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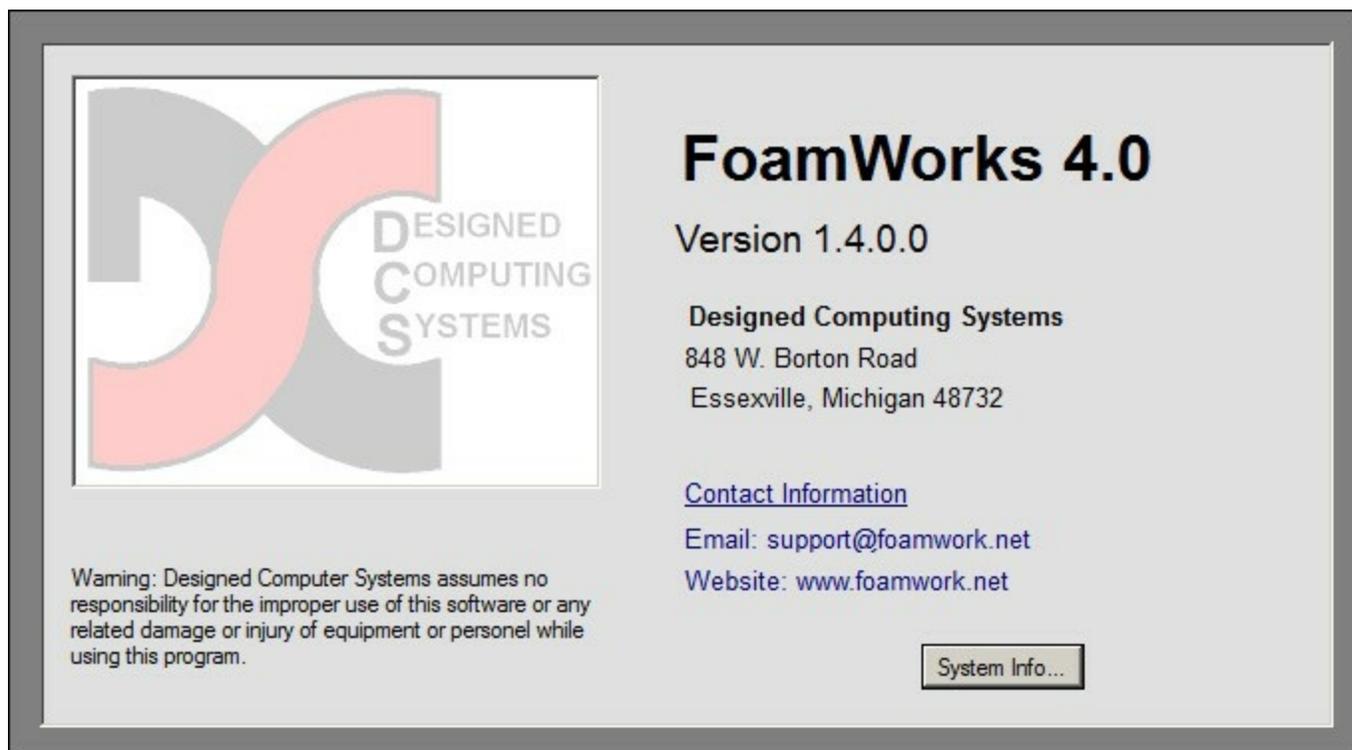
[Support](#)

FoamWorks 4.0 - Introduction

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General Information: info@foamwork.net
Technical Support: support@foamwork.net

The following splash screen will open each time the FoamWorks is activated. On this screen is version information, support information and contact information. This screen will time out in 10 seconds and close.



Designed Computing Systems assumes no responsibility for the improper use of this software or any related damage or injury of equipment or personnel while using this program.

Introduction

Following information is a basic overview of the capabilities of FoamWorks 4.0

Introduction

FoamWorks 4.0 is the 4th program in a line of software designed to make hot wire foam cutting as easy as possible.

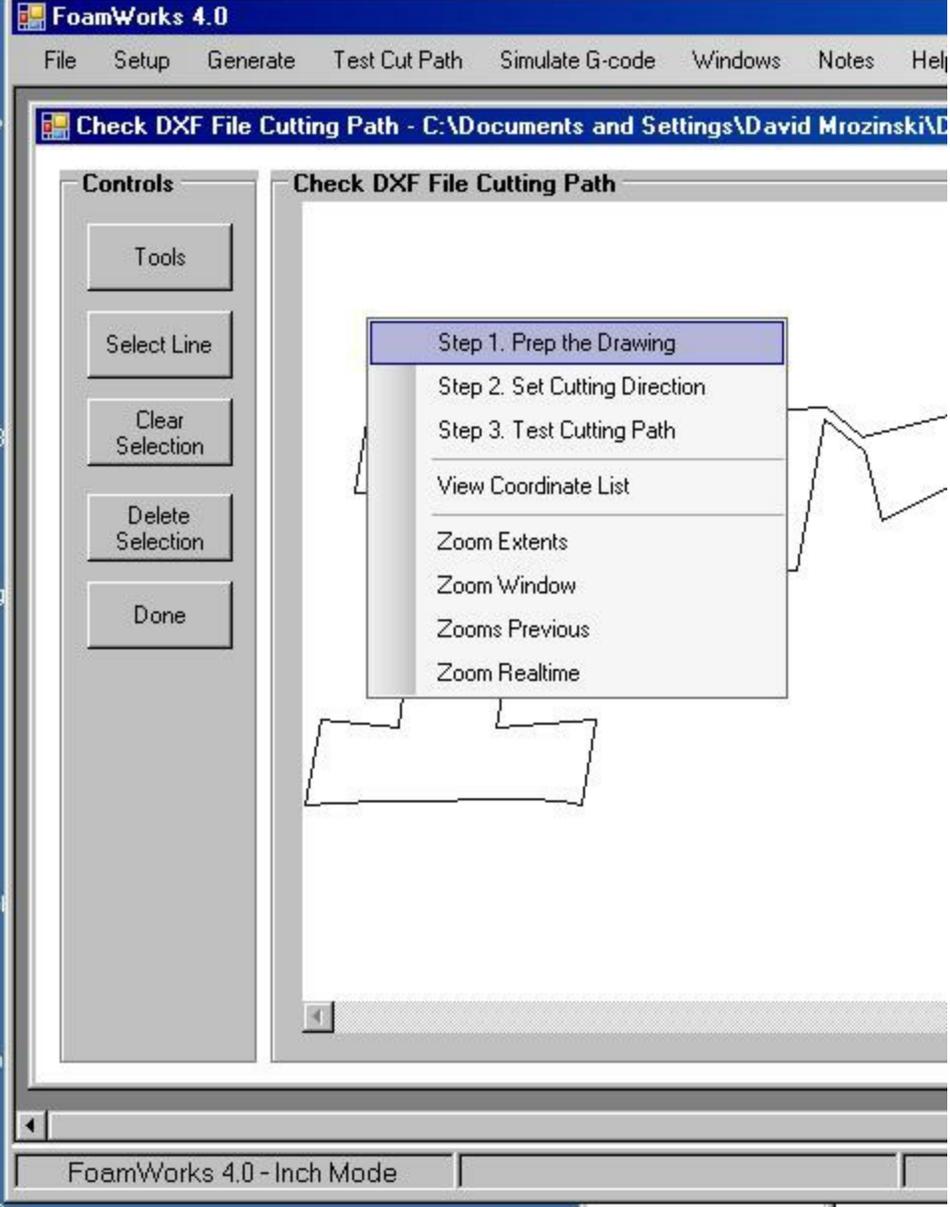
Past versions of FoamWorks not only generated the required cut files to execute a cut but they also were designed to run the foam cutting equipment. FoamWorks 4.0 is different. FoamWorks 4.0 now generates standard g-code files that can be executed by any standard g-code compiler that supports 4 axis control, like

Mach3

[ArtSoft USA - Home of Mach3 and LazyCam](#)
[DeskCNC](#)

FoamWorks 4.0 has been updated to generate g-code directly from DXF files as well as DAT files. In most cases DAT files are no longer needed.

FoamWorks 4.0 also features a new [Test/Set Cut path](#) feature that allows you to test your cutting path to make sure that you have a consistent and clean cutting path for your hot wire. This feature was included in [CadWorks](#) and now is available in FoamWorks.



FoamWorks 4.0 has a new and improved tapered cut calculator is is CAD based and much easier to use. Click on this link for more information on the [Tapered Cut Calculator](#)

By moving to this approach, speed control, acceleration, machine calibration and other items related to foam cutter operation are managed in the g-code execution program.

The free version of Mach2 supports up to 1000 lines of g-code and the free version of Mach3 supports up to 500 lines of g-code. Either of these free demo versions would support most reasonable foam cutting needs.

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Quick Start

Follow these instructions to get your first cut up and running quickly.

Quick Start Steps

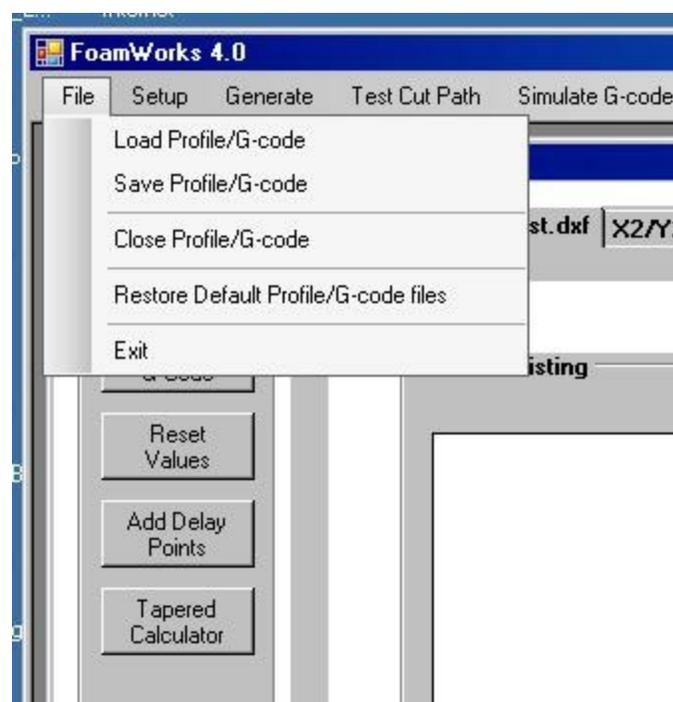
Step 1.

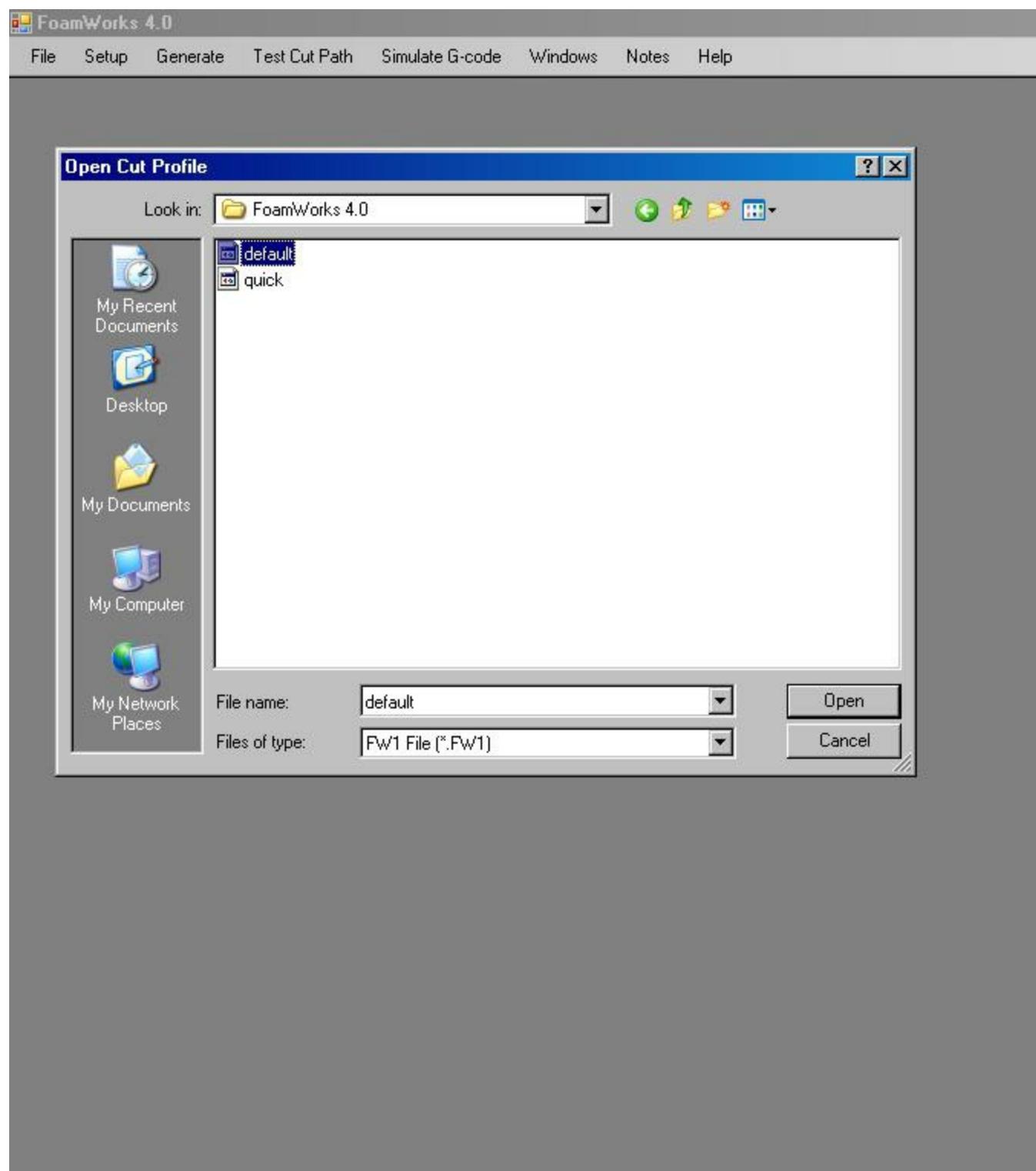
Start FoamWorks 4.0

Step 2.

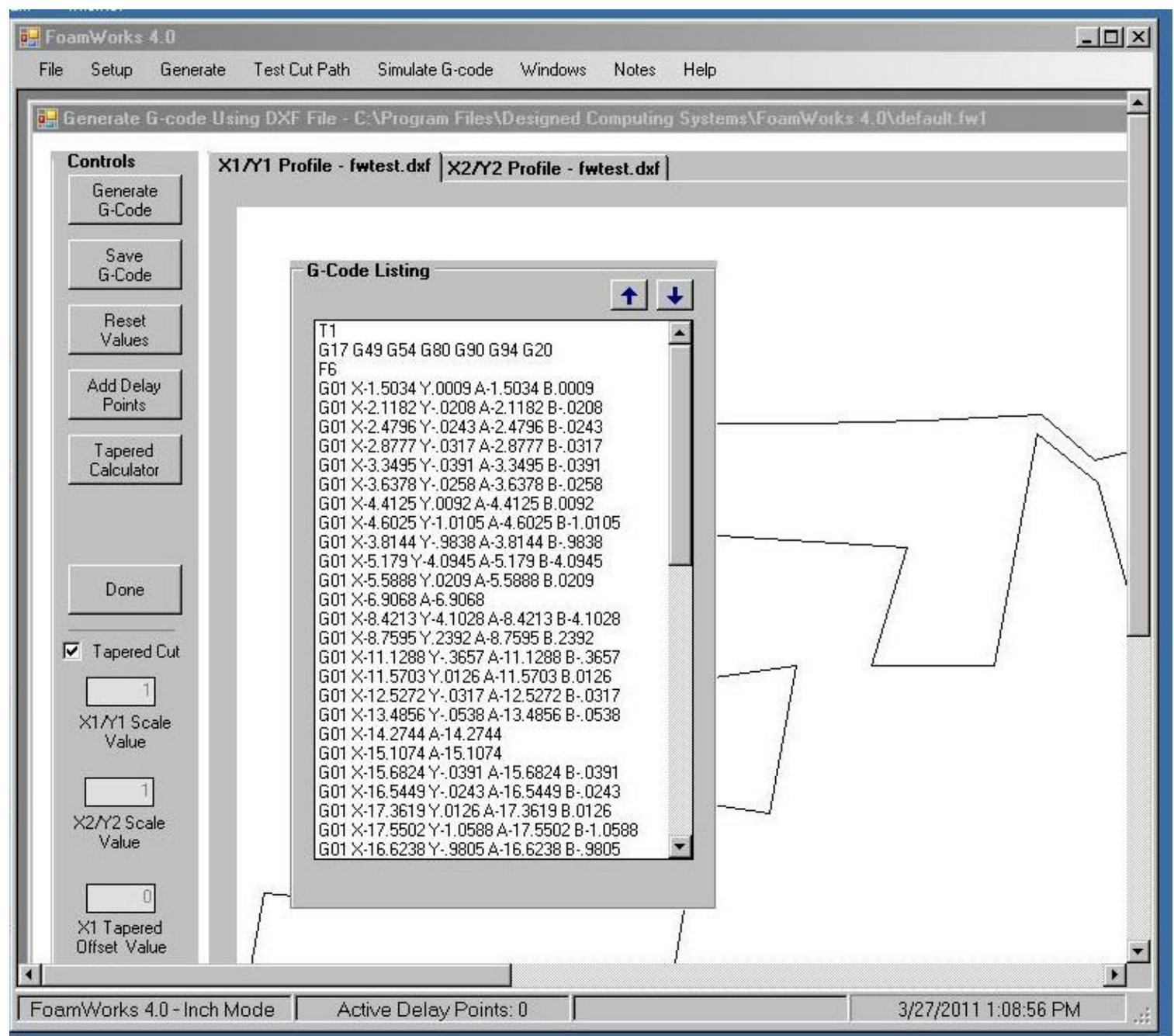
Select File/Load Cut Profile from the main menu bar. Browse for the cut profile named quick.fw1
Highlight the file name and click Open or double click on the file name.

You will be first asked to select the profile (*.fw1) and then you will be prompted to select the corresponding g-code file (*.tap). If these file usually will have the same file name. In the case of the examples below the file sare default.fw1 and default.tap





Step 3.
When the cut profile is loaded successfully, you should see the following screen. Your cut profile has been loaded into the Build Cut Profile Using a DXF file. You are now ready to generate G-code.



Step 4.

Click Generate G-code Button on the left hand side of the window to generate the g-code for the currently loaded files.

Step 5.

Click File/Save Cut Profile to save the newly generated G-code.

Step 5.

Open you g-code execution program and load and run the new g-code file.

Registration - Select one of the following topics to view information.

[Registration](#)

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FoamWorks 4.0

Registration

If the version of FoamWorks you are using is unregistered, the follow window will appear each time the program is activated. You will have 30 days of unrestricted use from the date of installation.

After 30 days the program will disable and will not reactivate until registered.



To register contact Designed Computing Systems. [Contact information](#) can be found on the first page of this help file.

Once payment is confirmed and the registration information is provided by completing the registration form at <http://www.foamwork.net/reg.htm> a registration number will be emailed to your email address.

When the registration number has been received. Copy/Paste or type the registration number into the Registration Number text box.

Click Register to complete the process.

Make sure to retain the registration number for future installations on this computer.

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Menus - Select one of the following topics to view information

[File](#)

[Setup](#)

[Generate](#)

[Test Cut Path](#)

[Simulate G-code](#)

[Notes](#)

[Windows](#)

[Help](#)

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Files - Select one of the following topics to view information

[Load Profile/G-code](#)

[Save Profile/G-code](#)

[Restore Default Cut Profile](#)

[Exit](#)

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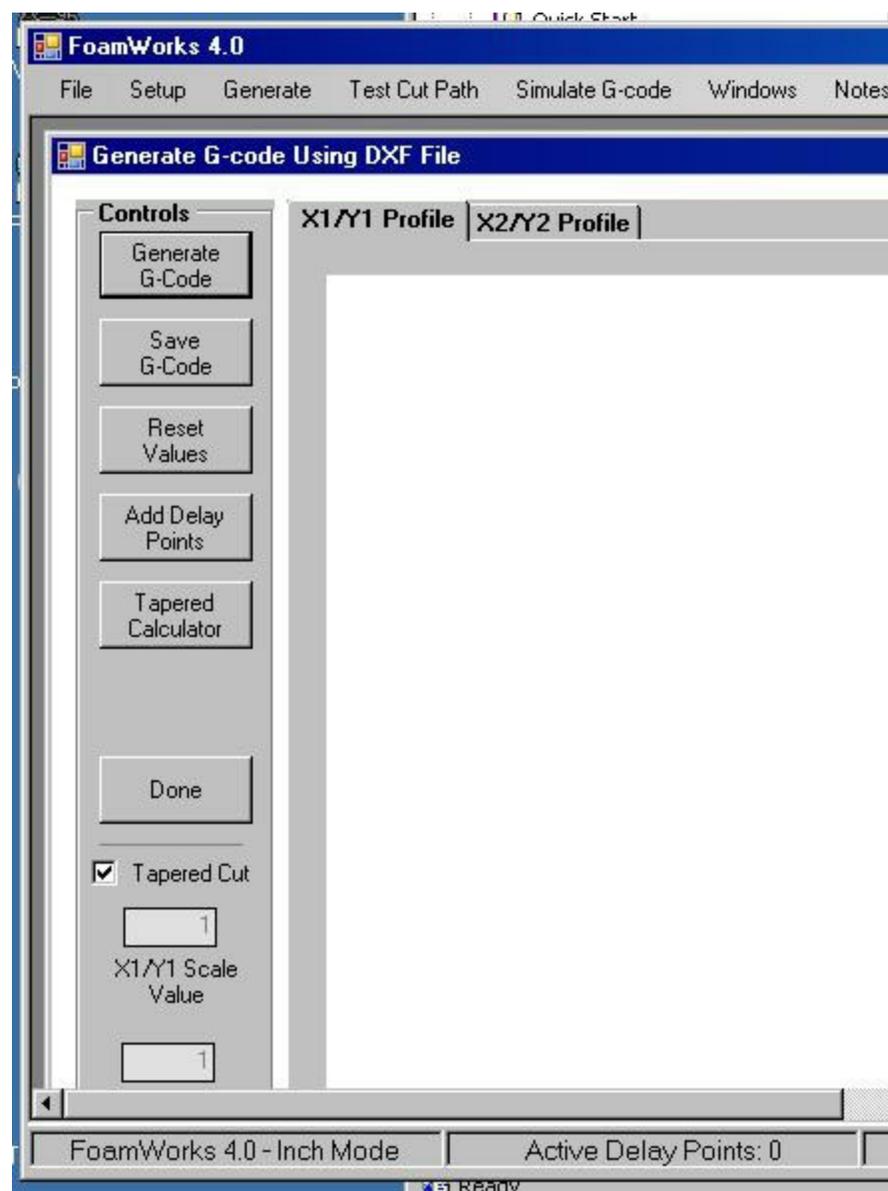
FoamWorks 4.0

Save a Cut Profile

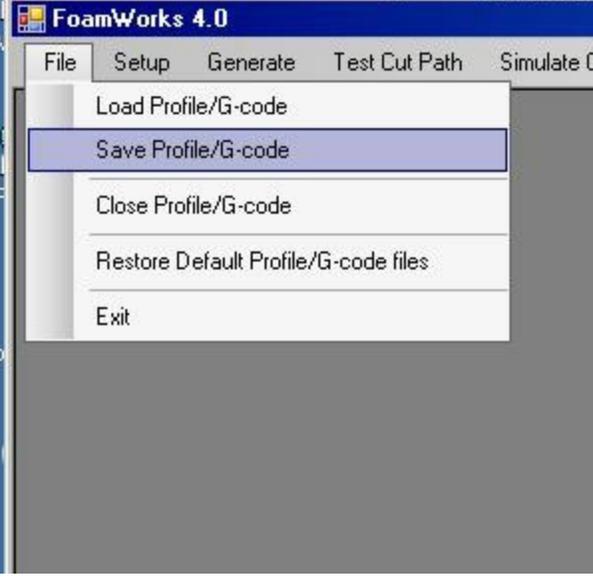
Once a the g-code has been generated, a cut profile can be saved for future use.

There are two methods that can be used to save the cut profile.

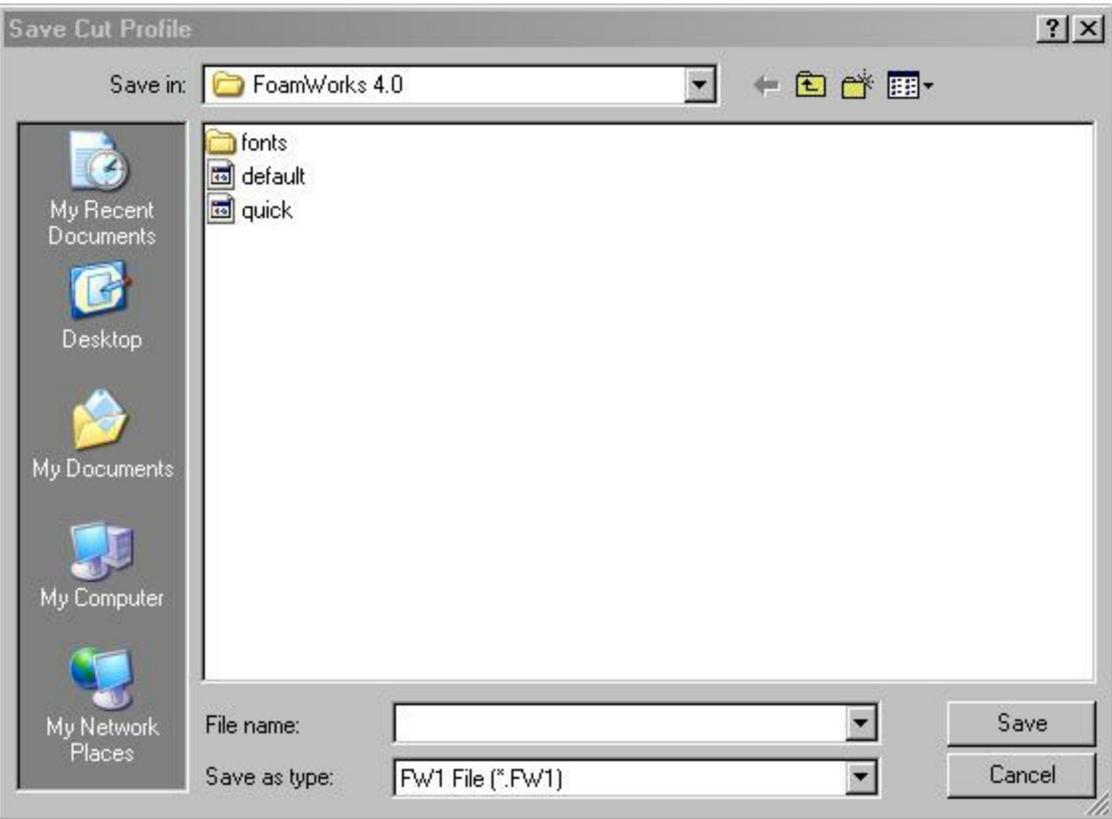
After the file has been generated click the Save G-code button in the Generate/G-code from DXF window.



After the file has been generated by clicking File/Save Cut Profile in the menu bar.



In either case, the normal Windows save window will open. Enter a file name and click Save as you would with any other file.



Cut profiles are saved with and FW1 extension. Contained in the cut profile is the:

- 1. File used to generate the cut profile. (DXF file)
- 2. Logical path to the DXF.
- 3. Delay point information.

If you attempt to [load a previously saved cut profile](#) and the DXF can not be found, an error will be generated.

At this point the easiest resolution would be to regenerate the cut profile.

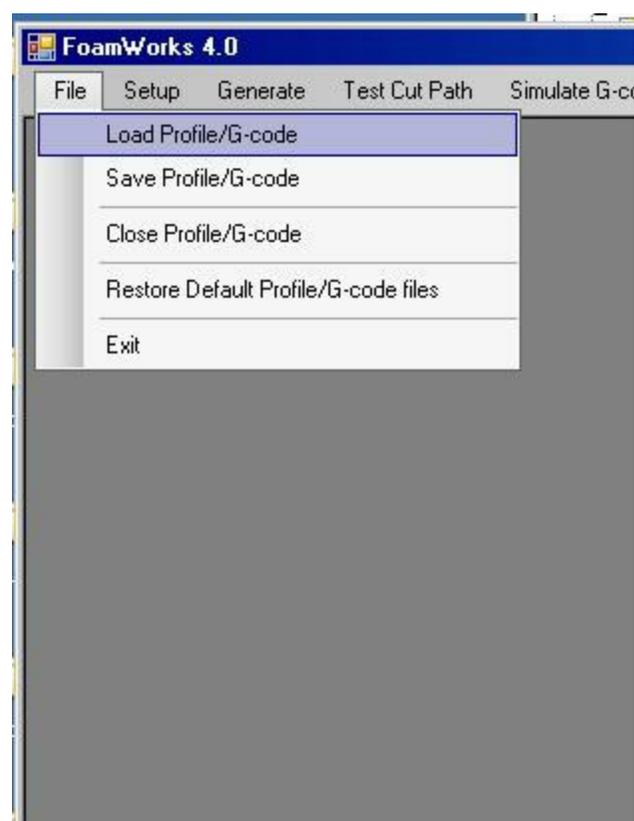
Last Updated: 04/04/11

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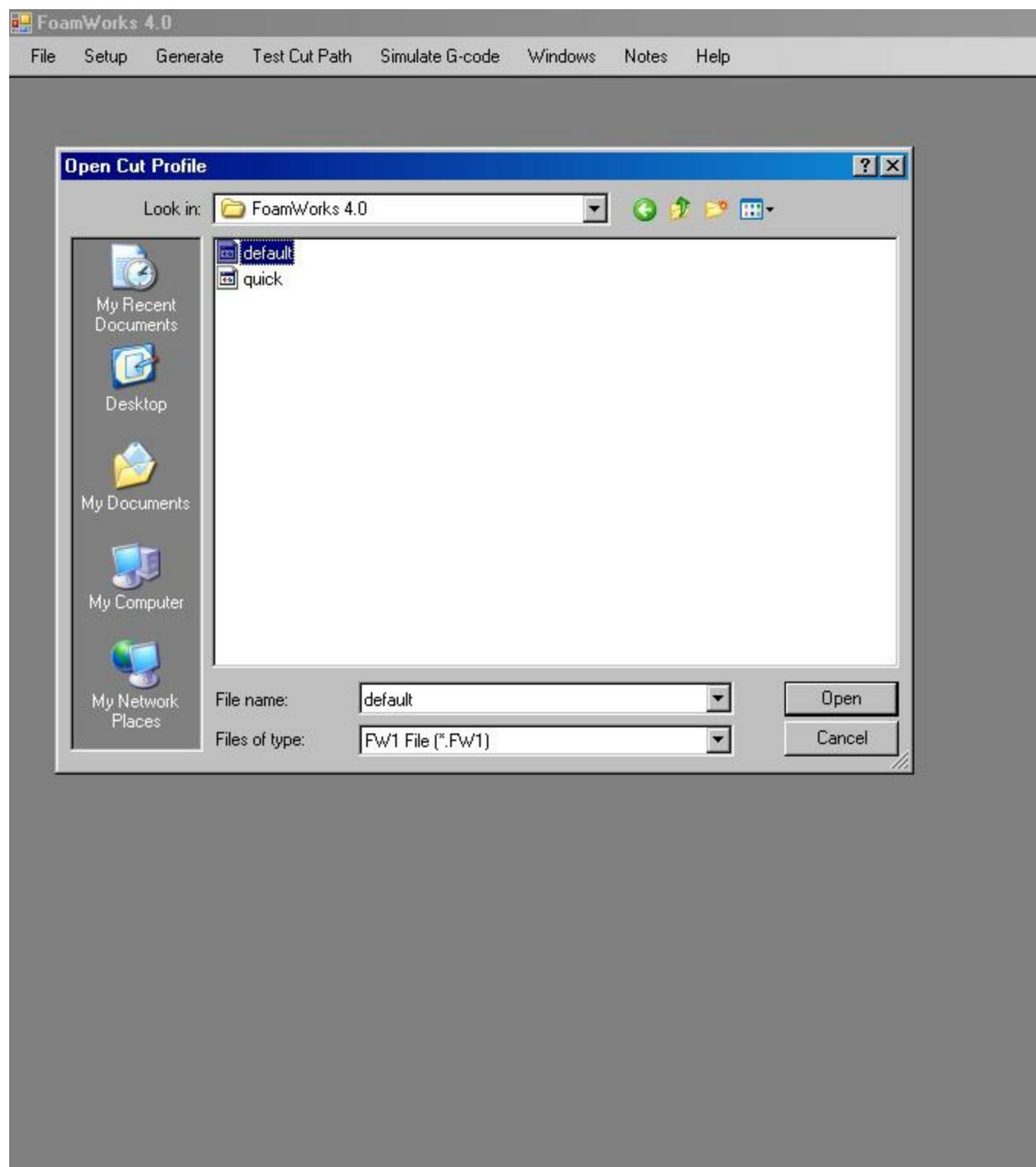
FoamWorks 4.0

Load a Cut Profile

Once a cut profile has been generated, the cut profile can be loaded for reuse. Got to File/Load Profile/G-code.



The normal Windows open window will appear and you can use the browse feature to locate the desired file.



Cut Profiles are saved with a FW1 extension and file type filter of the Open window will default to this file extension.

Locate the desired file, highlight and click Open to open the cut profile.

DXF drawings will be loaded in the drawing windows.

G-code will be loaded in the G-code listing box.

If [Delay Points](#) have been set for the cut profile, they will also be activated.

If any of the referenced files can't be found a error will be generated. The simplest solution at this point is often just to re-generate the g-code.

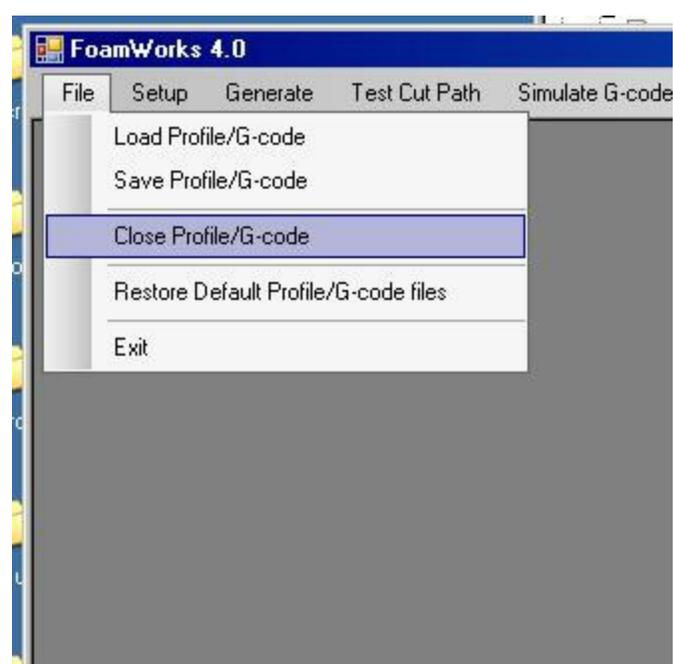
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FoamWorks 4.0

Close Profile/G-code

Close Profile/G-code closes all the current file, clears the drawing window and the g-code listing box. At this point a new profile could be loaded.



Last Updated: 04/04/11

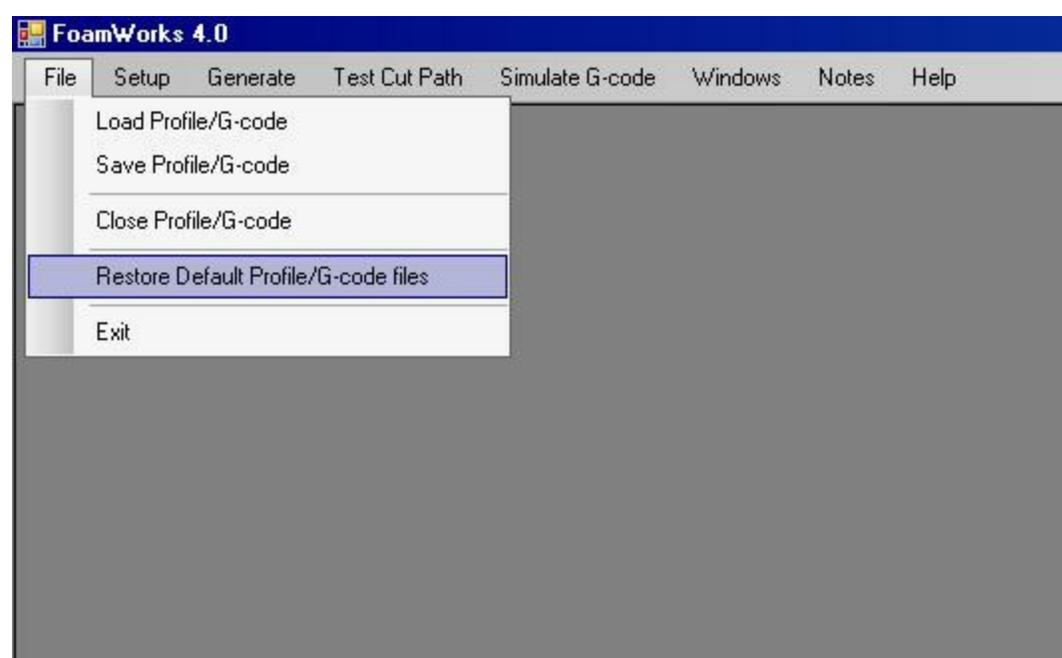
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Restore Default Cut Profile

The last cut profile generated becomes the default cut profile and will remain the default cut profile until another is generated.

If you encounter an error with opening the Build Cut Profile windows using either the DXF or DAT option you can restore the default cut profile to clear this error.

In the main menu bar, click File/Restore Default Cut Profile.



Last Updated: 04/04/11

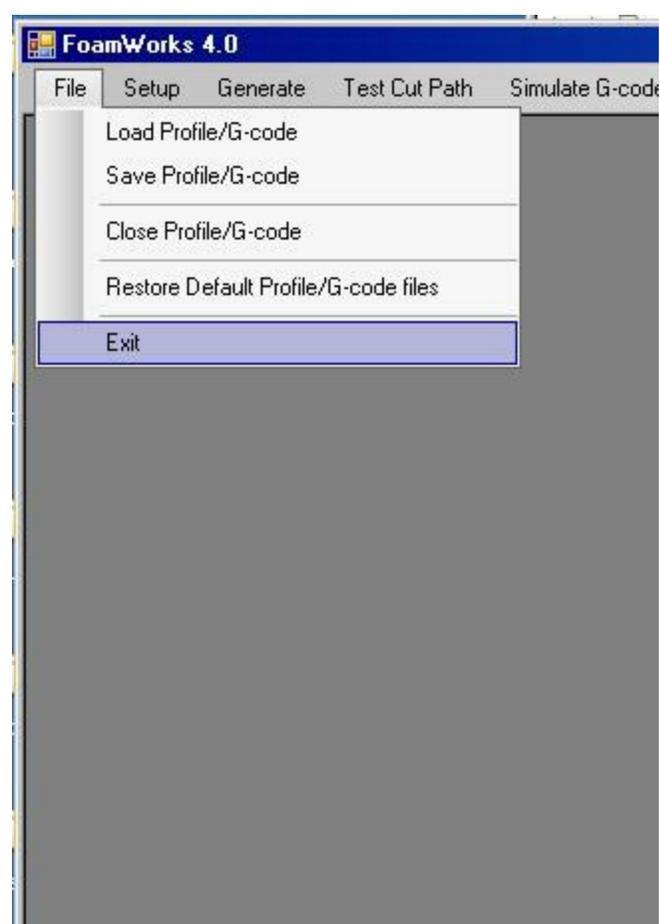
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FoamWorks 4.0

Exit

To close FoamWorks, select File/Exit from the main menu bar.

Exit closes the active FoamWorks session. All active windows are closed prior to program termination.



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Setup - Select one of the following topics to view information

[Setup Parameters](#)

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FoamWorks 4.0

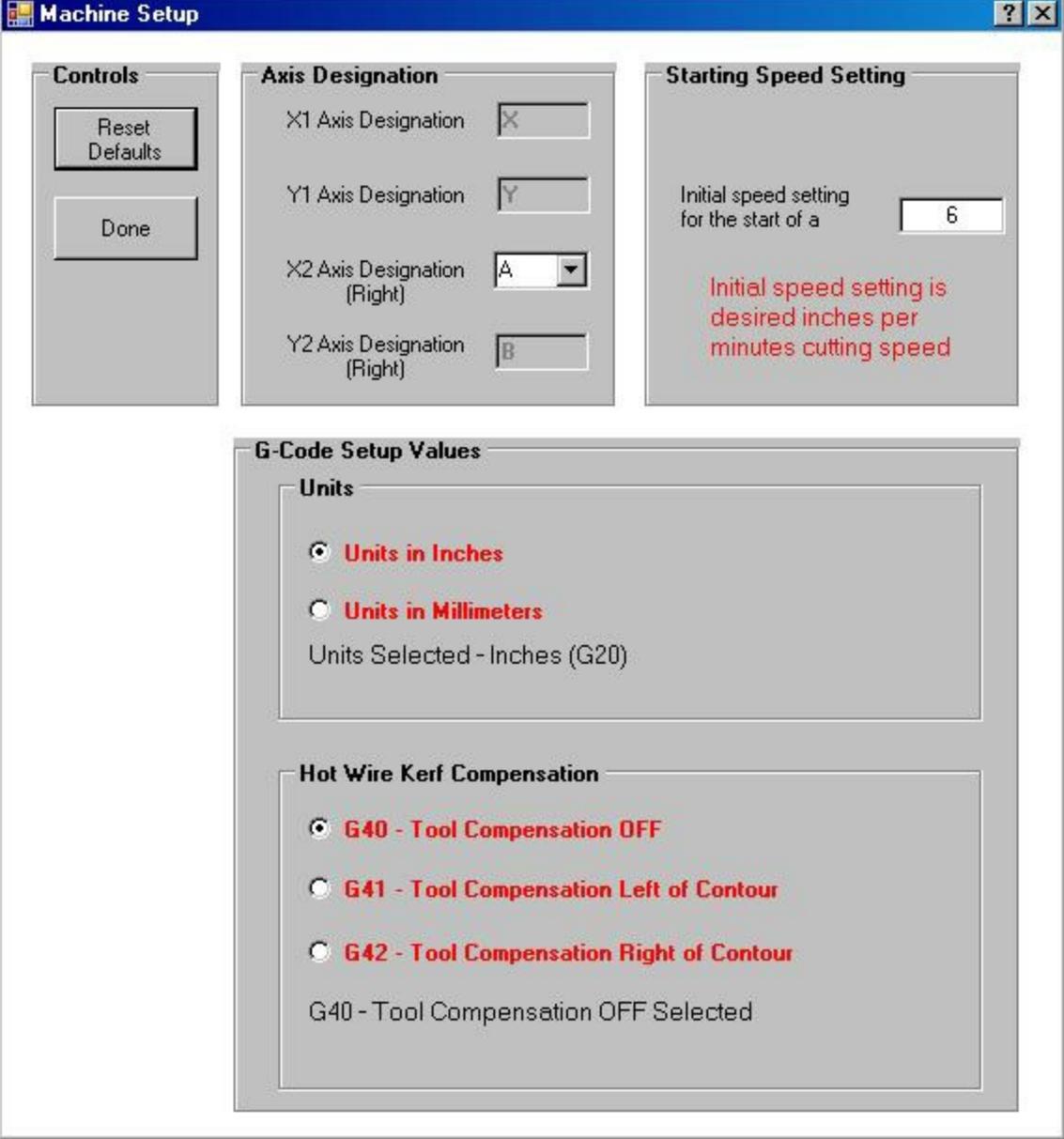
Setup Parameters

Machine Setup Parameters allows you to set specific operating characteristics for your foam cutter. The setup window can be activated by clicking Setup/Machine Setup Parameters.

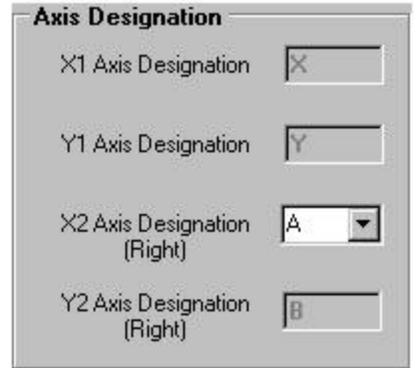


The items that can be set are:

1. Axis designation letter
2. Default start cutting speed
3. Units
4. Tool offset options



Axis Designation Letters



Select the appropriate axis designation letters that corresponds to your G-code execution program. Refer to you g-code execution program for further information. For Mach 3 the typical settings are: X1 axis - X, Y1 axis - Y, X2 axis - U, Y2 axis - V

X1 Axis will default to X, Y1 axis will default to Y.

You can select Z, A or U for the X2 axis.

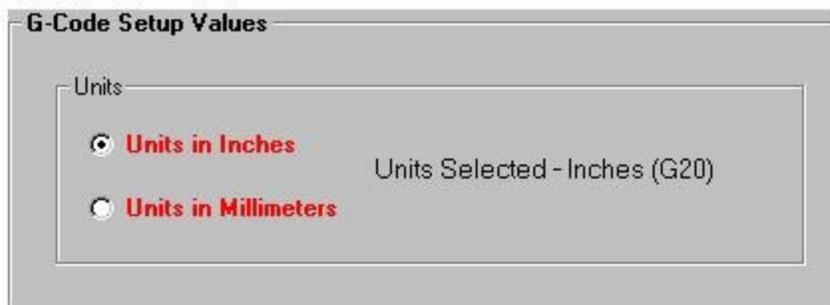
- If you select Z for the X2 axis then A will default to the Y2 axis
- If you select A for the X2 axis then B will default to the Y2 axis
- If you select U for the X2 axis then V will default to the Y2 axis

Default Cutting Speed



Sets the initial start up speed when your g-code file is executed. The default value is 6. For the metric units the default value should be adjusted to 150 for a travel speed of 150 millimeters per minute.

Select Units



Select either english units for inches or metric units for millimeters. It is important to select the correct value so that your g-code execution program will know how to handle the values. This selection will be include in the heading of your g-code file. G20 for inch mode, G21 for millimeter mode.

Select Tool Offset

Hot Wire Kerf Compensation

- G40 - Tool Compensation OFF**
- G41 - Tool Compensation Left of Contour**
- G42 - Tool Compensation Right of Contour**

G40 - Tool Compensation OFF Selected

Tool offset can be used for kerf compensation.

- If G40 is selected then Tool compensation is turned off.
- If G41 is selected then the center of the cutting point is moved left of the profile by 1/2 the diameter of the tool offset specified for the T1 tool in your g-code interpreter.
- If G42 is selected then the center of the cutting point is moved right of the profile by 1/2 the diameter of the tool offset specified for the T1 tool in your g-code interpreter.

Reset Defaults and Done Buttons



Reset Defaults

Clicking Reset Defaults will return all values to the software default settings.

Done

When ever any changes are made to the Machine Setup Parameters, you must exit the Machine Setup window using the Done button to make the changes current. If you close the Machine Setup window using any other method the changes will not become active and the software will revert to the previous settings.

Generate - Select one of the following topics to view information

[G-code from DXF](#)

[Tapered Cut Calculator](#)

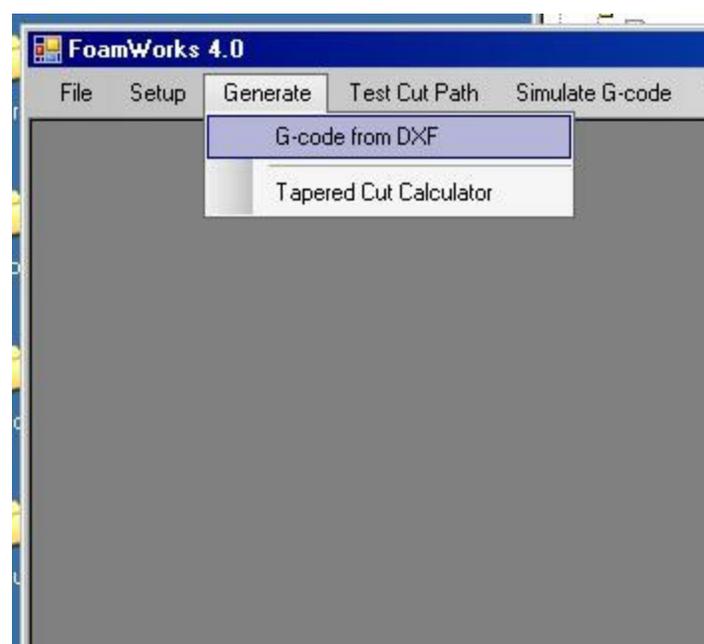
Last Updated: 04/04/11

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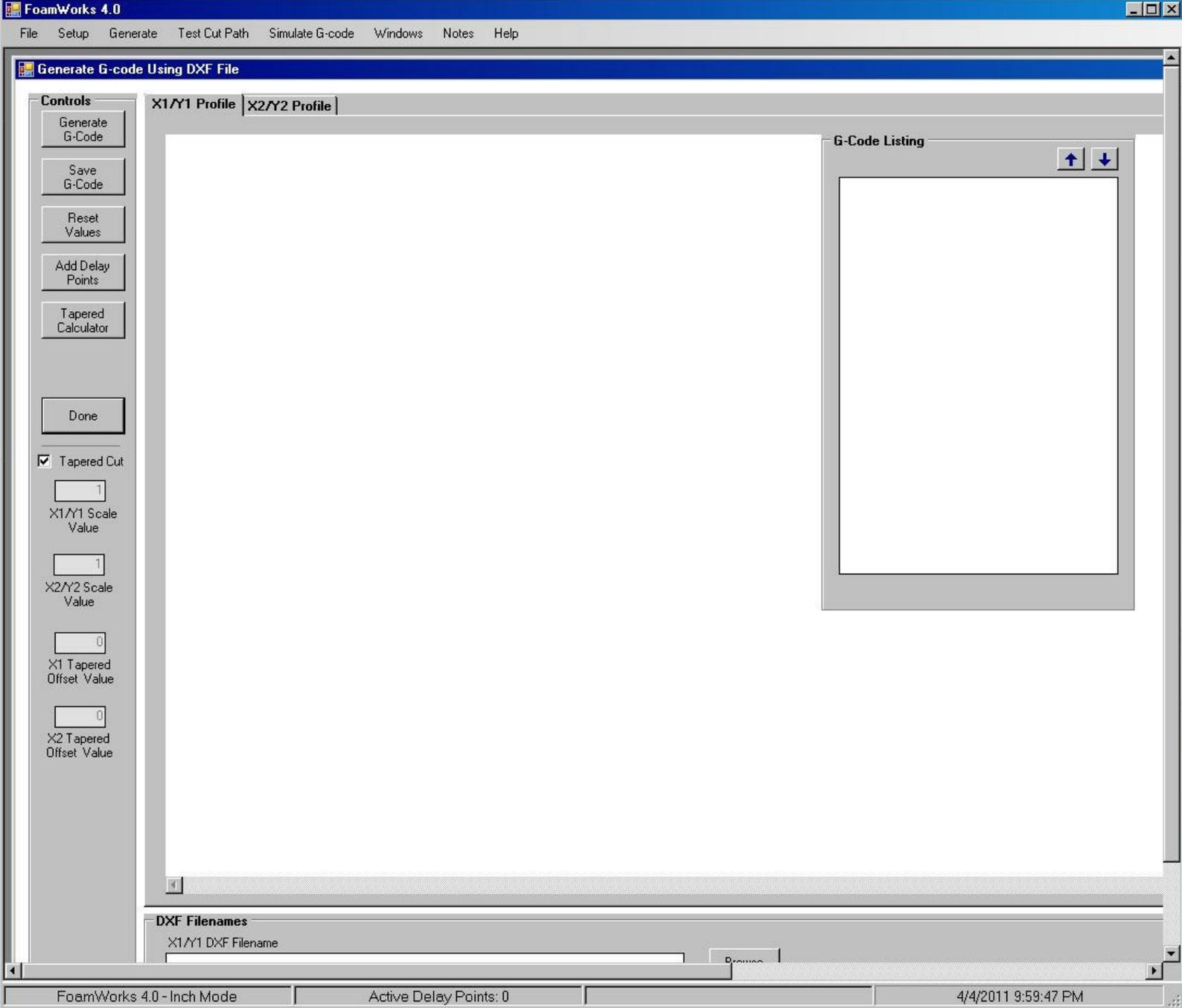
FoamWorks 4.0

G-code from DXF

The G-code files are generated by using the Generate/G-code from DXF menu item.



This will Open the Generate G-code from DXF File window.

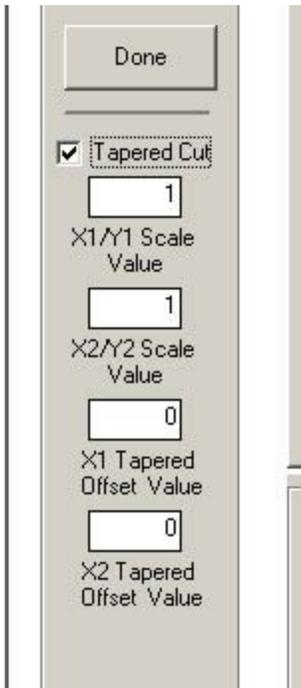


To generate g-code you would follow these steps:

1. Use the Browse button to locate the desired X1/Y1 DXF file. The browse feature opens a normal Windows browse dialog box. Highlight the desired file and click Open or double click on the desired file. The desired shape should now appear in the X1/Y1 Profile window. Double clicking on the X1/Y1 Profile tab will [Zoom Extents](#) for the window. The [Zoom Tools](#) are also available by right clicking on the profile window.
2. Use the Browse button to locate the desired X2/Y2 DXF file. The browse feature opens a normal Windows browse dialog box. Highlight the desired file and click Open or double click on the desired file. The desired shape should now appear in the X1/Y1 Profile window. Double clicking on the X2/Y2 Profile tab will [Zoom Extents](#) for the window. The [Zoom Tools](#) are

also available by right clicking on the profile window.

3. If you are doing a tapered cut, click the Tapered Cut check box in the bottom left had corner of the window. Values transferred from the Tapered Cut Calculator will be activated and factored into the cut profile generation. Or you can enter the offset and scale values manually.



4. If you wish to add [Delay Points](#), it should be done now. If not, skip this step.
5. Click Generate G-code button to start the generation of the cut profile. When completed the follow prompt will be displayed. Remember that the g-code that is generated will be a function of the cutting path defined by the DXF drawing. To get good g-code, your DXF must be organized with the desired starting point and the desired direction of cut. This can all be defined by going to [Test Cutting Path](#) window and following the steps that will define the cutting path.



Generate G-code button initiates the g-code file generation process.

Save Profile

The Save Profile button will open a dialog box that will allow you to save the last generated cut profile for future use. It is recommended that g-code files and the corresponding DXF file be kept in a folder other than the FoamWorks program folder. The relative path to the DXF file is saved as part of the cut profile and must be able to be found if the saved cut profile is loaded in the future.

If an error does occur and the DXF file can not be found, the easiest fix is jut regenerate the cut profile and resave.

Reset Values

The Reset Values button clears all entered values from the fields on Build Cut Profile Using a DAT File window.

Add Delay Points

The [Add Delay Points](#) button opens the add delay point utility. A X1/Y1 profile and X2/Y2 profile must be selected before the Add Delay Points Utility can be opened.

Tapered Calculator

The [Tapered Calculator](#) button open the Tapered Calculator window.

Done

The Done button closes the Build Cut Profile Using a DXF File window.

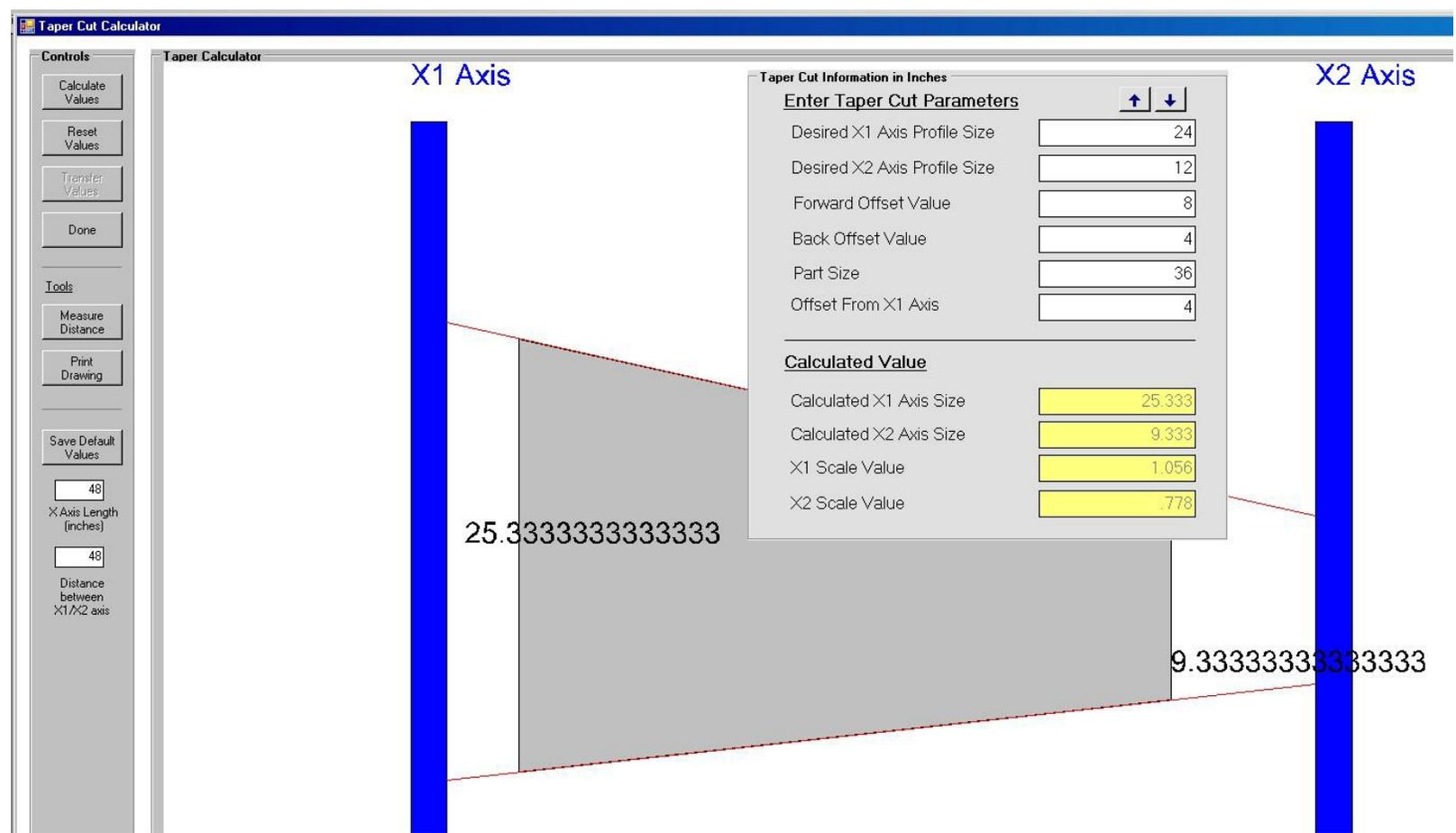
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The tapered cut calculator is a tool to help determine the proper cutting dimension for each side of the foam cutter when a tapered cut is desired.

Due to the geometry of a tapered cut, to achieve the desired size on each end of the foam block, the cutting must move a greater distance on the large end of the taper and a smaller distance on the small end of the taper.

The following window displays this phenomena. For detailed instructions on using the tapered cut calculator review [Using the Taper Cut Calculator](#) topic.



The grey area represents the desired part and position of the foam block. You can see by the lines extending to the X1 and X2 axis that the machine must move with different values than the desired left and right part size to achieve the desired sizes.

Test Cut Path - Select one of the following topics to view information

[Open DXF Drawing](#)

[Save As DXF Drawing](#)

[Close DXF Drawing](#)

[Test/Set Cut Path](#)

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FoamWorks 4.0

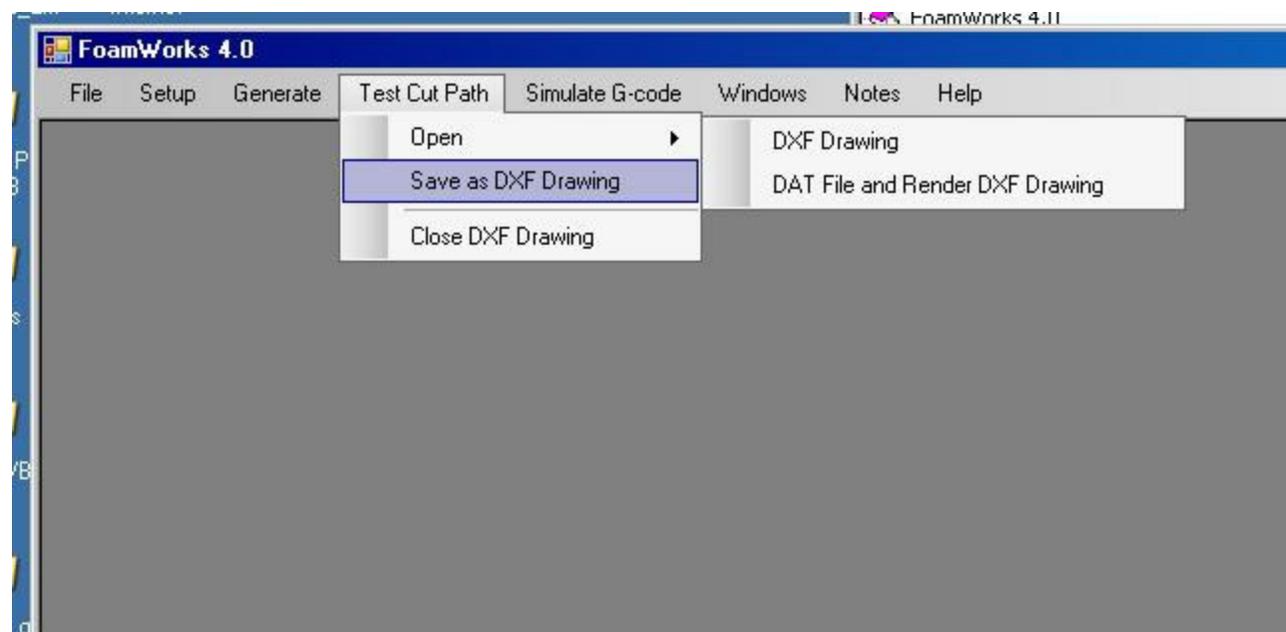
Open DXF Drawing

FoamWorks 4.0 will generate a cut profile from a DXF drawing. For a cut profile to be created successfully, the DXF drawing must be drawn as if you were drawing the desired cutting path.

The order in which the line segments of the drawing are created and the starting point of the first line in the drawing define the cutting path that FoamWorks will follow.

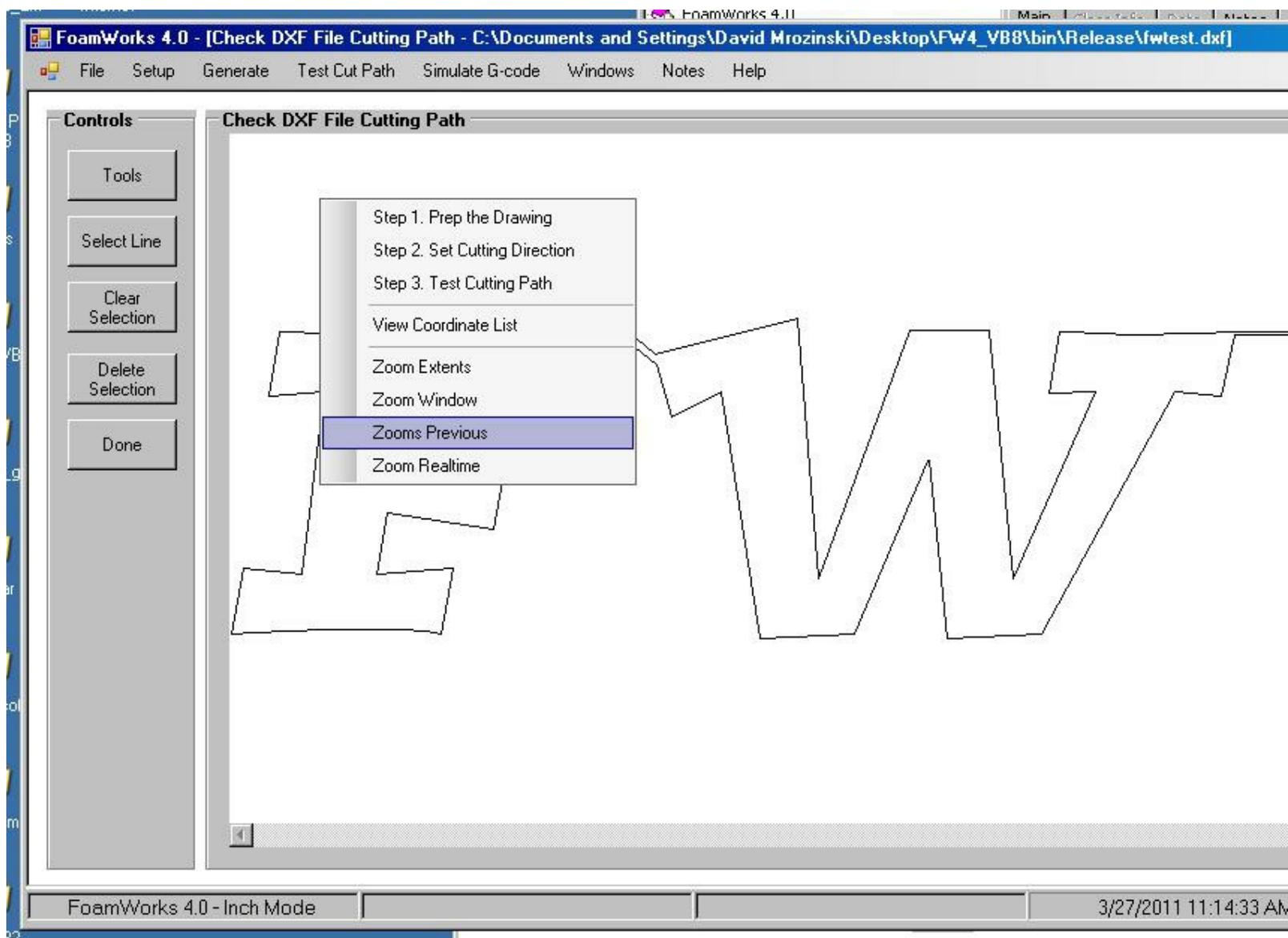
Most DXF drawings are created without any concern for either of these factors. Therefore the DXF features of FoamWorks were created to take any DXF drawing, reduce the drawing to its simplest elements (line segments) and then re-order the line segments in a fashion that represents the starting point of a cutting path as well as the direction of cut.

To begin this process, select DXF/Open DXF Drawing to open any DXF drawing. A normal windows dialog box will open. It will allow you to browse for the desired DXF drawing. When the desired DXF drawing is located, highlight the filename and click open or double click on the filename.



The selected drawing will be loaded into the DXF window.

Clicking the right mouse button will bring up the Tools Menu shown in the image below.



Last Updated: 03/27/11

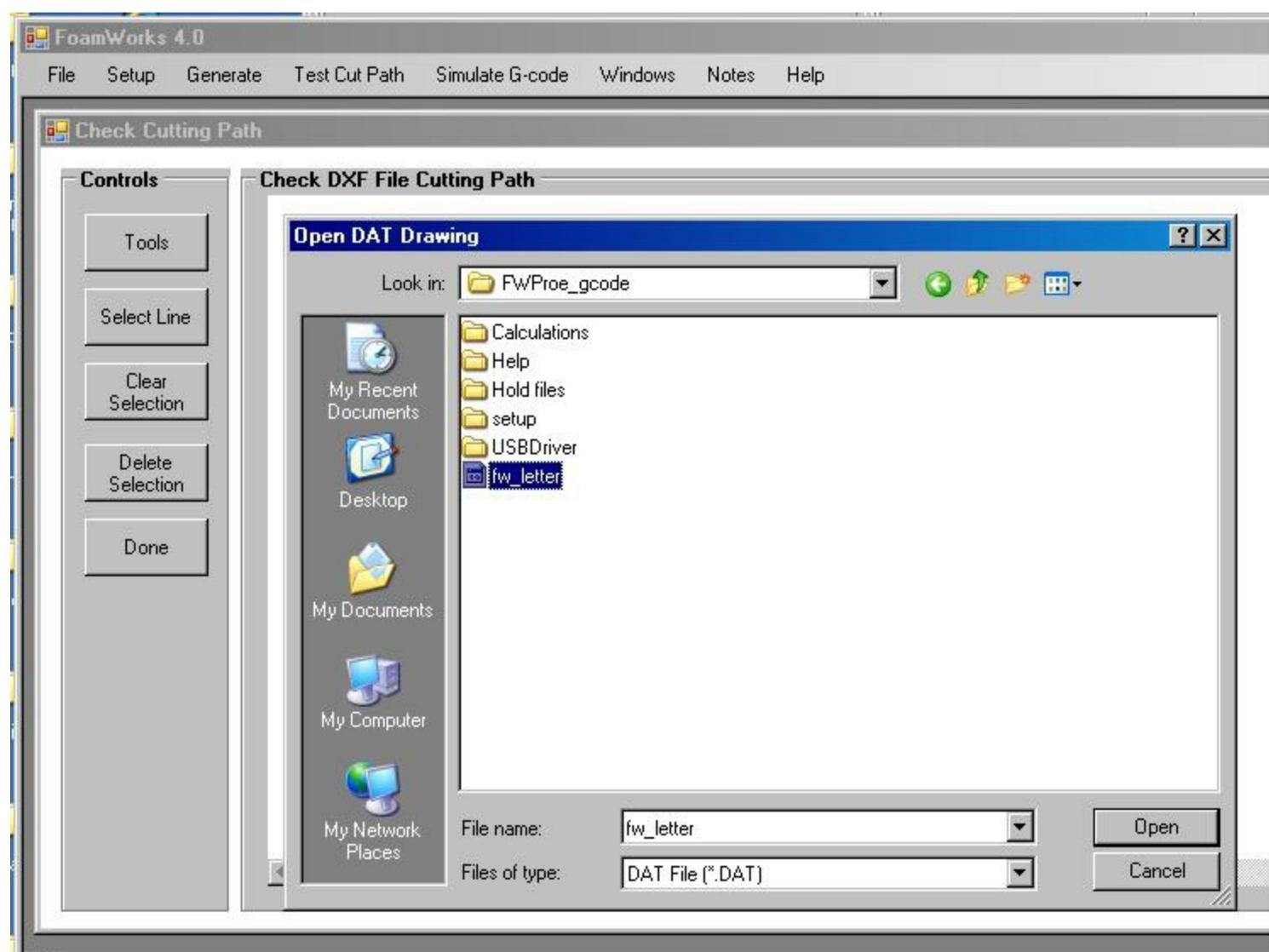
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FoamWorks 4.0

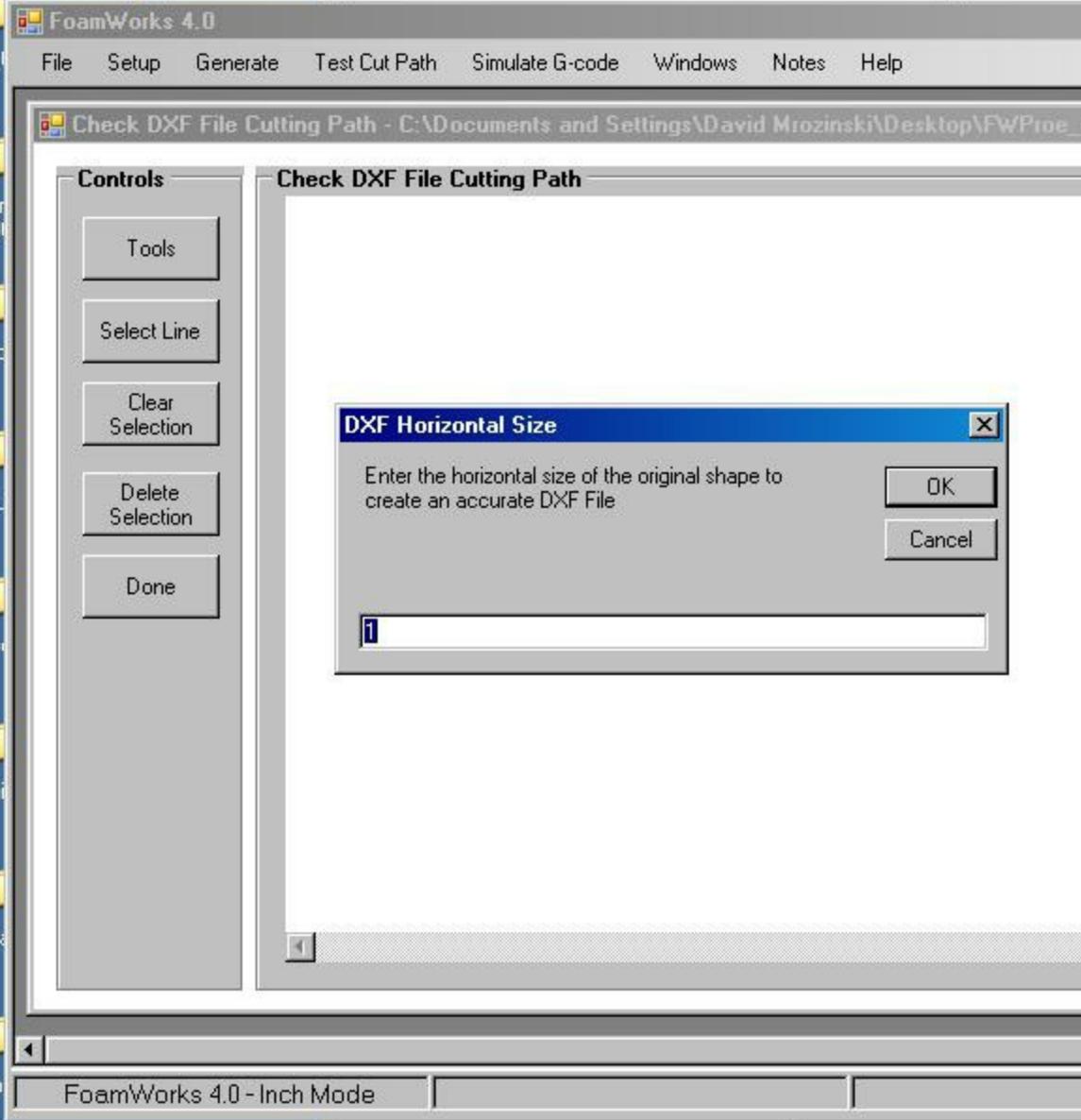
Open DAT file and Render DXF Drawing

FoamWorks 4.0 will open a common DAT file that you have used in the past for foam cutting. When the DAT file is opened, you will be prompted to enter the horizontal size of the desired part. What it is asking for is the total length of the part along the x axis from the far most right of the part to the far most left of the part. Make sure to include the entire drawing including lead in and lead out lines.

Following image shows the Open dialog box where you select the DAT file.



The following image shows the message box where horizontal size is entered.

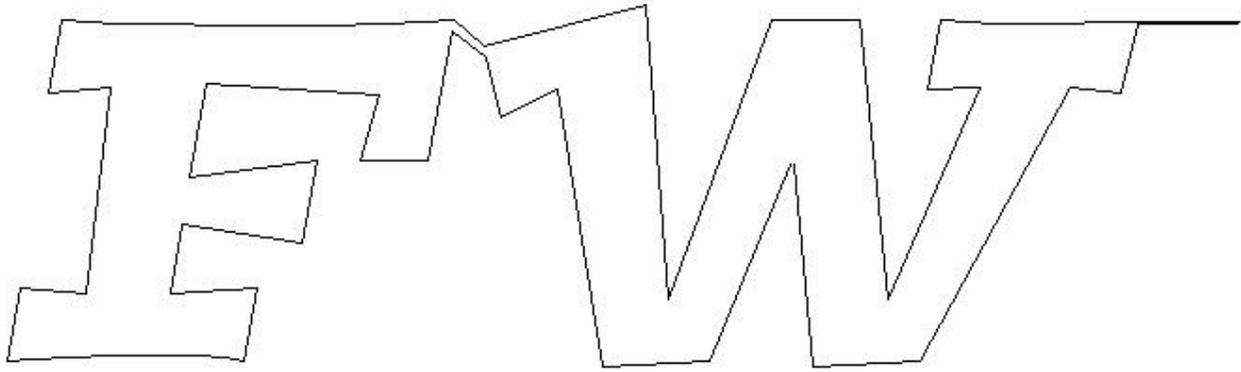


The following image shows the rendered DXF drawing that can now be saved or manipulated to setup the cutting path.

Controls

- Tools
- Select Line
- Clear Selection
- Delete Selection
- Done

Check DXF File Cutting Path



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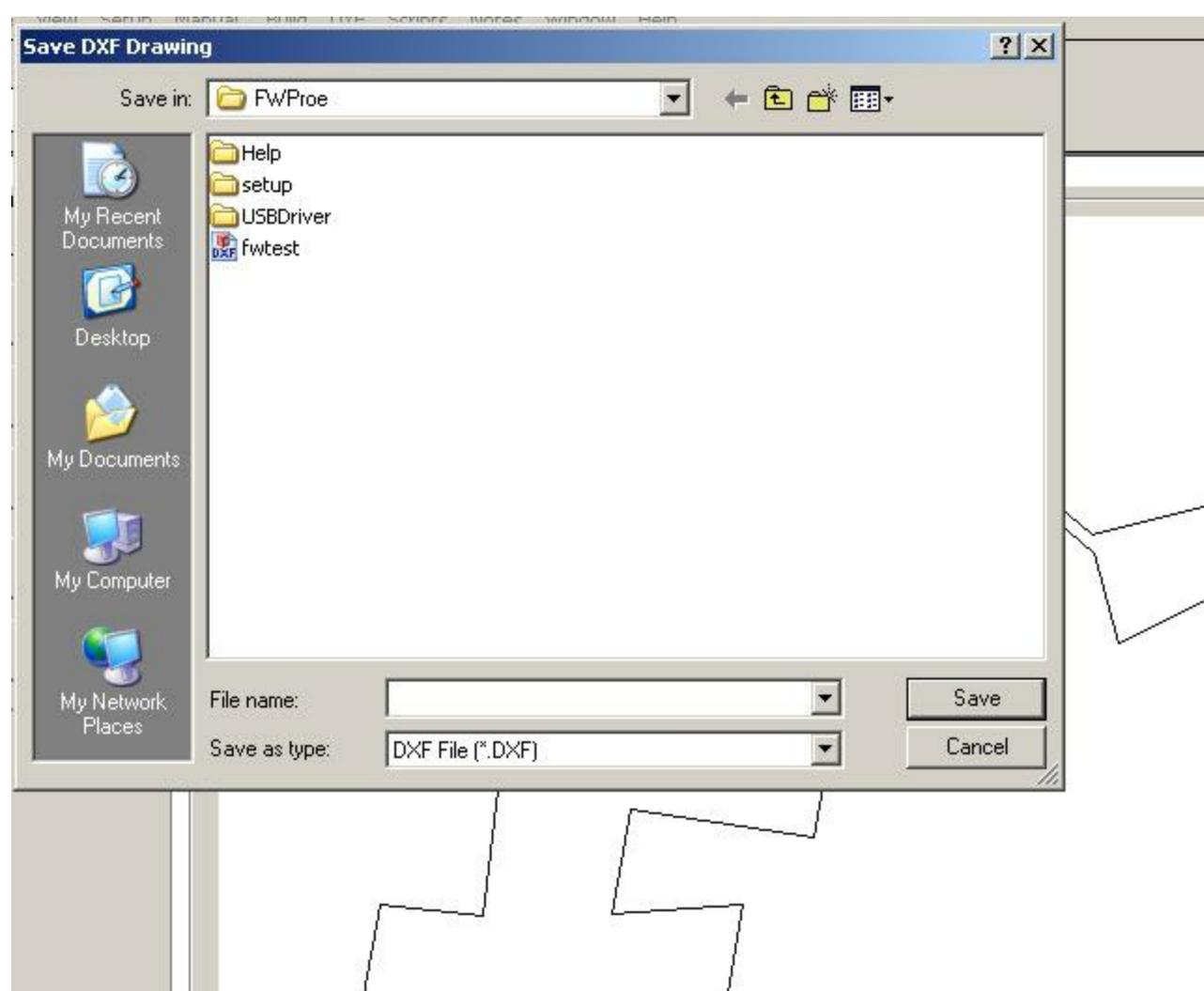
Save As DXF Drawing

After a drawing has been reorganized. The new DXF drawing can be saved for future use.

It is best to save the new DXF drawing with a new filename. This way you preserve the original DXF drawing and new saved DXF drawing can be used to create a cut profile.

When DXF/Save As DXF Drawing is selected from the main menu bar, a normal Windows Save As dialog window is opened.

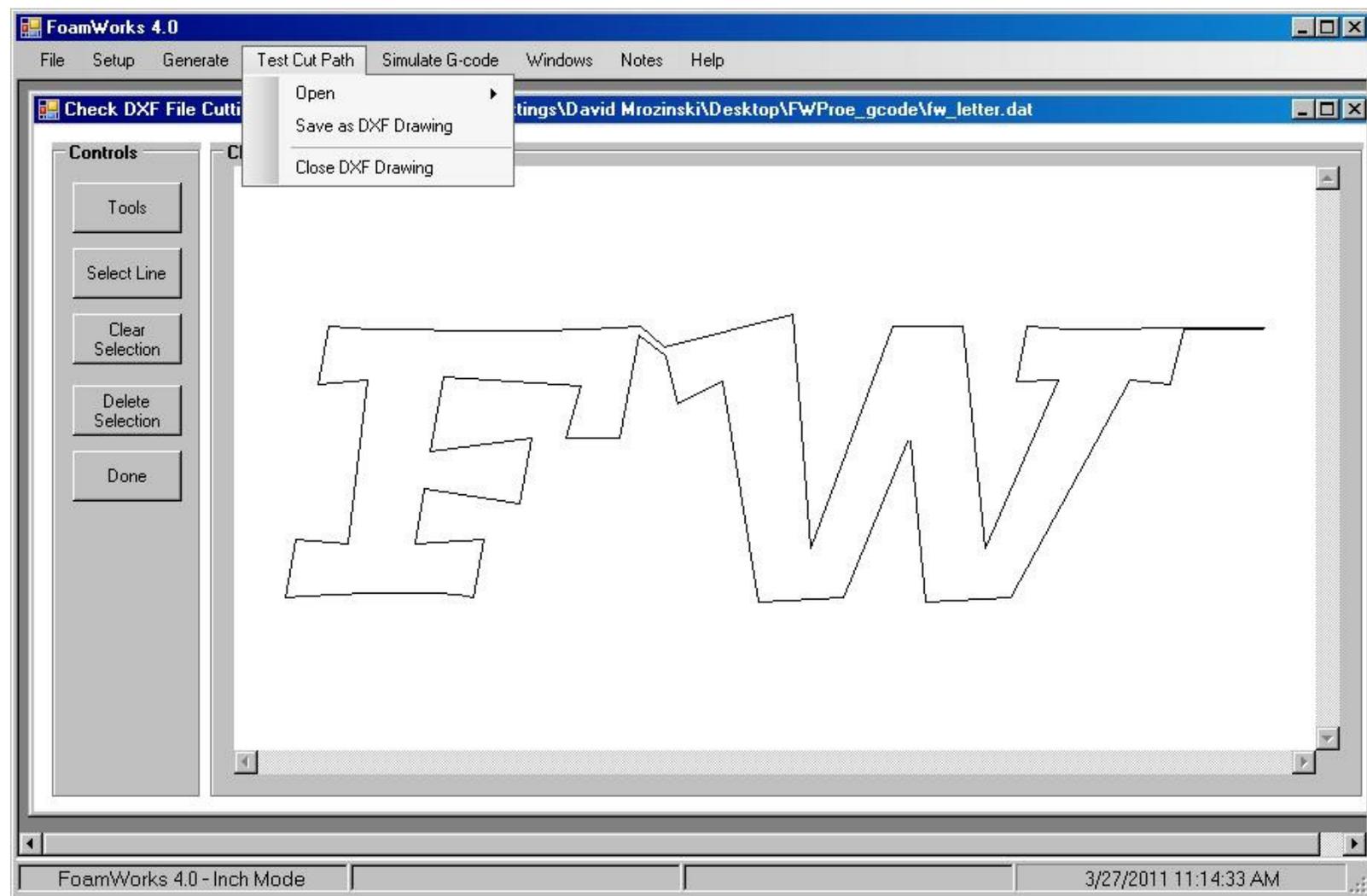
Enter the new filename in the Filename text box and click Save to save the drawing.



FoamWorks 4.0

Close DXF Drawing

Close DXF Drawing clears the currently loaded DXF drawing from the DXF window. If the drawing has been changed, you will be prompted to save the drawing if desired.



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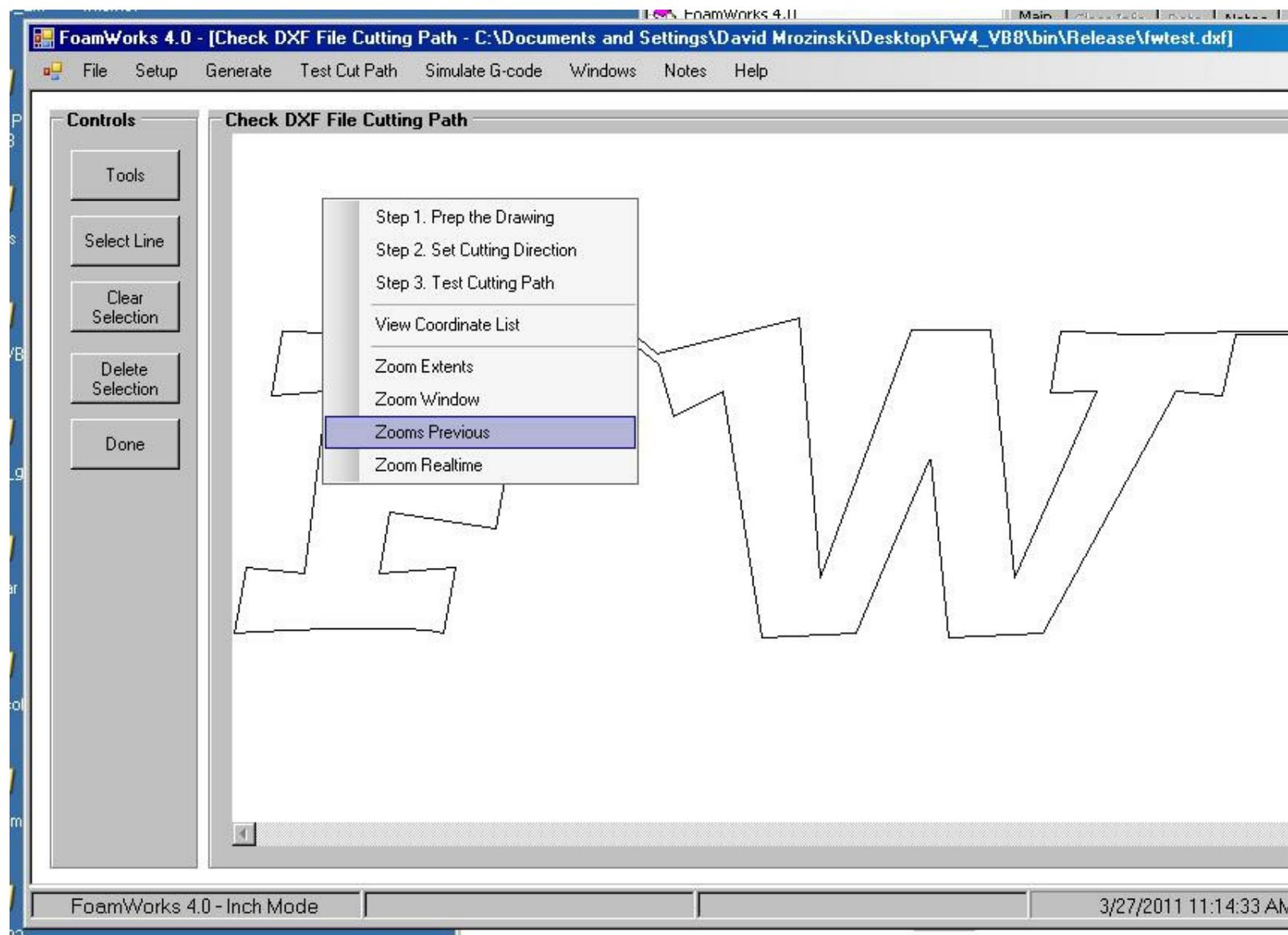
FoamWorks 4.0 Test/Set Cut Path

Selecting DXF/Test/Set Cut Path opens the menu that provides the tools to actually reorganize a drawing.

The reorganization process is accomplished by working through 3 steps in sequence.

The steps are:

1. Prep the Drawing
2. Select 1st Line in Cutting Path
3. Test Cutting Path



The details of these steps are covered in the [Using the Test/Set Cut Path Feature](#) topic.

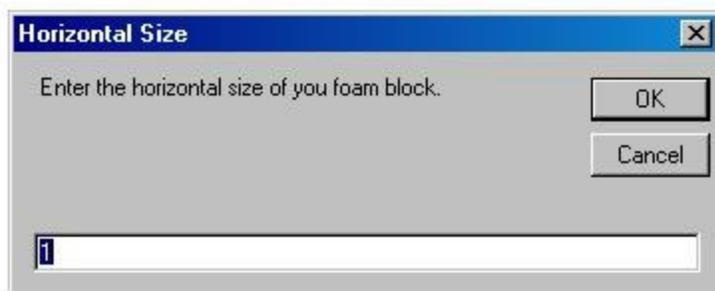
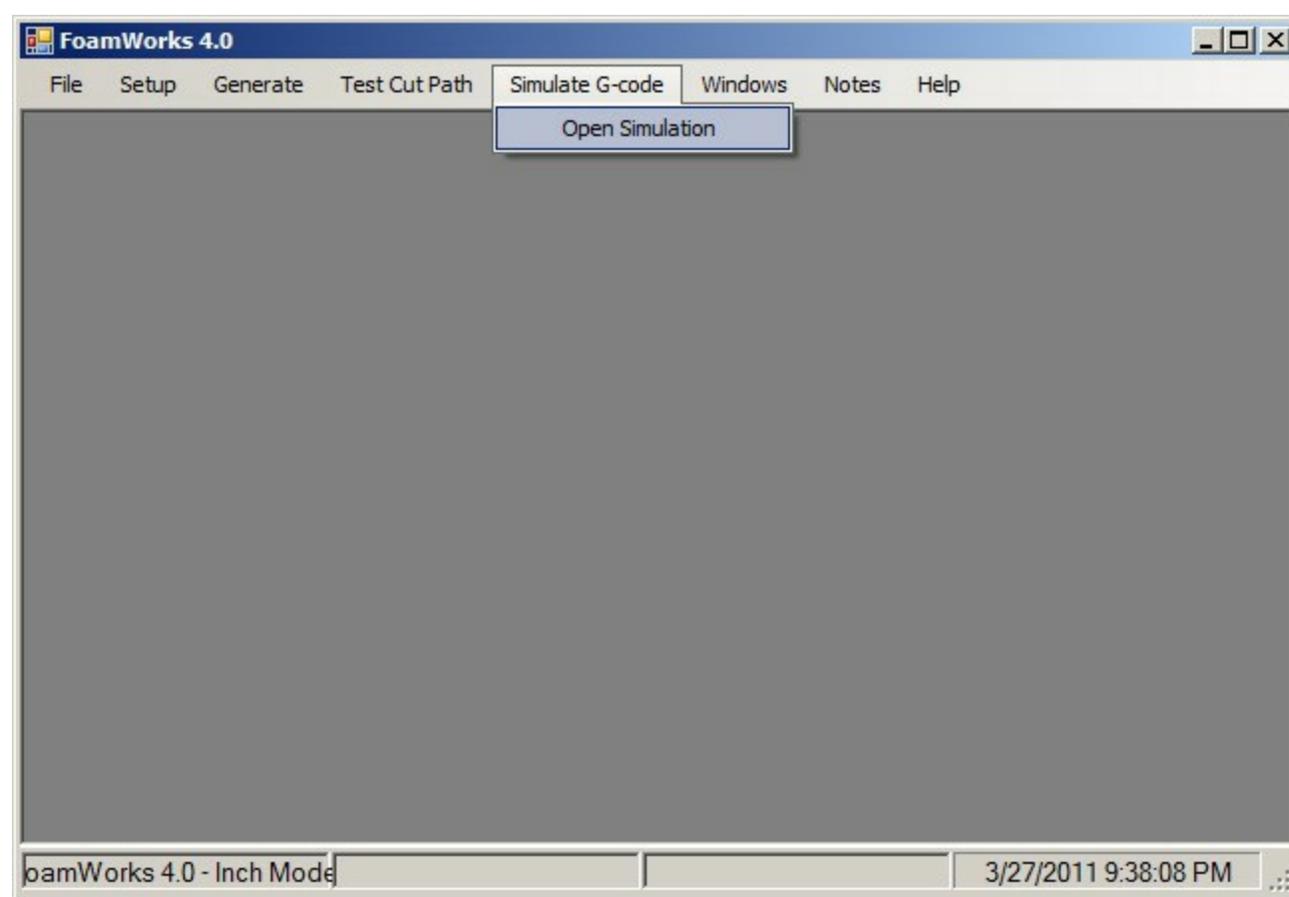
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FoamWorks 4.0

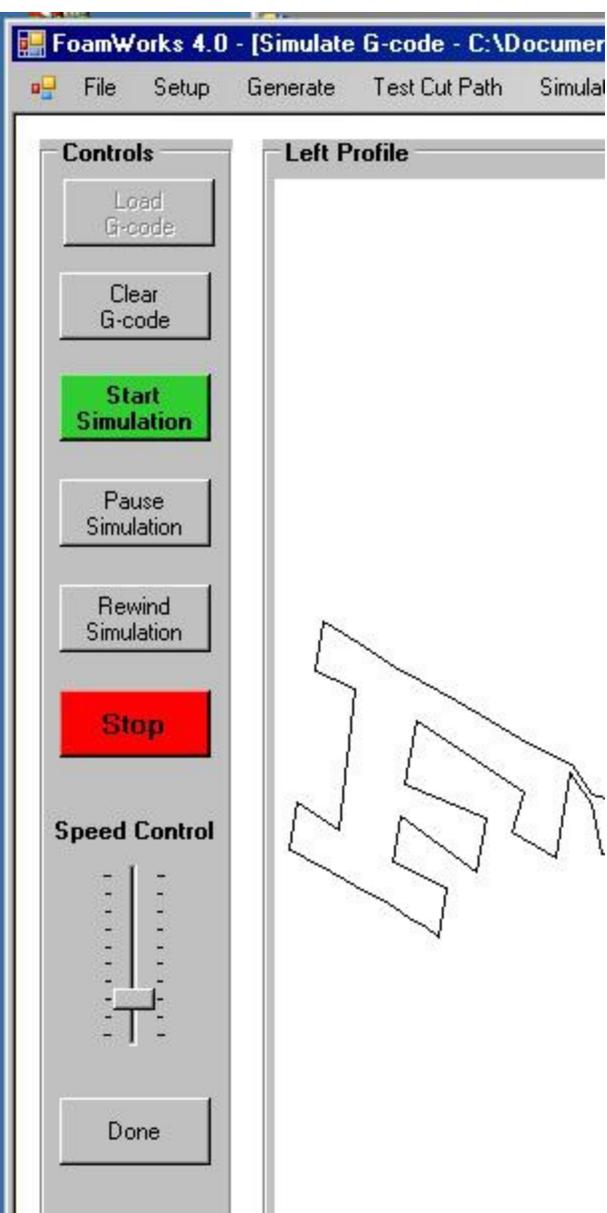
Simulate G-code

The Simulate G-code tool is intended to help visualize the proper cutting process.

By clicking the Simulate G-code/Open Simulation the simulation window will open. A initial message box will appear the requests distance between the right and left sides of the part you are cutting. Enter the desired value and click OK to continue.



The following window displays the controls on the Simulation Screen.

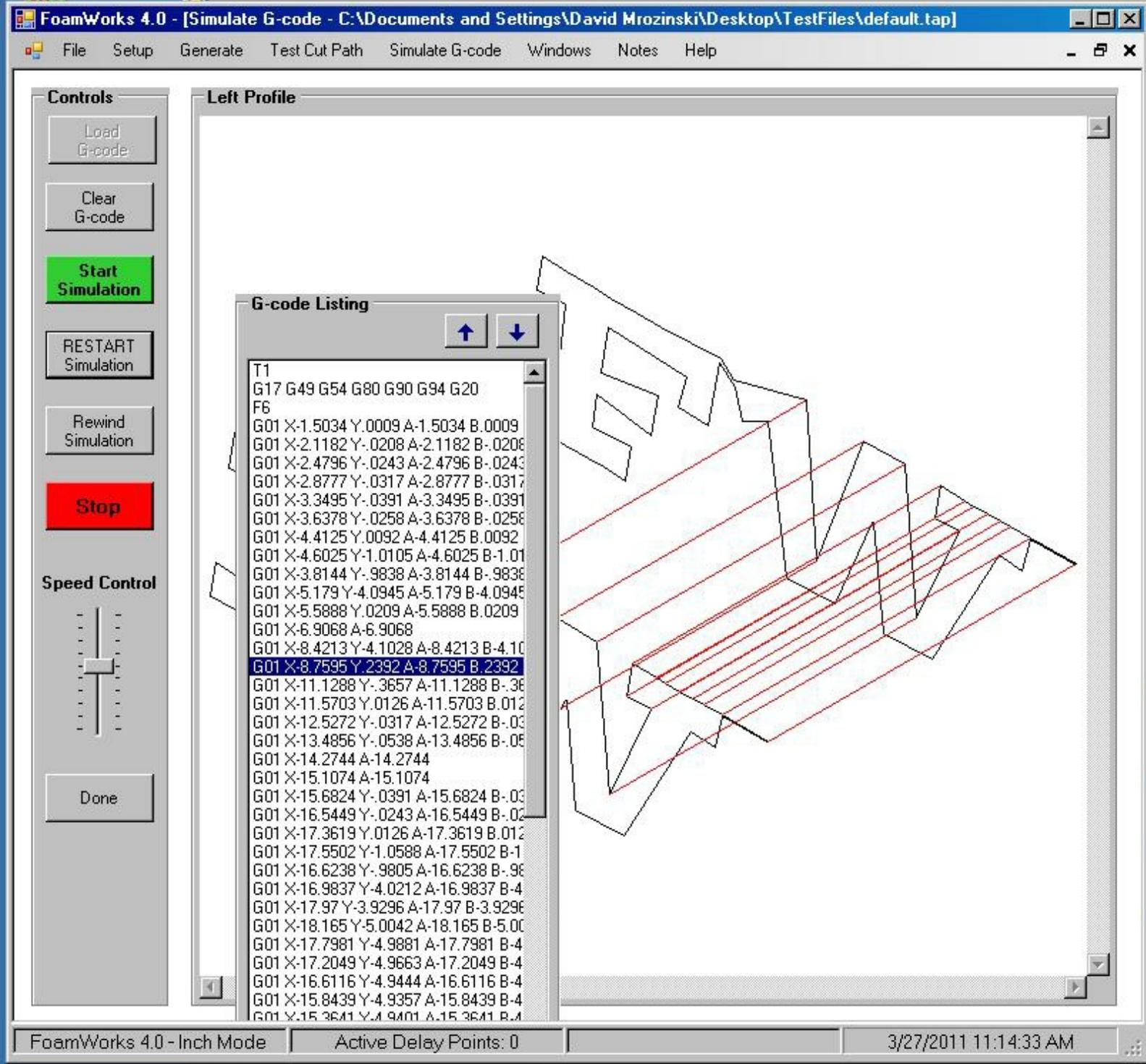


Clear G-code

Clears the current loaded g-code and the resulting simulation. All values are reset and a new g-code list can be loaded.

Start Simulation

Begins the simulation run. Red lines are added between the right and left profile to display progress.



Pause Simulation

When clicked the simulation being executed will be paused until this button is clicked again to restart the simulation.

Rewind Simulation

Clears the last simulation run and setups up the window to rerun the simulation again.

Stop

Terminates the simulation be executed.

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Selecting Notes/Open Notes Window from the main menu bar opens a simple text editor that can be used to create notes for future reference.

Controls

New

New opens a new blank text file.

Open

Open will open a dialog box that will allow the user to browse and locate a previously saved text files. The file is loaded into the window and can be edited.

Close

Close terminates the current editing session.

Save

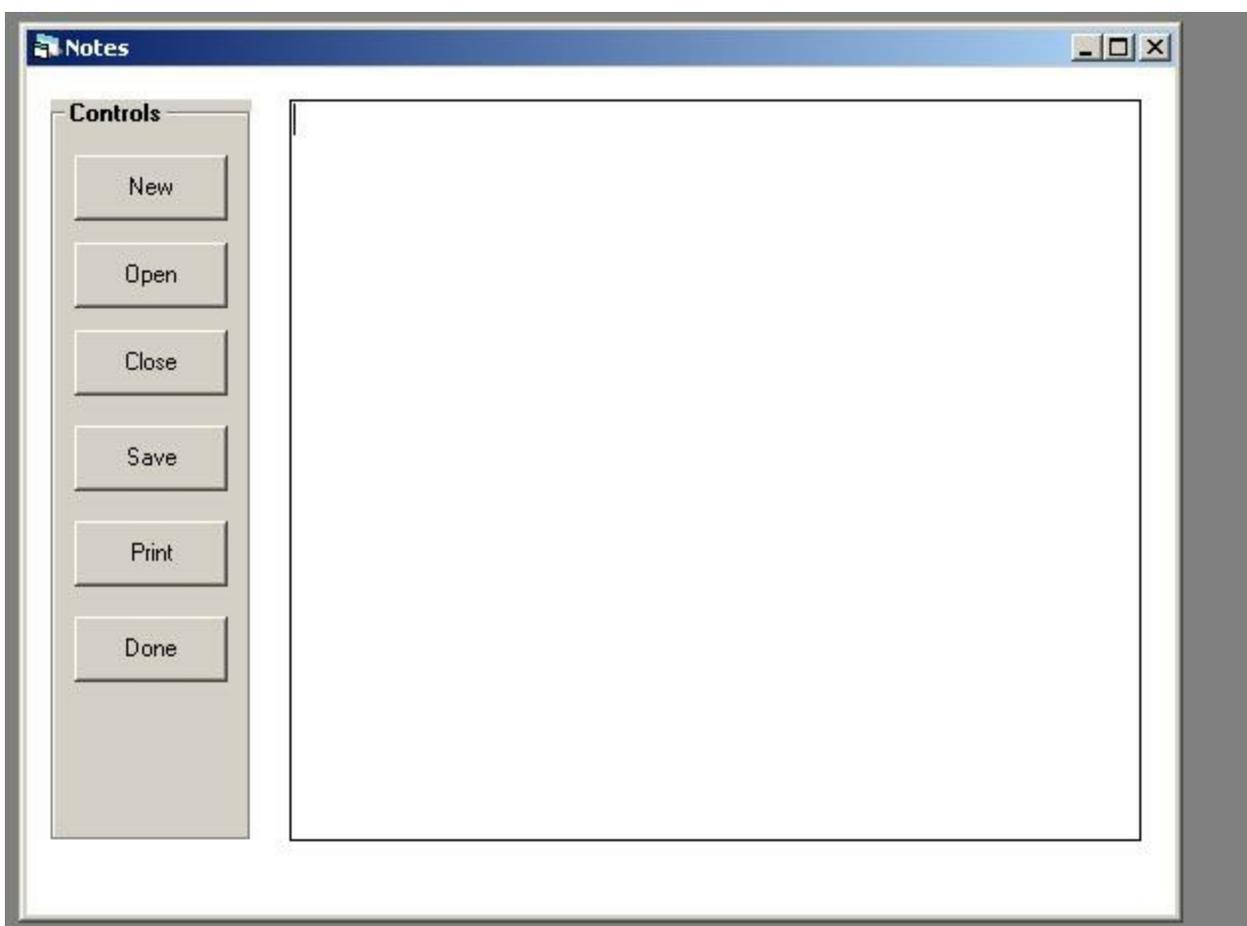
Save opens a dialog box that will allow the user to save the currently active file for future reference.

Print

Print will open the normal print window dialog box. Print settings can be accessed and the active file can be routed to the selected printer.

Done

Done closes the Notes window.

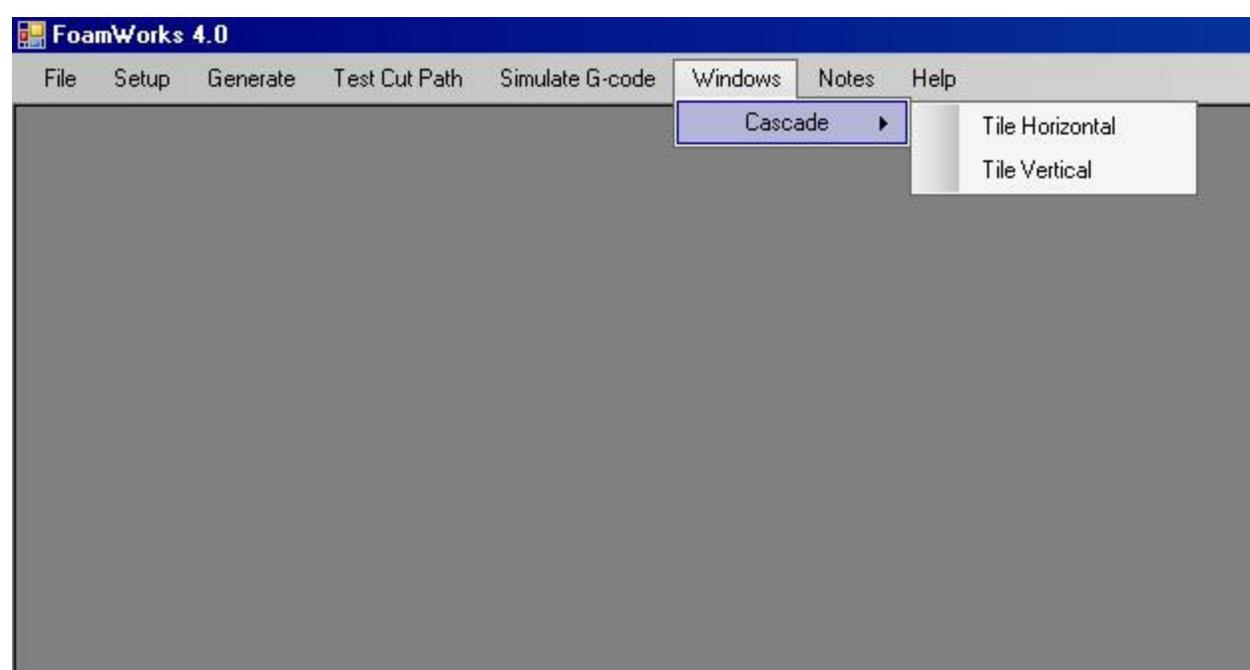


Last Updated: 04/04/11

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Selecting Windows from the main menu bar open the normal windows display options.

Windows can be set to cascade, tile vertically or tile horizontally.



This follows the standard windows format for window display.

Help - Select one of the following topics to view information

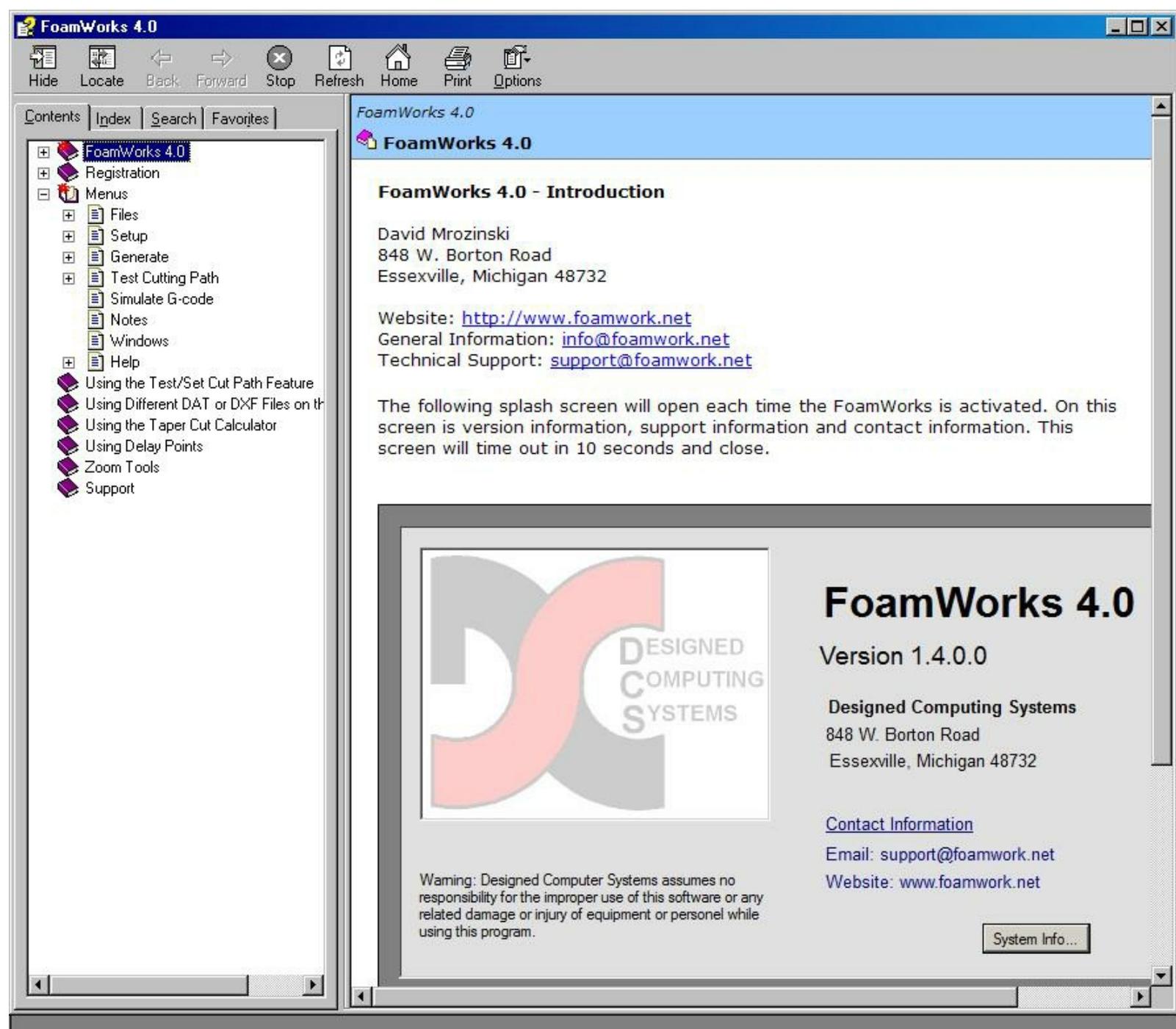
[Contents](#)

[About FoamWorks 4.0 Professional](#)

Last Updated: 04/04/11

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Selecting Help/Contents from the main menu bar will open the FoamWorks 4.0 Professional help files.



The screenshot displays the FoamWorks 4.0 help application interface. On the left is a 'Contents' pane with a tree view containing the following items:

- FoamWorks 4.0
- Registration
- Menus
 - Files
 - Setup
 - Generate
 - Test Cutting Path
 - Simulate G-code
 - Notes
 - Windows
 - Help
- Using the Test/Set Cut Path Feature
- Using Different DAT or DXF Files on th
- Using the Taper Cut Calculator
- Using Delay Points
- Zoom Tools
- Support

The main content area is titled 'FoamWorks 4.0' and contains the following text:

FoamWorks 4.0 - Introduction

David Mrozinski
848 W. Borton Road
Essexville, Michigan 48732

Website: <http://www.foamwork.net>
General Information: info@foamwork.net
Technical Support: support@foamwork.net

The following splash screen will open each time the FoamWorks is activated. On this screen is version information, support information and contact information. This screen will time out in 10 seconds and close.



The splash screen features a logo for 'DESIGNED COMPUTING SYSTEMS' on the left, which consists of a stylized 'DC' in red and grey. To the right of the logo, the text reads:

FoamWorks 4.0

Version 1.4.0.0

Designed Computing Systems
848 W. Borton Road
Essexville, Michigan 48732

Contact Information
Email: support@foamwork.net
Website: www.foamwork.net

Warning: Designed Computer Systems assumes no responsibility for the improper use of this software or any related damage or injury of equipment or personel while using this program.

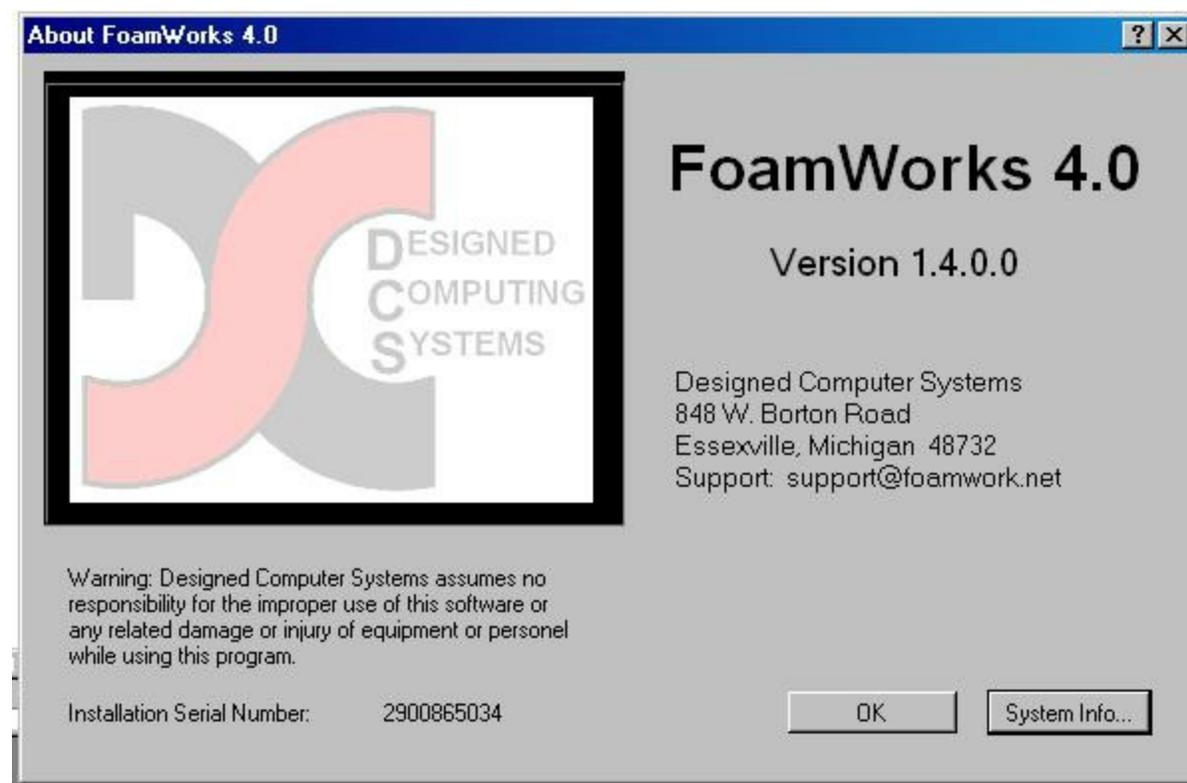
System Info...

FoamWorks 4.0

About FoamWorks 4.0

Selecting Help/About will open the FoamWorks 4.0 about window.

Displayed on this window is the current installed version information, support and help contract information, the installation serial number and a button that will open a window displaying the current system information.



Last Updated: 03/27/11

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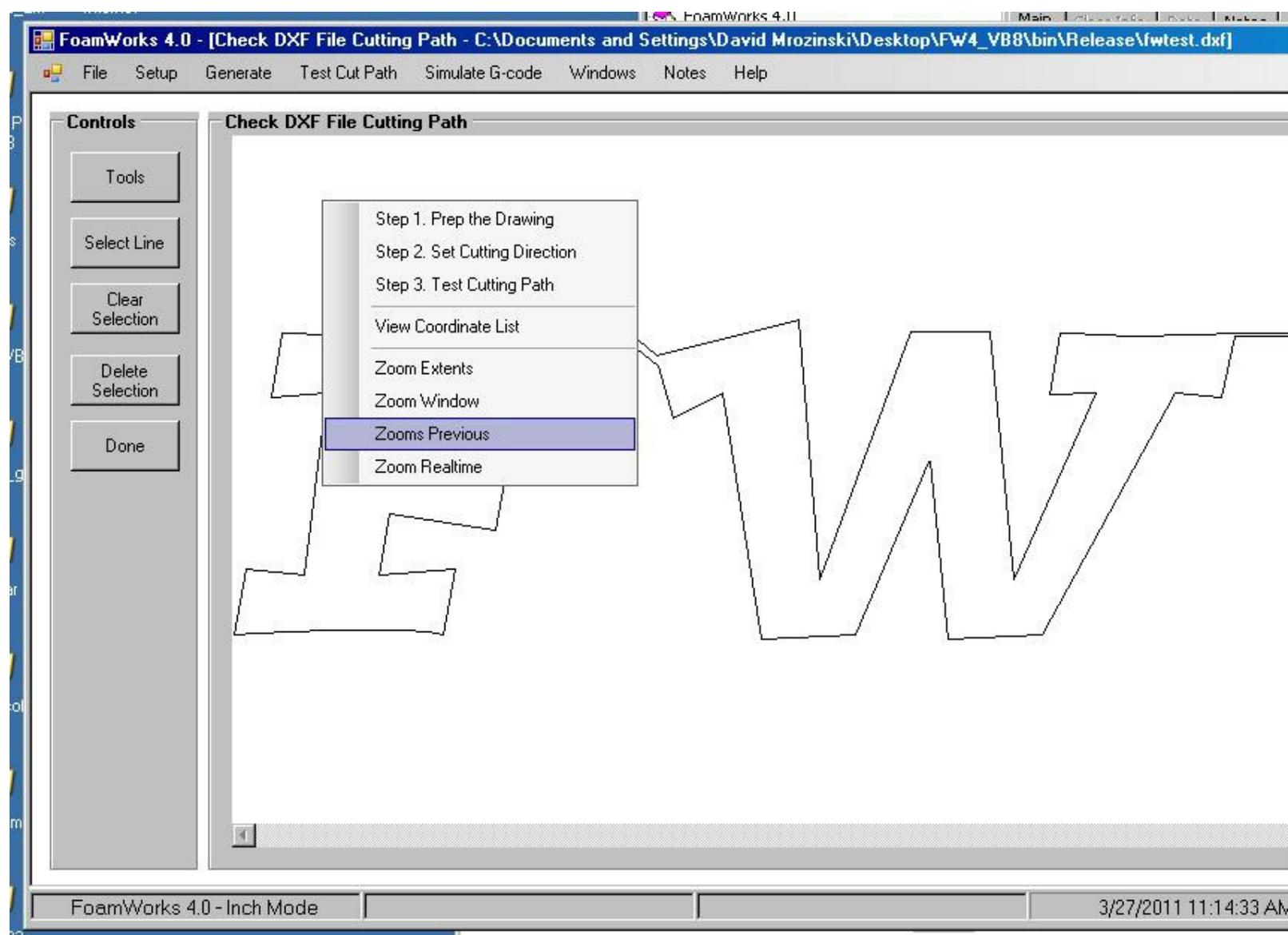
Using the Test/Set Cut Path Feature

FoamWorks 4.0 will generate a cut profile from a DXF drawing. For a cut profile to be created successfully, the DXF drawing must be drawn as if you were drawing the desired cutting path.

The order in which the line segments of the drawing are created and the starting point of the first line in the drawing define the cutting path that FoamWorks will follow.

Most DXF drawings are created without any concern for either of these factors. Therefore DXF features of FoamWorks were created to take any DXF drawing, reduce the drawing to its simplest elements (line segments) and then re-order the line segments in a fashion that represents the starting point of a cutting path as well as the direction of cut.

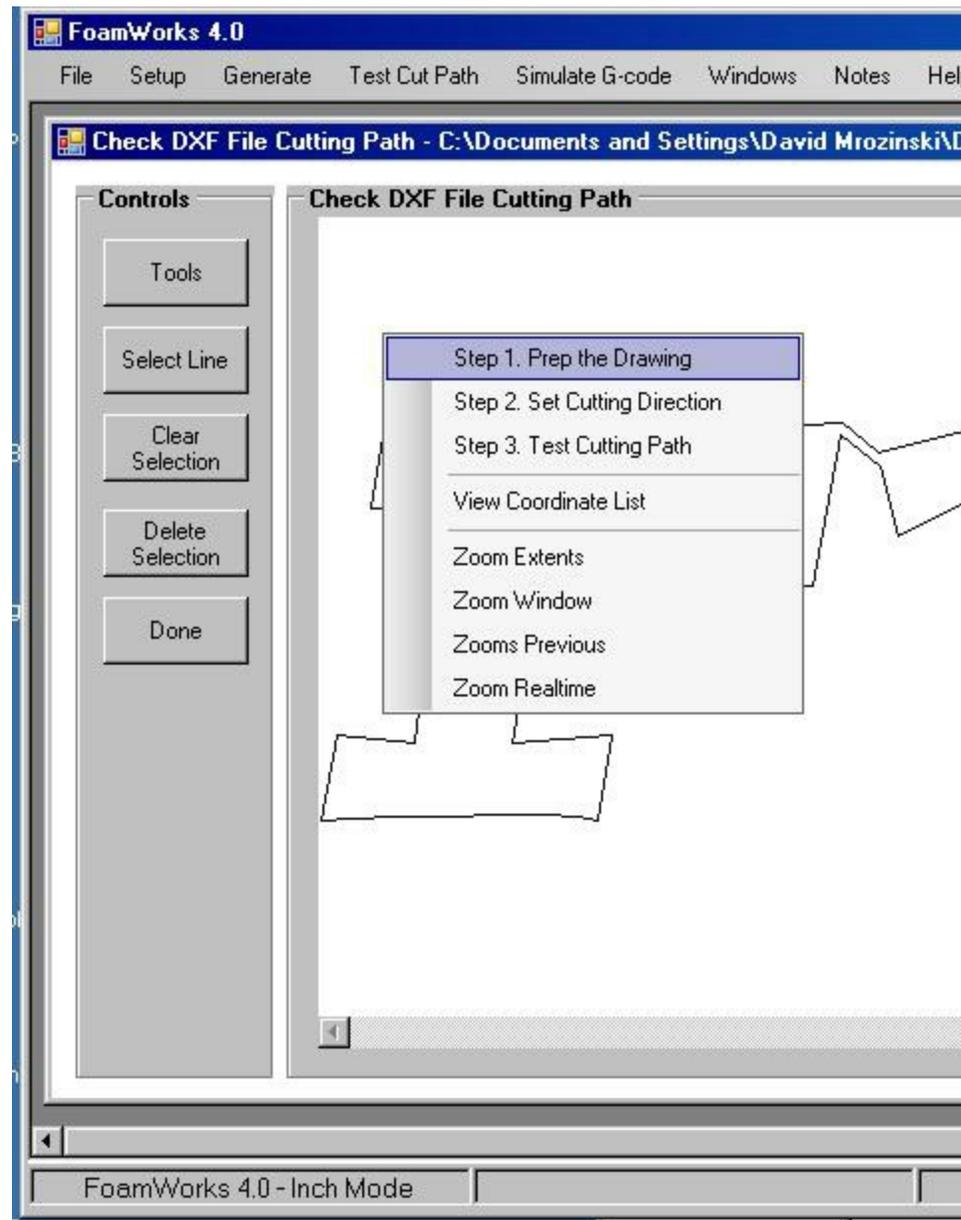
Once a DXF drawing has been loaded, you can proceed to check the cutting path. This is done by following a 3 step process.



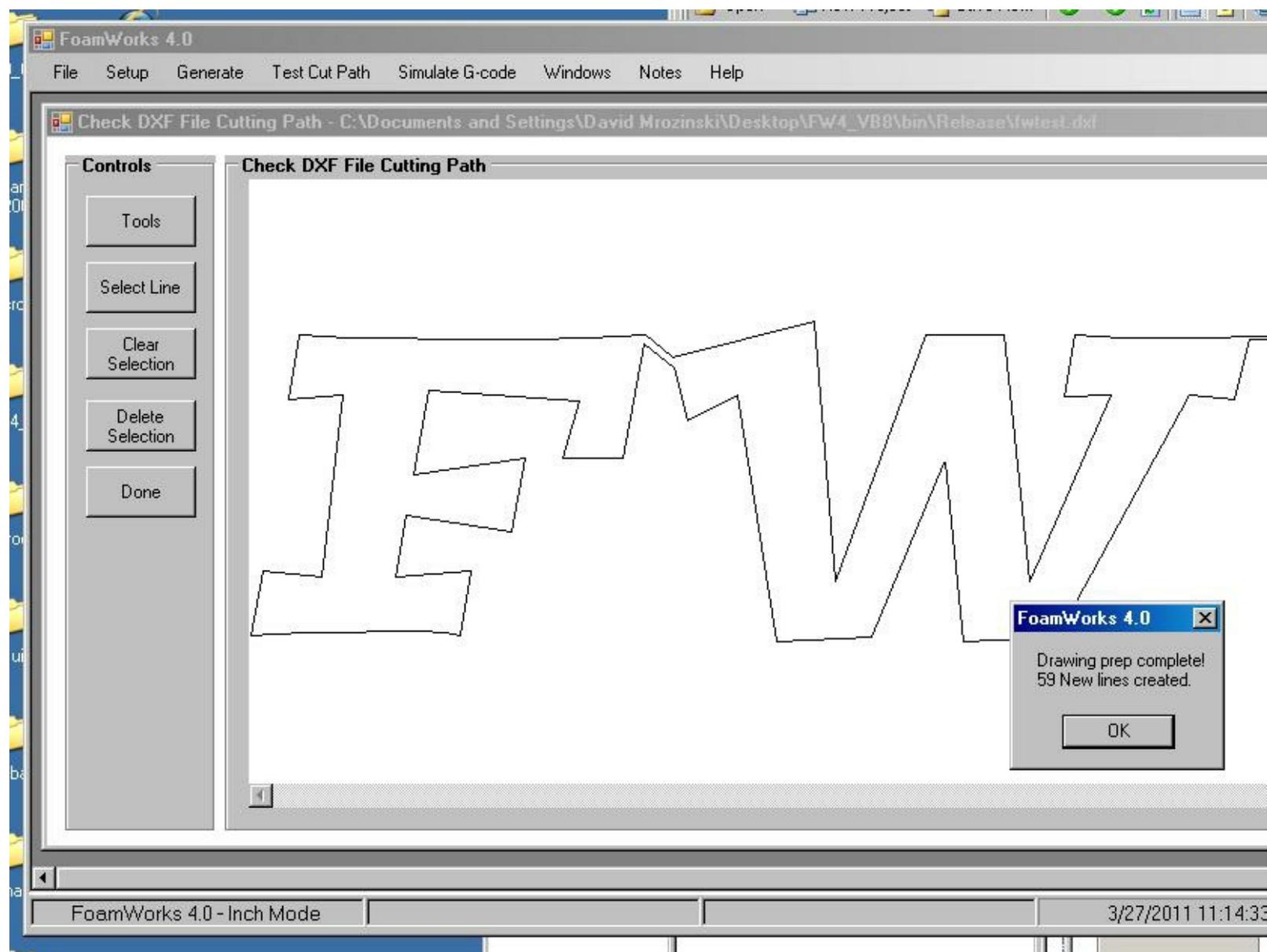
Step 1.

Click DXF/Test/Set Cutting Path/Step 1. Prep the Drawing This process looks at the currently loaded drawing and all the entities that make up the drawing, like line, polylines, arcs, etc.

It then precedes to reduce the drawing down to its simplest elements a series of individual lines. Arc, circles and polylines are all reduced to a series of individual lines the represent the original entity. When Prep the Drawing is complete a dialog box will be displayed showing the total number of line segments that make up the drawing.



After clicking Prep Drawing the following screen will be seen.

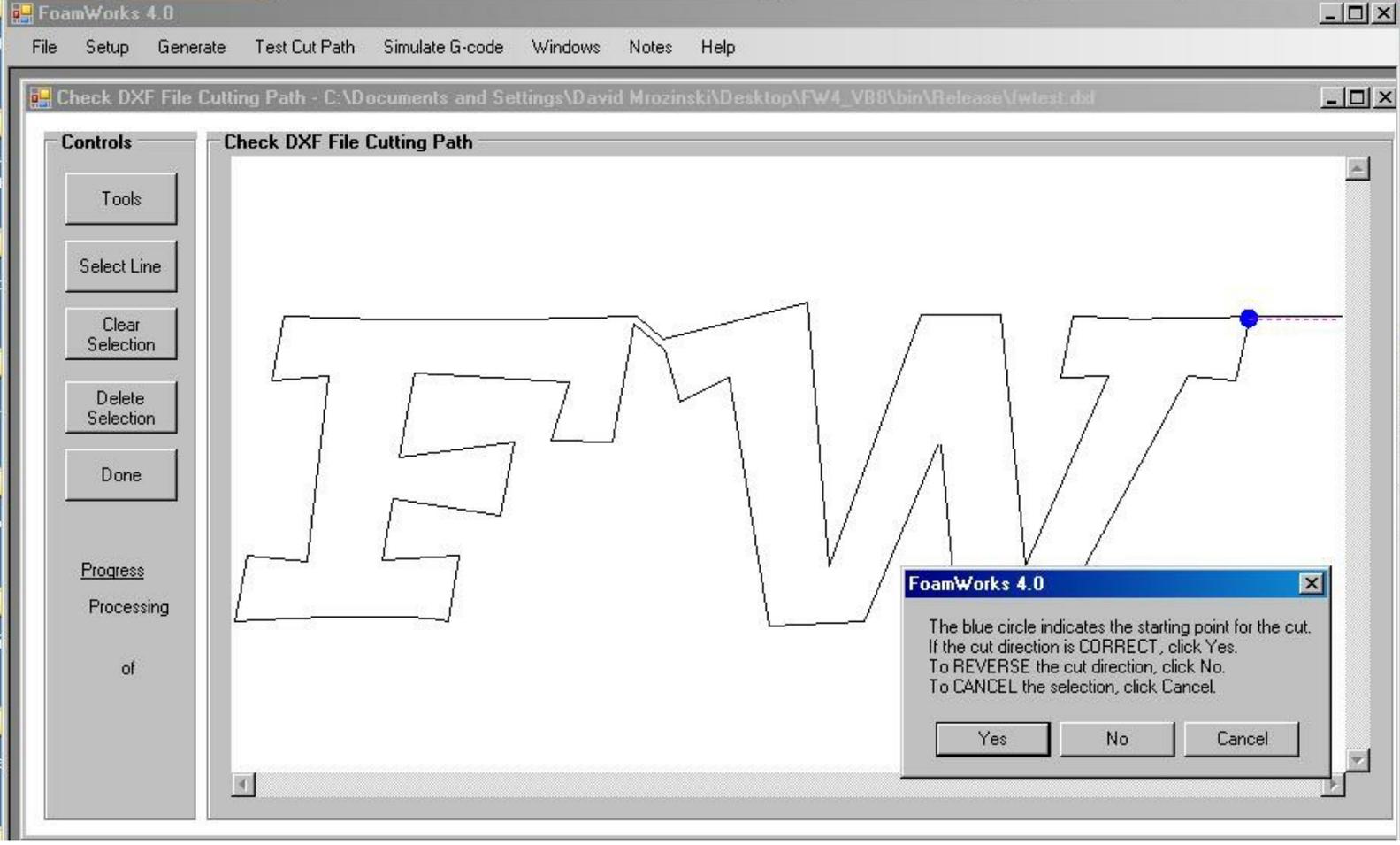


Step 2.

Step 2 allows you to select the first line in the desired cutting path. Select DXF/Test/Set Cutting Path/Step2. Select 1st Line in the Cutting Path.

When this selection is picked, a crosshair cursor will appear in the drawing window. Use this cursor to select the line segment is should be the first line in the cutting path. Double click on the desired line to select it.

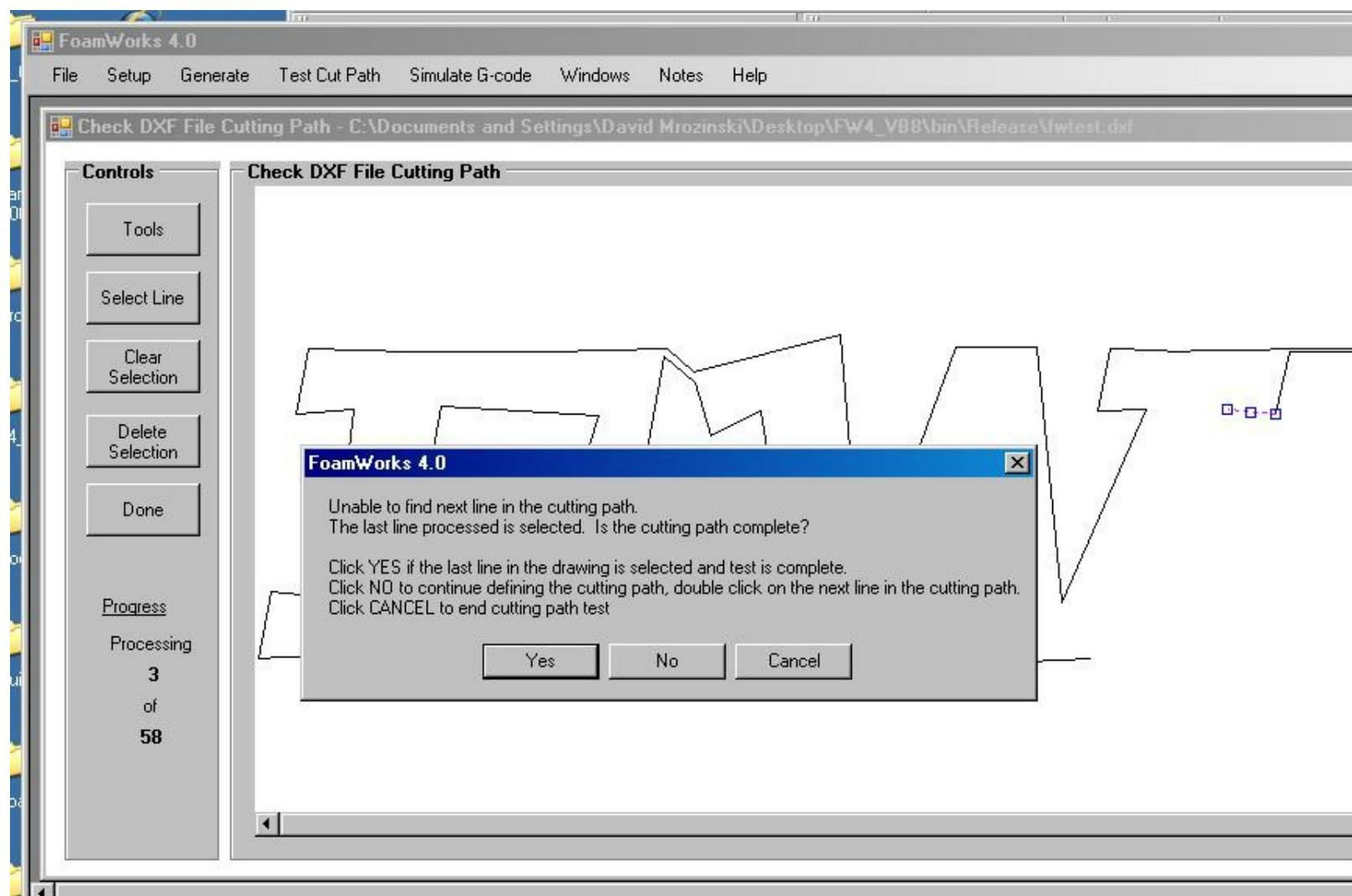
The line will be selected and a dot will appear on one end of the line. The dot represents the starting point of the line. A dialog box will be shown asking to confirm that the cutting direction is correct. If the dot is at the beginning point of the cutting path, click Yes to confirm. If the dot is on the opposite side of the line from the desired cutting direction, click No and the dot will reverse location. Now click Yes to confirm the starting point is correct.



Step 3.

Step 3 starts the test of the cutting path. Select DXF/Test/Set Cutting Path/Step 3. Test Cutting Path
FoamWorks will begin to test the cutting path based on the starting point and direction of cut specified in Step 1. and Step 2.

As the utility works around the drawing it may encounter a point in the drawing where it is unable to determine the next appropriate line. If this happens a dialog box will be displayed.



You can continue the testing by manually clicking on the next appropriate line in the drawing. The last successfully determined line will be highlighted. Double click on the next line that will maintain the cutting path and direction of cut based on the starting point and direction of cut specified in Step 1. and Step 2.

The process will continue until another problem is encountered or the test is completed. When the test is completed the following message will appear. This indicates the drawing has been redrawn by FoamWorks to meet the starting point and direction of cut specified. The drawing can now be saved for use in generating a cut profile.



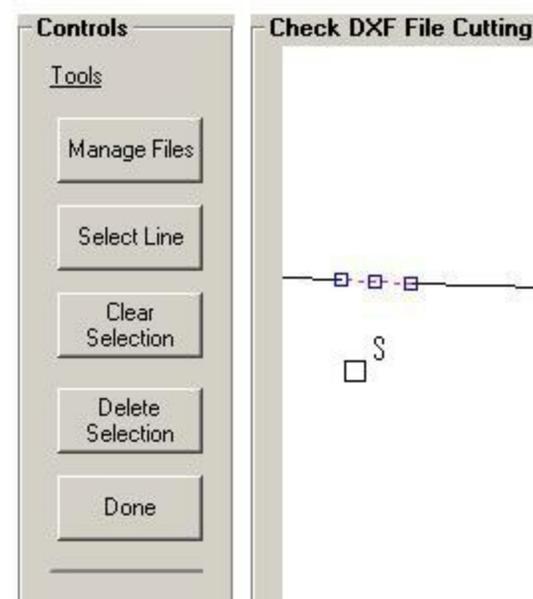
Tools

Manage Files

Manage Files presents the same menu items that are displayed when DXF is selected for the main menu bar.

Select Line

Click Select Line from the Tools menu activates the selection tool. Cursor will display as a letter "S" with a small box. This tool allows you to select any line in the drawing. This is a simple tool that can be used to clean up a drawing that doesn't test properly. For example if there are two line laying one on top of the other, the select tool can be used to select one of the lines and the Delete Selection Button will delete the selected line.



Clear Selection

The Clear Selection Button clears any selected lines with making any changes to the drawing. This tool is used in conjunction with the Select Line tool to do simple editing of the active drawing.

Delete Selection

The Delete Selection Button deletes any selected lines from the drawing. This tool is used in conjunction with the Select Line tool to do simple editing of the active drawing.

Using Different DAT or DXF Files on the Same Cut

Different DAT and DXF files can be used to build and execute a cut profile. There are few rules that must be followed for this to be successful.

1. You just need to make sure that you have the same number of steps/line segments in each file.
2. The corresponding segments of each file are at the same relative locations. For example, if the 4th line in the cut on one drawing is the 90 turn where the wire will begin cutting the arc, then the 4th line on the second drawing must also be at that location.

To accomplish this, pick one shape as the base and determine the point count and locations or important line segments. These would be the lines where there are large change in direction or the first line where the cutter begins to cut a new features.

Next open the second drawing in a CAD program, create a new layer in the drawing and then using the polyline tool, trace the second drawing placing the appropriate number of point and line relationships.

When complete, I delete the original drawing leaving just the traced drawing with the proper number of points.

At this point you can either generate a new DAT file for the second drawing or save the second drawing as a new DXF drawing.

Last Updated: 01/28/07

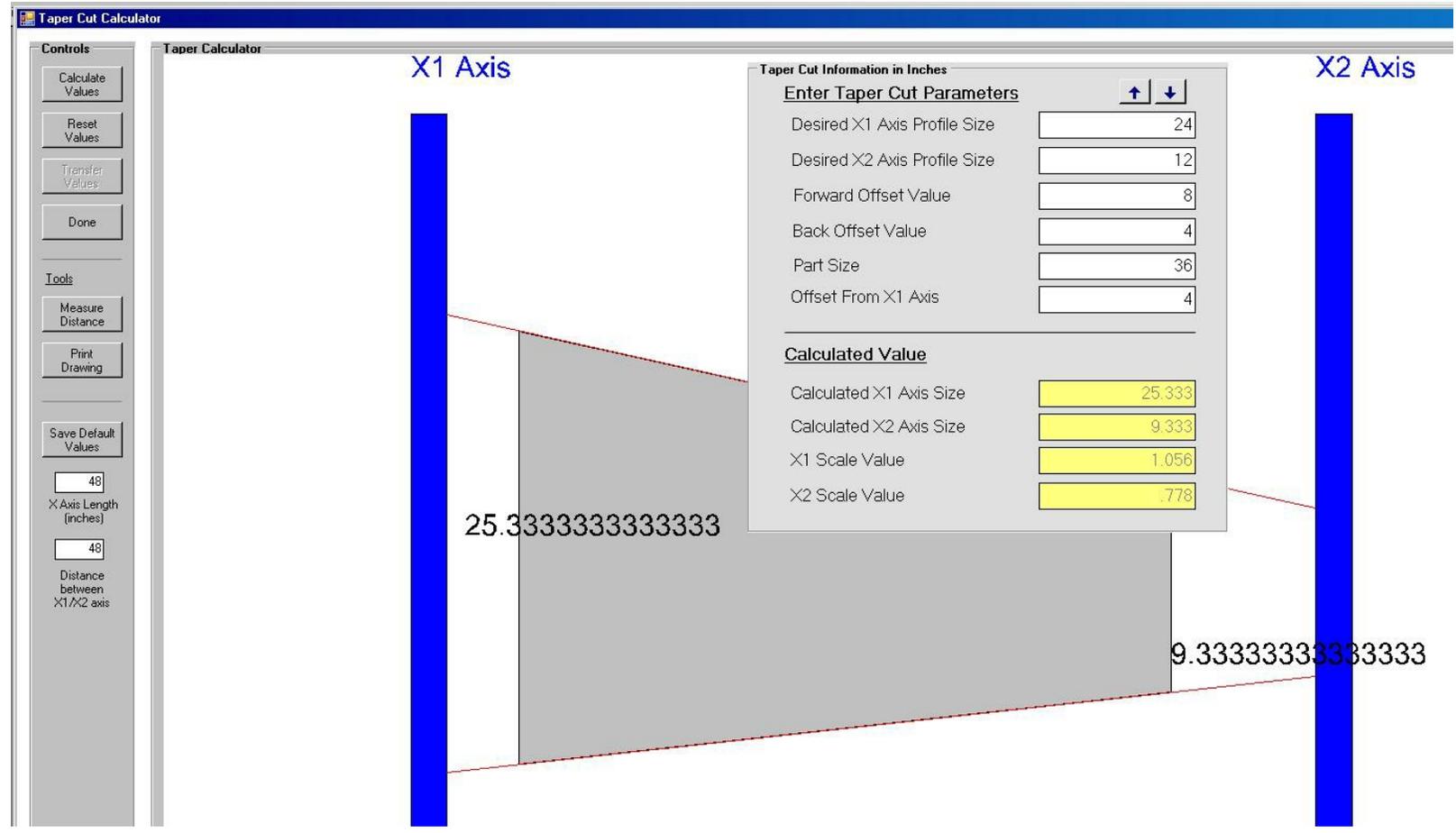
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Using the Taper Cut Calculator

The tapered cut calculator is a tool to help determine the proper cutting dimension for each side of the foam cutter when a tapered cut is desired.

Due to the geometry of a tapered cut, to achieve the desired size on each end of the foam block, the cutting must move a greater distance on the large end of the taper and a smaller distance on the small end of the taper.

The following window displays this phenomena.



The grey area represents the desired part and position of the foam block. You can see by the lines extending to the X1 and X2 axis that the machine must move with different values than the desired left and right part size to achieve the desired sizes.

Taper Cut Data

To use the calculator, six pieces of data must be entered.

Taper Cut Data Check Box

When check box is selected, values are disabled and manual entry isn't possible. If unchecked, you may enter taper cut data manually.

Desired X1 Axis Profile Size

This is the desired horizontal size of the part from the right most point of the shape to the left most point of the shape. This is for the shape on the X1 side of the cut.

Desired X2 Axis Profile Size

This is the desired horizontal size of the part from the right most point of the shape to the left most point of the shape. This is for the shape on the X2 side of the cut.

Offset Value (Forward)

With any tapered cut, the shape on the smaller side of the taper will be offset some distance from the larger side of the shape. The offset is measured along the horizontal plane of the cut. The offset difference value on the front side of the two shapes should be entered in this text box. For a concentric taper the forward offset value and back offset value will be the same.

Offset Value (Back)

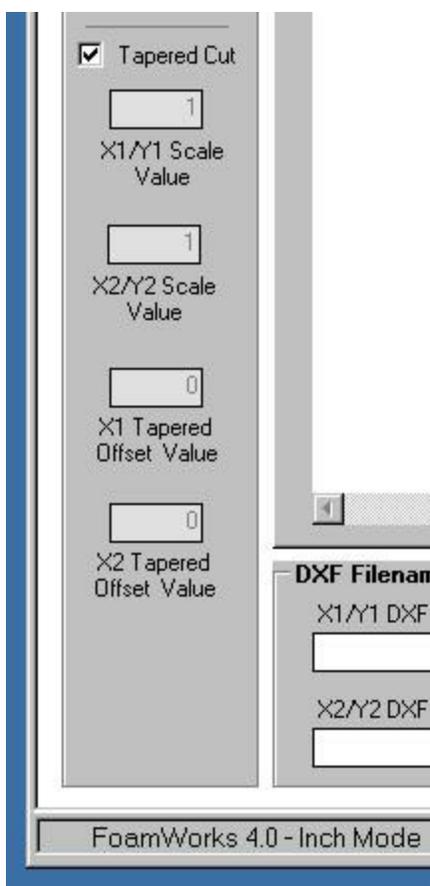
With any tapered cut, the shape on the smaller side of the taper will be offset some distance from the larger side of the shape. The offset is measured along the horizontal plane of the cut. The offset difference value on the back side of the two shapes should be entered in this text box. For a concentric taper the forward offset value and back offset value will be the same.

Part Size

Part size is the finished dimension of the part between the X1/Y1 and X2/Y2 sides of the foam block. This can also be thought of as the span or the measured distance between the finished ends of the part.

X1 Distance

The final piece of data is the distance from the point on the X1 cutting towers where the hot wire connects to the X1 side of the foam block being cut.



Taper Cut Calculated Values

These boxes will all be filled in by FoamWorks when the Calculate Values button is clicked.

Calculated X1 Axis Profile Size

This value is the distance that the machine must travel on the X1 side of the cut to achieve the desired horizontal size of the shape at the X1 side of the foam block. On the larger side of the taper, the value will be larger than the desired size and on the smaller side of the taper, the value will be smaller than the desired size.

Calculated X2 Axis Profile Size

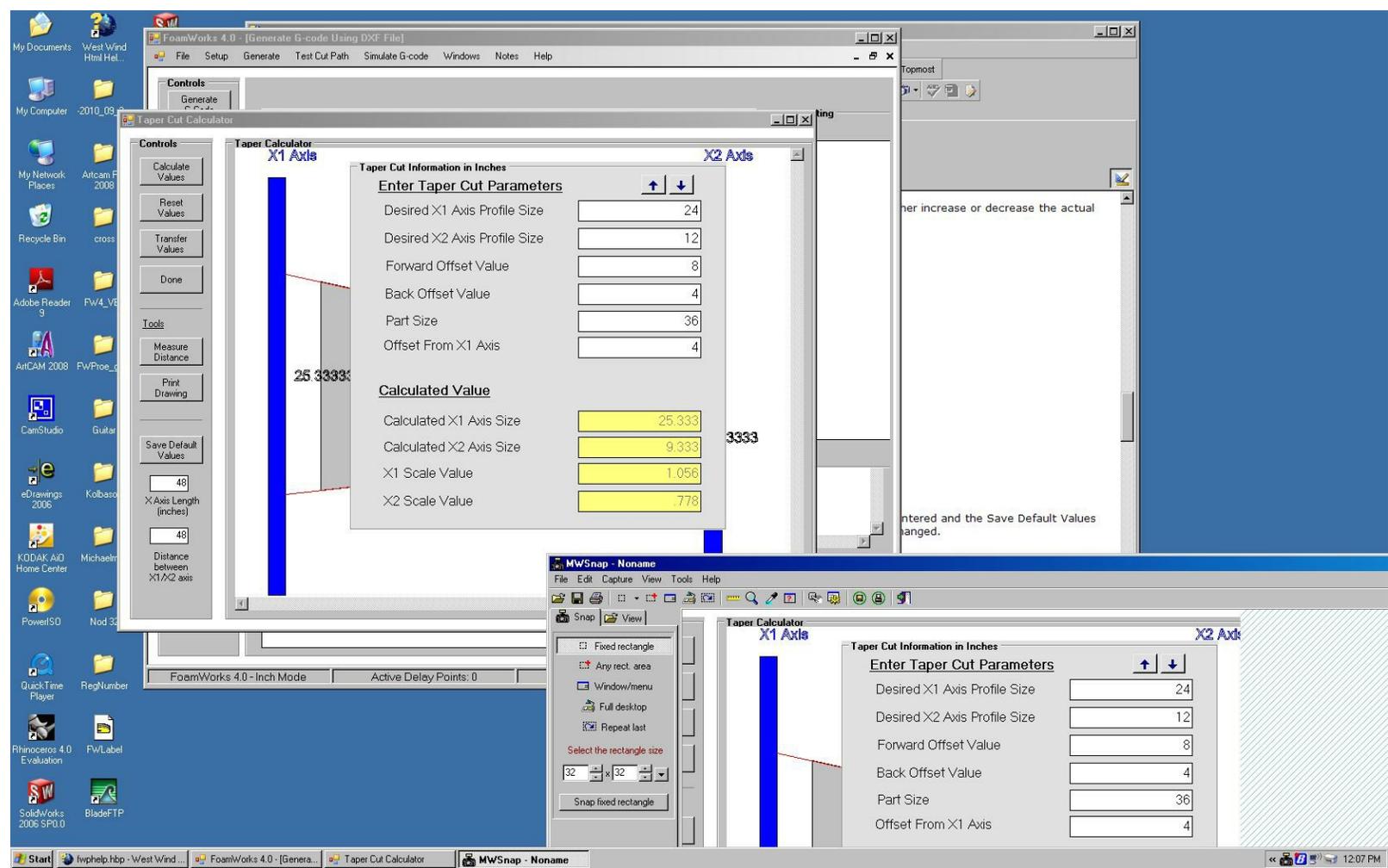
This value is the distance that the machine must travel on the X2 side of the cut to achieve the desired horizontal size of the shape at the X2 side of the foam block. On the larger side of the taper, the value will be larger than the desired size and on the smaller side of the taper, the value will be smaller than the desired size.

X1/Y1 Scale Value

This is the scale factor that must be applied to the desired size of the cut to either increase or decrease the actual travel distance of the machine.

X2/Y2 Scale Value

This is the scale factor that must be applied to the desired size of the cut to either increase or decrease the actual travel distance of the machine.



Machine Information

Information about your machine must be entered. When the correct values are entered and the Save Default Values button is clicked, these values will be saved and made the default values until changed.

X Axis Length (inches)

Enter the horizontal length of the X axis of your foam cutting machine. Enter the value in inches.

Distance between X1/X2 axis (inches)

Enter the horizontal distance from the X1 cutting tower to the X2 cutting tower. Enter the value in inches.

Save Default Values

48

X Axis Length (inches)

48

Distance between X1/X2 axis (inches)

Taper Cut Controls

Calculate Values

Clicking Calculate Values will take all the data entered and calculate the required travel distance at the X1 and X2 axis to achieve the desired part size on the ends of the foam block. All calculated values will be displayed and the Taper Calculator window will be show with a top down look of the foam block and the tapers. The blue vertical lines represent the X1 and X2 axis. The lines running along the foam part (displayed in grey) extend from the X1 to the X2 axis. They show graphically how much bigger or smaller the actual travel of the machine must be to achieve the desired cut. Other important information is also displayed for your review.

Taper Cut Calculator

Controls

- Calculate Values
- Reset Values
- Transfer Values
- Done

Tools

- Measure Distance
- Print Drawing

Save Default Values

48

X Axis Length (inches)

48

Distance between X1/X2 axis

Taper Calculator

X1 Axis

X2 Axis

Taper Cut Information in Inches

Enter Taper Cut Parameters

- Desired X1 Axis Profile Size: 24
- Desired X2 Axis Profile Size: 12
- Forward Offset Value: 8
- Back Offset Value: 4
- Part Size: 36
- Offset From X1 Axis: 4

Calculated Value

- Calculated X1 Axis Size: 25.3333
- Calculated X2 Axis Size: 9.3333
- X1 Scale Value: 1.056
- X2 Scale Value: .778

25.33333333333333

9.33333333333333

Reset Values

The Reset Values button clears all fields on the screen and replaces them with default starting values.

Transfer Values

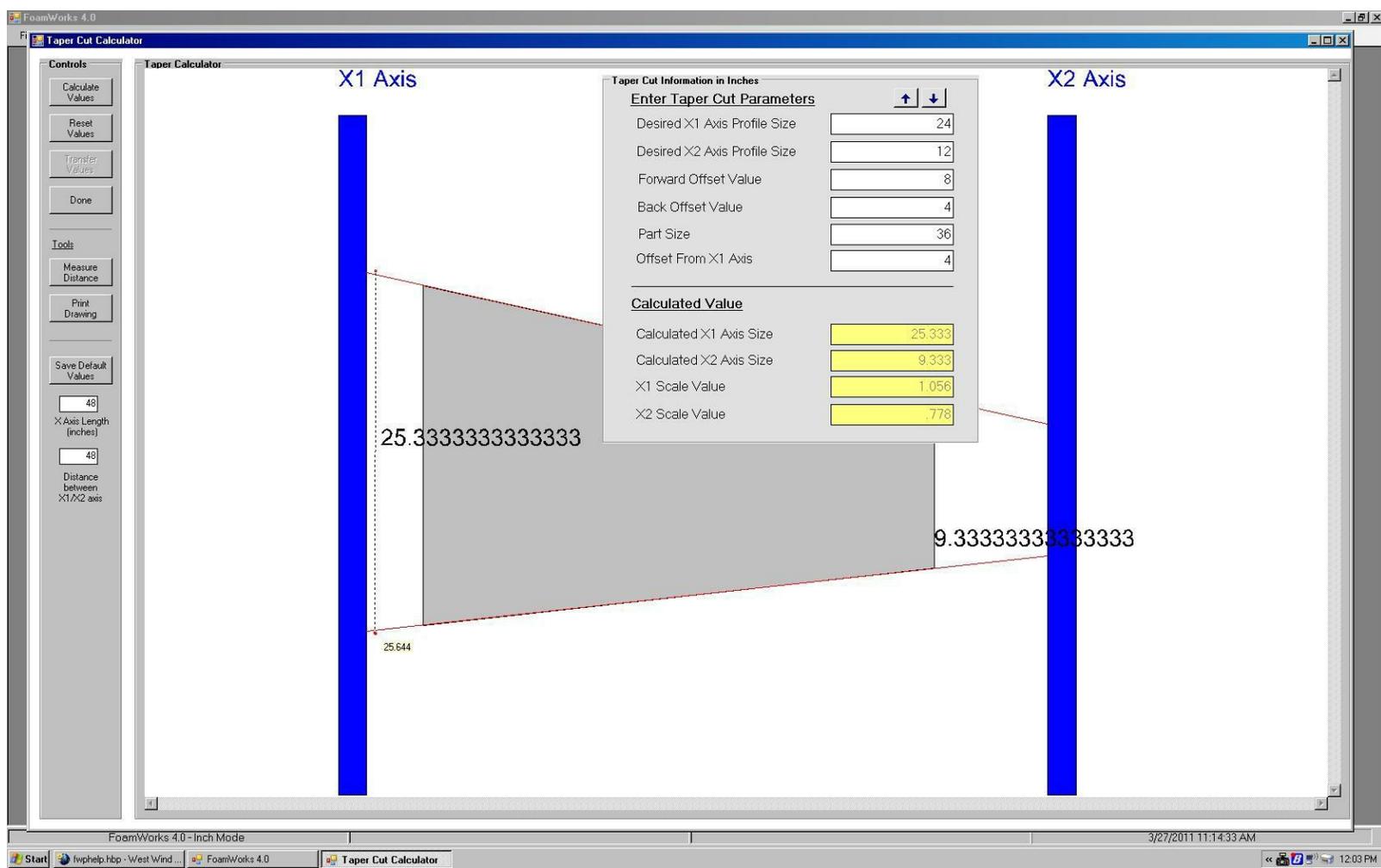
The Transfer Values button takes the calculated information and sends it to the Build Cut Profile screen that was active when the Tapered Calculator was opened. These scale values will be used to build the cut profile when it is generated.

Done

The Done button closes the Tapered Calculator window.

Measure Distance

The Measure Distance button places a measuring tool in the Taper Calculator window. To measure a distance, click once at the point where you wish to start the measurement and then click again at the point where you want to know the distance. The drawing shown in the Tapered Calculator window is an actual scaled drawing of the data values entered, so the measured values will be to scale and accurate.



Print Drawing

The Print Drawing button will route the active drawing in the Tapered Calculated window to the printer for printing.

Last Updated: 03/27/11

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Using Delay Points

When cutting with a long wire, no matter how high it is tensioned, there will be some lag in the center of the wire relative to each end. This becomes a problem when the machine makes a large change in direction, like a 90 degree direction change.

With a lagging hot wire, the instead of a nice sharp corner, the hot wire will carve out portion of the foam where the wire is lagging.

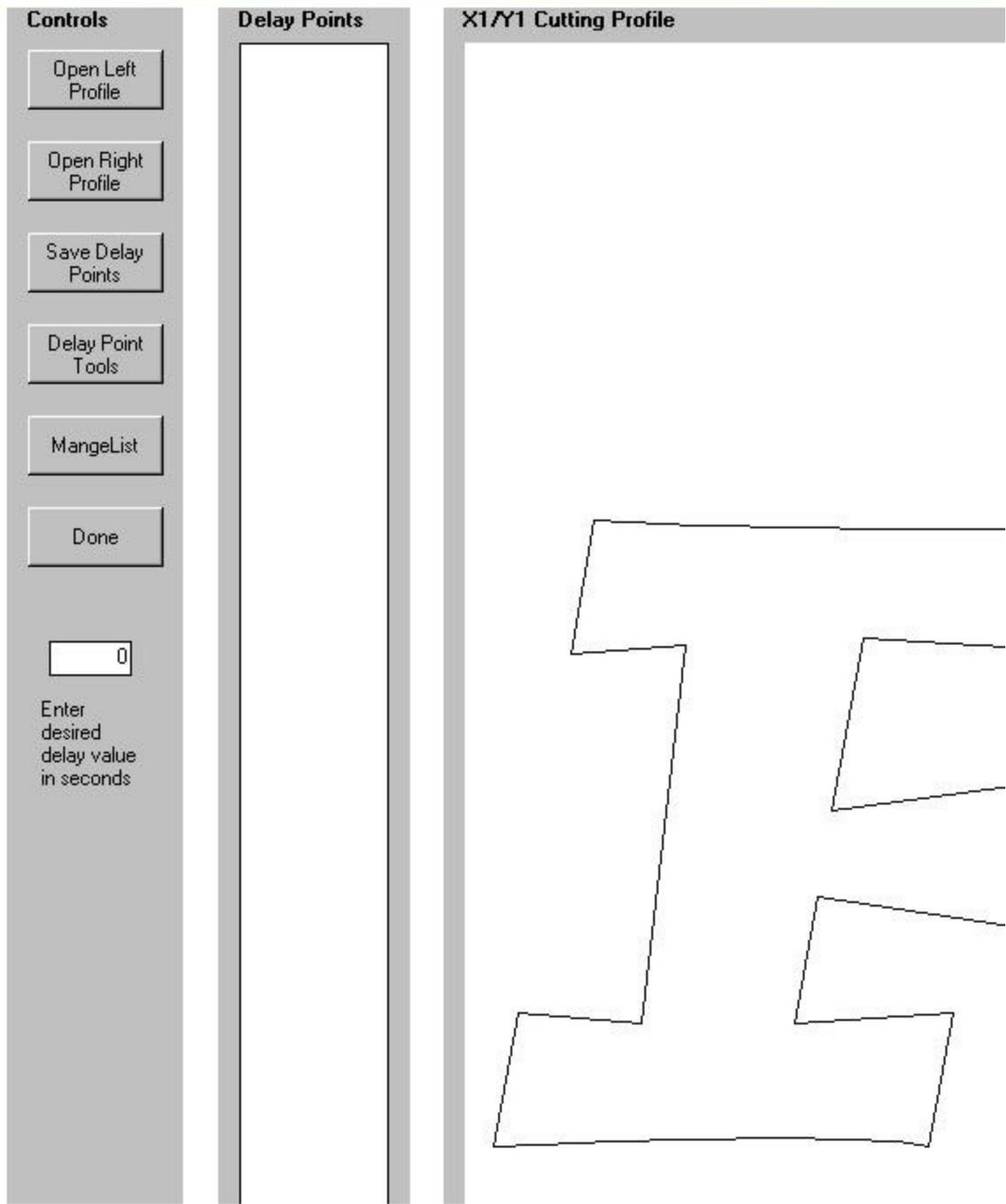
To compensate for the wire lag, FoamWorks allows you to integrate pauses in the execution of program moves. This allow the wire to "catch up" prior to the direction change. The result is crisp, sharp corners.

These pauses are integrated directly into the cut profile when it is generated. You specify the delay locations by using the Delay Point Utility in FoamWorks.

The Delay Point Utility is accessed from the Build Cut Profile Using DXF File or Build Cut Profile Using DAT File.

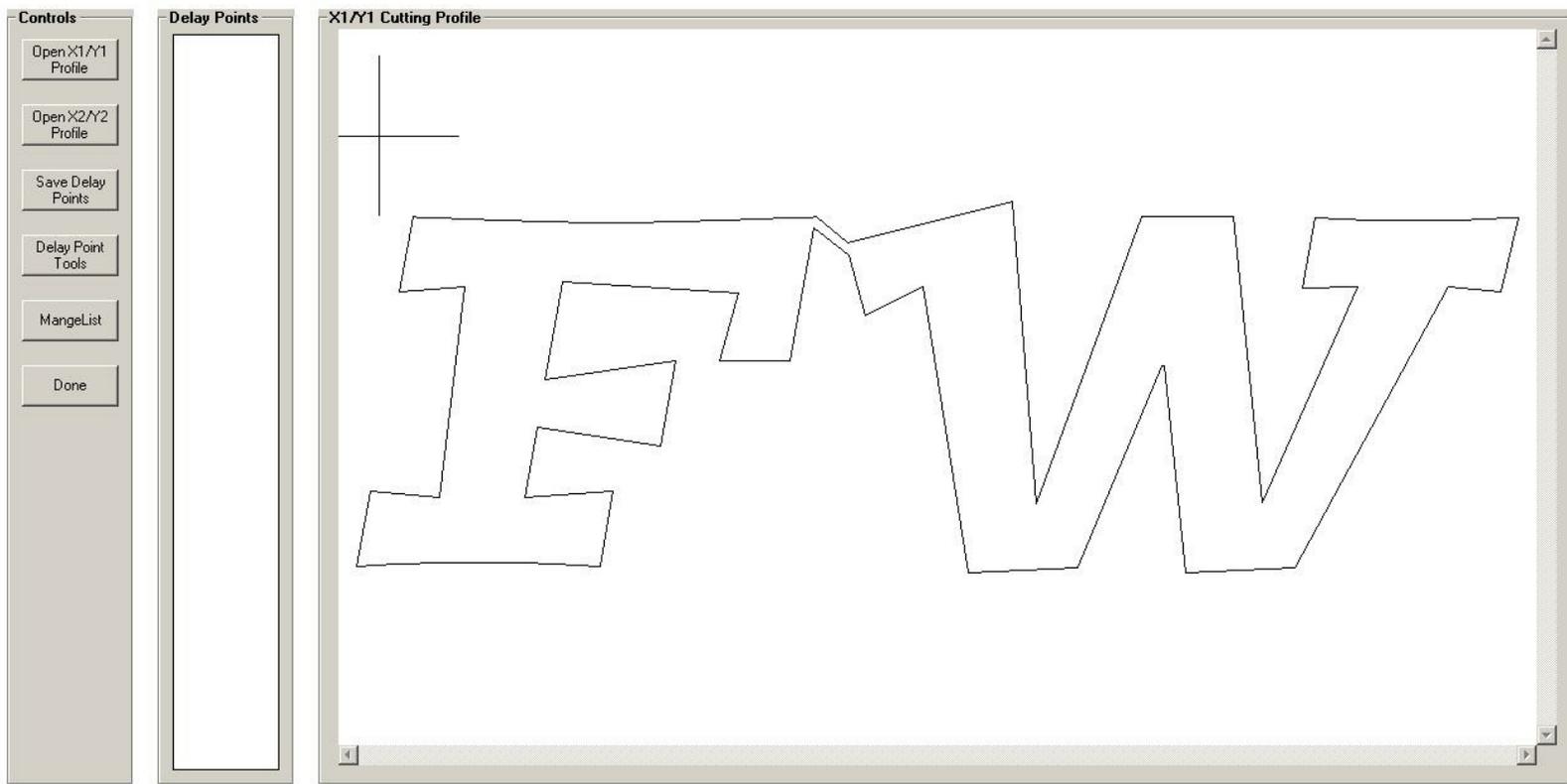
Desired delay values should be entered in the text box on the left menu. Values are entered in seconds with up to 1 decimal point precision. (IE. 1.5)

To open the Delay Point Utility by clicking on the Add Delay Points Button.

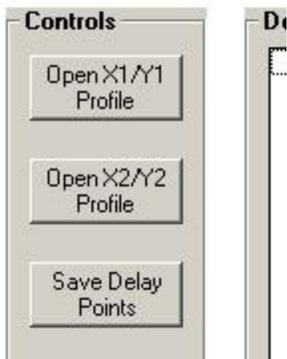


Drawings must be loaded into the X1/Y1 and X2/Y2 Profile windows before the Delay Points Utility will open.

When the Add Delay Points Button is clicked the following window will appear.



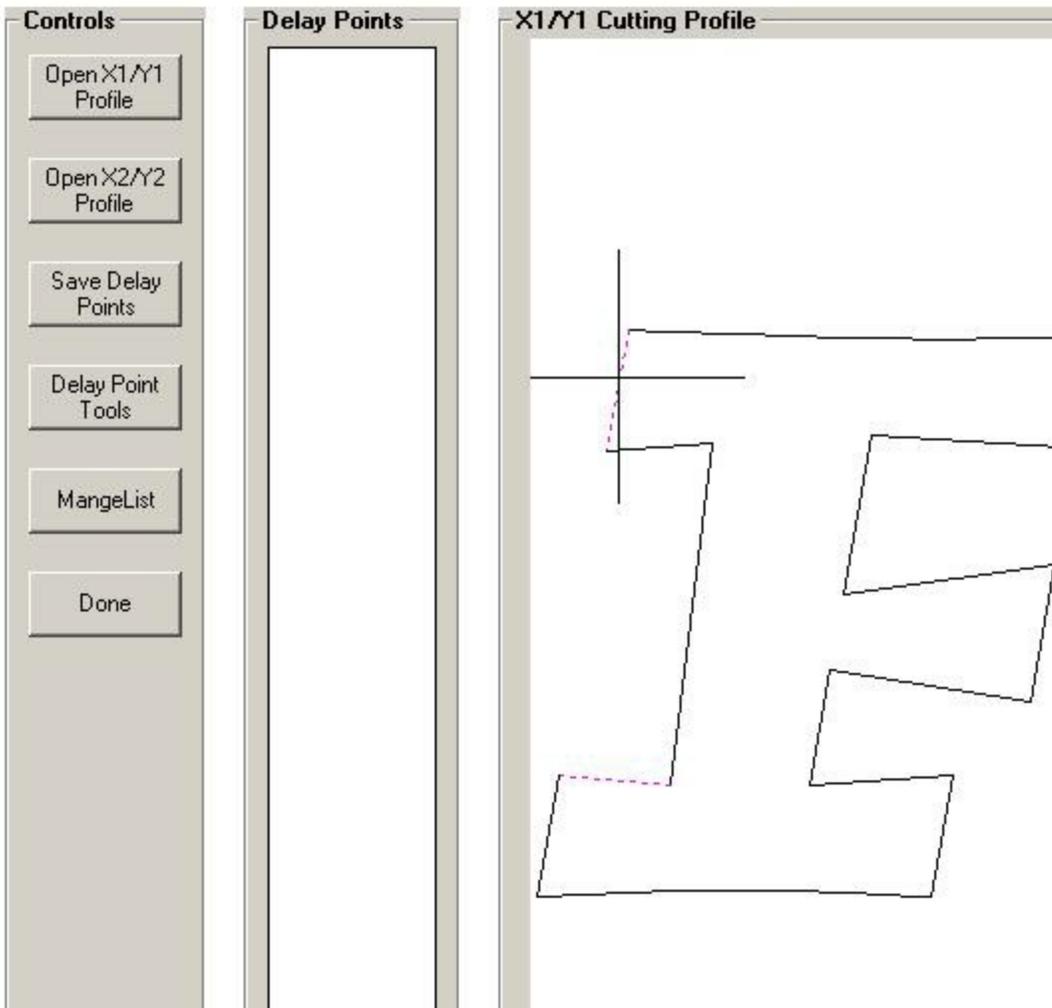
By default the X1/Y1 Profile is display. Delay points are only added to one side of the cut, therefore only one drawing is displayed. If you wish to add Delay Points to the X2/Y2 drawing, click the Open X2/Y2 Profile Button in the Control Menu.



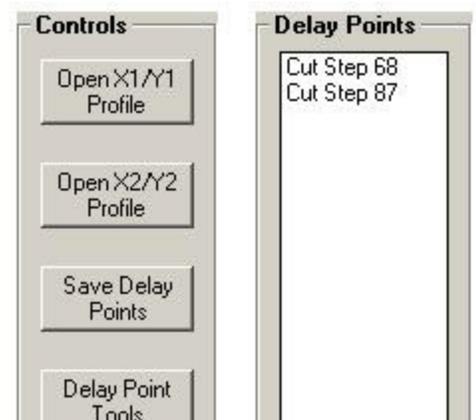
To begin adding Delay Points, first click anywhere on the Cut Profile window and the select crosshairs should appear.

Select Delay Points by placing the crosshairs over the line segment just before the point where you would want the Delay Point added. Think in terms of the drawing being the cutting path and select the line just before the desired Delay Point location. Double click to select the line segment. The line will show as selected.

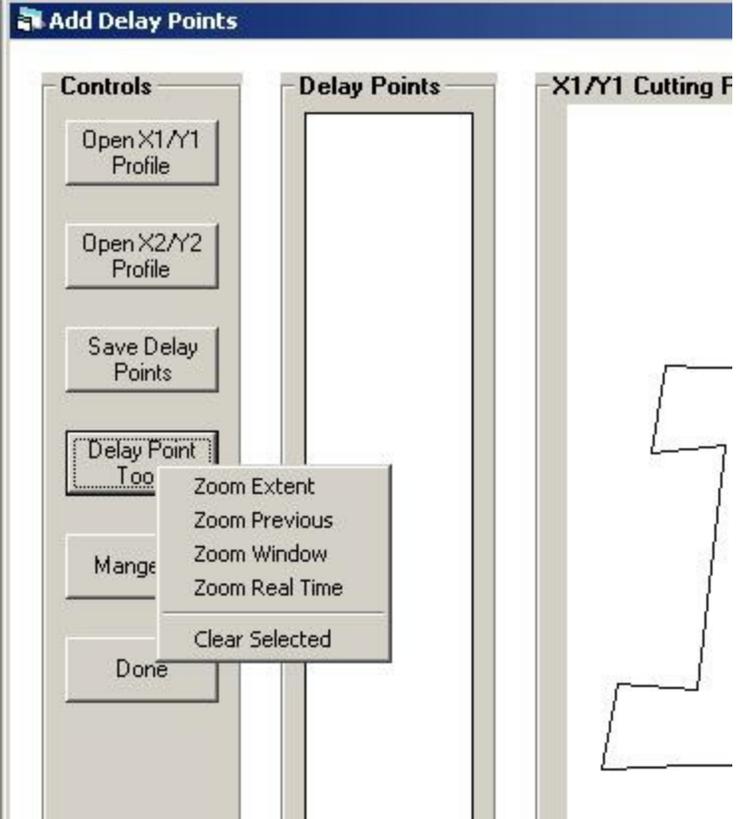
Continue this process around the drawing until all the desired Delay Points have been added. You can use the [Zoom Features](#) to zoom in and out to make selection easier.



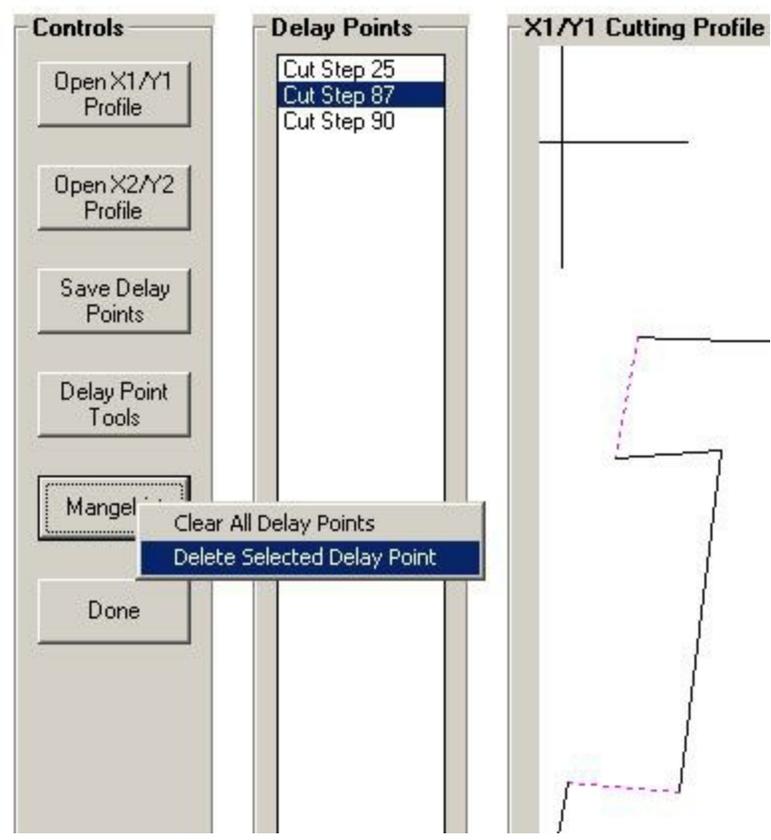
When all the desired Delay Points have been selected, click Save Delay Points Button. This will populate the Delay Point List with all the selected Delay points.



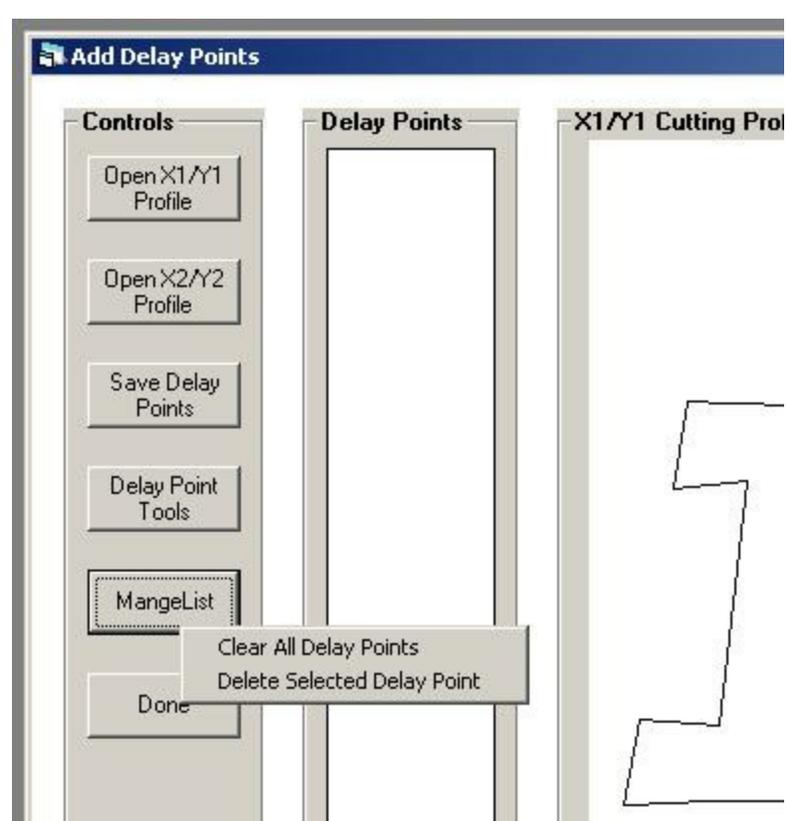
The Delay Point Tools Button opens the Zoom Tools menu and a Clear Selected Option. Clicking the Clear Selected Option will unselect all highlighted lines on the drawing.



Once the Delay List is populated you can manage the list using the Manage List Button. Clicking this button opens a menu that lets you delete any highlighted delay points in the list or the entire list. To delete a single delay point, first highlight the desired point, click the Manage List button and select Delete Selected Delay Point.

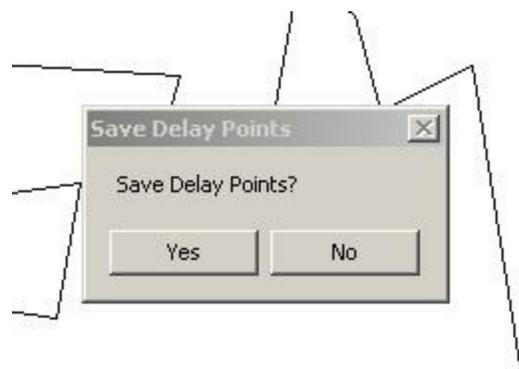


Right clicking with the mouse on the list will also bring up the Manage List options. The function is the same as described above.



When you are satisfied with the list of delay points, click Done. You will be prompted to save the delay point list. Selecting Yes saves the delay points and carries the information back the Build Cut Profile window. Selecting No abandons your work in the Delay Point Utility and returns you to the Build Cut Profile window.

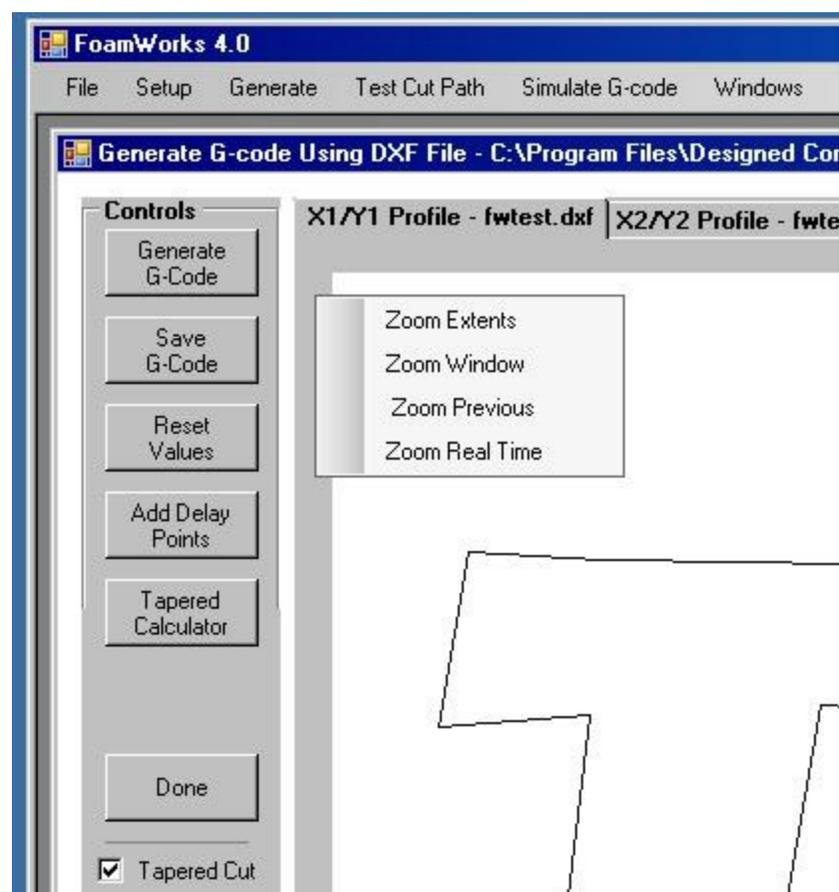
When you click NO the delay values are not carried forward and no Delay Points will be incorporated into the cut profile when it is generated.



Last Updated: 04/04/11

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Many of the FoamWorks windows support a series of Zoom Features. Right clicking anywhere within a FoamWorks window will activate the zoom menu.



Zoom Features

Zoom Extents

Zoom Extents will take the currently loaded drawing and zoom in to allow the maximum size view of the drawing.

Zoom Previous

Zoom Previous will return to the previously active zoom view.

Zoom Window

Zoom Window allows the user to drag a rectangle around the desired zoom point. FoamWorks will then zoom in to view the windowed area.

Zoom Real-Time

With Zoom Real-Time active and the left mouse button depressed, the active window will zoom in or out corresponding to the mouse movement.

Scroll Wheel

If your mouse is equipped with a scroll wheel, rotating the scroll wheel will zoom the window in or out corresponding to the scroll wheel movement.

Last Updated: 03/27/11

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Support can be obtained a number of ways.

1. Website: <http://www.foamwork.net>
2. General Information: info@foamwork.net
3. Technical Support: support@foamwork.net

Email is the most effective means of obtaining support. All email requests will be answered within 24 hours.

Last Updated: 01/02/11

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