can print on one page or multiple pages depending on the pattern size and orientation. If printing on multiple pages the page numbers will be shown in the bottom left hand corner (A1, A2 … B1, B2….) of the sheet.