



FRAMECAD Detailer User Manual
Versatile cold formed steel detailing
with world-leading design flexibility

www.framecad.com

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<http://my.framecad.com>

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1 Introduction

The FRAMECAD® Detailer Basic Skills manual is for new users to the FRAMECAD Detailer software. No previous knowledge of CAD systems is required; however a basic understanding of computer systems and their file structures is required. The user must have an understanding of building design requirements and a knowledge of local building code compliance.

Please note that although we do our best to automate your production process, you are responsible for verifying that all measurements and material lists are correct and that the design and any substitutions or modifications made meets all local building codes and requirements. You must verify that all design criteria and materials are consistent with conditions of the constructions site, including bracing and bridging. You should review the design with a qualified engineer and / or the appropriate local authorities. For more information on FRAMECAD Ltd terms & conditions of sale visit [**http://framecad.com/terms-and-conditions-of-sales**](http://framecad.com/terms-and-conditions-of-sales).

1.1 PRE-REQUISITES

- Basic understanding of Computers and the Windows Operating System is required.

1.2 SYSTEM REQUIREMENTS

FRAMECAD Detailer requires the following minimum system requirements to run:

- Intel® Core i5 processor or Equivalent
- 8GB RAM
- 100Mb free disk space (more for saved job files)
- Windows7 / Windows8.1 / Windows10 (must be a genuine and legal version of Windows)

2 Software Installation

2.1 INSTALLATION TYPES

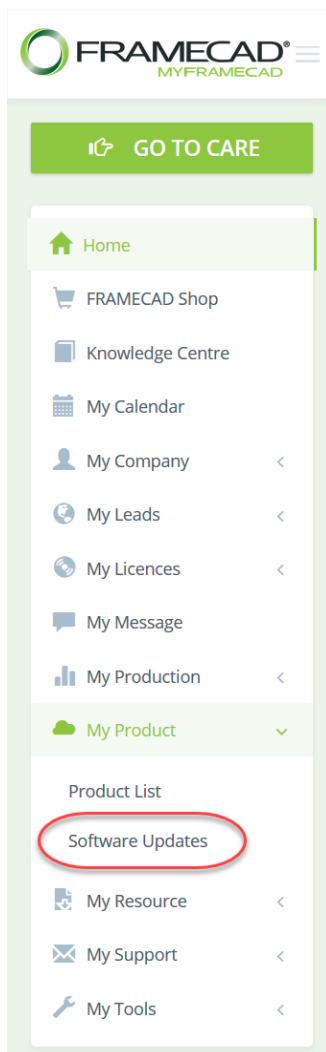
There are two types of installers available:

- A read only version installer
- A full version installer

The full version will only operate if a valid HASP/dongle is connected to the computer (refer to the dongle usage section below). The read only version does not require any security devices to operate and has the same functionality as the full version with the exception of saving and exporting to the machine.

2.1.1 Installation

- Download FRAMECAD Detailer from the MyFRAMECAD website: **<https://my.framecad.com>**.
- Access information for the MyFRAMECAD Customer website is provided on your software purchase. If you require further assistance contact the FRAMECAD Aftersales Team at support@framecad.com.
- Once logged in, the 'Software Updates' will be in the left hand list under 'My Product':



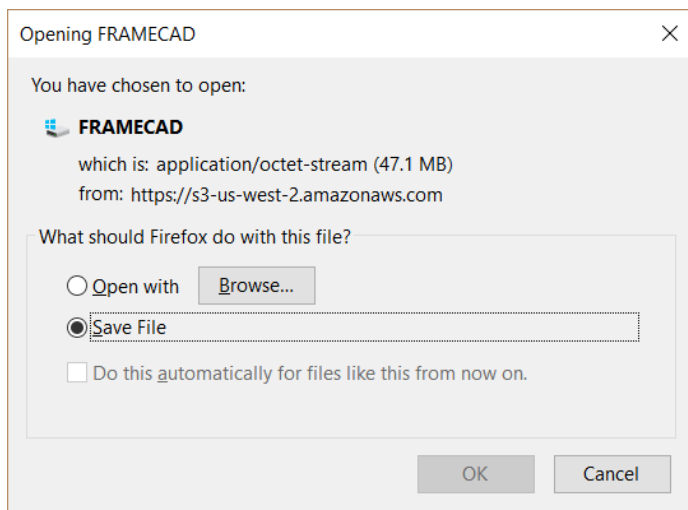
- Installations and Updates are available under the Detailer section:

⚙️ FRAMECAD DETAILER

- Supports Windows 7, Windows 8 and Windows 10.

☐	FILE NAME	VERSION	DATE RELEASED	FILE SIZE	
☐	FRAMECAD Detailer Full Installer	4.8.15.22	22/Dec/17	47.1 MB	↓ OPEN
☐	FRAMECAD Detailer Read Only Version	4.8.15.22	22/Dec/17	21.3MB	↓ OPEN
☐	FRAMECAD Detailer Release Logs	4.8.15.22	22/Dec/17	490.3KB	↓ OPEN
☐	Visual Enterprise Viewer (FRAMECAD 3D Viewer)	7.0.1.178	01/Jan/01	66.6 MB	↓ OPEN

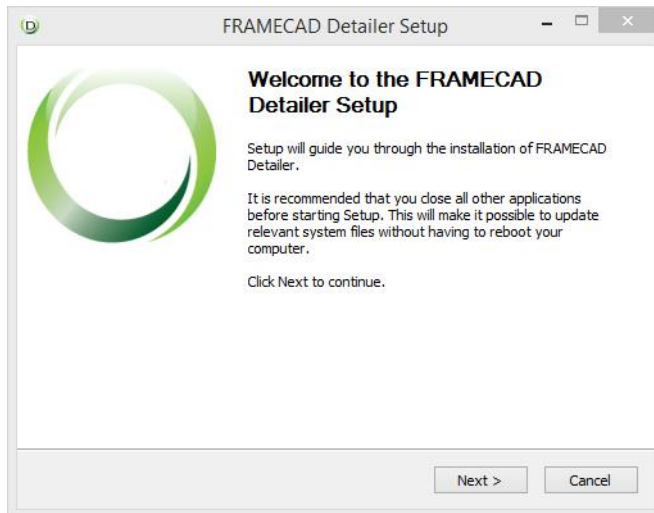
[DOWNLOAD](#)



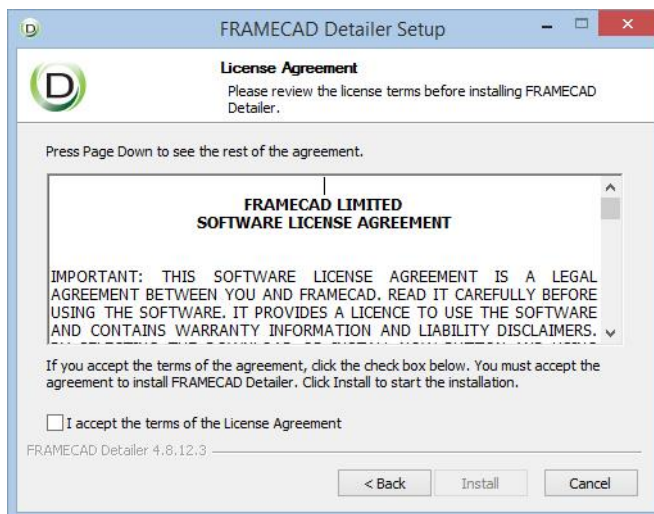
- Save the download file then double click on it to install the software.
- Select the correct Language from the Installer Language dialogue box then click on 'OK'.



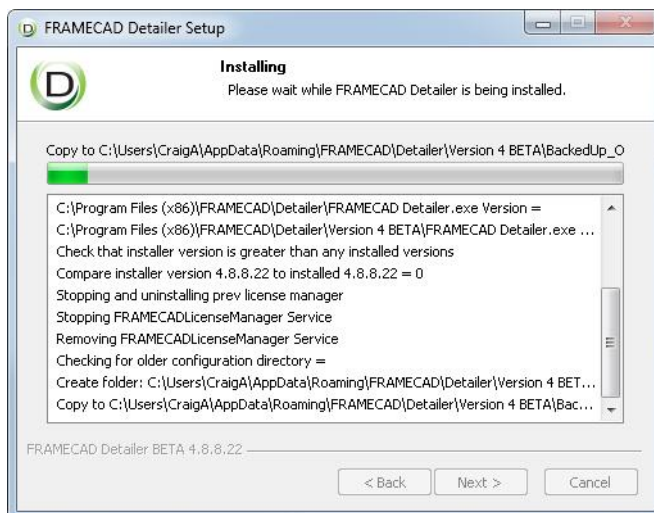
- When the Welcome screen appears, click 'next'.



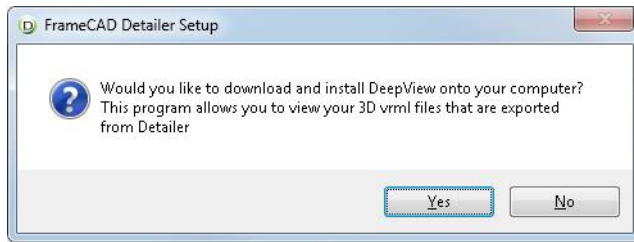
- Read the Licence Agreement, and if you accept the terms of the agreement, click 'Install'. If you do not agree with the terms of the agreement, click 'Cancel'.



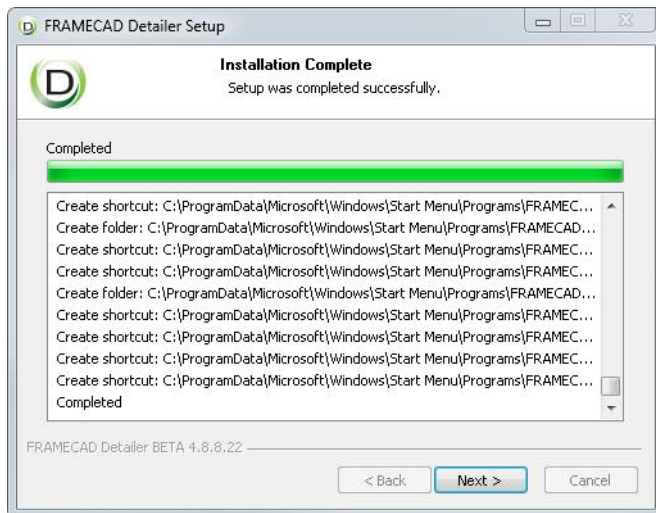
- FRAMECAD Detailer will now install.



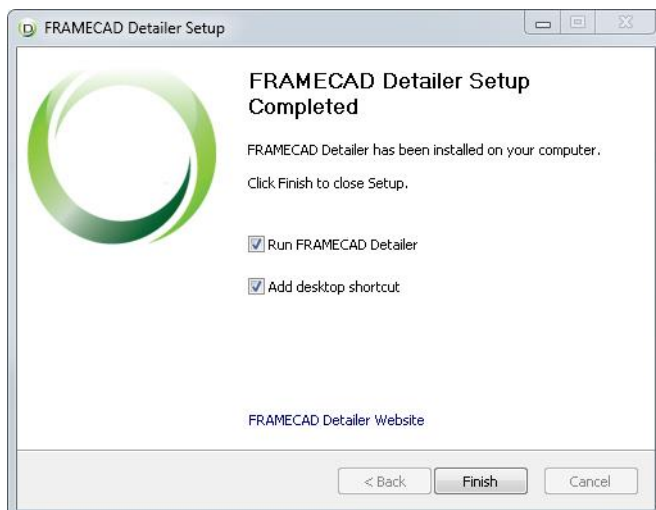
- During the installation process, a dialogue box will appear asking if you would like to download and install Visual Enterprise Viewer for viewing 3D vrml files. Earlier installations came with DeepView. Visual Enterprise Viewer replaces the DeepView software. If you already have Visual Enterprise Viewer from a previous installation, click on 'No'.



- Click on 'next'.



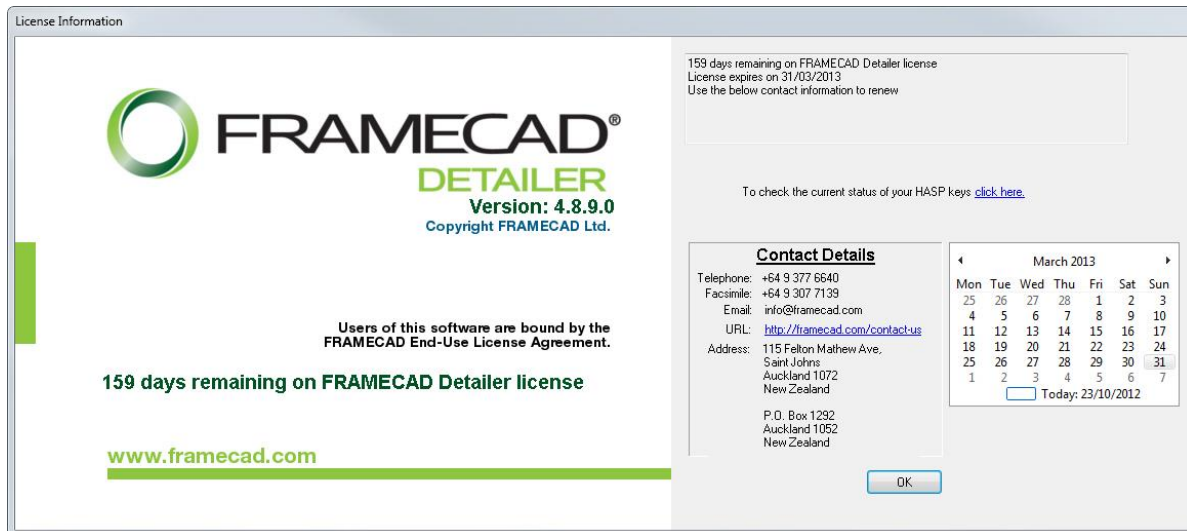
- To start FRAMECAD Detailer immediately, leave the 'Run FRAMECAD Detailer' checkbox ticked. If you would like a shortcut placed on your desktop then leave the 'Add desktop shortcut' checkbox ticked. Click Finish.



2.2 DONGLE USAGE

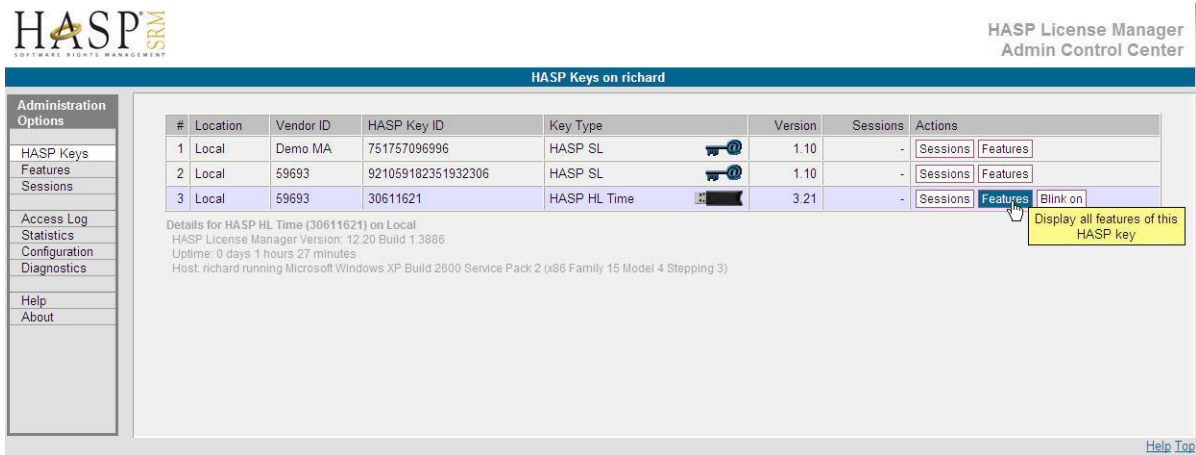
A Dongle/HASP is a hardware security device that is connected to a USB port on the computer. FRAMECAD Detailer will only run if a valid dongle can be found (with the exception of the read only version).

A valid dongle will contain a licence that includes a unique ID number and a licence expiry date. As part of the installation process, the drivers for the dongle will be installed as well as a service that runs in the background that will monitor the status of any connected HASPs.



The above screen can be displayed by running FRAMECAD Detailer and clicking License information under the Help menu (assuming your license hasn't already expired). Alternatively you can open up a browser and go the following URL: http://localhost:1947/_int/_devices.html and click features on the corresponding connected HASP you want more information about it.





HASP License Manager Admin Control Center

HASP Keys on richard

#	Location	Vendor ID	HASP Key ID	Key Type	Version	Sessions	Actions
1	Local	Demo MA	751757096996	HASP SL	1.10	-	Sessions Features
2	Local	59693	921059182351932306	HASP SL	1.10	-	Sessions Features
3	Local	59693	30611621	HASP HL Time	3.21	-	Sessions Features Blink on

Details for HASP HL Time (30611621) on Local
HASP License Manager Version: 12.20 Build 1.3886
Uptime: 0 days 1 hours 27 minutes
Host: richard running Microsoft Windows XP Build 2600 Service Pack 2 (x86 Family 15 Model 4 Stepping 3)

Help Top

This will show all of the information relating to your connected HASP. The row which has a feature ID of 70 is the FRAMECAD Detailer license information and as shown below says it will expire on the start of April 2009.



HASP License Manager Admin Control Center

Features on richard: HASP 30611621 (Vendor: 59693)

#	Feature ID	Location	Access	Count	Logins	Limit	Restrictions	Sessions	Actions
1	0	Local	Loc	Station	-	∞	Perpetual	-	Sessions
2	70	Local	Loc	Station	-	∞	Expiration Date Wed Apr 1, 2009 00:00	-	Sessions

If there are not enough USB ports available then a USB hub can be purchased which will expand the possible number of ports. There are also NET dongles available that can allow a number of sessions to be established by only using one computer.



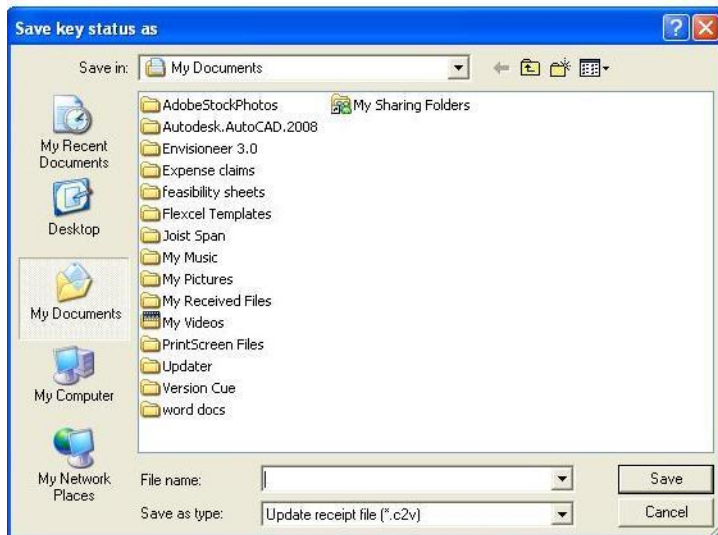
Figure 1: Port USB Hub

2.3 UPDATING YOUR LICENSE

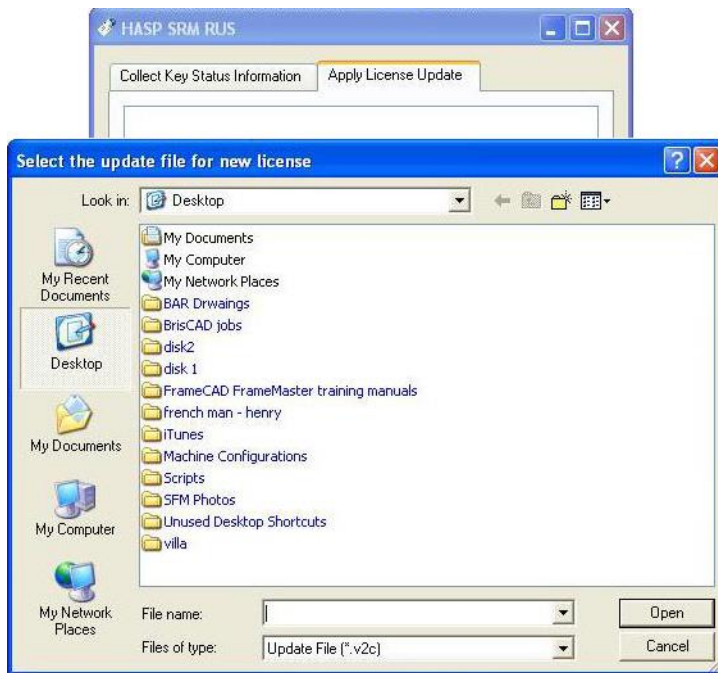
To update your licence, run a program called Hasp Remote Update in Start | All Programs | FRAMECAD | Detailer | Version # with the dongle you use connected.



Under the Collect Key Status Information tab click collect information, this will prompt you to save a "C2V" (Client to Vendor) file. We will need this file in order to update your license information.



After FRAMECAD Ltd has received your "C2V" file we will then generate a "V2C" (Vendor to client) file that you upload by running Hasp Remote Update and under the Apply Licence Update tab click on the browse button and open the V2C file.



You can view the status of your licence at any time by running FRAMECAD Detailer and under the 'About' menu click licence information, this will tell you when and how many days are left on your licence.

It is also possible that you may be given an executable file (exe) from us which has the Hasp Remote Update and the v2c preloaded to it, in this case you just need to run the program and click on the apply update button while your hasp is connected. Generally, if you can supply your hasp ID to us then there is no need to use the first method to update your license.

3 Defaults and Global Settings

To access the Defaults and Global Settings, go to 'Edit | Options' in the menu bar or press Ctrl+O.

3.1 CAD

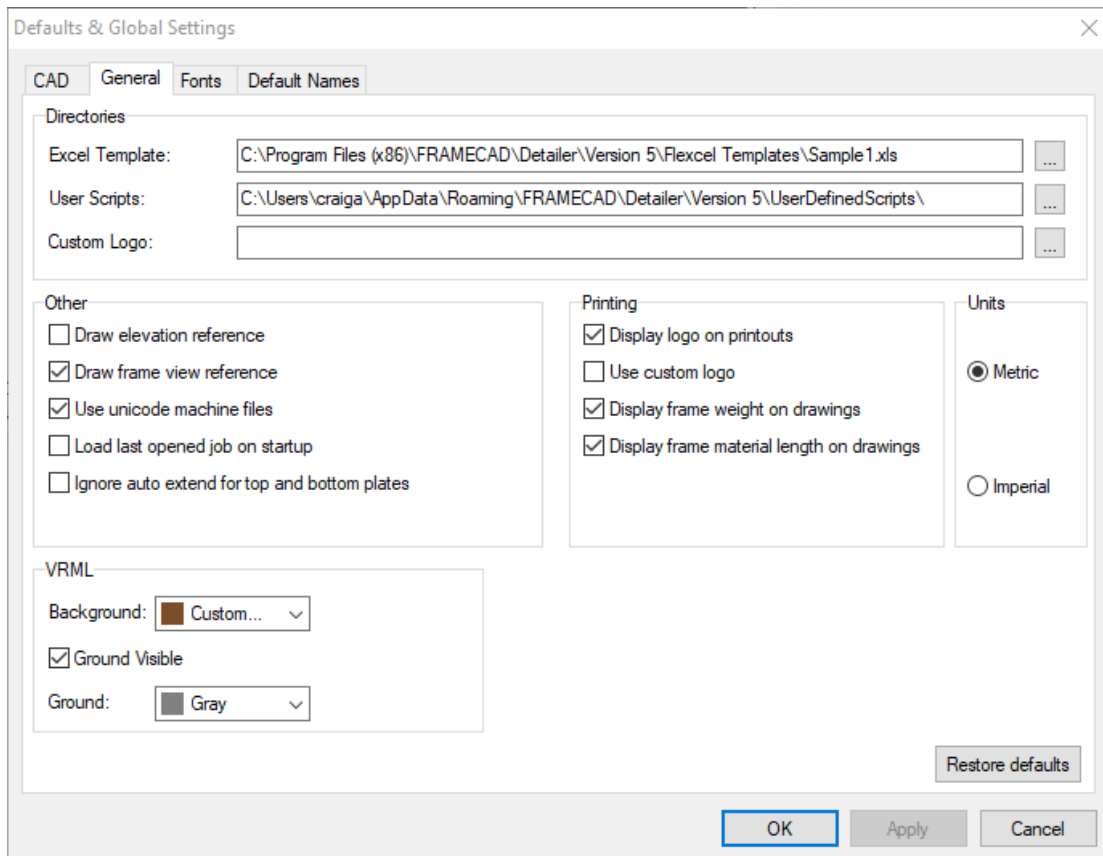
In the CAD tab the user can configure the CAD environment:

The screenshot shows the 'Defaults & Global Settings' dialog box with the 'CAD' tab selected. The dialog has a title bar with a close button (X) and a tab bar with 'CAD', 'General', 'Fonts', and 'Default Names'. The 'CAD' tab contains several settings:

- Background:** A dropdown menu set to 'White'.
- Grid Snap:** A text input field containing '100.00'.
- Place objects on current layer:** An unchecked checkbox.
- Crosshairs:**
 - Aperture Size (Pixels):** A spinner box set to '10'.
 - Target Size (Pixels):** A spinner box set to '3'.
 - Color:** A dropdown menu set to 'Black'.
 - Use Fixed Length:** A checked checkbox.
 - Pixels:** A spinner box set to '50'.
- Fence:**
 - Transparency %:** A spinner box set to '50'.
 - All In Color:** A dropdown menu set to 'Blue'.
 - Any In Color:** A dropdown menu set to 'Green'.
- Elevation Profile Offsets:**
 - Horizontal Offset:** A text input field containing '20.00'.
 - Vertical Offset:** A text input field containing '20.00'.

At the bottom right of the dialog is a 'Restore defaults' button. At the bottom center are three buttons: 'OK' (highlighted with a blue border), 'Apply', and 'Cancel'.

3.2 GENERAL



3.2.1 Directories

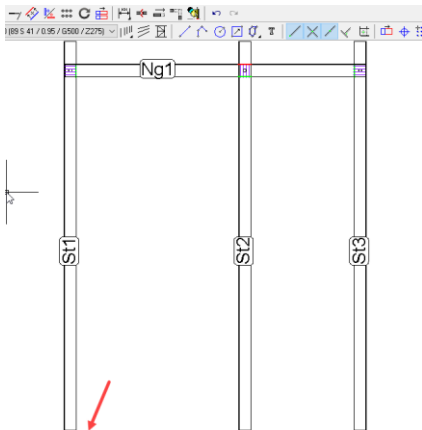
Directories used for Excel Templates, User Scripts and Custom Logos.

To use Custom Logos, point the directory location to where your custom company logo is stored, then tick on the 'Use custom logo' option in the 'Printing' option list below.

Note: Make sure there are no spaces contained in the file name.

3.2.2 Other

Draw elevation reference – Draws a line indicating the zero-level location. For a frame created in Detailer it will be under the bottom plate:

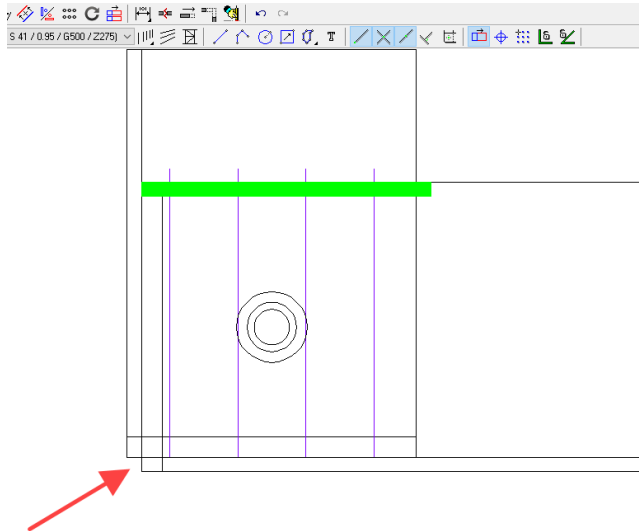


Draw frame view reference – Draws an arrow to the middle of the frame indicating the side the frame is looked at in elevation view.

Use Unicode machine files – leave ticked for use with all FRAMECAD machines.

Load last opened job on startup – Untick if you want a new job on startup.

Ignore auto extend for top and bottom plates – Tick this option to work in conjunction with the Auto Extend - Multiple Member (AM) option. By default, top and bottom plates are cut back by the End Clearance specified in the Machine Setups – Clearances tab.



3.2.3 Units of Measurement

FRAMECAD Detailer is capable of operating in either **Metric** (millimetres) or **Imperial** (feet, inches and fractions). The units of measurement are in the menu Edit | Options – Click on the General Tab and select either Metric or Imperial.

You can also type TU (Toggle Units) into the Command Bar to change units. A plan must be added to activate the Command Bar.

Metric measurements are shown in millimetres, and in simple number format. 1 meter is 1000 millimetres, and shown as 1000.

Imperial measurements are showing in feet ('), inches (") and fractions thereof. 1 foot can be shown as 1' (1 foot) or 12" (12 inches). 1 and a half feet (1 foot 6 inches), can be shown as 1'6" (1 foot 6 inches), or 18" (18 inches). 1 and 3/4 inches is described as 1-3/4". One way to describe 6 feet, 11 and 31/32 inches is 6'11-31/32".

3.2.4 VRML

Allows the users to set background and ground colours which will be applied to the 3D VRML export file. Colours for frames can be set in the Frame Types (ctrl+T) setup dialogue and in the XML Import – Options dialogue for imported frames.

3.3 FONTS

Customise the default font type and size.

Defaults & Global Settings

CAD General **Fonts** Default Names

Plan
Size: 200.00
Arial

Build
Size: 60.00
Arial

Feature
Size: 40.00
Arial

Application
Microsoft Sans Serif

Restore defaults

OK Apply Cancel

3.4 DEFAULT NAMES

Customise the default labels for stick types:

Defaults & Global Settings

CAD General Fonts **Default Names**

Stick Type	Default Name
Unknown	?
Top Plate	Tp
Bottom Plate	Bp
Head Plate	Hd
Plate	Pl
Sill	Sl
Nog	Ng
Top Chord	Tc
Bottom Chord	Bc
Tye	Ty
Brace	Br
Web	Wb
Stud	St
Trim Stud	Ts
Jack Stud	Js
Rail	R

Restore defaults

OK Apply Cancel

4 Machine and Frame Type Setups

Setups have multiple purposes within Detailer and it is important that you understand how they work as they will affect how frames come out of the machine.

Setups are responsible for the following:

- Telling Detailer what machine you are exporting your frames to.
- What section shape, size, steel thickness you are using within your frames.
- Determines how the tooling operations are calculated on the frames.
- Determines the frames orientation, i.e. Back To Back, On Edge or On Flat (Discussed later).

Different types of setups:

- **Machine Setups** are created in the Machine Setup dialog. They control section types, available tools, tool lengths, clearances, extra fastening position, etc. Machine Setups replace the 'Machine Configurations' found in Framecad Detailer V4 and earlier.
- **Section Setups** are part of Machine Setups. A machine setup can contain 1...n section setups that hold information about the section's shape, size, gauge, steel, coating, etc.
- **Frame Setups** can only be created once the Machine Setup is finalised. They control what type of section and machine will be used for each frame, such as Walls, Joists, Trusses, etc. They also control Tool Actions (standard, back to back, reversed, etc.). and default scripts can also be configured here.

When you open the program for the first time you must set up your machine properties and section profiles and then set up your frame types.

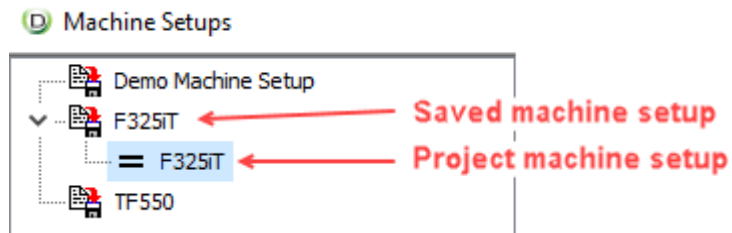
4.1 MACHINE SETUPS

The machine setups tell Detailer the following information:

- Tools available for the machine.
- Tool lengths.
- Section profiles that the machine can produce.
- Dimple heights (distance from the web of the steel section to the centre of the dimple), flange-hole heights, etc.
- Various other clearances.

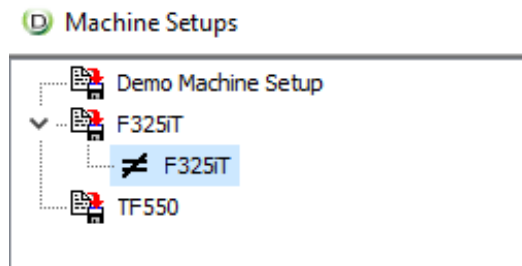
This is just to give you an idea of some of the options in a machine setup. Each of the available options will be shown and explained. Each machine file will be filtered by a corresponding machine series. There are two types of machine setups:

- **Default Machine Setups** – These configurations must be set up when you first run the program before any jobs can be created. These are saved on your hard drive.
- **Project Machine Setups** – These are created from any saved configurations that are being used when you create a frame. It takes a copy from the 'default machine setup' and creates the 'project machine setup'. This means that all the information about the configuration is stored within the job file and you do not need to send your saved configuration files to someone else's computer in order for them to open your job file or create a machine file. A project can have multiple 'project machine setups'.

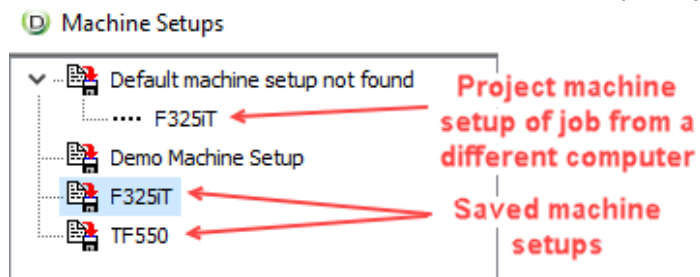


The equals sign indicates that the section setups are identical between the project and the saved machine setup.

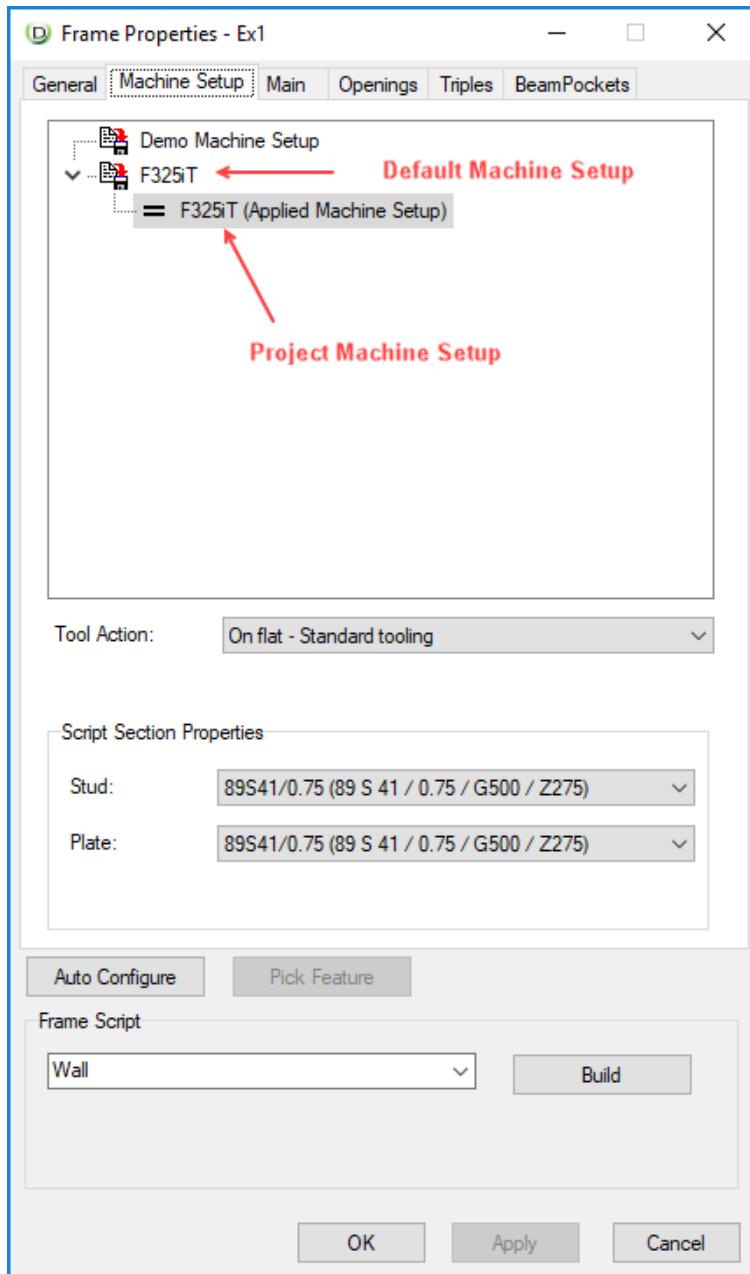
The example below shows the project machine setup being not equal to the saved machine setup. This occurs when a job is imported from FRAMECAD Structure® and the section profile setup in the job is not identical to what has been setup in the machine settings:



The example below shows the project machine setup of a job that was created on another computer:



The screenshot below shows the Machine Setup for a built wall frame:



For this particular frame (Ex1), the setups are:

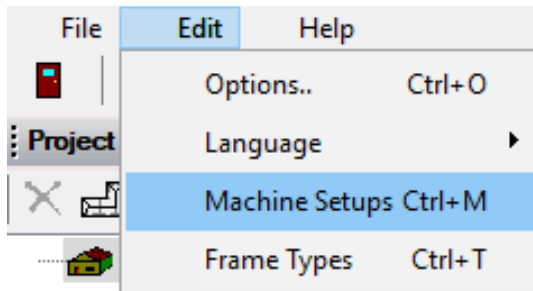
- Machine type: F325iT
- Sections for the stud and plate: 89S41/0.75.
- Steel grade: G500
- Coating class: Z275 – zinc coating of 275 g/m2

If there are other machine setups available, the user has the ability to change to these by clicking on a machine and click on 'Apply'. The frame will be built according to the settings of that machine.

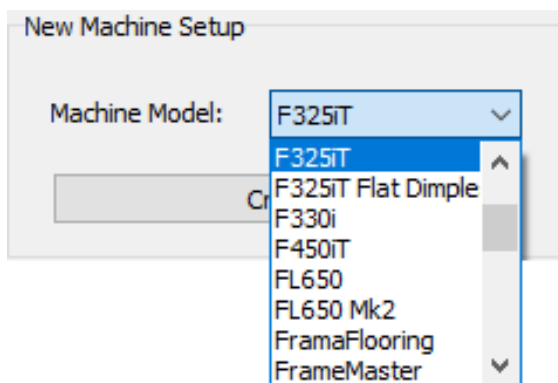
4.2 CREATING MACHINE SETUPS

In the machine setup options, only the section options, clearances and general information that is applicable to the machine type selected and toolings selected for that machine will be shown.

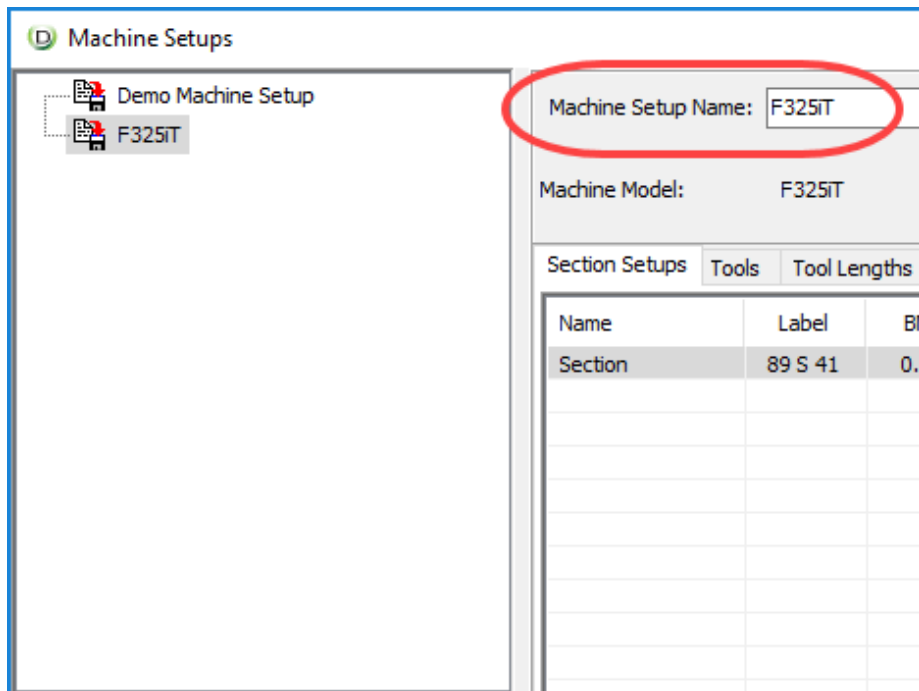
1. Menu option: **Edit | Machine Setups** (Ctrl+M)



2. Select your machine model.



3. Once the machine is selected, press the **Create** button. The new machine will be placed in the top - left pane of the dialogue box and the machine name will be placed in the 'Machine Setup Name' location.
4. Rename the machine as desired or leave it as the default name.



A default section will appear on the screen for the selected machine.

5. Click on 'Apply' to save the machine.

Note: There is also the option to import a machine setup that has previously been created and exported by another user. See section 4.6.

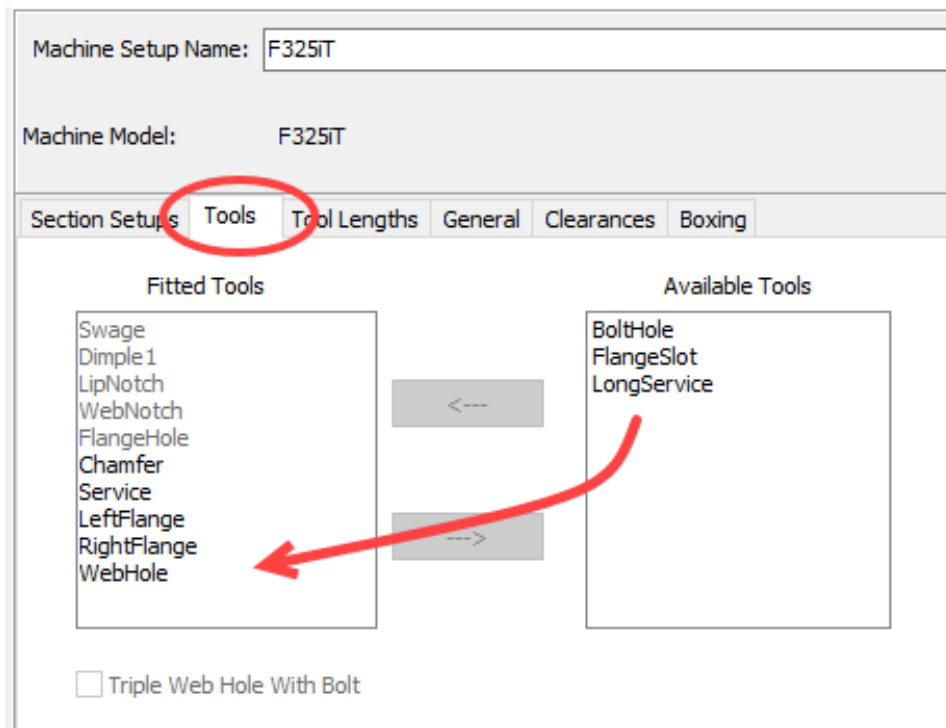
A selection of pre-defined machine/profile setups can be found on the software download site. These can be used as a starting point if required, but please note that they only use certain generic tools and settings which may not be applicable to some machines or users setting requirements.

If the user chooses to use one of these setup files, they must check all the tools selected against what is actually in their machine, check all other settings and make any changes as required. Any additional section members can be added or removed and the Machine Setup Name and Section Names can be changed to suit the user's requirements.

4.2.1 Tools

1. Once the machine has been set up, go to the **'Tools'** tab. Ensure you know what tools are available on your machine, then select them from the right-hand panel (Available Tools) and move them to the left-hand panel (Fitted Tools).

Note: Check the Profile Drawing provided with your FRAMECAD Machine to identify the available tools.



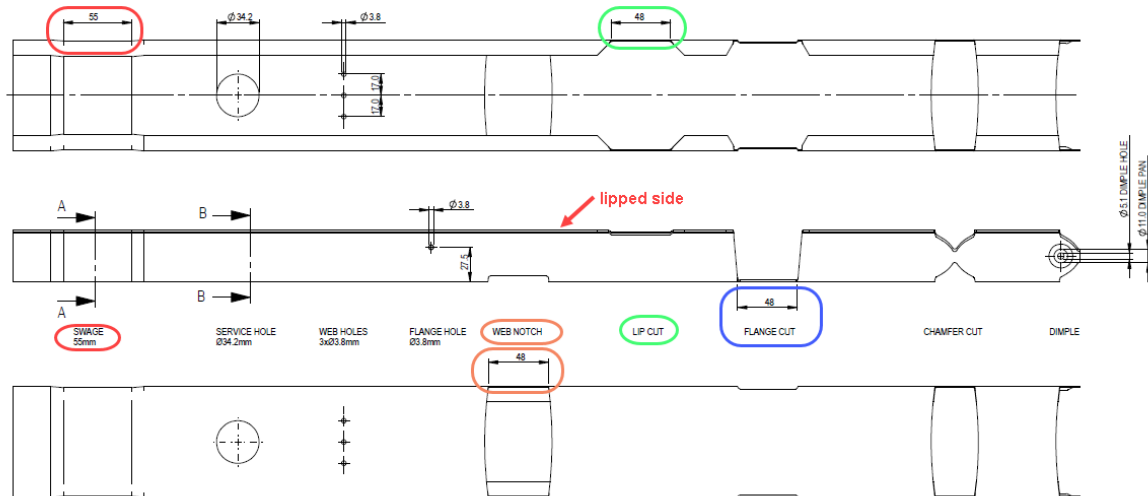
Triple Web Hole With Bolt – Same as triple web hole except centre hole is a bolt hole. This is only selectable if the Bolt Hole tool is moved from Available Tools to Fitted Tools.

2. Click on 'Apply' to save settings.
3. Once all the available tools have been selected, move to the next tab to set up the **'Tool Lengths'**.

4.2.2 Tool Lengths

The tool lengths are the physical dimensions of the operations (punches, cut-outs) that the tools make on the profile, as you operate your FRAMECAD Machine. Check if the default Tool Lengths match the ones on your profile drawing and change the values if needed.

See the profile drawing below:



...and the correct setup for it:

Machine Setup Name: F325T

Machine Model: F325T

Section Setups Tools **Tool Lengths** General Clearances Boxing

Left Flange: 48.00 Swage: 55.00

Lip Notch: 48.00 Web Notch: 48.00

Right Flange: 48.00

Click on 'Apply' to save settings.

4.2.3 General

The 'General' tab shows the following options:

Machine Setup Name: F325IT

Machine Model: F325IT

Section Setups Tools Tool Lengths **General** Clearances Boxing

Back To Back Tooling:
Web

Minimum Tag Length:
20.00

☐ Place Extra Chamfers

Plate Width Differential:
3.00

☐ Suppress Fasteners

Triple Web Hole Spacing:
17.00

Extra Fastenings
No Extra Flange Holes

Extra Fastenings (at 90°):
Standard Fastenings

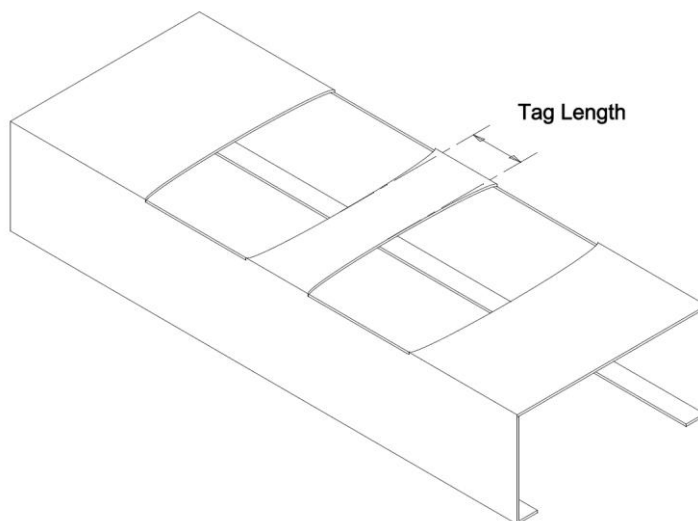
Extra Fastening Distance:
9.00

Extra Fastening Distance (at 90°):
15.00

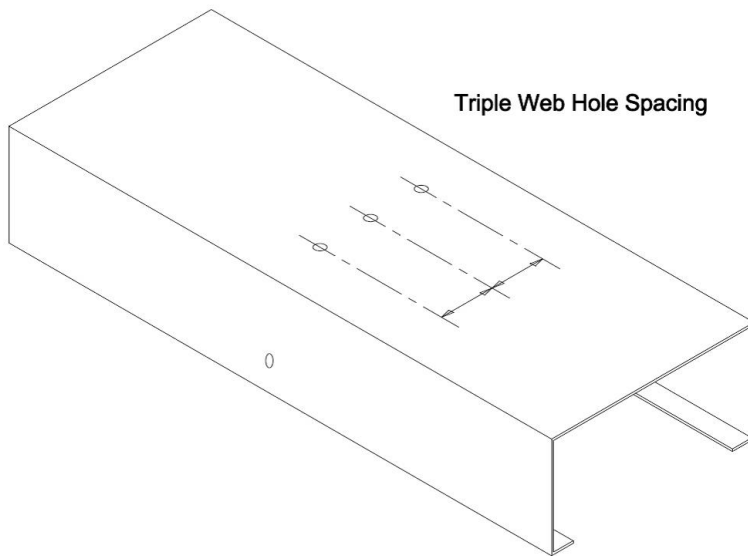
☐ Use Fixed Web To Web Distance

Fixed Web To Web Distance:
58.00

- **Back To Back Tooling** – Determines whether 'Web' hole or 'Bolt' hole tool operations will be used to fasten the frame members together (Back to Back trusses only).
- **Minimum Tag Length** - The tag is the piece of steel left between two notches that are close together. When this tag length drops below the designated length, the notch tool will punch it out to create one large hole.



- **Place Extra Chamfers** – May resolve isolated factory issues with the way chamfers are calculated.
- **Plate Width Differential** – This setting is specific to the ST (stud and track) machines, where the track member is wider than the stud members. The distance shown here will only affect what is shown in plan view for detailing purposes. Basically, it will draw the walls wider than the stud section size by the value indicated.
- **Suppress Fasteners** – Turns off all fastener holes.
- **Triple Web Hole Spacing** – This is the spacing between the centre of the middle hole and each of the outer holes on the web of the section.

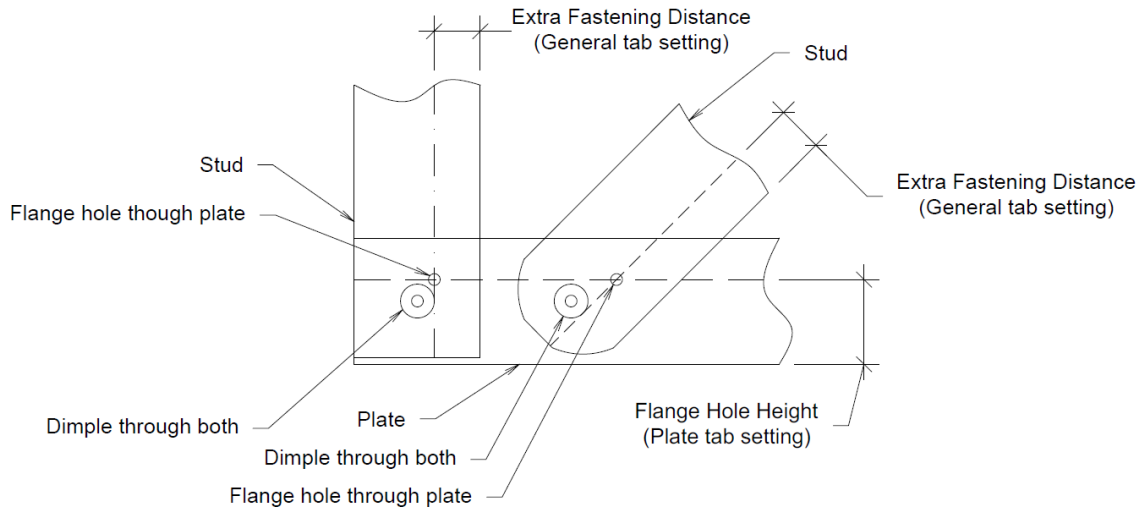


- **Extra Fastenings** – Places extra flange holes adjacent to dimples for double screwing members. Generally used for webbed joists. Only applicable if machine has flange hole tool available.
- **Extra Fastening Distance** – This is the search distance to determine which side of the web member that a flange hole is placed along a chord member. 9mm is the optimum distance.
- **Extra Fastening Distance (at 90°)** – This is the minimum distance to the flange hole from the main dimple in Options 2 and 4 below.

Option 1: This is the standard setup option.

Extra Fastening Option: 'Variable position Flange Holes'

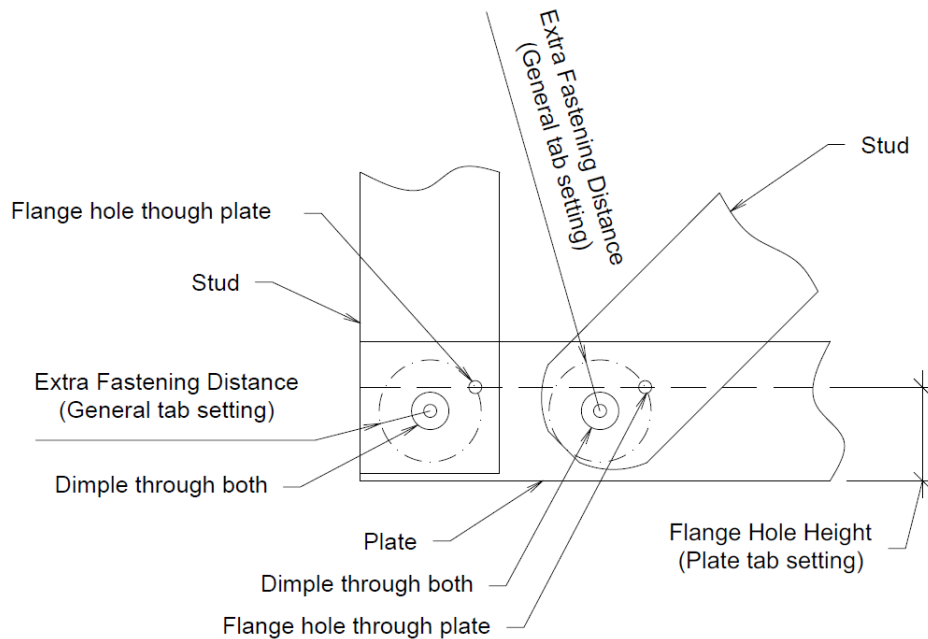
Extra Fastening (at 90°): 'Standard Fastening'



Option 2: This setup is generally used for machines running a profile with a narrower flange than the standard 41mm.

Extra Fastening Option: 'Fixed position Flange Holes'

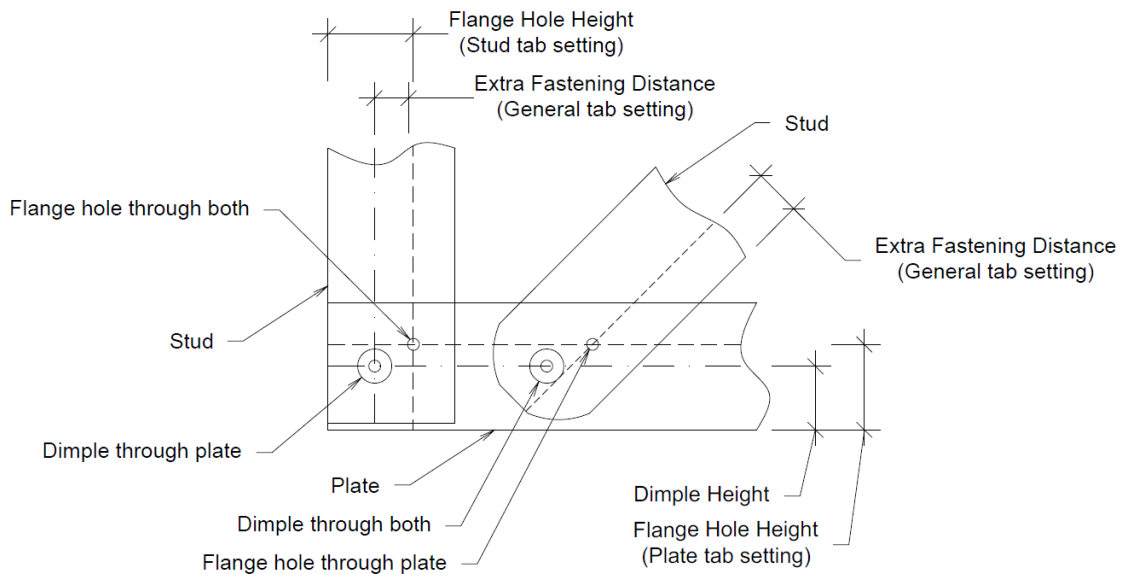
Extra Fastening (at 90°): 'Standard Fastening'



Option 3: This setup is recommended for machines with no dimple punch (i.e. a flat dimple).

Extra Fastening Option: 'Variable position Flange Holes'

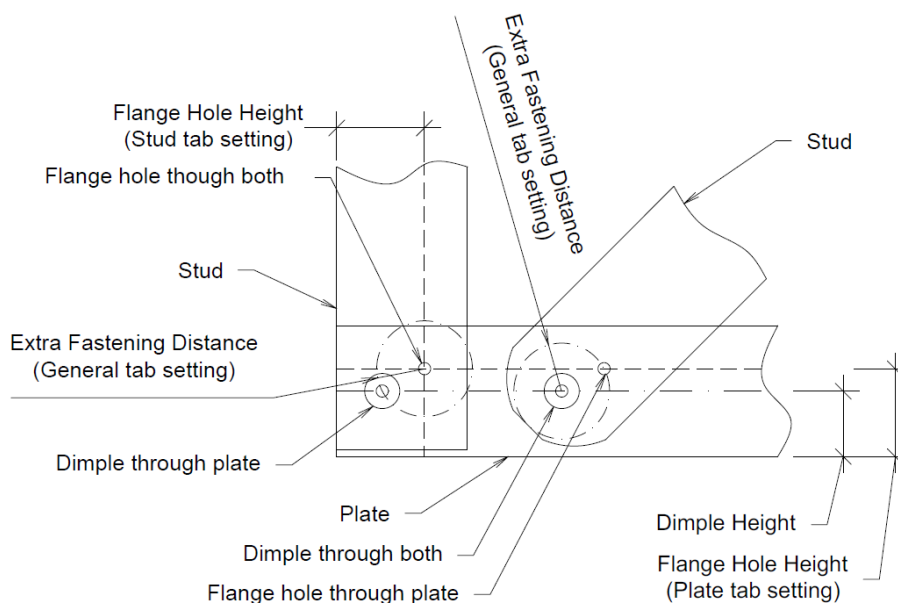
Extra Fastening (at 90°): 'Inverted Fastening'



Option 4: This setup is recommended for machines with no dimple punch (i.e. a flat dimple) and a narrow flange width.

Extra Fastening Option: 'Fixed position Flange Holes'

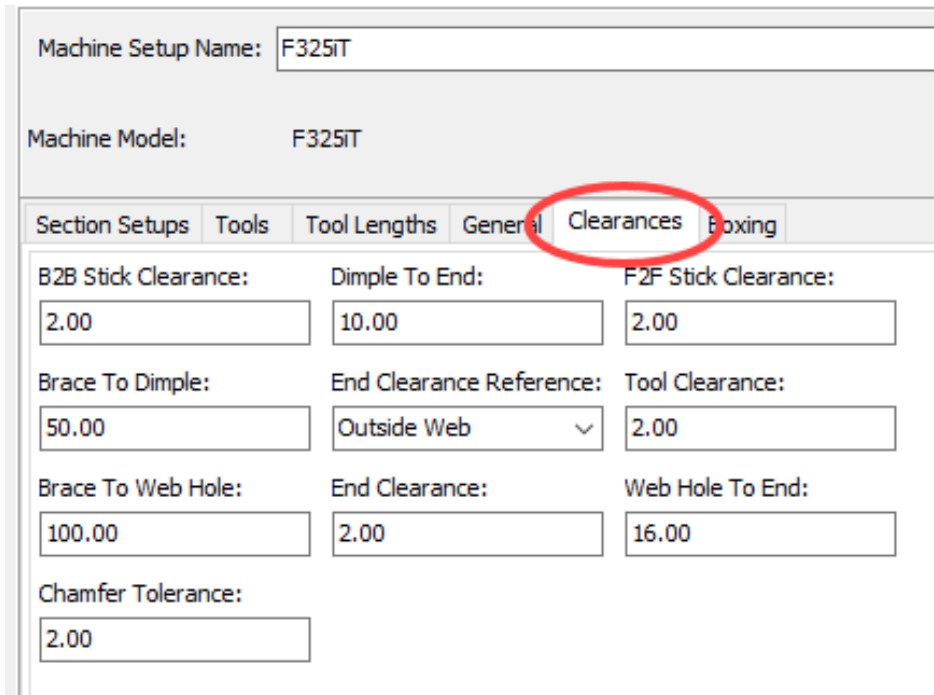
Extra Fastening (at 90°): 'Inverted Fastening'



Click on 'Apply' to save settings.

4.2.4 Clearances

The 'Clearances' tab shows the following options:



Machine Setup Name: F325IT

Machine Model: F325IT

Section Setups Tools Tool Lengths General **Clearances** Fixing

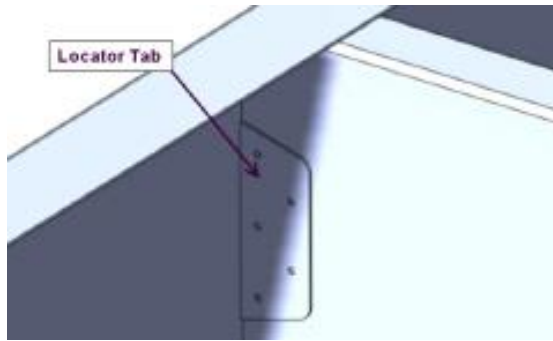
B2B Stick Clearance: 2.00 Dimple To End: 10.00 F2F Stick Clearance: 2.00

Brace To Dimple: 50.00 End Clearance Reference: Outside Web Tool Clearance: 2.00

Brace To Web Hole: 100.00 End Clearance: 2.00 Web Hole To End: 16.00

Chamfer Tolerance: 2.00

- **B2B Stick Clearance** – Clearance between back to back stud members to allow for easier assembly in factory. Note: B2B studs should still be screwed together in most cases.
- **Bolt Hole To End** – Minimum distance of a bolt hole to the end of a member. Applicable to back to back truss setups.
- **Brace To Dimple** – The distance between a standard members dimple and a brace members dimple.
- **Brace To Web Hole** – The distance between a standard member's web hole and a brace member's web hole. Applicable to back to back trusses.
- **Chamfer Tolerance** – When one member intersects another at an angle (e.g. a brace), this is the distance that the corner of that member comes within the web side of the intersecting member before a chamfer is applied. 2mm is generally sufficient for 0.75 to 0.95 material as this also allows for the radius in the folds. Increase this figure for thicker material.
- **Dimple To End** – Minimum distance from a dimple to the end of a member. This distance is also applied when a member is edited when the Auto Extend tool is toggled on.
- **End Clearance Reference** – Determines whether the clearance distances are from the outside of the member or from the inside of the member relative to the material thickness.
- **End Clearance** – The distance from the end of a member to the edge of the member it is connected to. This is used when the 'Auto Extend' tool is applied.
- **End To Tab Distance** – Indicates the minimum distance a locator tab will be placed from the end of a track piece (applicable FL650 machine only).



- **F2F Stick Clearance** – Clearance between face to face stud members to allow for easier assembly in factory.
- **Minimum Tab To Tab Distance** – Minimum distance allowed between locator tabs (applicable FL650 machine only).
- **Tool Clearance** – The distance to be added to either side of a tool operation.
- **Web Hole To End** – Minimum distance a web hole will be placed from the end of a member. Applicable to back to back trusses.

Click on 'Apply' to save settings.

4.2.5 Boxing

The 'Boxing' tab shows the following options:

Machine Setup Name: F325iT

Machine Model: F325iT

Section Setups Tools Tool Lengths General Clearances **Boxing**

Box To Box Max Hole Delta 2.00 Boxing Offset 2.00

Boxed End Length 200.00 Partial Boxing Max Dimple Spacing 500.00

Boxing Max Dimple Spacing 500.00

- **Box To Box Max Hole Delta** – locating hole distance for reinforced members (FL650 machine only).
- **Boxed End Length** – Length of boxing pieces for 'In-plane - On edge' trusses (Back to Back machines only).
- **Boxing Max Dimple Spacing** – Distance between dimples on boxed members.
- **Boxing Offset** – The distance that boxing members are offset.
- **Partial Boxing Max Dimple Spacing** – Distance between dimples on partially boxed members.

Click on 'Apply' to save settings.

Note: Once a new machine has been setup, the Demo Machine can be deleted.

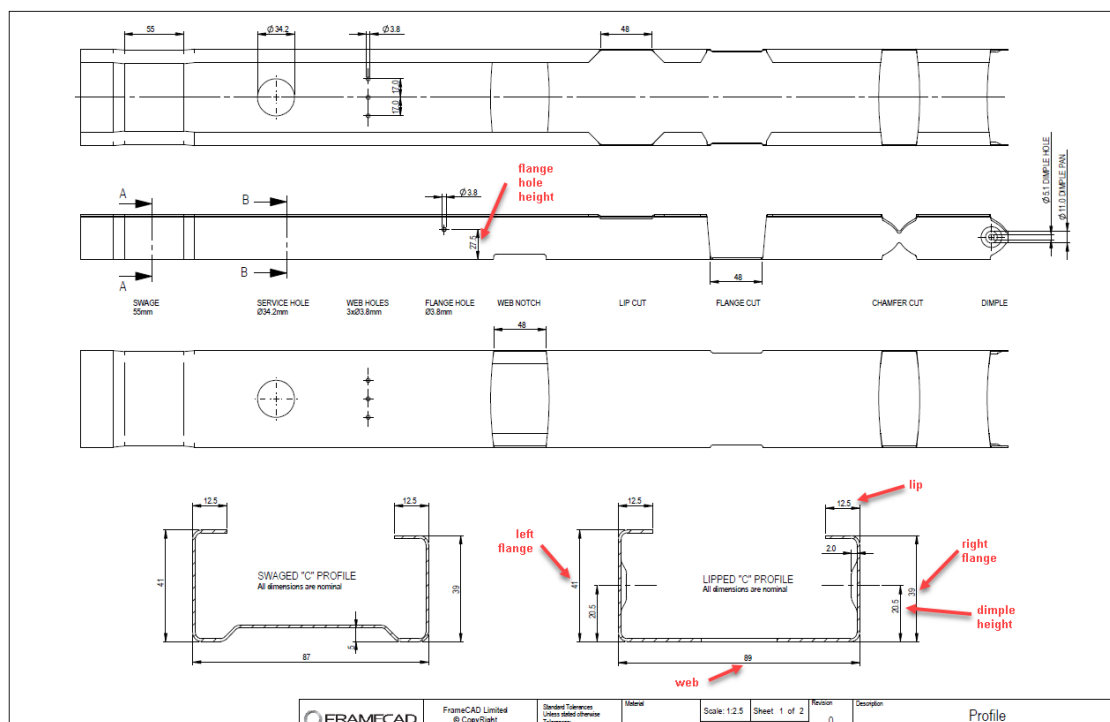
4.3 SECTION SETUP

Users can now setup section profiles to whatever size they like using an interactive 'section profile' interface. Multiple sections can be setup specifically to suit one machine. These would usually be differentiated by thickness (BMT) and grade but could also be different profile sizes as required for multi-profile machines. This limits the user to a selection of profiles specific to that machine.

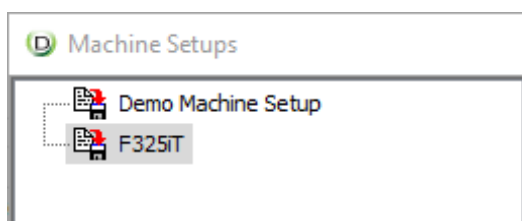
Prior to setting up section sizes in Detailer, the user must know what profile sizes, thicknesses and grades their factory's machine is going to be running. This information can be sourced from the profile drawings that are supplied with the machine.

Important Note: the information supplied on the profile drawings may not be exactly the same as what is setup on the machine. Therefore, the user must double check what has actually been setup on the machine to ensure that what is produced in Detailer is identical to what is on the machine.

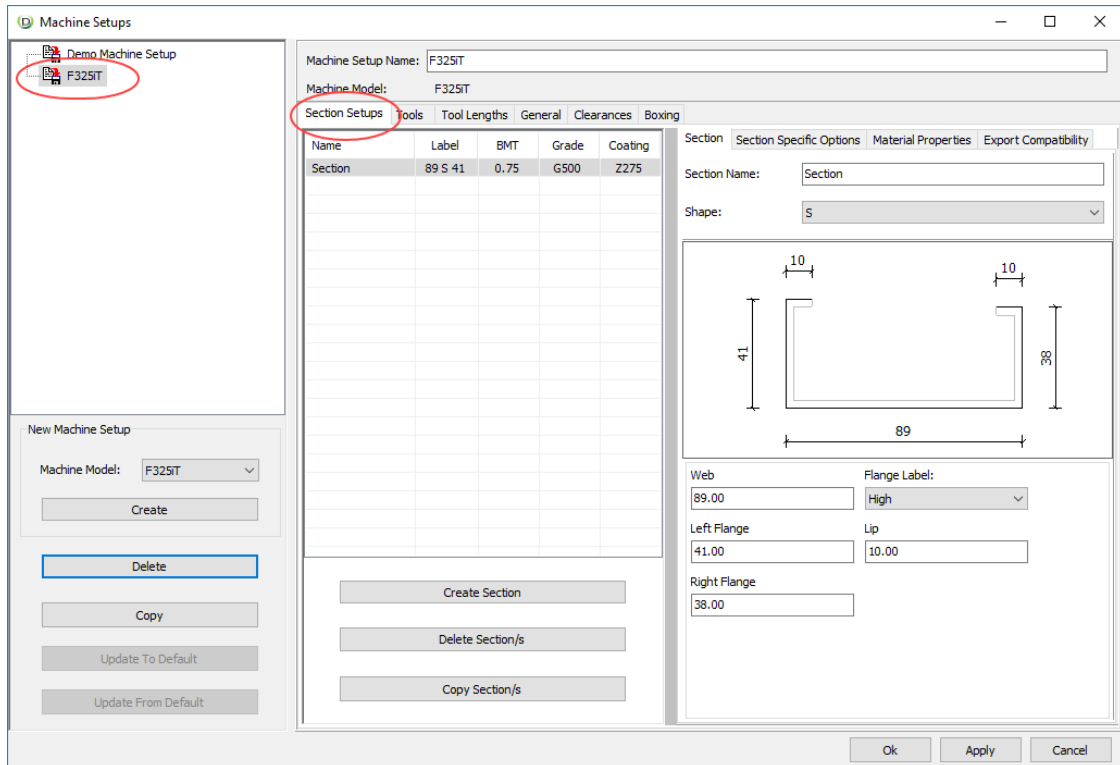
Profile drawing for the section setup:



1. Choose your machine model that was created in the previous section:



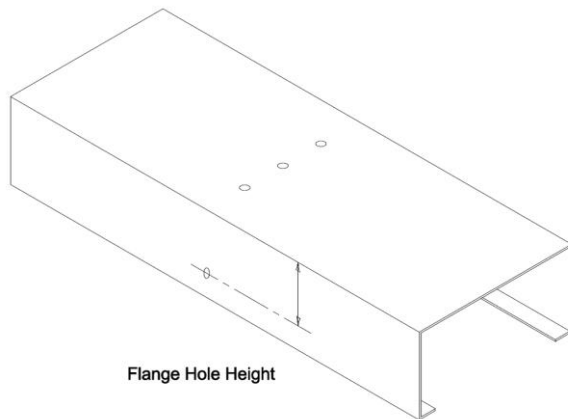
2. Go to the 'Section Setups' tab.



From here you will define the section's properties such as Shape, Web, Flanges and Lip dimensions, Material Properties and Section Specific Options as needed. Refer to the **profile drawing** provided with your FRAMECAD Machine for the correct initial specifications.

There will be a default Section of 89S41 which can be modified to suit if required.

3. In the 'Section' tab on the right-hand side of the dialogue box, the default 'Section Name' is set to 'Section'. This can be left as it is or changed to something more descriptive if required, especially if more than one section is added.
4. Select which section shape you would like to use for the plates and studs. The options here will vary according to the machine type. This is the letter that is displayed between the web width and the left/right flange height.
 - 'S' = lipped stud
 - 'U' = unlipped track
 - 'T' = unlipped track (specifically for the Stud and Track or ST machines)
5. Input the values from the profile drawing into the relevant boxes.
 - **Flange Label** – This indicates whether you want to show the higher, lower or both flange dimensions in the RFY file label.
6. In the 'Section Specific Options' tab, check and modify any parameters as required.
 - **Dimple1 Height** – The distance from the web of the member to the centre of your main fastener. This includes dimples and screw holes.
 - **Dimple2 Height** – Only applicable to machines with double dimple tooling.
 - **Flange Bolt Hole Height** – Only applicable to the FL650 machine.
 - **Flange Hole Height** – This is the distance from the web of a member to the centre of the flange hole.



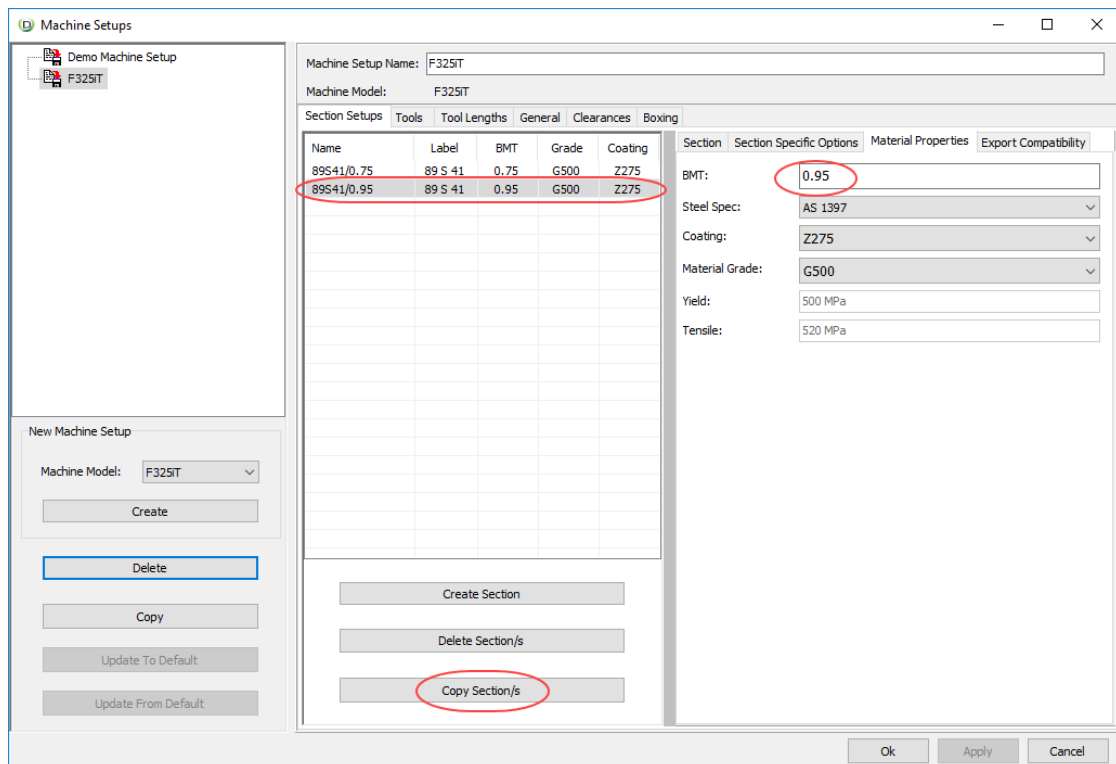
7. In the **'Material Properties'** tab, check and modify any parameters as required.
8. In the **'Export Compatibility'** tab, check that the profile you have created is compatible with what can be run in your machine. In some circumstances, the values represented on the profile drawing may not be identical to what is set on the factory machine control.

If the RFX Section displays 'Not Compatible', uncheck the 'Automatically Configure' check box and select the section size that is compatible with your machine.

The 'Simplify RFX Section List' will filter the list to sizes that are compatible with the machine selected and closest to what has been set up in the 'Section' tab.

This profile name then needs to be replicated in the RFX Label location for either metric or imperial applications. This label MUST replicate exactly what is set in your Factory Control software on your machine, so take note of any spaces and capital letters.

9. You can create multiple sections for each machine, for example, if different steel thicknesses or grades are used, copy the current section and change its properties as required. In the example below, Section(1) has been created by clicking the 'Copy Section' button and changing the base material thickness (BMT) from 0.75mm to 0.95mm.

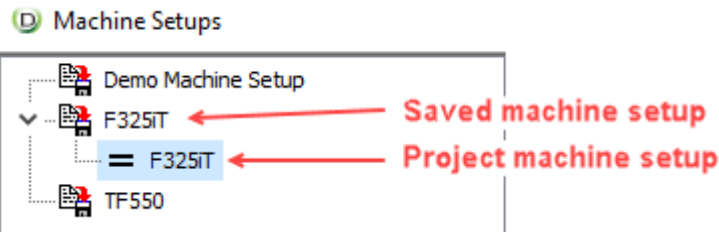


The 'Copy Section' option can be used after checking/changing the settings in all tabs, otherwise this operation will have to be performed for each section.

10. When a job is created, imported or opened from an external source, the following instances may occur:

- If the Project Machine Setup is equal to (=) the Saved Machine Setup, then nothing more needs to be done.

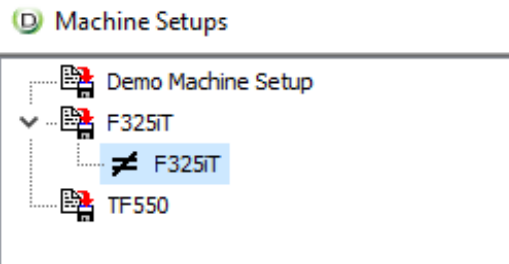
The example below shows the machine setup of a project that was created using the saved setup:



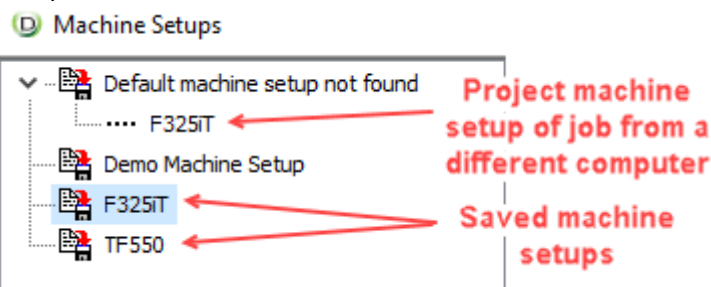
The equals sign indicates that the section setups are identical between the project and the saved machine setup.

- If the Project Machine Setup is not equal ($\neq$) to the Saved Machine Setup, then there may be some differences. This generally occurs when a job is imported from FRAMECAD Structure® and the section profile setup in the job is not identical to what has been setup in the machine settings. There is no need to make any changes to minor variances but do ensure the Export Compatibility is correct in the Project Setup. However, you can select the Project's machine setup and click on 'Update to Default'. This will add the project's section profile to the saved setup therefore ensuring all future imported jobs are fully compatible.

The example below shows the project machine setup being not equal to the saved machine setup:



- The example below shows the project machine setup of a job that was created on another computer:



4.4 FRAME TYPES

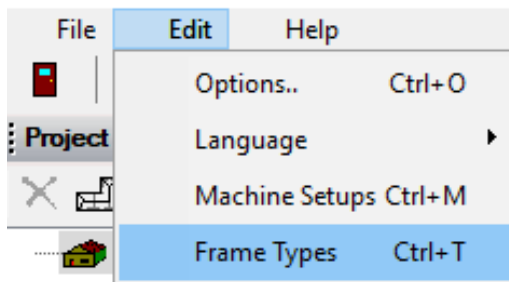
After completing the Machine Setup, the next step is to create Frame Types. Frame types must be set up before you can draw a frame on a plan.

The Frames Types set up here are not used for importing the XML files from FRAMECAD Structure®.

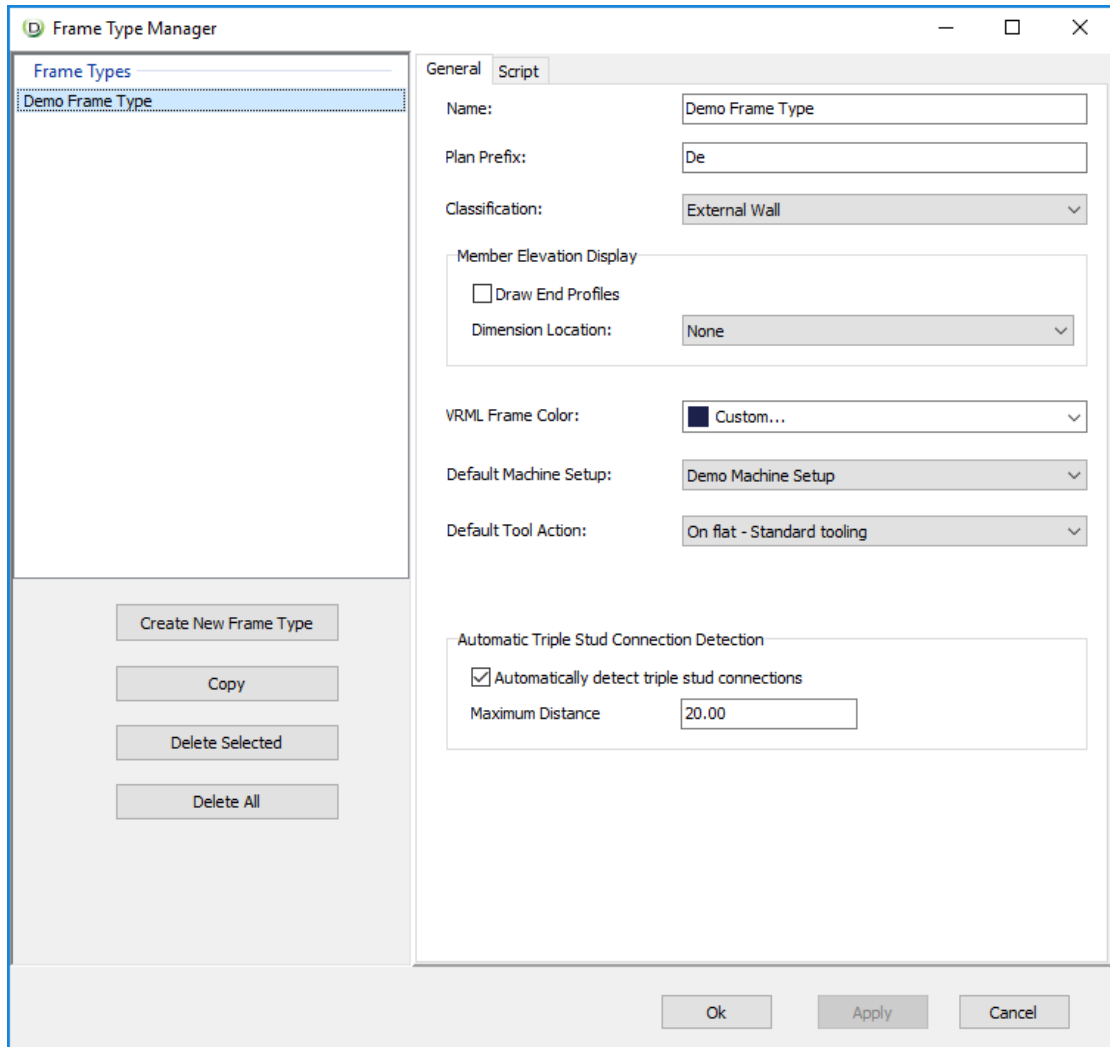
For importing XML files from FRAMECAD Structure® see section 12.1.1 – *XML File Import*.

4.4.1 Creating Frame Types

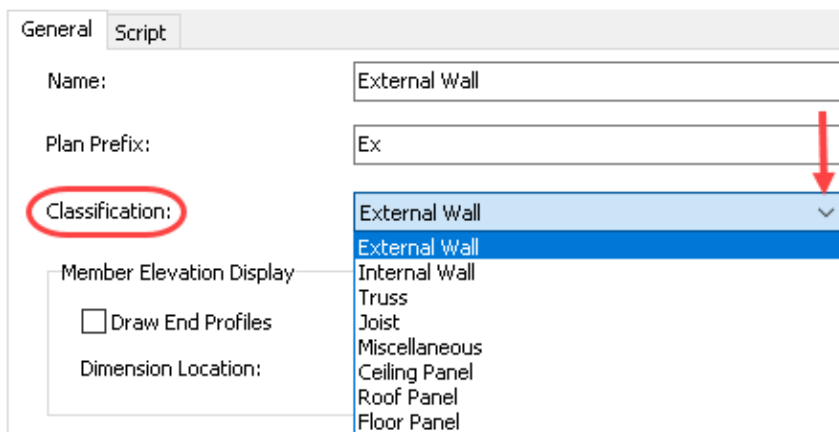
1. Go to Edit | Frame Types (or Ctrl+T) to open the Frame Type Manager.



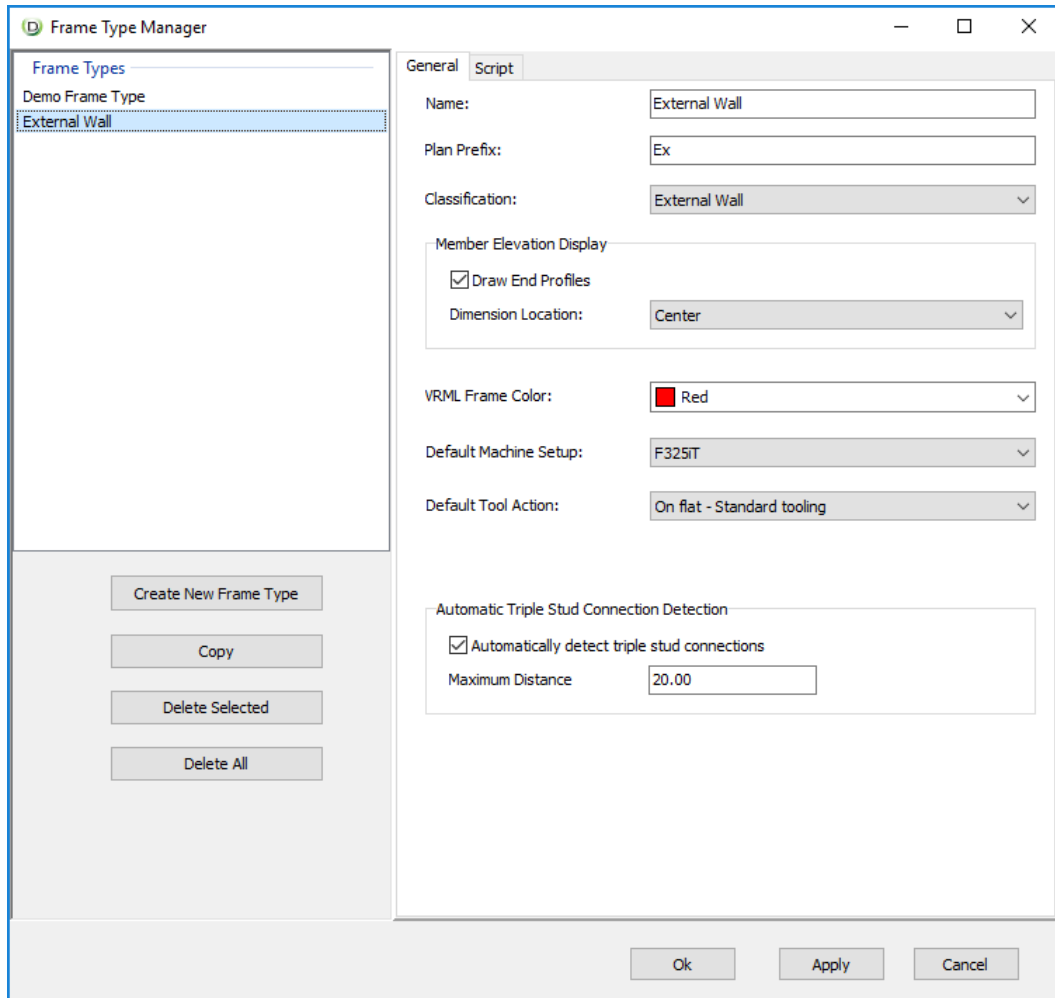
The following window will appear:



2. Click on the 'Create New Frame Type' button. By default, the External Wall type will be created, and the 'General' and 'Script' tabs will appear in the top of the window.
3. Change the 'Classification' to the type of frame you wish to set up by selecting from the following options:

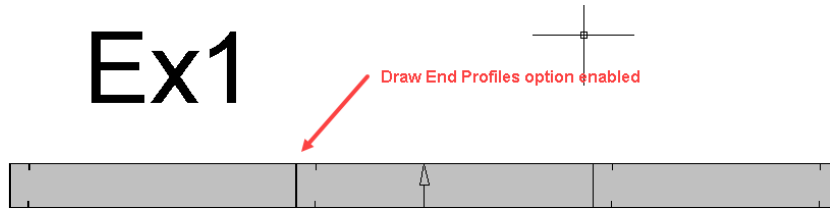


4. In the 'General' tab you can edit the Name of the frame type, the Plan Prefix, set the Dimension Location and the VRML (3D) Frame Colour if required.

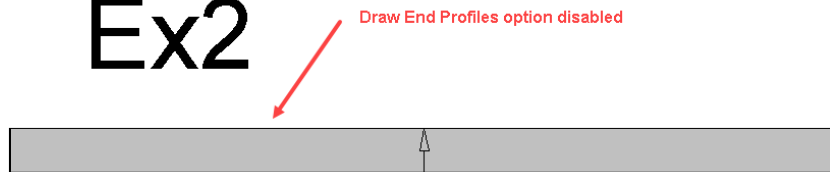


5. If you choose to enable the 'Draw End Profiles' option, the sections will display in the layout view once you create the frame. This option can be turned on or off for each individual frame once they have been created.

Ex1

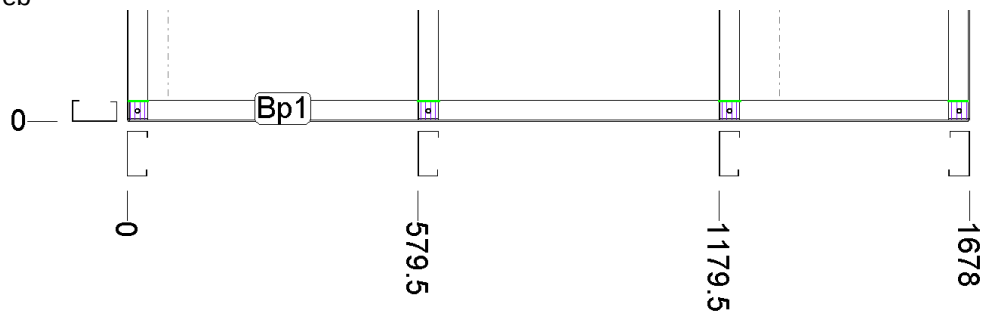


Ex2

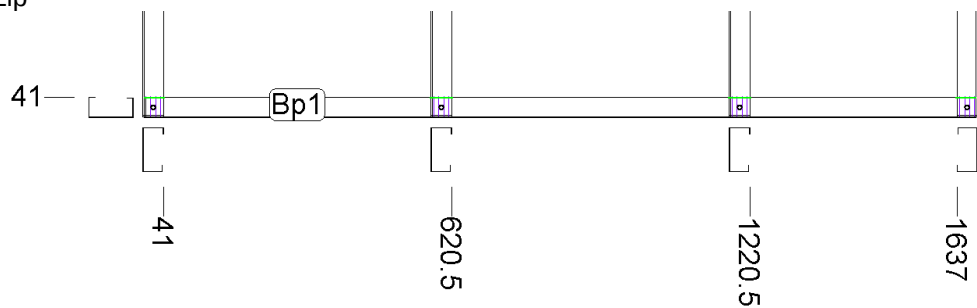


Dimension Location examples:

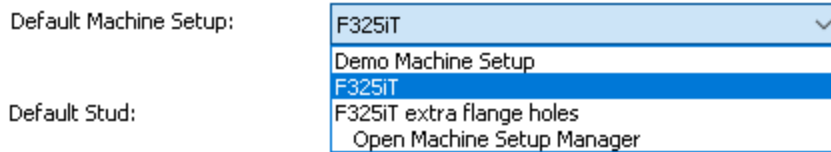
Web



Lip

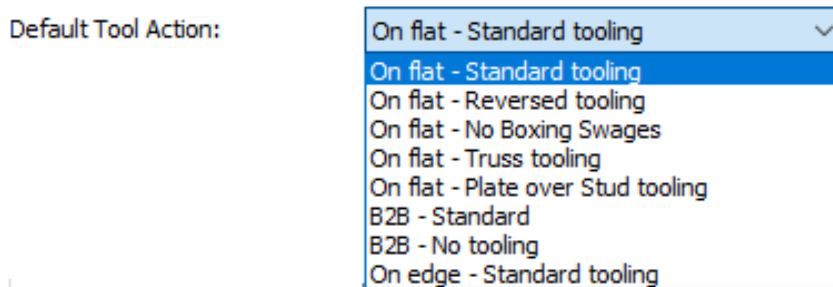


- Choose from the already created **Machine Setups** or open the 'Machine Setup Manager' to create a new Machine Setup.



Tool Action

- Choose the required **Tool Action** from the dropdown list.



When you set the 'Tool Actions' for a Frame Type, you are also telling Detailer what orientation the frame is.

There are three types of frame orientations:

- **On Flat** – While looking at the elevation view of a frame the web of the bottom plate or bottom chord section is sitting flat on the ground. This is the standard orientation for wall frames, roof trusses and webbed joists.
- **Back to Back (B2B)** – The webs of the plates are screwed to the webs of the studs. The lips from the plate are furthest from you when looking in the elevation view while the lips of the studs are closest to you. You should be able to look at the drawing to tell this as the lip lines are only shown on the stud members. (Truss chords are referred to as plates and truss webs are referred to as studs).
- **On Edge** – While looking in the elevation view of a frame the flange of the bottom chord section is sitting on the ground and all the members are in the same plane.

Within these frame orientations you may find various other tooling options:

- **Standard Tooling** – When members pass through each other, the vertical (stud) members are continuous and the horizontal (plate) members get notched.
- **Reversed Tooling** – The horizontal (plate) members are continuous and the vertical (stud) members get notched. This option would generally be used where ever the horizontal members are the structural members e.g. in certain 'panel roof' situations.
- **No Boxing Swages** - Any boxed or partially boxed members will not be swaged. This option would generally be applied when using thicker steel to make assembly of boxed members easier.
- **No Tooling** – No flange cut tooling is applied on B2B members.
- **Plate over Stud tooling** – the ends of nog members (generally in wall frames) are tabbed over the stud that they terminate on instead of fitting inside the stud.
- **Truss tooling** – boxed truss chords are notched to allow truss webs to fit inside them.

Looking at the Default Configuration dialogue box, you can see that the tool actions are set to use 'On Flat' orientation with standard tooling applied.

8. Automatic Triple Stud Connection Detection – when one wall intersects with another, triple studs (or junction studs) are automatically placed. If the walls have a gap between them, triples will be placed as long as the gap is within the tolerance distance indicated.
9. In the 'Script' tab you can set the default script for each Frame Type.

Suggested Script Examples:

External Wall – Wall

Internal Wall – Wall

Truss – Truss-Full

Joist – Truss-Parallel

Miscellaneous – Manual

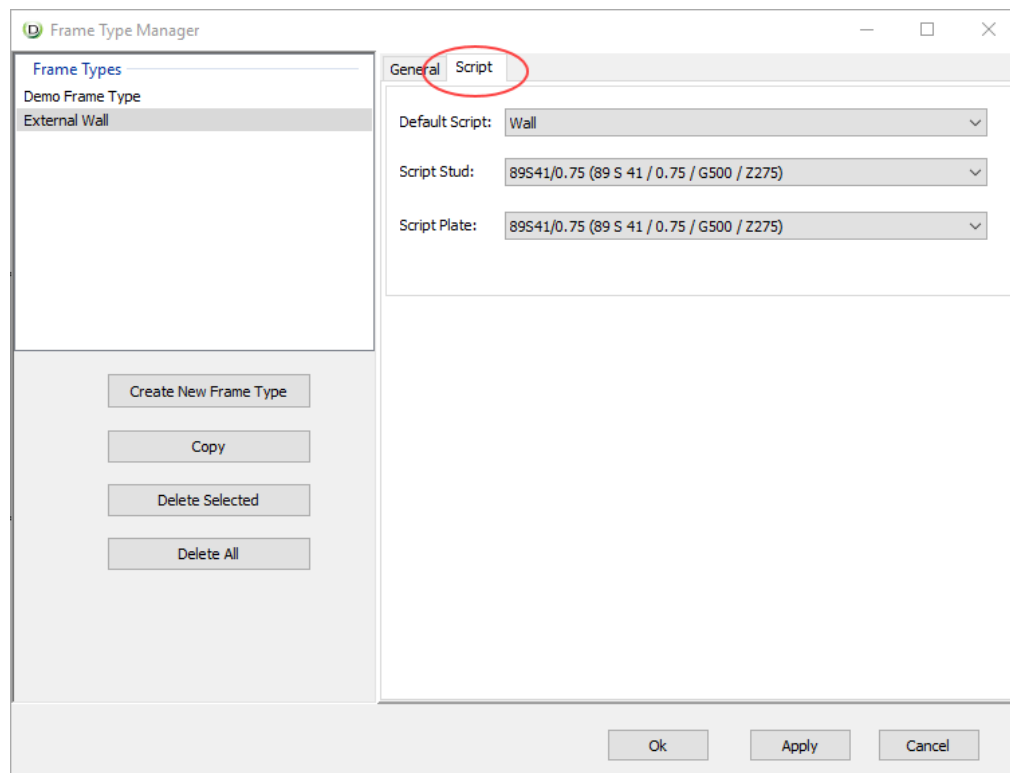
Ceiling – Auto Panel

Roof – Auto Panel

Floor – Auto Floor Panel

The Default Script is used for frames that will be created within Detailer, but not when importing frames from FRAMECAD Structure®. This feature can also be managed for each individual frame once created.

When the **Default Script** is changed to 'Wall' for example, the Script tab gets the following script settings: Openings, Triples and Beam Pockets. Please read the section about Scripts in section 7.4 for more information.

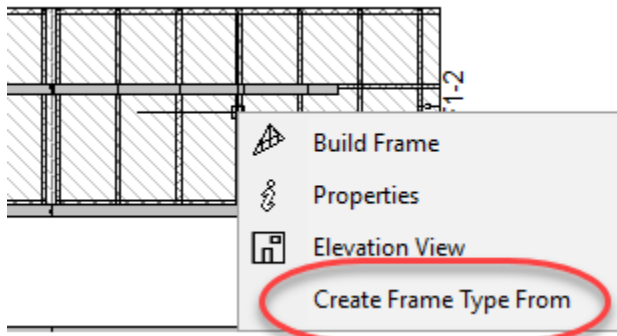


10. Select from the available sections for Script Stud and Script Plate. If the required section can't be found in the drop-down list, click on Open Machine Setup Manager from the drop-down list to create a new section.

Once the frame types have been set up, you can start building.

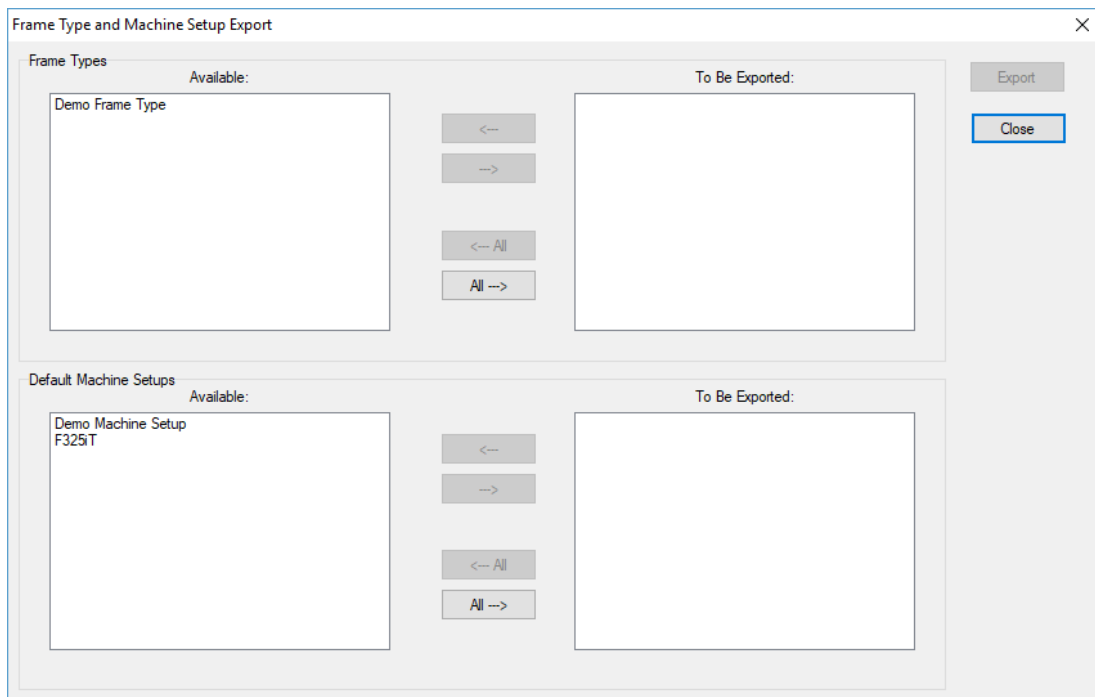
Note: Any demo Machine and Frame types can now be deleted.

11. Frame Types can also be created from imported frames within a job by right clicking on a frame and selecting 'Create Frame Type From'.



4.5 EXPORTING FRAME TYPES AND MACHINE SETUPS

1. Go to 'File | Export | Frame Types / Machine Setups'.



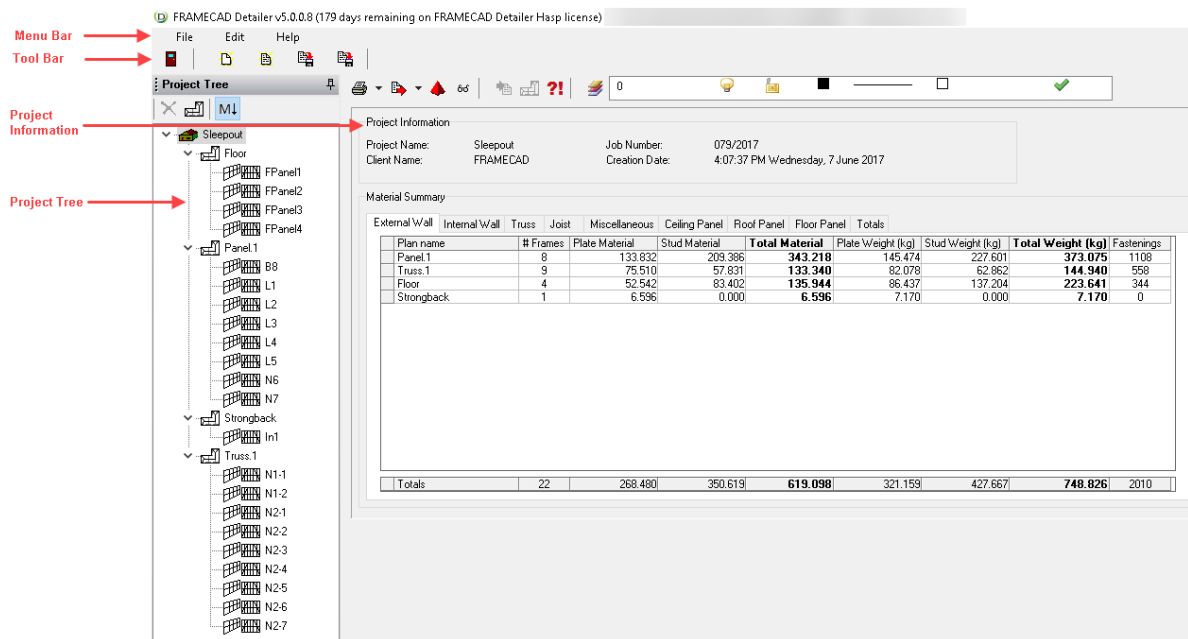
2. Select the required Frame Types and/or Machine Setups.
3. Select 'Export'.

4.6 IMPORTING FRAME TYPES AND MACHINE SETUPS

1. Go to 'File | Import | Frame Types / Machine Setups'
2. Point to the directory location for the Frame Types or Machine Setups.
3. Select the .sups file then click on Open.
4. Any Frame Types and/or Machine Setups will automatically be imported. If there are any Frame Types or Machine Setups present in the program with the same name, they will be renamed.

5 FRAMECAD Detailer Components

When you open FRAMECAD Detailer, you will see the following window containing several sections.

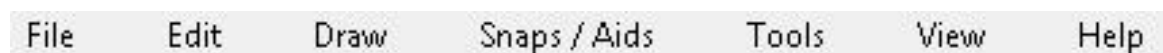


5.1 MENU BAR

The Menu bar is similar to the menus found in many other programs. Each menu contains the following items.



These menu options are only displayed when the Project is selected.



These menu options are displayed only when a Project Plan is selected.

5.1.1 File



New (Create new projects)



Open (Load existing projects) (Hotkey – F3)



Reopen (Lists previous projects to reopen)



Save (Save current project) (Hotkey – Ctrl+S or F2)



Save As (Save current project as a different file)

Export



3D VRML (Export files for viewing in 3 dimensional) - **Exporting to 3D** (see section 11.3)

DXF



Excel - creates an excel spreadsheet using a template

Frame Types / Machine Setups

3D DFX file

Rollformer RFX file – for use in Factory v2 machine software

Rollformer RFX file – for use in Factory version 2.9 onwards

FIM file

Import



DXF to Lines (Import a DXF template)

Frame Types / Machine Setups

FIM file

XML file



View 3D (Load 3D file previously exported) - **Exporting to 3D** (see section 11.3)

Print

Reports (Print material reports)

Drawings (Print frame drawings)

Thumbnails (Print frame thumbnails)

Printer Setup (Setup options for Printers)

Drawings

Reports Thumbnails (Setup options for Reports and Thumbnails)



Exit (Close FRAMECAD Detailer)

5.1.2 Edit



Undo – Ctrl+Z



Redo – Ctrl+Y



Cut – Ctrl+X



Copy – Ctrl+C



Paste – Ctrl+V



Cancel Active Command

Options.. - see ***Defaults and Global Settings***
(section 3)

Language

Machine Setups – Ctrl+M (see section 4.1)

Frame Types – Ctrl+F (see section 4.4)

Note: Some of the options above only appear when a job plan is created and selected.

5.1.3 Draw (includes command shortcuts)

	Line - L
	Polyline - PL
	Circle - C
	Rectangle - REC
	Polygon - PO
	Orthogonal Aid – F8
	45 Aid – 45A
	Text - TX
	Dimension - DI
	Place Frame - FS
	Roof - RI

5.1.4 Snaps/Aids

	Snap End – SE
	Snap Intersection – SI
	Snap Middle - SM
	Snap Near – SN
	Snap to Fastening - SF
	Snap to Grid - SG

5.1.5 Tools

	Auto Build – AB
	Auto Dimension - AD
	Auto Extend
	Auto Polygon - AP
	Change Datum – DAT
	Convert to Frame – LS
	Convert to VRML Object - VO
	Copy Objects - CO
	Create Array - A
	Erase Objects
	Frame Break - FB
	Frame OK – CF
	Import Plane Lines
	Layer Clear
	Measure Angle – MA
	Measure Distance - D
	Mirror - MI
	Move Objects - M
	Offset – O
	Point ID
	Roof Block – RB
	Roof Skeleton – RS
	Trim/Extend – TE

5.1.6 View



Zoom In – **F9**



Zoom Out – **F10**



Zoom Window – F11



Zoom All – **F12**



Properties – Alt + Enter



Layer Management

5.1.7 Help

User Manual

Configurations Quick Start

Release Log

Steel Colour Codes

About this program (Version and System Information)

What's New

License Information

5.2 TOOLBAR

The Toolbar offers quick links to most of the items available in the Menus, as well as some additional useful tools.



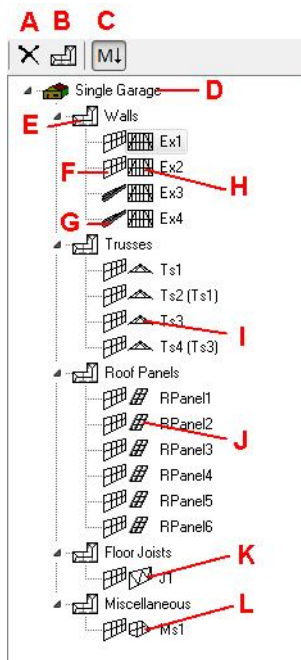
- A** Exit (File | Quit)
- B** New project (File | New)
- C** Open (File | Open)
- D** Recent Projects (Dropdown menu displays 20 most recent projects opened)
- E** Save project As (File | Save As)
- F** Save project (File | Save) (ctrl+s)
- G** Print (File | Print)
- H** Export Data (File | Export Data).
- I** Export 3D (File -> Export 3D).
- J** View 3D (File -> View 3D).
- K** Import DXF Template (Allows a template created in another application, and saved in DXF format to be imported).
- L** Select Template (Allows the frames and lines drawn in a FRAMECAD Detailer plan to be used as the template for another).
- M** Design Check (DC) - Checks for potential issues - see **Design Checks** (section 10.1)

N



- N** Layer Management - see **Layers** (section 14)

5.3 PROJECT TREE

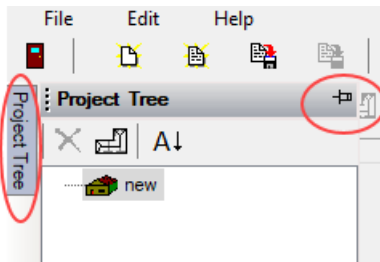


The project tree displays every component of the current project in a hierarchic structure.

- A** Delete selected plan (Deletes currently selected plans)
- B** Add new plan (Creates a new plan)
- C** Sort frames automatically or manually - see **Production Sort Order** (section 5.3.2)
- D** Project (Highest level in the hierarchy)
- E** Plan (Separate Plan required for Walls, Trusses, Joists, Floor Panels, Ceiling Panels, Roof Panels and Miscellaneous Frames)
- F** Built frame (Icon shows assembled frame)
- G** Unbuilt frame (Icon shows unassembled steel studs)
- H** Wall frame (Icon shows wall frame)
- I** Truss frame (Icon shows truss)
- J** Roof panel (Icon shows panel)
- K** Subfloor frame (Icon shows joist)
- L** Miscellaneous plan (Icon shows custom built frame)

Each level shows a + (plus) or – (minus) next to it. When a minus is clicked on, all the lower level items will be hidden. When a plus is clicked, all lower level items will be shown. This allows the project tree to be minimised to keep it tidy and show only frames and plans which are required.

The Project Tree can be unpinned which allows it to slide away to the left of the screen. This allows for a larger space on the screen for the drawing. To slide out the Project Tree again, hover your mouse over the 'Project Tree' tab to the left on the program.



5.3.1 Merge Plans

Plans can be merged together by right clicking on them while holding down the Ctrl key and then selecting 'Merge'.

5.3.2 Production Sort Order

- To change the order of the frames within a plan shown in the project tree, click on the **A↓** auto sort icon on the tool bar above the project tree and it will change to the **M↓** manual sort icon.
- Now you can click on the frames and drag them up or down to suit the required production order.
- You can also change the order that the plans are displayed within the project tree.

5.4 PROJECT INFORMATION

The Project Information is displayed when the Project Name is selected in the Project Tree. It is used for reporting purposes. At the top it displays the Project Name, Client Name, Job Number (Job Number is user defined, not generated by FRAMECAD Detailer), and the date and time the project was created. Below this information, the Material Summary is shown. Several tabs are available to display specific information about the various components of the project.

Project Information

Project Name:Single Garage

Job Number:001

Client Name:FRAMECAD

Creation Date:2:06:23 p.m. Monday, 18 June 2012

Material Summary

External Wall	Internal Wall	Truss	Joist	Miscellaneous	Ceiling Panel	Roof Panel	Floor Panel	Totals
Frame Type	# Frames	Plate Material	Stud Material	Total Material	Fastenings			
External Wall	4	31.735	48.486	80.221	176			
Internal Wall	0	0.000	0.000	0.000	0			
Truss	4	33.469	19.198	52.666	208			
Joist	1	3.715	5.568	9.283	56			
Miscellaneous	1	0.000	0.000	0.000	0			
Ceiling Panel	0	0.000	0.000	0.000	0			
Roof Panel	6	78.071	53.047	131.118	276			
Floor Panel	0	0.000	0.000	0.000	0			
Totals		16	146.990	126.299	273.288	716		

5.5 CREATING AND DELETING PLANS

Plans can be created in 2 ways - by clicking on the 'Add new plan' button in the project tree as displayed in **Project Tree** (section 5.3) or by right mouse clicking on the Project Name and selecting New Plan.

Plans may be deleted by selecting the plan to be deleted and clicking the 'Delete selected plan' button or by clicking the right mouse button on the plan and selecting 'delete'. You can also select multiple plans by holding down the CTRL key and selecting the plans you wish to delete and then press the 'delete' key on your keyboard. The SHIFT key can also be held down; this will include all of the plans between two selected plans.

6 Plan View Tools

6.1 TOOLBAR 1



A Cancel



Keyboard Shortcut CAN

To cancel a drawing action which has begun by mistake, or when use of a tool is no longer required (can also cancel by using the escape key on the keyboard or by pressing an action key at the appropriate time).

B Erase



Keyboard Shortcut E

This tool allows you to delete objects from the plan. After starting the tool, select the objects you wish to delete and then hit an action key (for safety reasons the command will unselect any selected objects when the command first starts up, you can also select the objects you want to delete and just press the delete key).

C1 Zoom In



Keyboard Shortcut ZI or F9

Magnifies the current screen by 200% (increases the size of objects, displays less of the plan). A shortcut key F9 is available for this tool.

C2 Zoom Out



Keyboard Shortcut ZO or F10

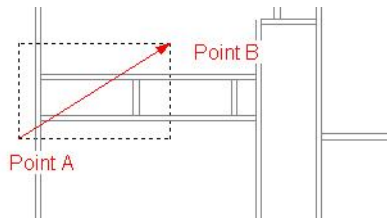
Magnifies the current screen by 50% (decreases the size of objects, displays more of the plan). A shortcut key F10 is available for this tool.

C3 Zoom Window



Keyboard Shortcut ZW or F11

This zooms to a region on the screen. Single click the mouse at one corner of the required region, then again at the other corner of the region.



C4 Zoom All



Keyboard Shortcut ZA or F12

Zooms to fit the extents of the drawing on the screen.

D View/Edit Properties Tool



Keyboard Shortcut Alt + Enter

This tool will open up the properties dialogue for a plan, frame or member for viewing or editing.

E Move



Keyboard Shortcut M

This tool is used to move objects in a plan or elevation using displacement points.

F Copy



Keyboard Shortcut CO

This tool is used to copy objects in a plan or elevation and move them using displacement points.

G Trim/Extend



Keyboard Shortcut TE

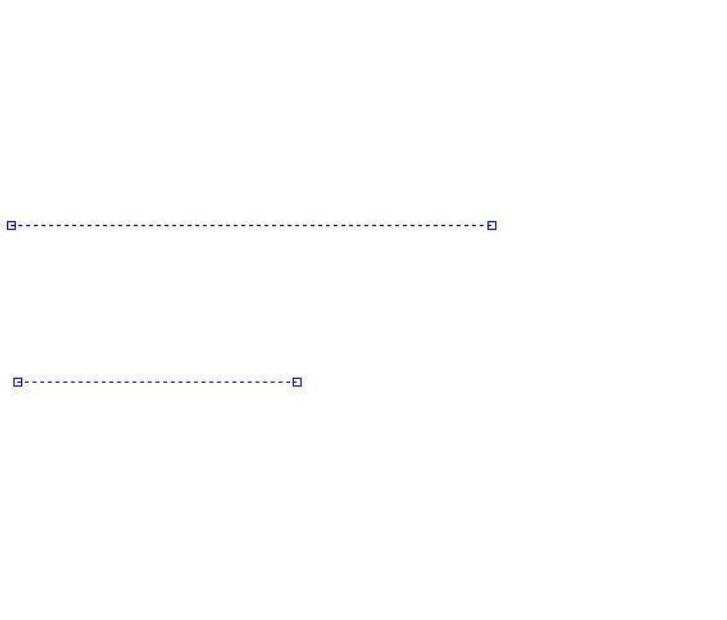
This tool will either extend an object to another, or trim an object to another.

To extend an object/s, first select the object to be extended to, next select the object/s that need extending and press an action key.

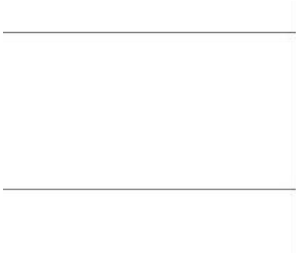
- Object to extend to



- Objects to extend

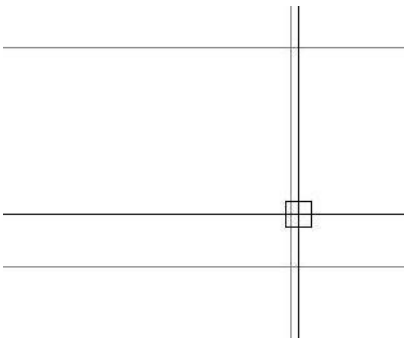


- Finished operation

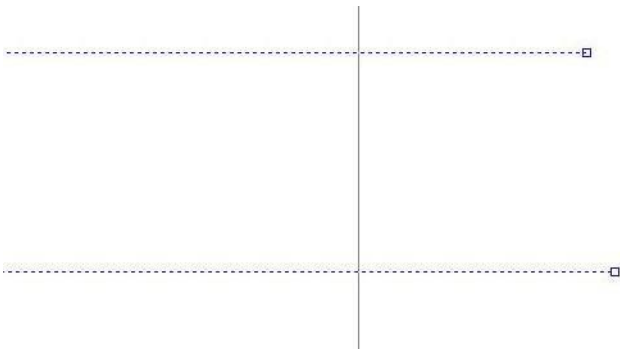


To trim, position the cursor so the object to be trimmed to is contained within the box surrounding the crosshairs, and the crosshairs are positioned on the side to be trimmed off. Finally, select the objects that need to be trimmed and press an action key.

- Object and side of object to trim



- Select items to trim



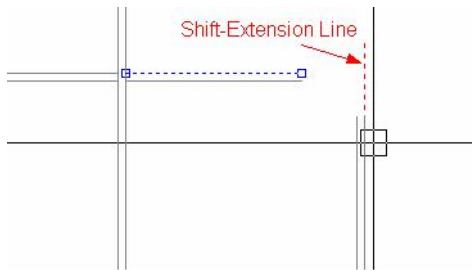
- Finished Trim



When trimming, ensure the box surrounding the crosshairs contains only the object to be trimmed to, it may be necessary to zoom in to allow this to happen. Having multiple objects contained within the box, may cause the object to be trimmed to the wrong point.

Note: If the object to be extended / trimmed to does not physically cross the object to be extended / trimmed to, FRAMECAD Detailer will not make the modification. Holding the Shift key when pressing the action key after selecting the object/s to be extended / trimmed to will create a virtual intersection between the two objects and will be able to make the modification.

- Virtual Intersection Point



H Offset

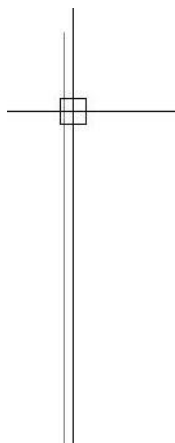


Keyboard Shortcut O

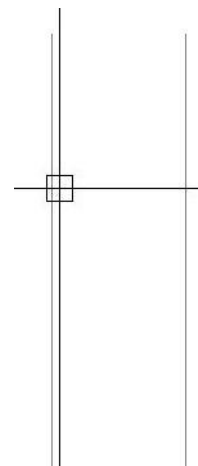
This will offset an object by a specified distance. Either accept the last used offset value (inside the less than, greater than characters "<>") by pressing an action key or type in a new value and then press an action key.



Select the object you want to offset and make sure the aperture is on the side you want to offset it towards. If you hold the shift key down when you do the last click, it will move the object instead of copying it.



Select side to offset



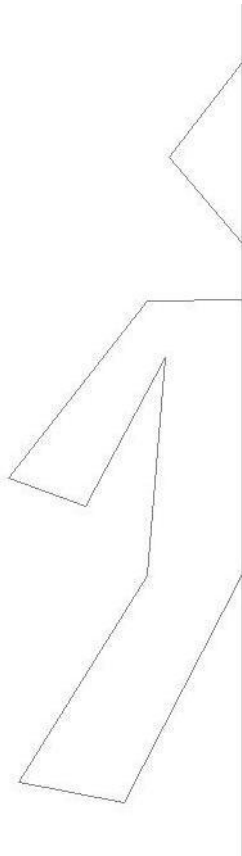
Completed offset

Mirror

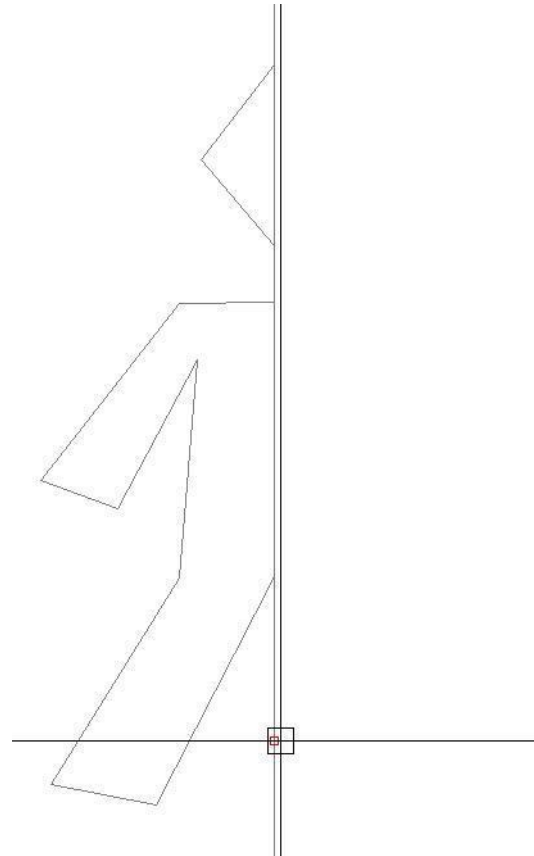


Keyboard Shortcut MI

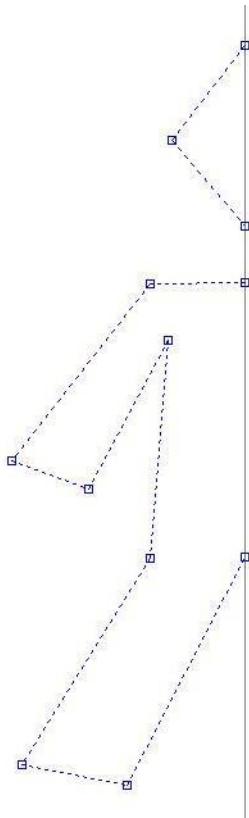
Select the mirror axis then select the items you want mirrored.



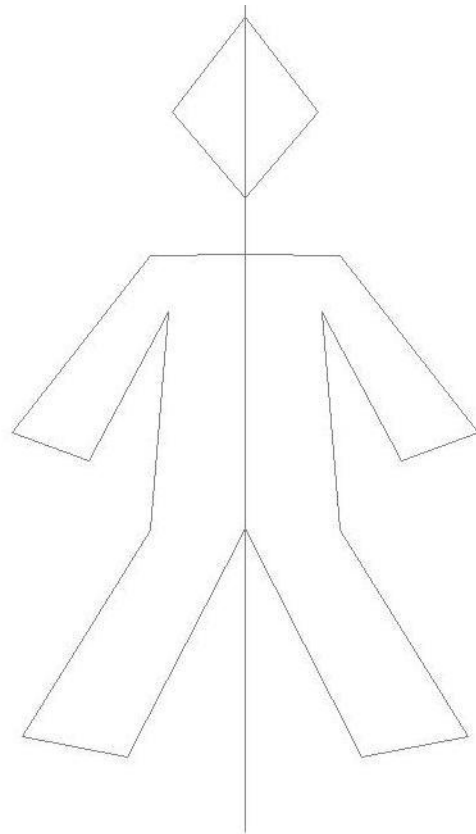
Before starting mirror tool



Select mirror axis



Select objects to mirror



Finished mirror

J Array



Keyboard Shortcut A

This will let you make an array of objects from a selected object.

- Select the object to create the array from.

Select the row offset distance (a positive value will offset the array from the selected object upwards, while a negative will offset the rows downwards).

Select the column offset distance (a positive value will offset the array from the selected object towards the right, while a negative value will offset the columns towards the left).

Select how many rows you want.

Select how many columns you want.

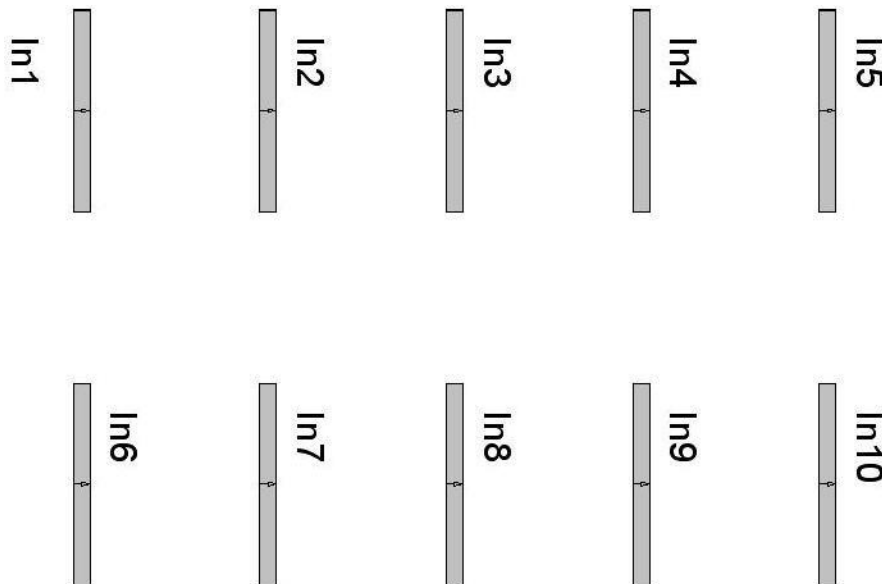
For example, to make an array from IN1 with the below parameters will create the below array.

Row offset = -2000

Column offset = 1000

Rows = 2

Columns = 5



K Rotate



Keyboard Shortcut RO

This tool is used to rotate objects in a plan or elevation by a user defined angle.

L Auto Extend - Multiple Member



Keyboard Shortcut AM

This tool allows the user to auto-extend members to match the 'dimple to end' settings in the machines configuration.

If frames are imported into Detailer with a set dimple to end distance which needs to be altered, the user can set the required 'dimple to end' distance in the machine configuration and modify multiple frames within a job or multiple members within a frame.

Simply select the tool on the toolbar then select the frames or members that need to be altered, then right click to finish.

If the user does not want the studs in wall frames to be auto adjusted to the top and bottom plates, go to the 'Other' settings in Edit – Options – General, and tick the 'Set exclude from auto extend for top and bottom plates' option. Studs should always bear on the inside of top and bottom plates therefore there should be minimal clearance.

M1 Place Dimension



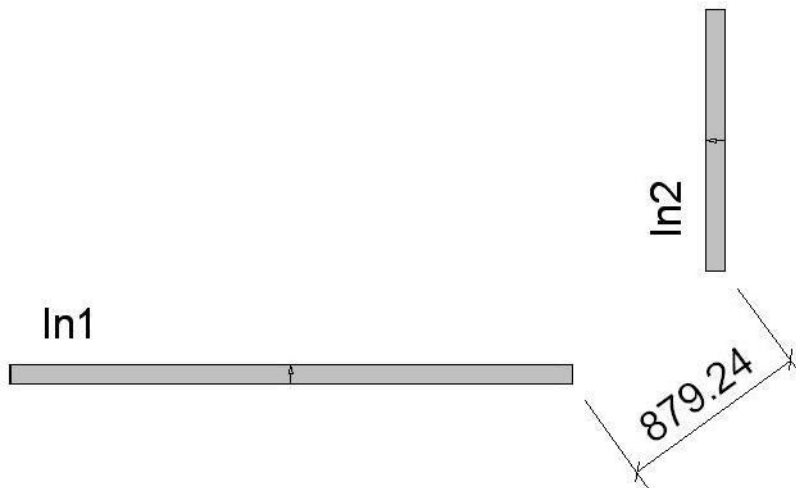
Keyboard Shortcut DI

The Place Dimension tool is used to insert a physical dimension on a plan according to the parameters that are set up in the command bar as described below.

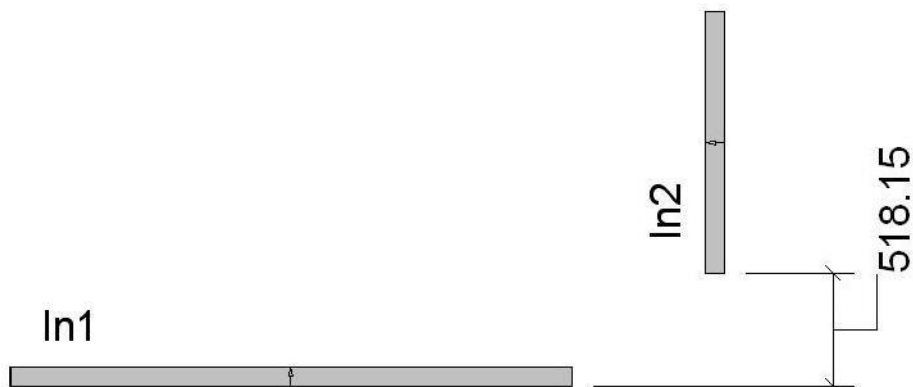
Parameters: Style/Dimension/Precision/Extensions

Style (S) = Aligned/Vertical/Horizontal:

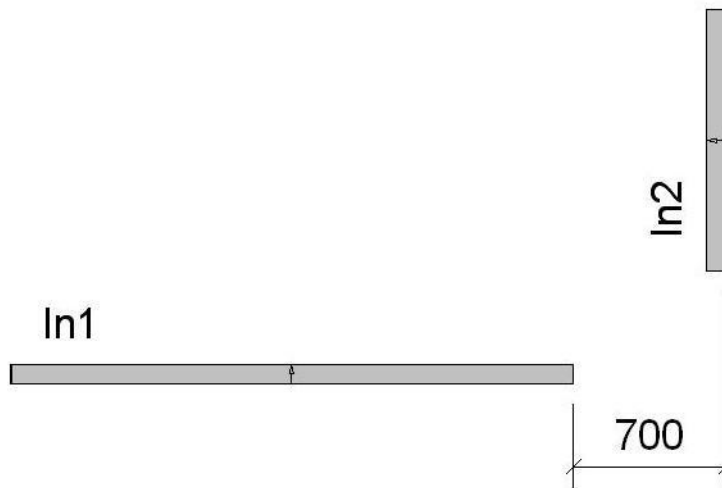
- **Aligned (A)**



- **Vertical (V)**



- **Horizontal (H)**



Dimension Size (D):

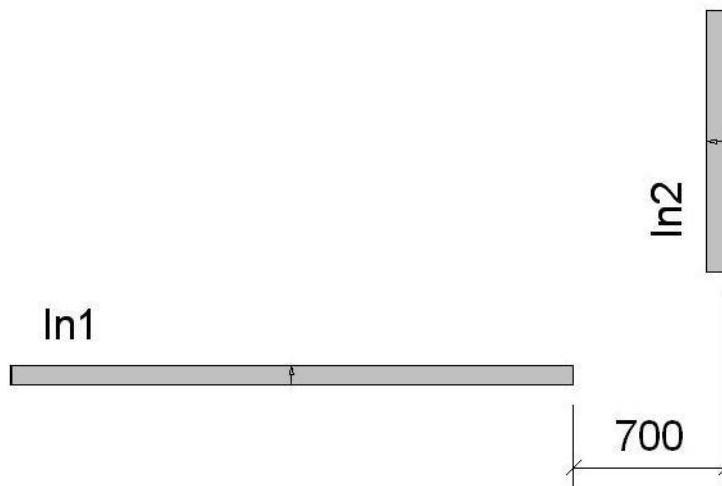
Changes the size of the dimension text.

Precision (P):

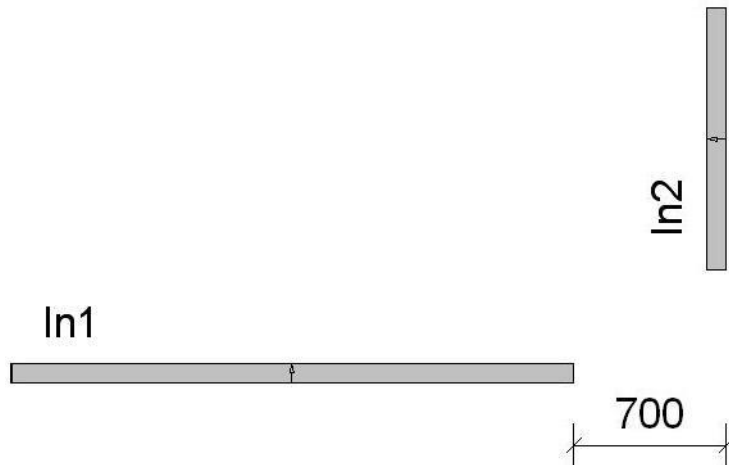
How many significant/decimal points should be used. If the distance between two points is 518.12 then a precision of 1 will show as 520, -1 will show as 518.1 and 2 will equal 500.

Fixed Extensions (F) = False/True:

- **False (F)** - Variable extension lengths



- **True (T)** - Fixed extensions



- After setting the options select the first point you want to dimension from.
- Select the point to dimension to.
- Select final position of dimension.

M2 Auto Dimension



Keyboard Shortcut AD

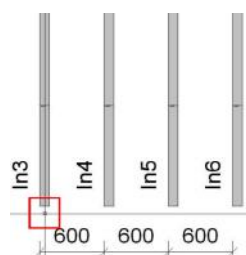
This will dimension between the intersections of a line and selected objects.

Parameters: Style/Intersection Rule/Dimension/Baseline/Precision

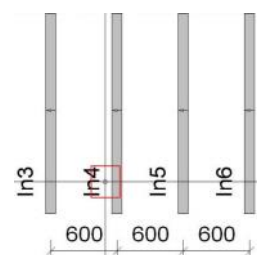
Style (S) = Aligned/Vertical/Horizontal

Intersection Rule (I) = Front/Middle/Back/Front and Back:

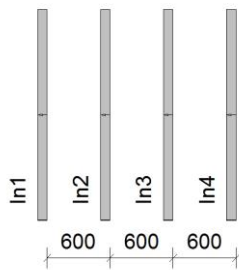
This determines what side of the wall to dimension from; front is considered the closest point to the start point of the reference (see below).



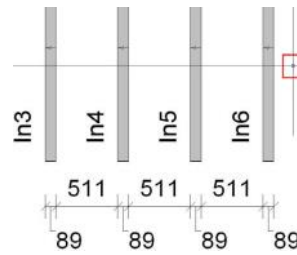
Front (F)



Middle (M)



Back (B)



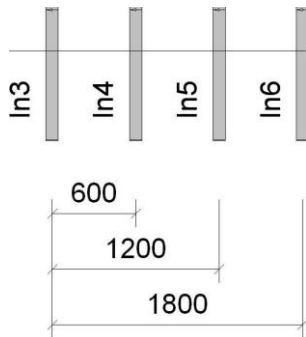
Front and Back (Fr)

Dimension Size (D):

Size of dimension text

BaseLine (B) = True/False:

If true, will reference everything from first intersection point.

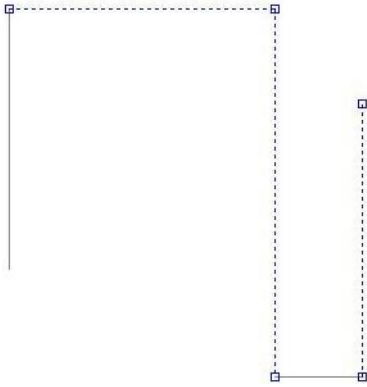


Precision (P):

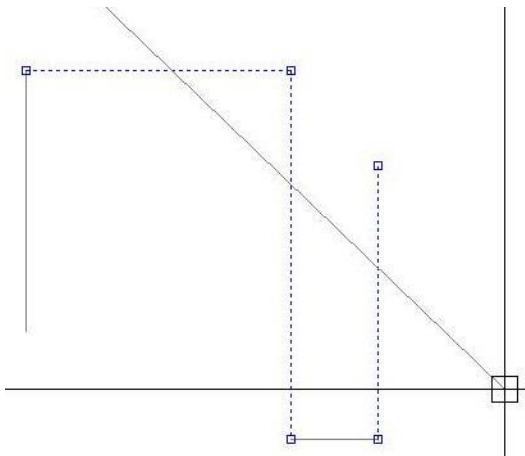
How many significant/decimal points should be used. If the distance between two points is 518.12 then a precision of 1 will show as 520, -1 will show as 518.1 and 2 will equal 500.

- Process:
 - Set above options (for this example style= aligned, base line = false and fixed extensions = true).

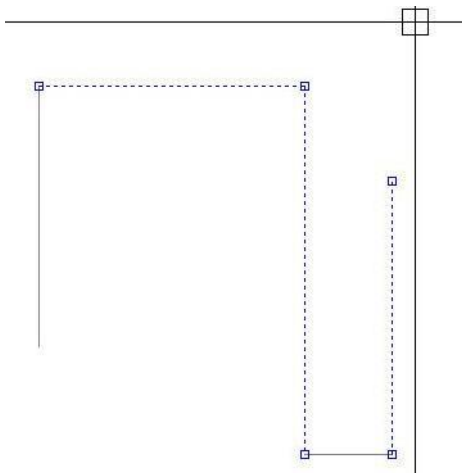
- Select the objects to dimension



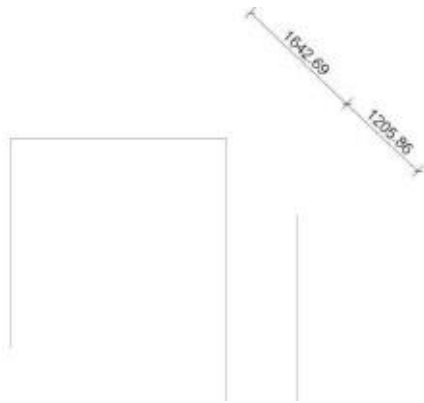
- Draw reference line



- Select dimension location



- Finished



M3 Ordinate Dimension



Keyboard Shortcut OD

Ordinate dimension will place continuous dimensions between points along an axis starting at zero. Select the correct parameters in the command bar then select a dimension location then select points along the required axis.

The following parameters are available:

Parameters: Style/Dimension/Precision/Extensions

M4 Measure Distance



Keyboard Shortcut D

Measure distance will give you the delta x, delta y and the total distance and angle between the two points.

- Click on the first point to measure from.
- Click on the second point to measure to.
- The output values will appear in the command bar.

M5 Measure Angle



Keyboard Shortcut MA

Measure angle will give you the angle in degrees between two lines. Output will appear in the command bar.

M6 Get Coordinate



Keyboard Shortcut ID

Get coordinate will return a coordinate ID value in the command bar of a selected point.

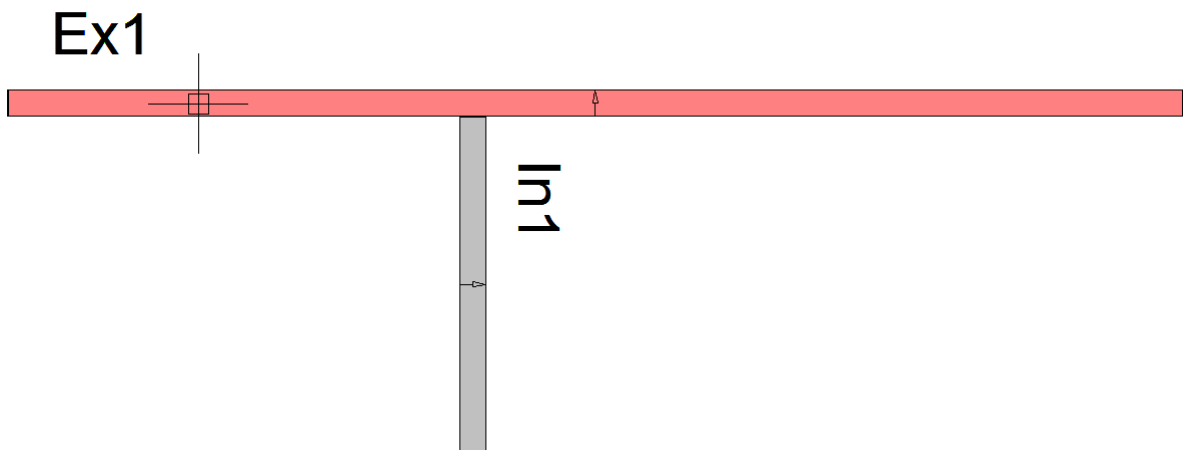
N Frame Break



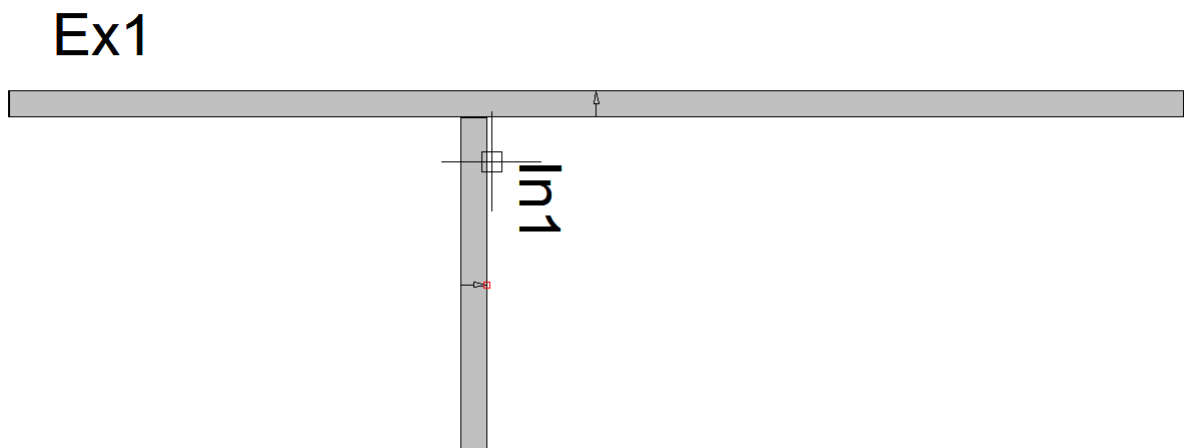
Keyboard Shortcut FB

This is used to break a frame, this is useful if you have created a frame that is too long and you want to shorten it. This will use the edge of an object to break a frame (i.e. line, polygon, frame).

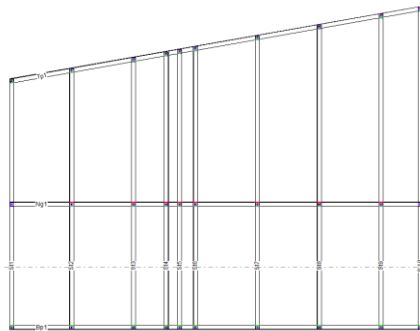
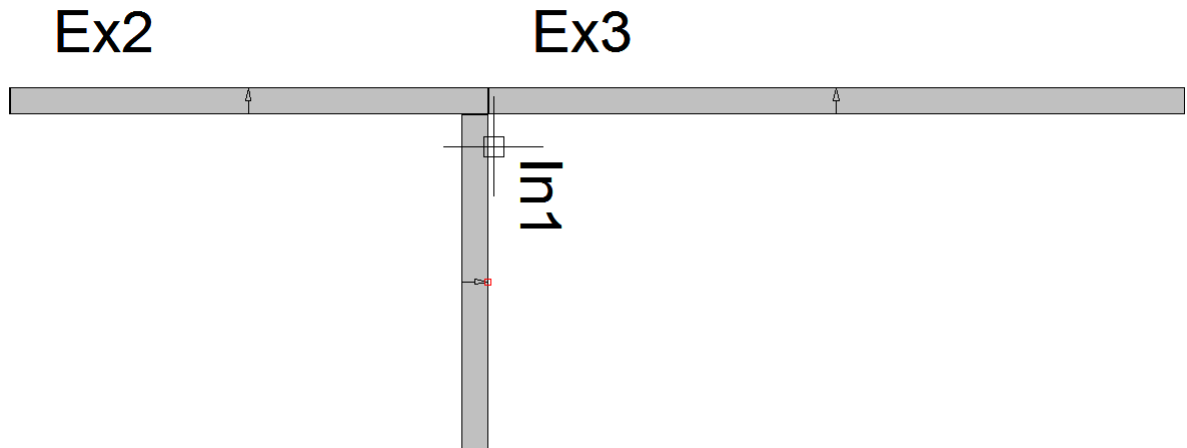
- Process:
 - Select frame to break



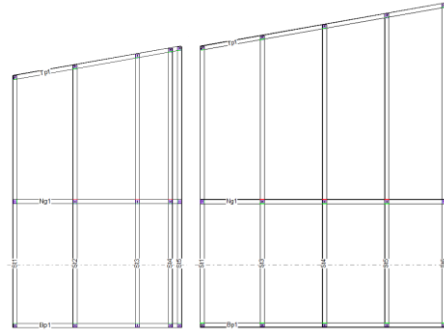
- Select reference edge to break frame. If your reference edge is an adjoining wall, make sure you select the side of the wall that you want the initial wall broken to.



- Result



Panel before break



Panel after break (two separate panels)

○ Create a VRML Object

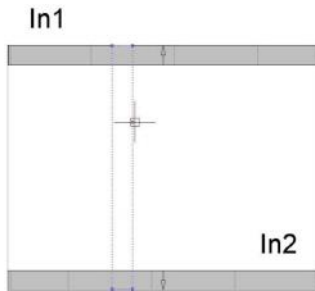


Keyboard Shortcut VO

This is useful for exporting objects you want to view in a 3D model. For example you may want to show where some beams will sit on your frame.

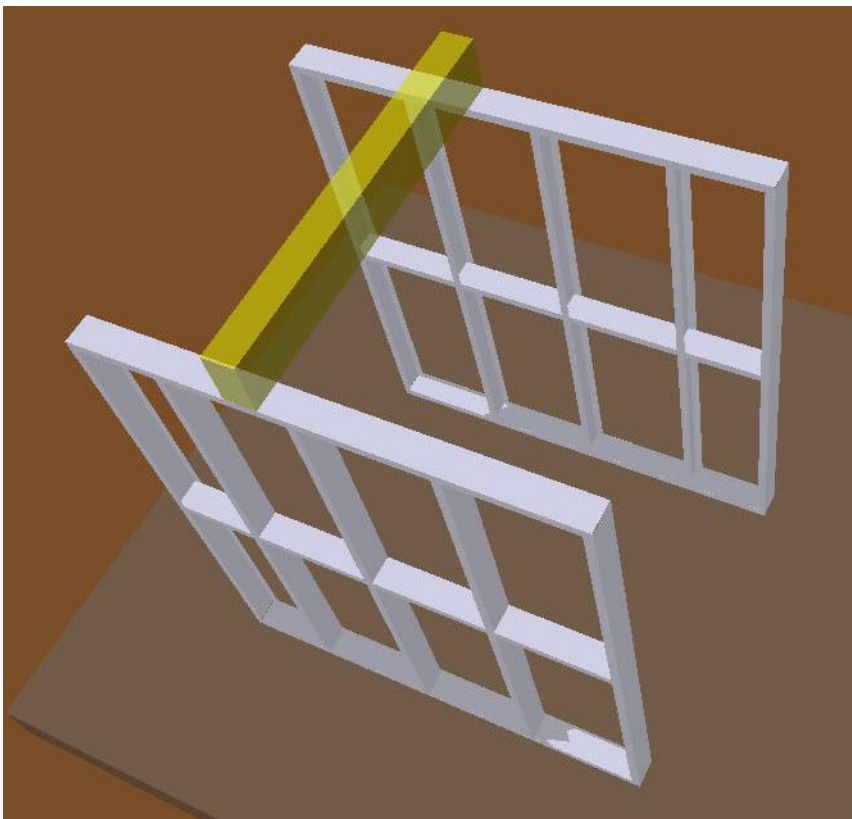
- Process:

1. Select object to transform, valid objects are polygons, rectangles or circles. This will be used as the base shape.



2. Enter the elevation height of this base shape. In our example we'll use the height of the walls which are 2440mm.
3. Enter extrusion distance. If you enter a positive value the shape will be extruded towards you, if you use a negative value it will extrude into the screen, so we use 250mm in our example.

- Results:



P Member Lengthen (ML)



Lengthens or shortens a member by a given value.

Q Member Fillet (MF)



Fillets two members together. The first member selected will be the longer member.

R Delete Objects on a Layer



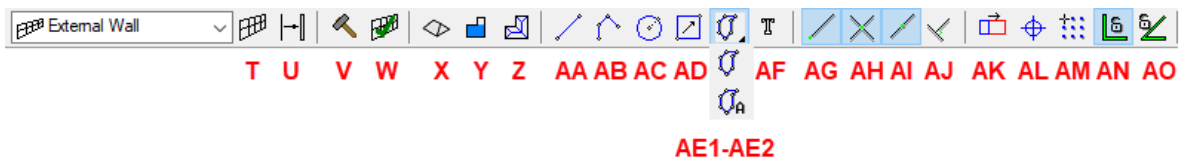
Allows the user to select a layer and delete all objects contained within that layer.

S Undo/Redo



Keyboard Shortcut U or ctrl+z / R or ctrl+y

6.2 TOOLBAR 2



T Place Frame

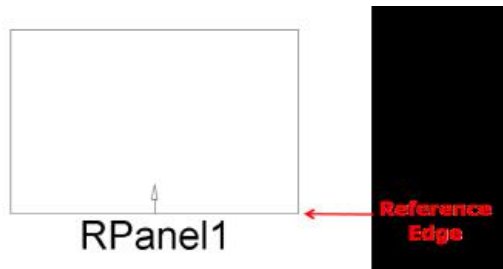


Keyboard Shortcut FS

This tool is applicable to whatever frame type is selected in the drop down list to the left of the Place Frame button on the toolbar.

Roof/Ceiling/Floor Panel Input

Below is the picture of an un-built roof panel frame. The reference edge is the edge closest to the label RPanel1 and the frame pitches up towards the top edge. When you place a panel, it is drawn in the same manner as a polygon, but the first and second point clicked will set your reference edge.

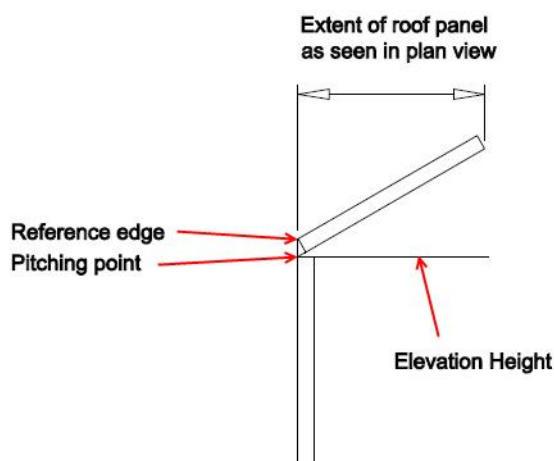


Roof Panels

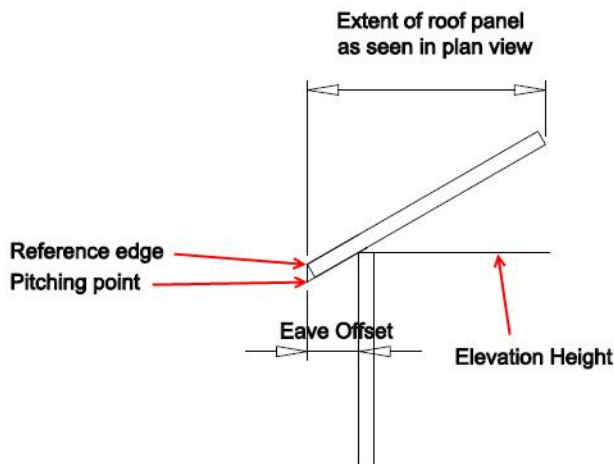
A roof panel has the following setup options available to it:

Setup	
Pitch:	20.00
Elevation	
Plan:	2440
Pitching Elevation:	0.00
Total:	2440
Eave Offset:	300.00
Make default	

As the image below shows, the pitching elevation for a roof panel is to the bottom face of the panel. Note that if your eave distance is 0, then the intersection of the bottom face of the panel and the left vertical line will be the point at which the pitching elevation is applied.



When an Eave Offset is applied, the pitching point height is dropped below the elevation height relative to the roof panel pitch.



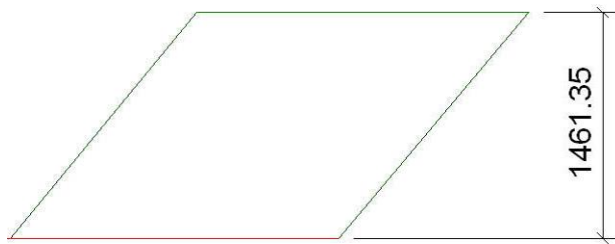
Ceiling Panels

A ceiling panel has the following options setup available to it:

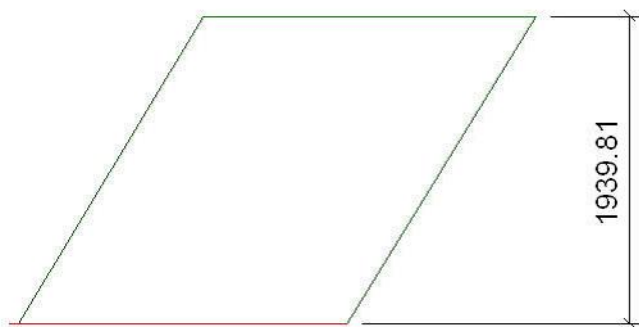
Setup	
Pitch:	0.00
Elevation	
Plan:	2440
Additional:	0.00
Total:	2440
Make default	

The above options for the ceiling and roof panels can be found in the general tab of the frame properties dialogue box. The above variables for roof and ceiling panels are used to create a polygon with the elevation view which the scripts use to frame (using the Panels layer). As you change the shape of the frame, the template which is used is also updated and as long as no embers extend out of this template then the plan view shape of the panel will be conformed to, if on the other hand you place members outside of this template then it is likely that your members will clash if you have panels joint together at a hip for example. The next images show the generated template polygons in the elevation view for the same panel using two different pitches. Note that the panels pitch is constrained to be within 0 and 89 degrees.

Pitch = 15 degrees



Pitch = 45 degrees



Floor Panels

Floor Panels that use the Auto Panel script have exactly the same options as Ceiling Panels. The Auto Floor Panel script is designed to be used mainly for the FL650 flooring machine steel profile but can be used with any other profile if required.

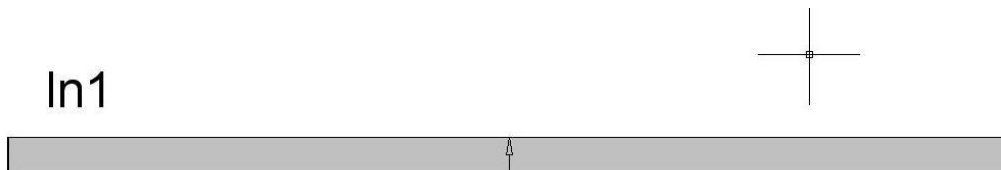
For more information about placing these frames in conjunction with their scripts see **Panel Roofs** (section 9.5).

Wall/Truss/Joist/Miscellaneous Frame Input

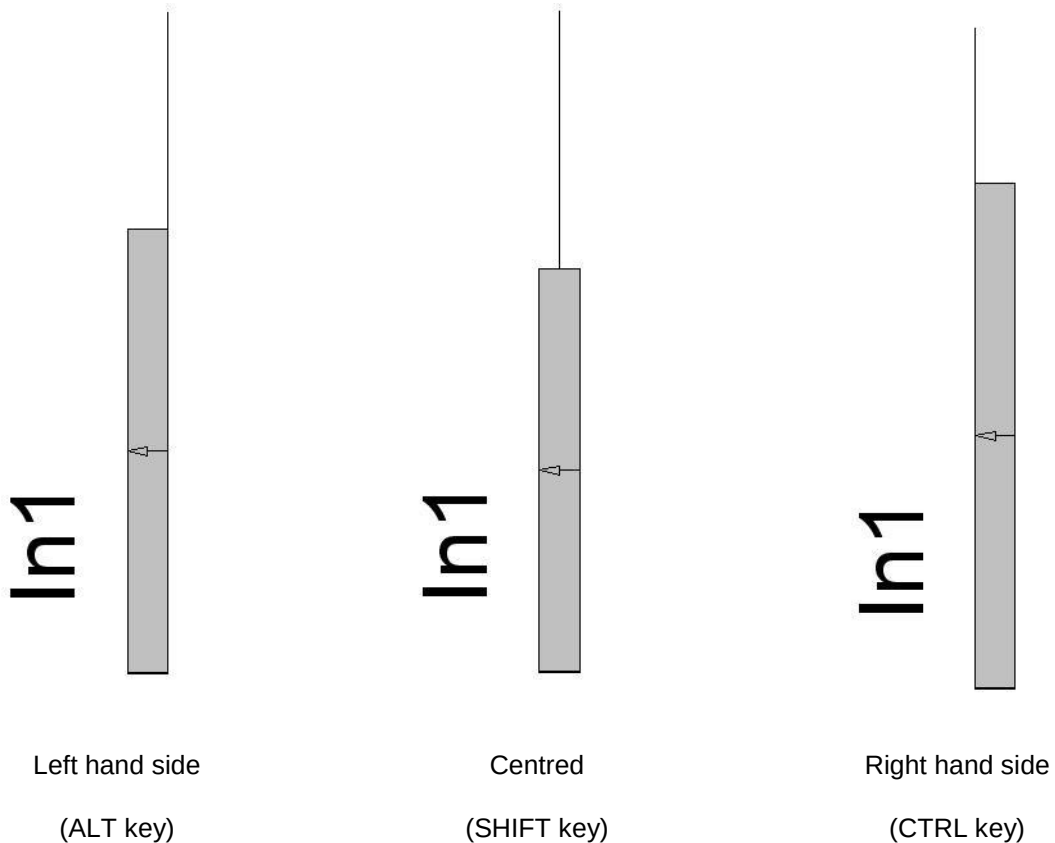
Enter start co-ordinate by either clicking or typing it in. Then enter the end coordinate, in this example I'm placing an internal wall from 0,0 to 4000,0.



In1



The wall (or other plan type object) can be placed to the left hand side of the picked coordinates by holding down the ALT key or to the right by holding the CTRL key down or the centre by using the shift key (by default the walls are placed about their centres unless altered using the above key combinations as it will use the last used method). The below images show the various placements using the different key combinations, note that the walls are drawn from bottom to top.



U Convert Line to Frame

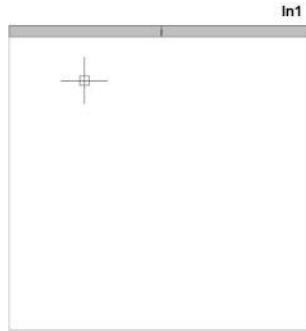
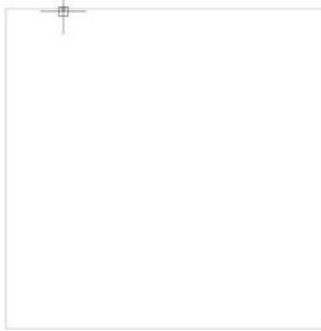


Keyboard Shortcut LS

This tool is applicable to whatever frame type is selected in the drop down list to the left of the 'Place Frame' button on the toolbar.

Process:

Select a line to convert. Note that it can also be an edge of a rectangle or polygon. The side of the line that your aperture is on will dictate which side of the line the wall will be placed.



V Auto Build Tool



Keyboard Shortcut AB

This tool allows you to build frames without having to open up the properties or the elevation view of the frame. As a precaution, when this command starts it will deselect any objects that were previously selected. Select the frames that you want built and then press an action key to begin building. If you haven't yet assigned a script to a frame, then it will build the frame using the default script for that frame type as well as the default values for that script. If a script has already been assigned, it will use this script and the values already set.

Once a frame has been built via this command, the frames' status is set to pre-processed. This is represented in the tree view with a question mark ( Panel1). The frame will not be exported to a roll former file until you have either clicked the FrameOK button (found in the elevation view) or confirmed via the Confirm FrameOK command (see below).

W Frame OK Tool



Keyboard Shortcut CF

If the properties of a frame changes then that frames status is said to be modified and is represented in the tree view by a red cross ( Panel1). Also, as described in the AutoBuild tool section, a frames status can be pre-processed. If a frame is in either of these two states then Detailer will not allow you to export it to the roll former. There are two ways in which you can change the status of a frame to 'built', one is to use the 'Frame OK' button in the frames elevation view and the other is to use this command.

Once this command has started, you will be asked to select the frames that you wish to confirm the status of.

X Draw Roof Tool



Keyboard Shortcut RI

This tool is used to create a planed roof with overhangs (where required) from the wall outline of a building.

See Roof Block Input (section 9.2)

Y Create Roof Block Tool

Keyboard Shortcut RB

This tool is used to input sets of roof trusses onto a Roof object using a truss block input method.

See Roof Truss Block Input (section 9.4)

Z Roof Skeleton Tool

Keyboard Shortcut RS

This is used to generate the roof plane lines from the outline of the roof. It assumes that the pitches of all the faces are equal.

See Creating Roof Plane Lines – Automatic Method (section 9.3)

AA Line Tool

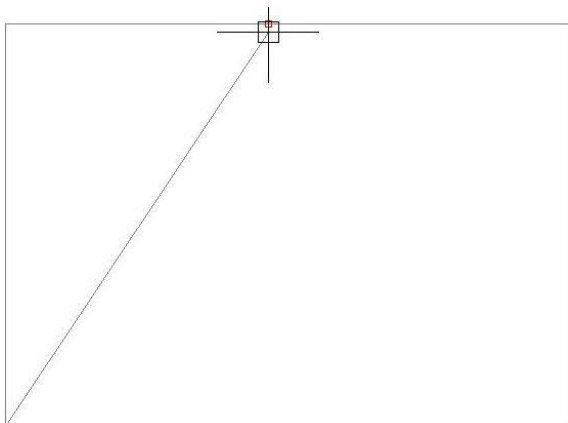
Keyboard Shortcut L

This tool draws lines. After you finish drawing a line, the start position of the next line is the end of the line you've just drawn.

Process:

- Choose start point.

Choose end point.

**AB PolyLine Tool**

Keyboard Shortcut PL

This allows you to draw a polyline; it is drawn in the same manner as the line tool. Pick the coordinates of each of the vertices and press an action key to finish placing the polyline.

AC Circle



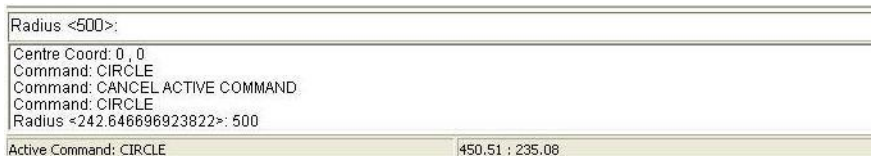
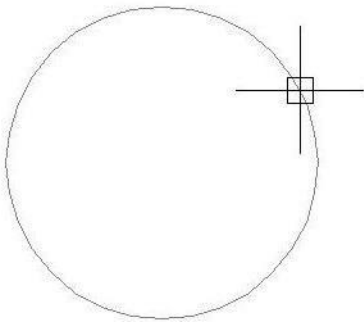
Keyboard Shortcut C

This allows you to draw circles by giving a centre coordinate and a radius.

Process:

- Choose the centre by clicking or typing in a coordinate.

Either press an action key to use the last used radius, type in a new radius or drag the circle to its desired radius.



AD Rectangle



Keyboard Shortcut REC

This draws Rectangles.

Process:

- Choose start point.

Choose end point.

AE1 Polygon Tool



Keyboard Shortcut P

Either click or type the co-ordinates that make up a polygon. At least 3 points are required for a polygon. If you press an action key when less than 3 points have been placed, the polygon will cancel. If you press the action key when more than 2 points have been inserted, it will close the polygon (as indicated by 'Vertex location <Close Polygon>:' on the command line).

AE2 Auto polygon



Keyboard Shortcut AP

This tool will automatically create a polygon by tracing around the edges of objects. Options control which objects are included. Depending on where you click will determine whether the inside or outside is traced.

Options:

Lines included (true or false). Do you want to include lines?

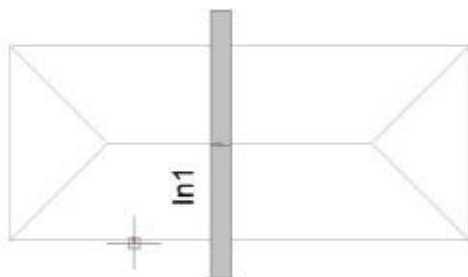
Rectangle included (true or false). Do you want to include rectangles?

Polygon included (true or false). Do you want to include polygons?

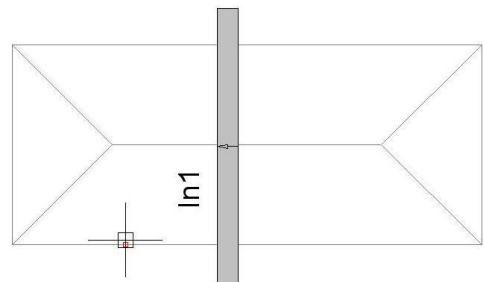
Frames included (true or false). Do you want to include frames?

Process:

- In this example Lines, Rectangles and frames have been set to true.
- Choose an edge to start tracing from. The side of the aperture determines if it traces the inside or outside.

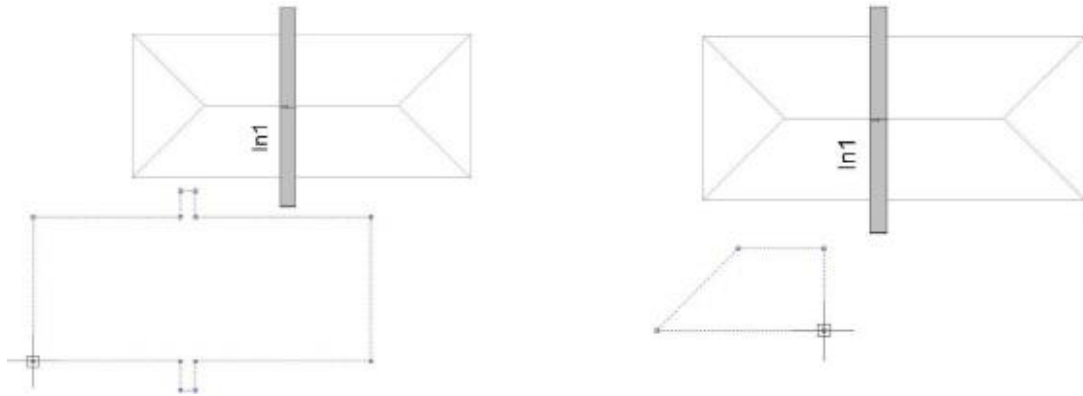


Outside location



Inside location

- Select where you want to place the resulting polygon.



AF Text



Keyboard Shortcut TX

This will let you place your own text in the plan.

Options:

Size – The size of the text to use.

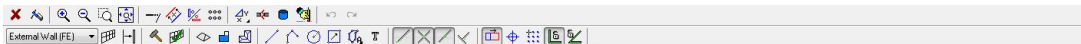
Angle in degrees – The orientation of the text. 0 degrees = Left to Right.

Process:

In this example we use a size of 200 and an angle of 45 degrees.

- Select the location of the text.

Either press an action key to accept last used text or enter some new text then press an action key.



FRAMECAD Detailer



Snaps

Snaps force an object that is being drawn or moved to align automatically to an exact point on another object. Small red rectangles are used to indicate where an item will snap to if the mouse button is clicked.

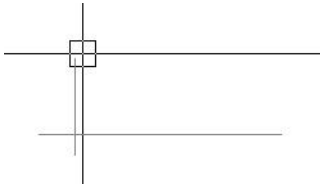
Of the snaps, End Snap and Intersection Snap may always be on. However, only one of Middle Snap or Nearest Snap may be on at any point in time. It is recommended to always leave End Snap, Intersection Snap, and Nearest Snap on as these are the most commonly used. If Middle Snap is required, turn it on.

AG End Snap



Keyboard Shortcut SE

Snaps the mouse cursor to the end point of a line. To use this snap, ensure it is selected (it should appear slightly depressed against the toolbar), position the cursor so that the end of the line to snap to is contained within the box surrounding the crosshairs, and click the mouse button. The crosshairs should 'jump' to the end of the line.

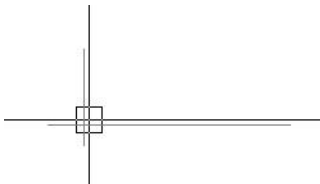


AH Intersection Snap



Keyboard Shortcut SI

Snaps the cursor to the junction of two lines. To use this snap, ensure it is selected, position the cursor so that the junction is contained within the box surrounding the crosshairs, and click the mouse button. The crosshairs should 'jump' to the junction of the 2 lines.

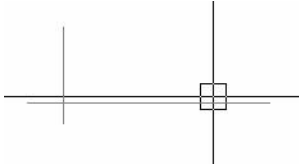


AI Middle Snap



Keyboard Shortcut SM

Snaps the cursor to the centre of a line. To use this snap ensure it is selected, position the cursor so that the line to find the centre of is contained within the box surrounding the crosshairs, and click the mouse. Ensure the endpoint of the line is not contained in the box, as this will cause it to snap to the end if the end snap is enabled. The crosshairs should jump to the centre point of the line.



AJ Nearest Snap



Keyboard Shortcut SN

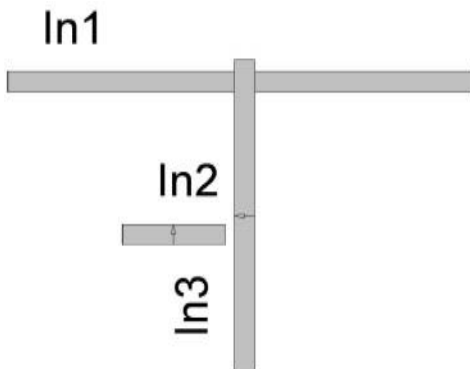
Snaps the cursor to the nearest point. This snap works like the Middle Snap, however, jumps the crosshairs to the nearest point possible contained within the box surrounding the crosshairs. This is very useful when laying out lines and walls to boundaries.

AK Auto Extend

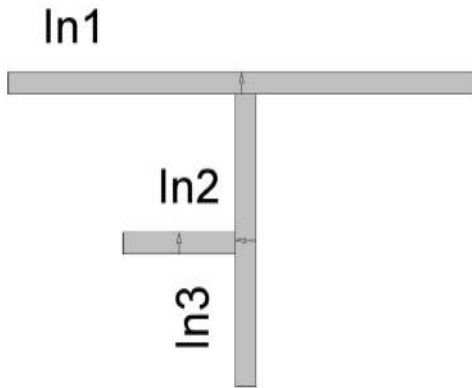


Keyboard Shortcut AE

If enabled, walls (and other similar plan type objects) will automatically extend or trim to one another to try and make clean connections.



Result of placing Ln3 with auto extend disabled



Result of placing Ln3 with auto extend enabled

Grid And Reset Datum

The Grid and Reset Datum tools are drawing aids to assist in the layout of the plan.

AL Datum



Keyboard Shortcut DAT

The datum aid allows the coordinate origin to be moved. By moving the origin, any coordinate entry will be referenced back to the new origin.

To set the datum (origin), select the Datum aid icon, and click the required point. For accuracy, object snaps should be used.

To reset the datum back to its original position (True point 0,0), Click on the Datum button and then you will see down in the command box "Location ('R' to reset)" enter 'R' then use an action key to reset the datum back to its original location.

AM Grid Snap



Keyboard Shortcut SG

The grid will snap the mouse cursor to a predefined distance. To turn the grid on, click the Grid aid icon. When the mouse is moved within the drawing area, it will jump between grid points.

To change the Grid Spacing, go to the edit menu and click options and click the CAD tab then change Grid Snap

The cursor will now snap to this spacing.

To turn the Grid Aid off, click the icon again.

Constraint Aids

Orthogonal and the 45 degree aid constrain lines to 90° increments. These aids make the Direct Distance Coordinate Entry Method a very efficient method of laying out a building.

If an object is required to be drawn at an angle not constrained by the Constraint Aids, ensure neither is selected.

AN Orthogonal Aid



Keyboard Shortcut ORT or F8

When orthogonal aid is selected, drawing objects is restricted to the following angles.

- 0°
- 90°
- 180°
- 270°

AO 45 Degree Aid



Keyboard Shortcut 45A

When 45 degree aid is selected, drawing objects is restricted to these angles.

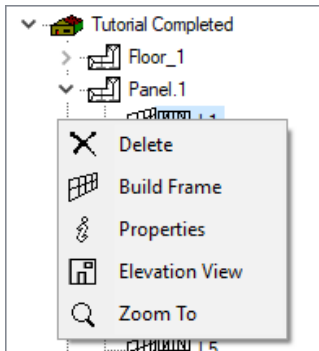
- 45°
- 135°
- 225°
- 315°

Orthogonal Aid and Degree Aid cannot be used simultaneously. Holding down the CTRL key will disable the constraint aids while the key is pressed.

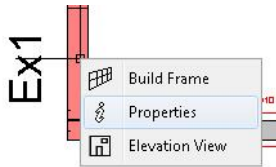
7 Assigning Properties to a Frame

When all frames are laid out, it is necessary to assign properties to them. These properties include the height of the wall, nog line heights, doors and windows, intersecting walls, etc.

To begin assigning properties, right click on the required frame either in the Project Tree, or on the frame layout. Click Properties. All frames must be deselected prior to assigning properties to individual frames. If any frames are selected, press the ESC key (Escape), then open the properties window.



Project Tree



Plan View

The Frame Properties window will appear.

The first tab of the Frame Properties window is the **General tab**. This is standard across all frame types. It contains a summary of the frame including the frame type, its length, what layer it is on, material usage, relative setup in plan view, member elevation display, etc.

7.1 GENERAL

At the top of this tab is the **Name** textbox. This is automatically labelled depending on the type of frame. It can be changed to almost any value (some characters are not permitted in this field). Do not use full stop (.) as this will cause problems later when exporting the machine files.

Ref - the reference textbox can only contain numbers. The up and down arrows will increase and decrease this value one at a time. It is also possible to type new values into this field. The reference numbers are specific to all frames using the same Name. If a frame already exists using the reference number entered, an error message will appear.

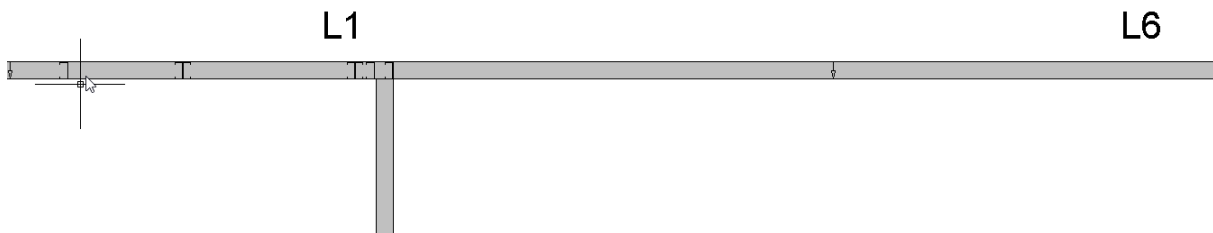
Cloned to – covered in **Cloned Frames** (section 7.2).

Material Usage - contains information about the lineal meters, kilograms of steel needed to build this frame. It also contains the total number of fasteners required to assemble the frame (dimple holes only).

Setup

- **Pitch** – the angle that the frame will rotated from the vertical plane. Straight frames (walls, trusses) will have a 0 pitch.
- **Elevation - Plan** – the relative level to the bottom of the wall. The '**Additional**' option is if the user wishes to offset the frame above or below the set relative level. The '**Total**' height is obtained by adding the plan elevation and additional elevation.

Member Display – tick this checkbox if you wish to see the outline of the section in plan view. In the example below, L1 is showing the studs, while L6 doesn't.



VRML Colour – for 3D viewing.

Automatic Triple Stud Connection Detection – detects adjoining walls and automatically adds triple studs. Adjoining walls that do not touch will be detected if they are within the **Maximum Distance** set.

Frame Script – covered in **Script Basics** (section 7.4). It's the script that has been configured when the frame type was created. In case of an imported frame, the frame script will always show 'Auto'. Tick 'Make Default' to make the selected script the default for this frame type.

Build – will switch directly to the Build Window. This is covered in **Detailing Frames** (section 8).

7.2 CLONED FRAMES

If a plan contains two or more frames that are the same, it is possible to build one of the frames, and Clone the remaining frames to the original.

To do this, ensure the original frame is built. Right click on the frame you want to make cloned and select Properties. Click the checkbox 'Cloned to'. When the 'Select Frame as a Template' window appears, find the original frame in the list, click on it, and click OK. There should now be a tick in the checkbox and the original frame's name will appear next to Cloned to.

The frame is now cloned. Any changes made to the original frame will be updated through to all clones. The cloned frame will also show the name of the original frame in brackets next to its original name.

7.3 MULTIPLE SELECTED FRAME PROPERTIES

If multiple frames are selected and the Properties Window is opened, a reduced set of options will be displayed.

This reduced options window gives the opportunity to change properties for frames on mass, but only properties that are consistent throughout the frames.

It is possible to change the Name (label) of a group of frames at one time. It is also possible to clone multiple frames to one original frame all at once. The process for each of these is the same as for a single frame. Set the property, then click OK to close the Frame Properties Window.

7.4 SCRIPT BASICS

At the bottom of the Frame Properties window, in the General tab, is a drop down menu labelled Frame Script.

In FRAMECAD Detailer, scripts handle the building of the frames.

A script is provided for each different frame type. The scripts will appear in the drop down menu at the bottom of the Frame Properties window. Scripts will only appear for frames on plans of the correct type.

Each script has different properties which need to be set. For instance, a wall frame has openings and triple stud connection (stud layout when an intersecting wall exists), whereas trusses do not. The Frame Properties window will change to suit the script. These properties are displayed in the tabs across the top of Frame Properties window. In addition to the General tab, all scripts will have a Main tab, which contains most of the information required for a frame. Other tabs will appear as necessary.

7.5 SCRIPT SELECTION

Scripts are specific to particular frame types and will only appear for frames of the correct type.

One option which is available across all frame types is Manual. This is not a script as described above, and starts the frame with nothing but a blank screen. This is for use when a complicated frame is required, and it is not possible to use any of the scripts as a starting point.

If a particular script is being used a lot, it is possible to set it as the default script to be used when the Frame Properties window is opened for a frame type (Internal Wall, Truss). To do this, select the required script, tick the Make Default checkbox, and click Apply.

7.6 SETTING THE VARIABLES

As described in **Script Basics** (section 7.4), applying different variables to a script will result in a different frame being created. Many of the variables for frames throughout a building will be the same, though some may be individual.

A script will have a set of default variables assigned to it, which are applied when the script is first assigned to that frame. It is then possible to change these values as needed. If the values are the same across a number of frames, it is easier to set them to be the new default values for the script. To do this, set all the values required, and click the Default button. The default values can be changed as often as needed.

The default values for a script will only be assigned to a frame when the Frame is assigned a script. After a frame has had values assigned to it and then built, all values are particular to that frame.

7.7 PICKING

Some scripts may have the ability to allow some variables to be 'picked' from the plan. If the option is available, the Pick button in the Pick Feature area will be available. When this button is clicked, a window will appear showing the floor plan. Along the bottom of the window will be instructions on which points are to be selected.

Once selected, the window will close, returning to the Frame Properties window with the updated variable values.

7.8 ARRAY'S – MULTI-VALUE VARIABLES

Some variables allow for more than 1 value to be stored in them. If a variable is capable of containing more than 1 value, it will appear in the list with <array> in the value. To modify the values, click the small button to the right of <array> which shows ellipses (...). You can then use the Add, Remove, and Modify buttons to create between 0 and 8 values of whatever values are required.

It is also possible to pick these values from the plan. Simply select the value to be picked, and click the Pick button. This will open a window showing the plan, awaiting a point to be selected.

7.9 ADDITIONAL FEATURES

Some scripts may have tabs in addition to the Main tab. These are for features which appear in a frame, which require their own set of properties, such as doors and windows.

When one of these tabs is selected, a name box with Plus (+) and Minus (–) buttons to the right of it. The box underneath these will contain the variables, when a feature has been added.

To add a feature, click the Plus (+) button. A list of variables and values will appear. These values are the default values set for the script. Entering a new set of values to the list, and clicking the Default button will set them to the default for future openings.

7.10 WALL FRAME PROPERTIES

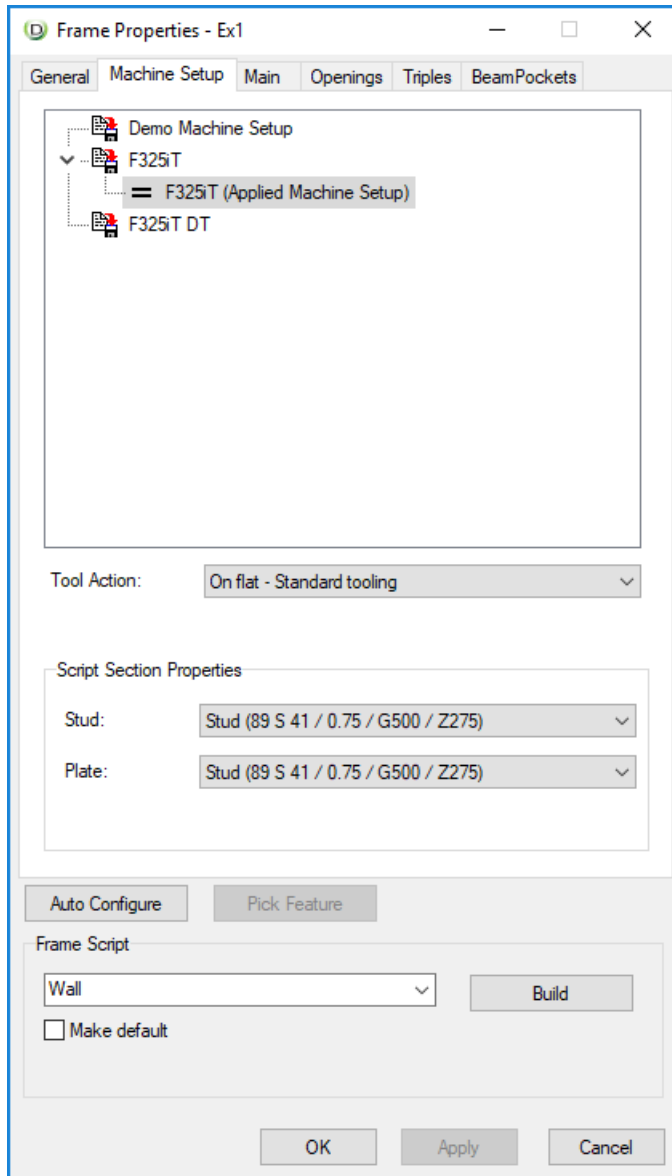
In addition to the 'General' tab, the Wall Frame Properties window shows Machine Setup, Main, Openings, Triples and Beam Pockets tabs. The General tab is explained at the beginning of this section.

Note: Imported frames only have the 'General' and 'Machine Setup' tabs

7.10.1 Machine Setup

This tells you what machine, tooling action, section and script is being used for this frame.

Stud and plate sections can be altered if required along with other parameters.



Auto Configure:

Wall script – will remove all existing triples and re-input them based on any intersecting walls.

Auto Frame script – will remove all existing openings and re-input them based on existing polylines and remove triples and re-input them based on any intersecting walls.

7.10.2 Main

The Main Tab will only be displayed for the following Frame Scripts

- Auto Frame
- Wall

Frame Properties - Ex1

General Machine Setup **Main** Openings Triples BeamPockets

Length	5000
Height	2440
Pitch	0
Pitching_Offset	0
Stud Spacing	600
Stud_References	<array> ...
Use_Nog	☒
Nog Heights	<array> ...
Nog_Type	Continuous ...
Nog_Offset_(For_Discontinuous)	0
Service_Hole_(Horizontal)	☒
Service_Hole_(Heights)	<array> ...
Service_Hole_(Vertical)	☒
Bottom_Plate_Bolt_Holes	☒
Auto Dimension	4 - Everything (Openings Dimensioned Int...
Frame_Offset_(Left_Edge)	0
Frame_Offset_(Right_Edge)	0

Make default

Auto Configure Pick Feature

Frame Script

Wall

☐ Make default

Build

OK Apply Cancel

Length – Length of frame. This is determined by the length as drawn in the plan view. This dimension can only be changed by extending or trimming the frame on the plan view.

Height – Starting height of frame.

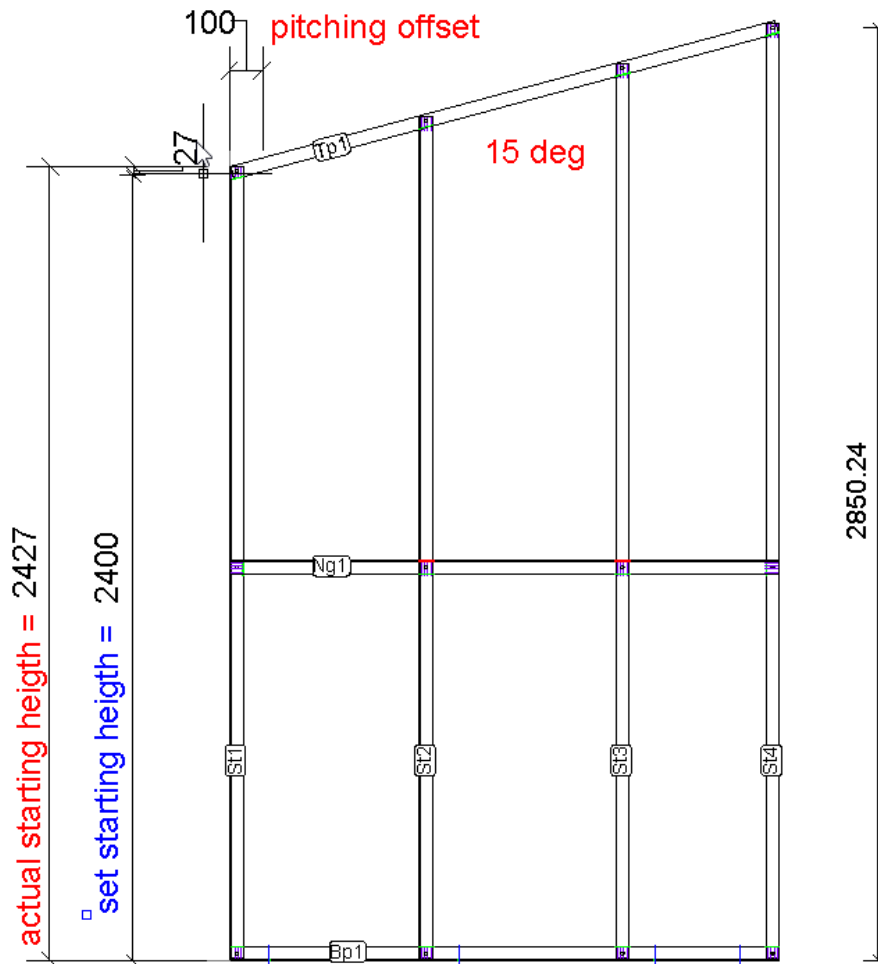
Pitch – Pitch of the frame. If the frame is a level frame, this should be set to 0. If the frame is raked, the left side of the frame will be set to the Height and the frame will rake up to the right.

Pitching Offset – Only applicable to raking walls. Distance from point of Height. The actual starting height of the frame will be calculated by the rise over Offset at Pitch from Height.

Input parameters:

Height	2400
Pitch	15
Pitching_Offset	100

Output:



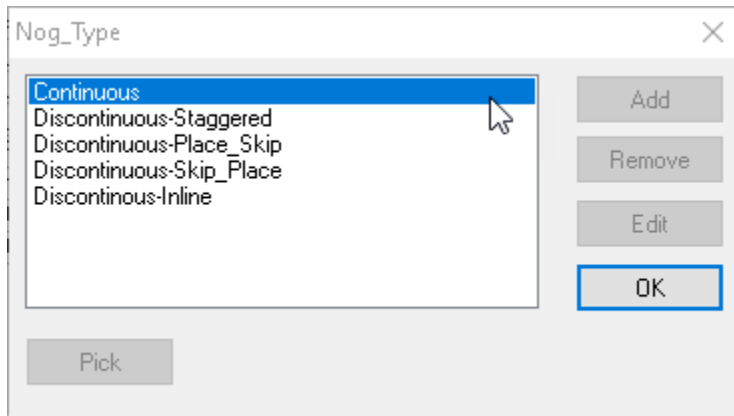
Stud Spacing – Standard distance between studs. Taken from start of wall to centre of stud. If stud spacing is 600mm, and the stud is 40mm wide, the first stud will be at 580mm.

Stud References – A point to begin calculating the Stud Spacing from. This will usually be set to 0. Multiple Frame References may be used (up to 8). If a Framing Reference is set before the start of the frame (negative value), the Stud Spacing will be calculated from this point, but studs will not be drawn until contained within the frame. If a Framing Reference is set after the start of the frame (or even after the end of the frame) (positive value), the Stud Spacing will be calculated both forwards and backwards from this spacing. If multiple are set (i.e. one before the start of the frame, and one after the start of the frame, studs will be placed up to the reference inside the frame, and then will continue from there.

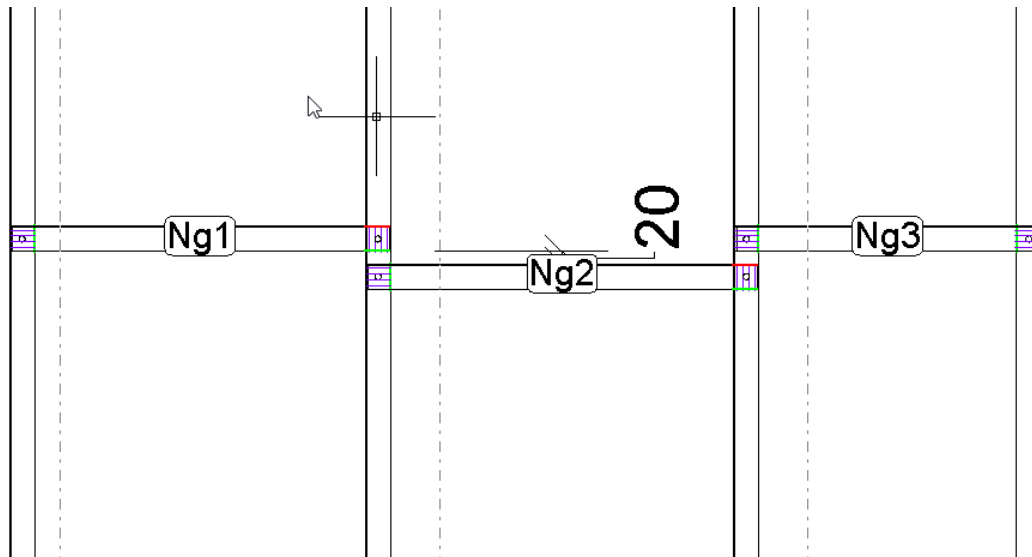
Use Nog – Turns nog input on or off.

Nog Heights – Allows up to 8 rows of nogs to be input where specified. The Pick feature will allow the user to select a nog height location in elevation view.

Nog Type – Can choose from 5 types:



Nog Offset – Option is valid only if the Nog Type is different to Continuous. For a nog offset of 10mm, the nogs will be offset by 10mm each from the defined nog heights, allowing for a 20 mm distance in between:



Service Hole (Horizontal) – Turns on horizontal service holes.

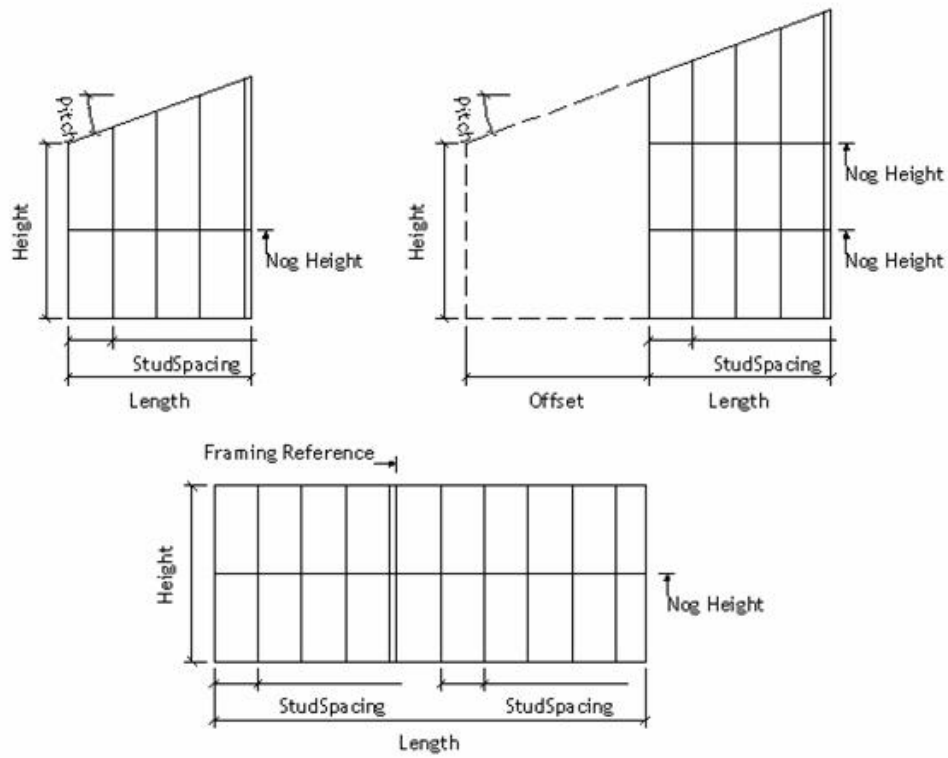
Service Hole (Heights) – Set service hole heights.

Service Hole (Vertical) – Turn option on to place vertical service holes next to each stud.

Bottom Plate Bolt Holes – Turns bottom plate bolt holes on or off. If your machine doesn't have a bolt hole, but has a web hole, a web hole will be placed instead of a bolt hole.

Auto Dimension – Automatically dimensions the frame to varying options.

Frame Offset – Will reduce the frame's length by the specified distance. Very useful when tolerances between frames are required.



7.10.3 Openings

Frame Properties - Ex1

General Machine Setup Main **Openings** Triples BeamPockets

Op1 + -

Head	2100
Height	1200
Sill	900
Width	1200
Offset	900
Pick_To_Centre	☐
Head Clearance	0
Side Clearance	0
Extra_Studs	☒
Head_Spacing	600
Head_Spacing_Type	Even ...
Head_Fill_Type	FRAMECAD Default ...
Head_Split	☒
Head_Split_Height	300
Head_Split_Position	Bottom ...
Head_Split_Stud_Spacing_Type	Absolute ...
Sill_Spacing	600
Sill_Spacing_Type	Absolute ...
Sill_Fill_Type	Studs ...
Sill_Split	☐
Sill_Split_Height	600
Sill_Split_Position	Top ...
Sill_Split_Stud_Spacing_Type	Absolute ...
Notch Door Sill	☒
Jack_Studs	☒
Invert_Webs	☐
Allow_Nog_Passthrough	☒

Make default

Auto Configure Pick Feature

Frame Script

Wall Build

☐ Make default

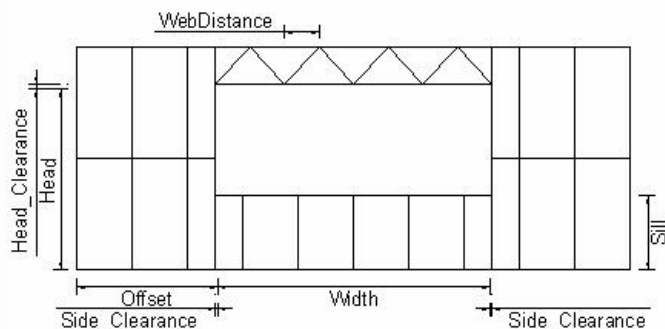
OK Apply Cancel

The Opening tab contains all information about doors and windows. When the Opening tab is first opened, the box at the top (which shows Op1 in the image below) as well as the box beneath, will be empty.

The first text box (Dropdown menu) contains the name of the opening. The large box contains all the information relevant to that opening. A frame may contain many openings.

To add an opening to the frame, click on the Plus button (+). To remove the current opening, click the Minus button (-).

When an opening has been added, the following variables will be shown:



Head – Nominal distance from the ground to the top of the opening. Do not allow for clearance here.

Height – Nominal height of opening. Do not allow for clearance here.

Sill – Actual distance from the ground to the underside of the opening. This value is automatically populated from the difference between the Head height and the Opening height. If the sill value is altered then the opening height will change to suit.

Width – Nominal width of the opening. Do not allow for clearance here. If the opening is to be picked, do not set this variable. If the option is to be centred (see below), this variable must be set first.

Offset – Nominal distance from the start of the wall to the start of the opening. Do not allow for clearance here. Do not set this variable if the opening is to be picked.

Pick to Centre – Tick this option to modify the Pick option. The opening will be centred between two picked points (the width must be set first).

Head Clearance – Total vertical clearance required. The value specified will be added to the top of the opening only.

Side Clearance – Total opening width clearance required. The value specified will be divided and split to both sides of the opening.

Extra Studs – Places one additional stud next to the trim stud on both sides of the opening.

Head Spacing – Maximum horizontal distance between head members (studs or webs)

Head Spacing Type – Choose between Even or Absolute. Even spacing will divide the header into equal web/stud distances. We recommend using the absolute option when the head fill type is set to Studs. A stud will be placed in each Stud Reference point.

Head Fill Type – Choose between None, Studs, Framecad Default or Pratt. Each of them comes with a different pre-defined framing pattern.

Head Split – Option to divide the head horizontally.

Head Split Height – Determines the head height for the main head.

Head Split Position – Choose to have the main head positioned at the bottom or at the top within the head.

Head Split Stud Spacing Type – same as Head Spacing Type

Sill Spacing – Maximum horizontal distance between sill members (studs or webs)

Sill Spacing Type – same as Head Spacing Type

Sill Fill Type – same as Head Fill Type

Sill Split – same as Head Split

Sill Split Height – same as Head Split Type

Sill Split position - same as Head Split Position

Sill Split Stud Spacing Type – same as Head Spacing Type

Notch Door Sill – Add or remove web notches in the bottom plate either side of a door opening. This notch aids in the easy removal of the sill on site.

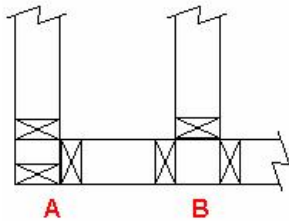
Jack Stud – Add or remove end vertical jacks up against the jamb studs.

Invert Webs – reverse the orientation of the webs used in the head

Allow Nog Pass Through – This allows the standard wall nog to continue below or above an opening where relevant.

7.10.4 Triples

The Triples tab contains all information about triple stud connections. A triple stud connection is the intersection of 2 walls.

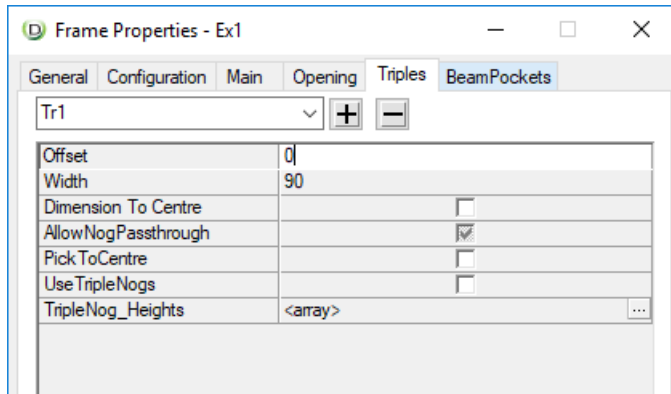


The above image displays the 2 types of triple stud connections. Connection A shows the intersection at the end of two walls, and Connection B shows the intersection of the end of a wall into another wall.

The studs are positioned to give fixing on all points of the wall to allow for internal linings to have fixing at that point.

The first text box (Dropdown menu) contains the name of the triple stud connection. The large box contains all the information relevant to that triple. A frame may contain many triples. Only the frame which will have 2 of the studs should have the triple stud connection added.

To add a triple to the frame, click on the Plus button (+). To remove the current triple, click the Minus button (-).

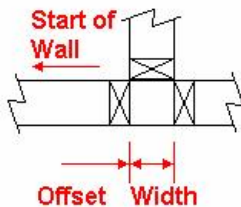


When a triple has been added, the following variables will be shown:

Offset – Distance from the start of the frame, to the start of the triple stud connection (i.e. the side of the connecting frame).

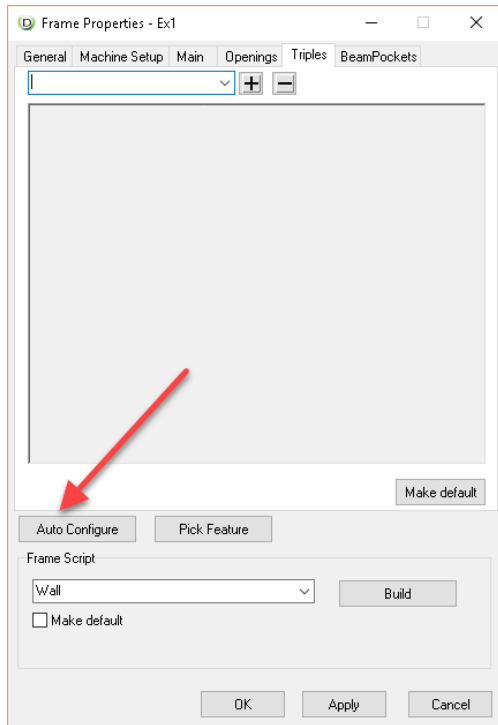
Width – Width of the connecting frame.

Dimension To Centre – Will either show the dimension to the centre or to the side of the triple on the elevation.

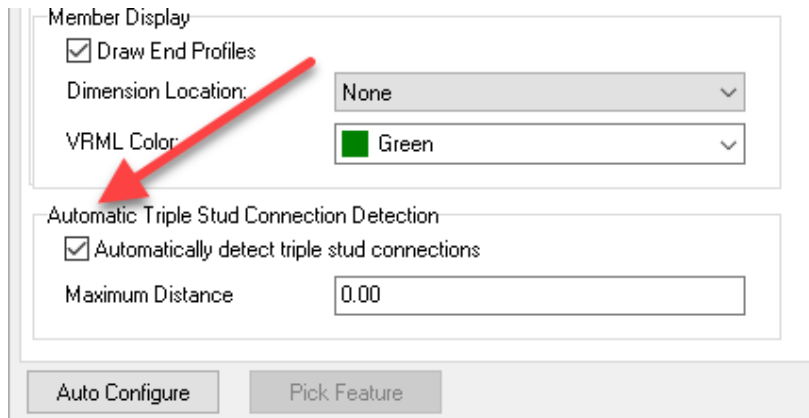


When a triple has been added to the properties, it is possible to pick the position, as opposed to entering the dimensions manually. To do this, click the 'Pick' button. A new window will appear showing the wall. Simply click on the intersecting wall to select the position.

By clicking on **Auto Configure** at the bottom of the Triples Tab, Detailer will automatically detect intersections with other walls and place plaster studs in those locations.



Make sure the Automatically detect triple stud connections checkbox is selected prior to this in the General tab.



Beam Pockets

8 Detailing Frames

When a frame has properties assigned to it, it is necessary to build the frame. Frames are built in the 'Build Window' which is an area similar to the drawing area. There are a number of ways of opening the Build Window.

In the Frame Properties window, next to the Frame Script dropdown menu, is the Build button. Clicking this button will open the Build Window. Another method is to right click on the frame in either the Project Tree or Drawing Area. A small popup menu will appear. Select Build. The other method is to double left click on a frame in the plan view or tree view (if it has already been built). If the frame hasn't had its variables assigned, then double clicking will bring up the frame properties window.

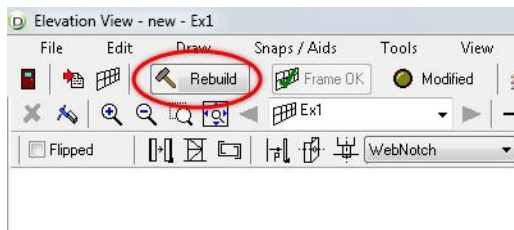
Ex1



8.1 AUTOMATED BUILDING

When the Build Window is opened for the first time on a new frame, FRAMECAD Detailer will automatically Build from script. Whenever the Build Window is opened after this, the frame will not be automatically built from script. This is to protect any manual changes made to the frame. See **Manual Building and Modifications** (section 8.2).

If the properties of the frame are changed, but the frame is not rebuilt from script, the frame will become unusable until it is rebuilt. These frames will appear in the Project Tree with a red cross through them () and the elevation view will also have a red cross through it. These frames will not export to the roll former, and must be rebuilt from the script before becoming usable. Alternately you can override this by clicking on the 'Frame OK' button (by clicking this you are saying that the frame is fine). This situation can also occur if you drag a built frame or an auto extend is done to it.



8.2 MANUAL BUILDING AND MODIFICATIONS

If required, frames may be built manually from scratch. If a specialised frame is required, it may be easier to start with a blank page (Use the 'Manual Frame' Script for this).

The Build Window is similar to the Drawing Area. There are several different tools available on the toolbar.



- A** Flipped - Place stud or plate section in flipped direction (explained later)
- B** Section Modification (Dropdown Menu - Hold mouse button down to drop menu, release to select)
 -  Convert to back to back. Converts the selected single stud to 2 studs, back to back, around the centre of the original stud.
 -  Convert to face to face. Converts the selected single stud to 2 studs, face to face, around the centre of the original stud.
 -  Flip the selected stud or plate.

- C** Boxing/Reinforcing. See **Multiple Box Reinforcing of Members** (section 8.6).
- D** Convert line to Stud / Plate (Dropdown Menu - Hold mouse button down to drop menu, release to select)



Convert line to stud. Converts existing line to stud section. Crosshairs of mouse cursor to be placed on side of line the stud is to be created, with the box around the crosshairs covering the line. The section will be created with its origin at the same end as the origin of the original line.



Convert line to plate. Converts existing line to plate section. Crosshairs of the mouse cursor to be placed on side of the line the plate is to be created, with the box around the crosshairs covering the line. The section will be created with its origin at the same end as the origin of the original line.

- E** Place Service Hole Route. Places a line representing a route of service holes through a frame. Drawn just like a line. Specify a start point, followed by an end point, by either clicking the mouse, or by any of the coordinate entry methods.
- F** Select Explicit Tool Operation. Selects tool operation to be placed by G.
- G** Place Explicit Tool Operation. Places a line representing a series of tool operations on which ever section it crosses. The tool selected in H specifies the tool to be placed.
- H** Steel section to be used.
- I** Place Stud Section. Places stud section. See **Placing Studs and Plates** (section 8.3).
- J** Place Plate Section. Places plate section. See **Placing Studs and Plates** (section 8.3).
- K** Place Bracing. See **Inserting Braces** (section 8.4).
- L** Line Tool. Draws a line. Line specified by a start coordinate followed by an end coordinate, entered with either a mouse click or any of the coordinate entry methods.
- M** Polyline Tool. This allows you to draw a polyline; it is drawn in the same manner as the line tool. Pick the coordinates of each of the vertices and press an action key to finish placing the polyline.
- N** Circle Tool. Draws a Circle by giving a centre coordinate and a radius.
- O** Rectangle Tool. Draws a rectangle. Rectangle specified by a start coordinate (one corner) followed by an end coordinate (opposite corner), entered with either a mouse click or any of the coordinate entry methods.
- P** Polygon Tool. Allows you to place multiple lines to make any closed shape. You can enter any dimension or place a line by clicking the left hand mouse button; you can also use the orthogonal and 45 aids freely to suit.
- Q** Text Tool. Allows for the placement of text labels. Point provided (by either mouse click or co-ordinate entry method) positions the text label by the upper left corner. To edit the label, use the right mouse button, and click on the label.
- R** End Snap
- S** Intersection Snap
- T** Centre Snap
- U** Near Snap
- V** Fastening Snap (SF)
- W** Auto Extend
- X** Change Datum Location
- Y** Grid Snap
- Z** Toggle Orthogonal Aid

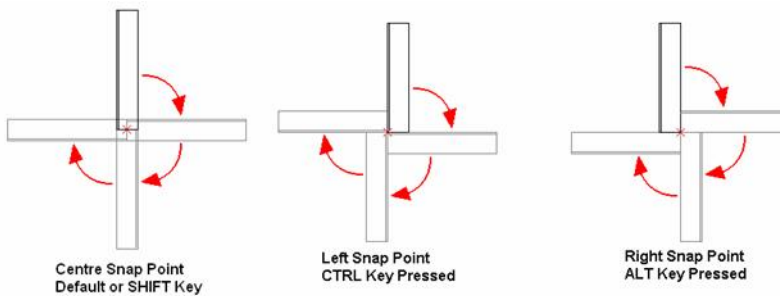
Z1 Toggle 45° Aid

8.3 PLACING STUDS AND PLATES

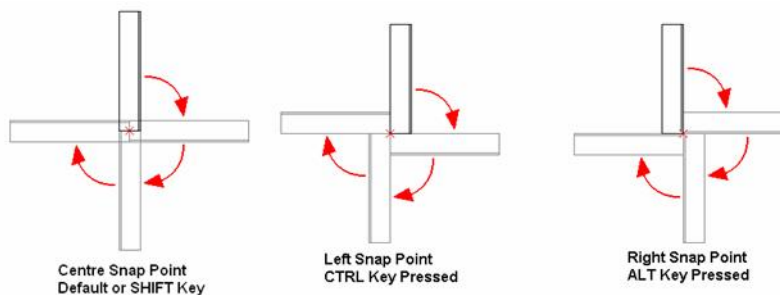
FRAMECAD Detailer has the ability to place stud and plate sections separately. For most framing systems, there is no difference between the two.

Sections are placed in much the same fashion as wall frames. The only difference is a section has 2 directions it can be placed, dependant on which direction the web of the section should be placed.

The default is for the web to be to the left of the section when the section is drawn upwards, and to pivot.



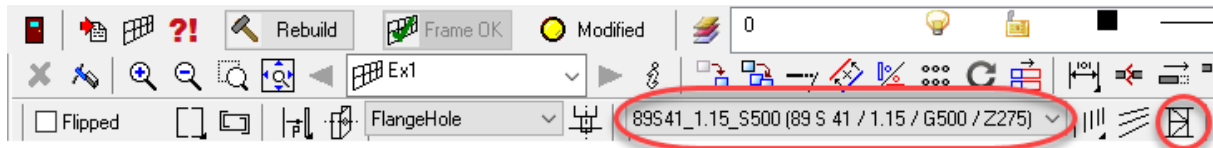
By ticking the Flipped checkbox - A in **Manual Building and Modifications** (section 8.2), the web will be positioned on the opposite side.



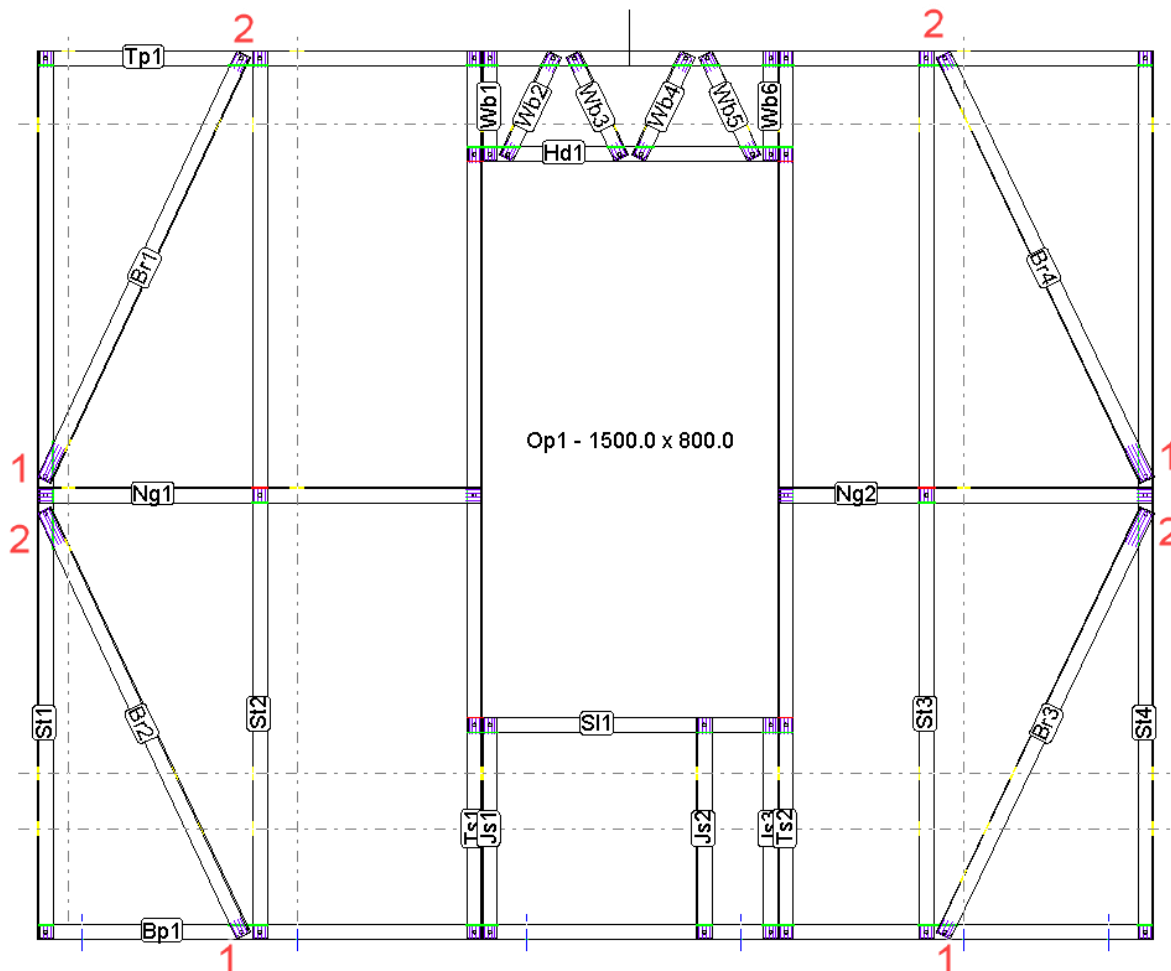
When placing sections, ensure Auto-Extend is on, and check the section begins and ends correctly inside sections, and doesn't extend through the web.

8.4 INSERTING BRACES

Select the section type that you wish to use for the brace from the dropdown list, then type B or click on the Place Bracing icon



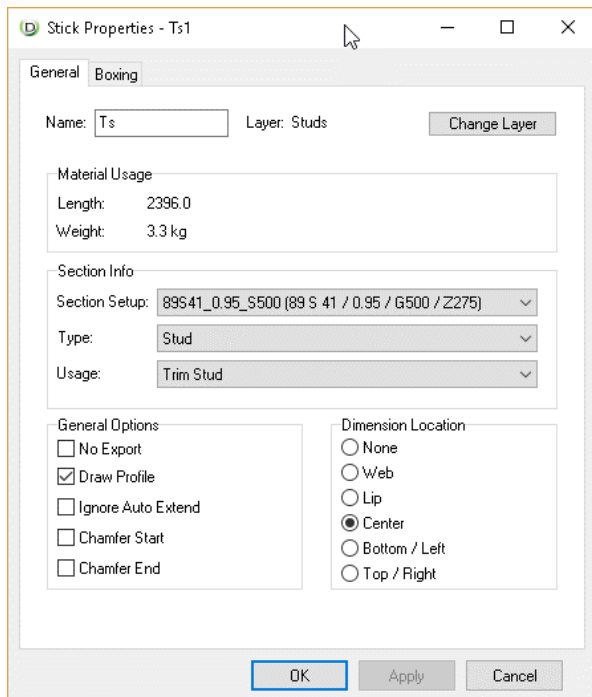
Braces should be placed from the bottom to the top. This is so the brace will be produced from the machine in the correct direction. It must always span from the Bottom Plate to a Stud and from a Stud to the underside of the Top Plate. The brace should never pass over or through any other part, connecting only at each end. If the brace passes over another part, it creates a connection which is not only hard to assemble, but also a potential structural weak point.



Also, braces should never 'share' the dimple of another connection as this can become very difficult to assemble.

The Web of the Brace (indicated by the double lines on the section in FRAMECAD Detailer), should always face away from the stud it is connected to, where practical. This can be achieved either by clicking the 'Flipped' checkbox in FRAMECAD Detailer while placing the brace, or selecting the 'Flip Selected Plate/Stud' button on the small drop down menu.

8.5 STICK PROPERTIES



Each individual section (stick) has its own individual properties. This can be viewed by using the right mouse button, and single clicking on the required stick (Multiple stick properties can be modified by selecting the sticks, and clicking on any one of them using the right mouse button).

The Name can be set as required to almost any alpha-numeric combination. Any sticks with the same name will be numbered consecutively. The names are case sensitive, so PT, Pt, pT, and pt are all different, and will have their own individual numbering scheme.

A stick can be changed to a different section via the Section Setup dropdown list.

The sticks Type and Usage can also be changed, just be aware that these changes might affect the tooling at stick intersections.

The No Export option creates the stick for the purpose of creating punches in other sections, and then will not manufacture the part. If a stick runs through another part, and then has the No Export option selected, it will not be manufactured, though the part it runs through will have a Dimple, Lip Notch, and Web Notch punched.

8.6 MULTIPLE BOX REINFORCING OF MEMBERS

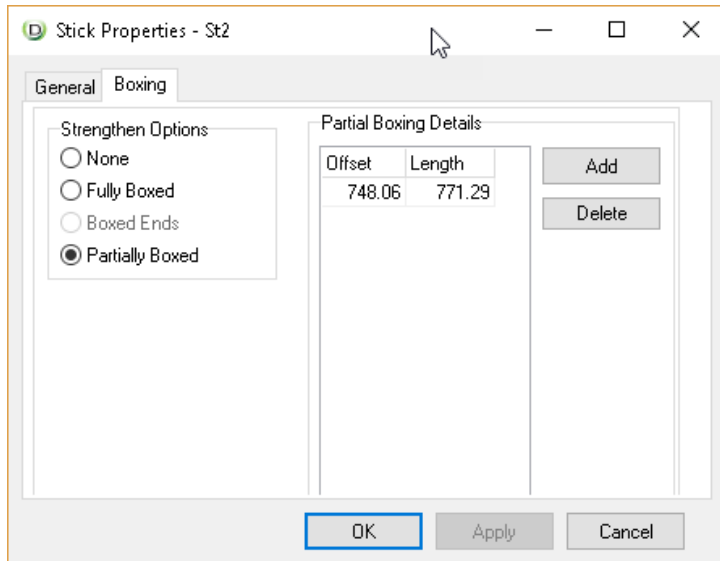
Members can have multiple reinforcing members attached them as boxing pieces. One reason for this is so that full member boxing pieces don't pass through member junctions (e.g. where truss webs connect to chords) potentially causing a structurally weak tooling connection. Another reason for this may be that only multiple isolated sections of a member may require strengthening to satisfy engineering requirements. There are 2 methods of achieving this as outlined below.

Method 1:

- In elevation view, click on the  symbol on the toolbar or type 'BX' for Boxing. Make sure to turn on/off the snaps that are required to place the reinforcing section (all snaps could be turned off).

- Use the mouse to select the start and finish points for the reinforcing members.

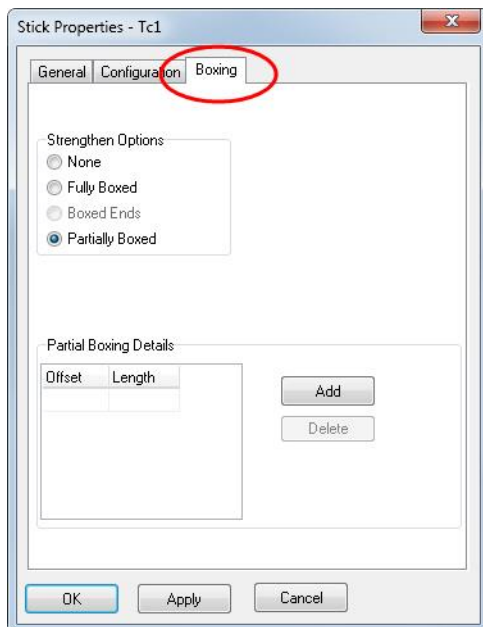
To delete a reinforcing piece, right click on the member, select the piece within the dialogue box under 'Length' then press the Delete key. You may also alter the length and offset of individual pieces from within here.



Method 2:

- Right mouse click on the member to be reinforced.

In the stick properties dialogue box, go to the 'Boxing' tab and select 'Partially Boxed' under 'Strengthen Options'.



Next, click in the space below 'Offset' and type in the starting point offset distance of your first reinforcing piece from the starting end of the member (indicated by the double line).

Tab to the next space to type in the reinforcing length.

Tab to go to the next line for additional pieces.

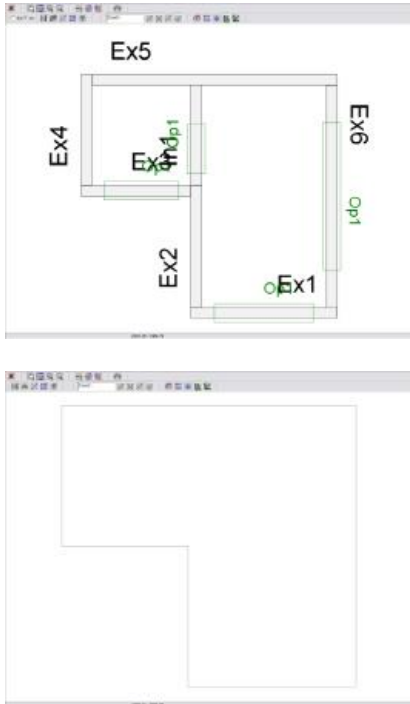
If you wish to box the whole member, tick the Fully Boxed option instead of Partially Boxed.

To delete a reinforcing piece, right click on the member, select the piece within the dialogue box under 'Length' then press the Delete key. You may also alter the length and offset of individual pieces from within here.

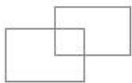
9 Detailing a Roof

9.1 CREATING ROOF PLANE LINES

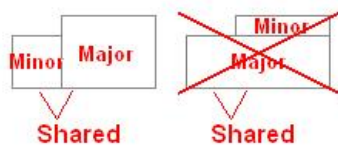
To layout the Hip, Valley and Ridge lines of a roof, begin with an outline of the external side of the wall frames.



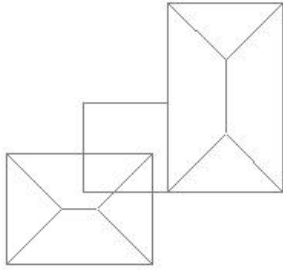
Divide the building into boxes. Any boxes where the corners cross, such as in the following example are completely separate boxes.



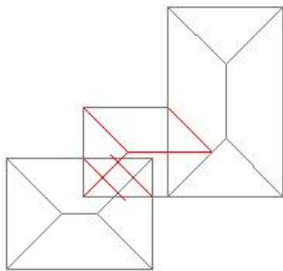
If 2 defined areas can be divided, and will share a side, as in the following examples, divide them to create the largest box with the greatest width possible. This will become the Major area. The other area will be referred to as the Minor area.



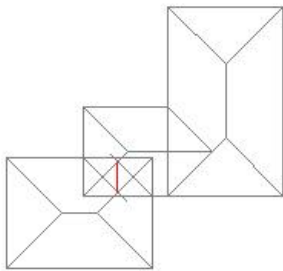
Create a hip roof within all Major roofs.



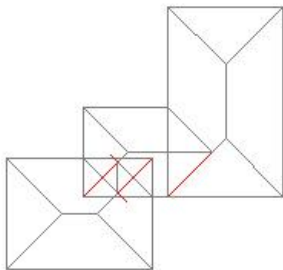
Create an add on hip end roof within all Minor roofs towards the connecting Major roof with a shared side and Valleys on all internal corners.



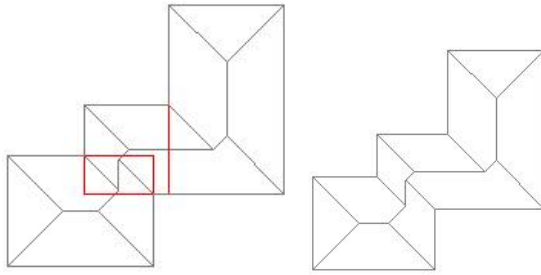
In the areas of overlapping boxes that required valley lines to be drawn, connect the intersections of the hip lines and valley lines across the narrowest section of the box.



Trim the hips which pass ridges at the outside end and valleys at the inside end.



Trim all box outlines that are internal to the complete outline.



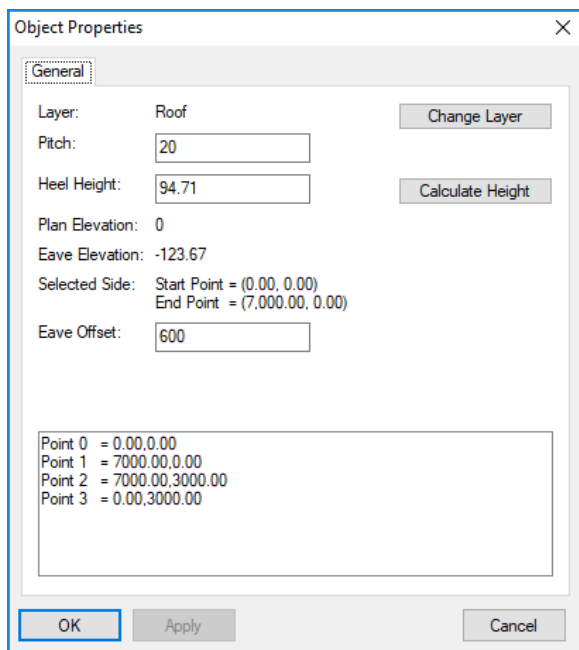
Roof plane lines can also be input automatically using the Roof Skeleton command. See **Creating Roof Plane Lines – Automatic Method** (section 9.3).

9.2 ROOF BLOCK INPUT

A roof block is placed in a Roof object, so begin by placing a roof (Draw Roof - RI) or click on the icon . No roof skeleton lines are required for the roof block command to operate. A template plan of the walls can be created on a new plan for the purpose of tracing your roof outline.

When creating the roof, the initial options are the pitch and eave. Set these correctly as the roof block will use them, however, they can be modified after the roof is created.

When the roof is placed, go to the Layer Clear  command and delete the objects on the Imported Lines layer or delete any initial setout lines or polylines. Now you can right click on the roof line (not the eaves) to display the object properties. Any changes made to the Pitch and Heel Height will change for the entire roof, whereas changing the Eave will only change for the edge selected.



Object Properties

General

Layer: Roof Change Layer

Pitch: 20

Heel Height: 94.71 Calculate Height

Plan Elevation: 0

Eave Elevation: -123.67

Selected Side: Start Point = (0.00, 0.00)
End Point = (7.000.00, 0.00)

Eave Offset: 600

Point 0 = 0.00,0.00
Point 1 = 7000.00,0.00
Point 2 = 7000.00,3000.00
Point 3 = 0.00,3000.00

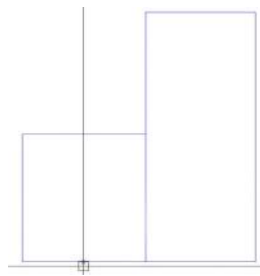
OK Apply Cancel

The Calculate Height button will set the Heel Height to the vertical measurement of the currently selected Plate Web Width at the currently set Pitch. When the roof is placed, this is the Heel Height the roof will default to. Manually entering a heel height will override this. The roof block will build the roof with this value as the heel height of each truss.

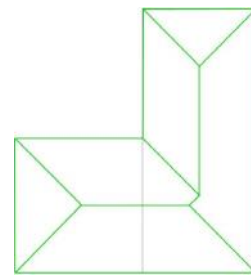
9.3 CREATING ROOF LINES – AUTOMATIC METHOD

Roof plane lines can be automatically created using the Roof Skeleton command on the toolbar . This allows you to create roof plane lines on a building outline created by using either lines or a polygon. It does not work on polylines.

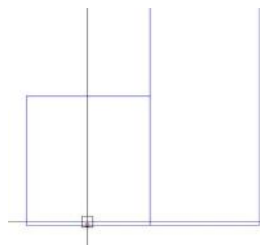
- Options:
Mode – Auto or manual.
Auto – will use the auto polygon tool to automatically find a polygon to use.
Manual – Add points in manually.
- Process:
If Auto then select boundary to mark the polygon from. The side of the edge that the aperture is on determines how it will try and create the polygon (refer to auto polygon tool).



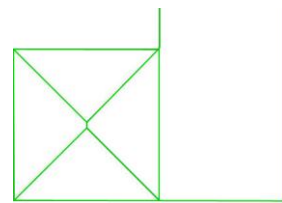
Choose boundary line



Result

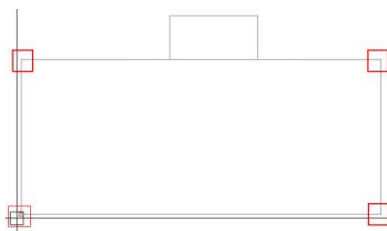


Inside boundary

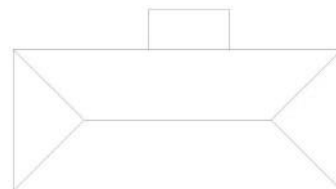


Result

Manual mode involves selecting the points of the outline yourself; it will close the polygon when you click on the first point entered.



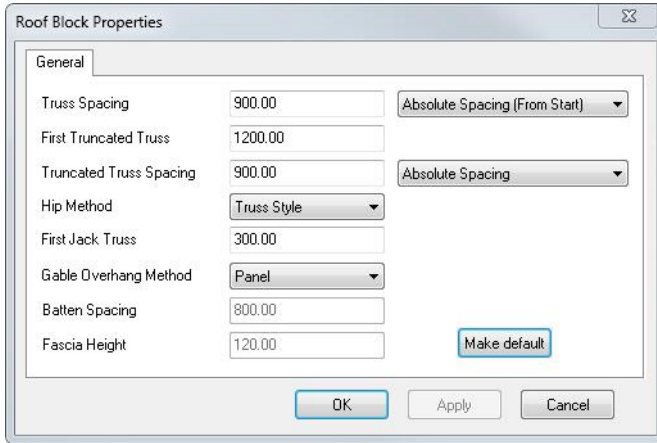
Manually Selecting Points



Result

9.4 ROOF TRUSS BLOCK INPUT

Once a roof is created and set up, use the Roof Block  command (RB) to place each truss block. When the command is first run, the command line will say "Click corner of roof block or enter for properties". Press Enter, or right click to enter the roof block properties dialogue.



The 'Roof Block Properties' dialog box is shown with the 'General' tab selected. It contains the following fields and controls:

Property	Value	Control
Truss Spacing	900.00	Text input, Absolute Spacing (From Start) dropdown
First Truncated Truss	1200.00	Text input
Truncated Truss Spacing	900.00	Text input, Absolute Spacing dropdown
Hip Method	Truss Style	Dropdown menu
First Jack Truss	300.00	Text input
Gable Overhang Method	Panel	Dropdown menu
Batten Spacing	800.00	Text input
Fascia Height	120.00	Text input

Buttons: OK, Apply, Cancel, Make default

Description of Fields

Truss Spacing - Standard truss spacing to use for roof block.

- Equal Spacing - Total space to be filled by trusses, divided to closest distance less than truss spacing.
- Absolute Spacing (From Start) - Will place trusses at Truss Spacing starting from leading end of roof block and leaving remaining space between last 2 trusses.
- Absolute Spacing (From End) - Will place trusses at Truss Spacing starting from trailing end of roof block and leaving remaining space between first 2 trusses.
- Absolute Spacing (To Centre) - Will place trusses at Truss Spacing from each end of the roof block, leaving remaining space between central trusses.

First Truncated Truss - Distance from end of roof block to first truncated truss when building a hip end.

Truncated Truss Spacing - Spacing to be used between truncated trusses from first truncated truss when building a hip end.

- Equal Spacing - Distance from First Truncated Truss to First full truss divided equally to less than truss spacing and trusses placed at that spacing.
- Absolute Spacing - Trusses placed at Truss spacing starting at first truncated truss, leaving remaining space between last truncated truss and first full truss.

Hip Method:

- Truss Style - Places Half/Jack trusses on hip ends (Truncated truss top chords will be set down by flange height of plate).
- Rafter Style - Places Rafters on hip ends (Truncated truss top chords will be set down by web width of plate).

First Jack - Distance to first Half/Jack truss from corner of block

Gable Overhang Method:

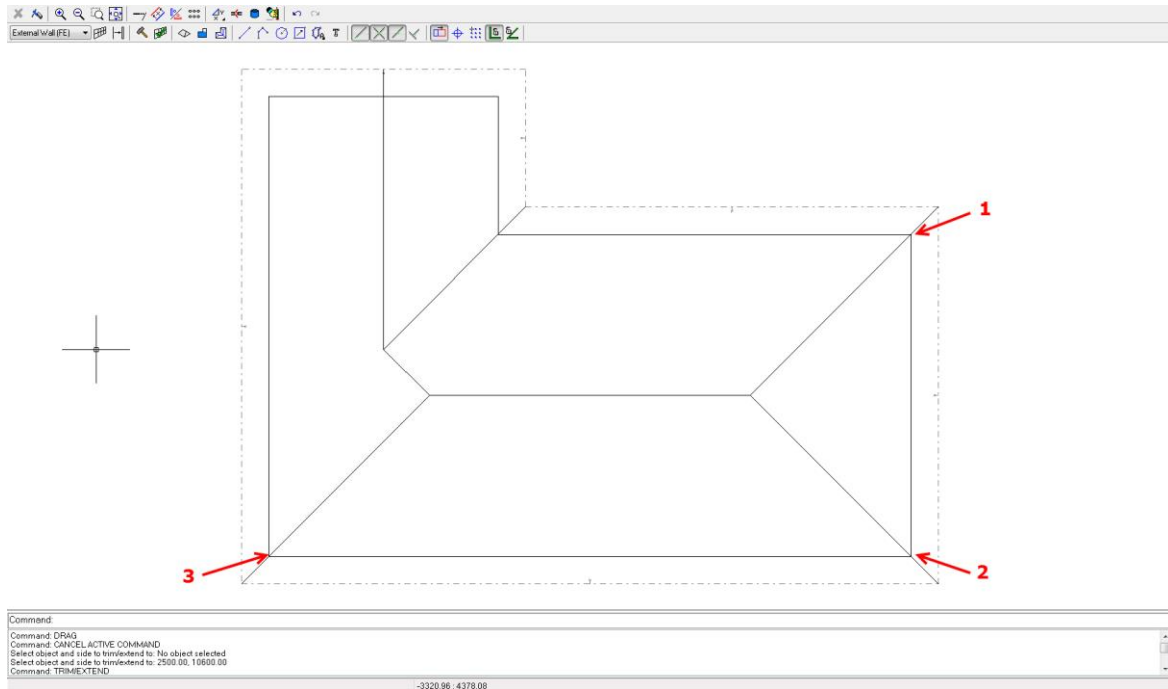
- None - No framing is built for gable end. Gable end truss will be the same height as the standard trusses in that block.
- Panel – Gable overhang frames (Panels) will be built from the gable eave line to the first standard truss inside the roof block. The first truss space will be increased if the absolute spacing is left too small.
- Outrigger - Outrigger frames (L Frames) will be built from gable eave to first standard truss inside the roof block. The first truss space will be increased if the absolute spacing is left too small. Outriggers are designed to cap over the roof battens to create fascia fixing.

Batten Spacing - Spacing of battens on roof. Used to position outriggers

Fascia Height - Depth of fascia framing required. Used to set height of face section on outrigger

Make default button will remember settings.

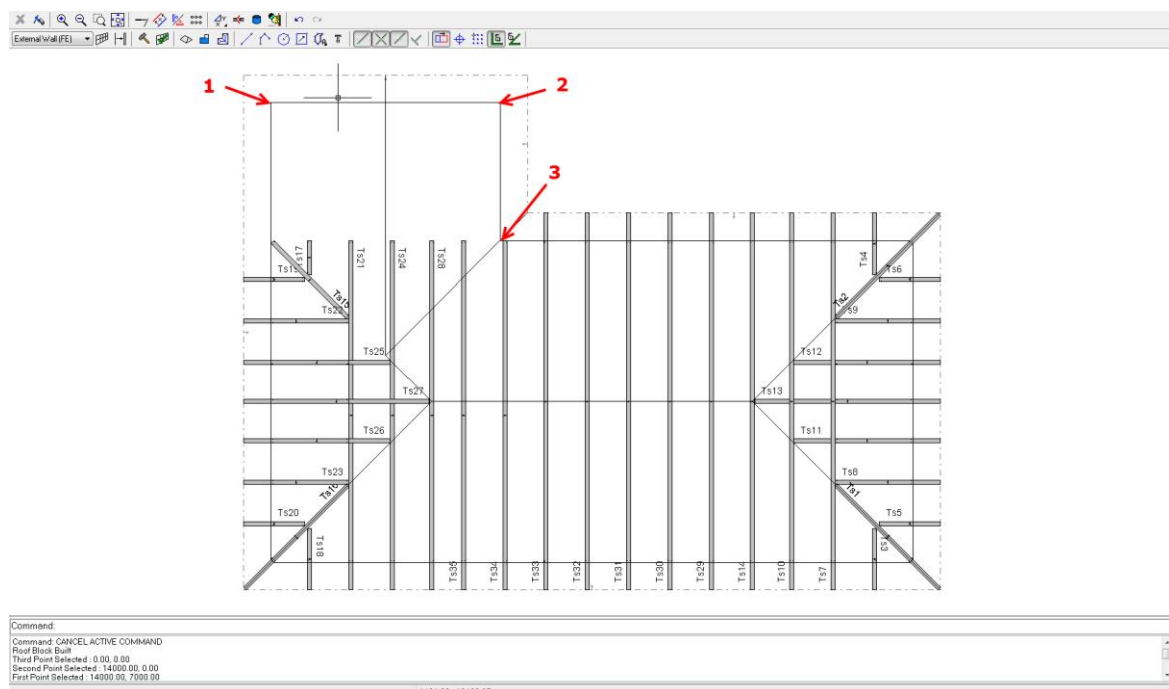
Once the settings have been made, click on 'OK' and select the two corner points at one end of a roof block and then a third selection to define the other end of the block. Points should be selected on the building outline, not the eaves line. The eaves lines are not selectable.

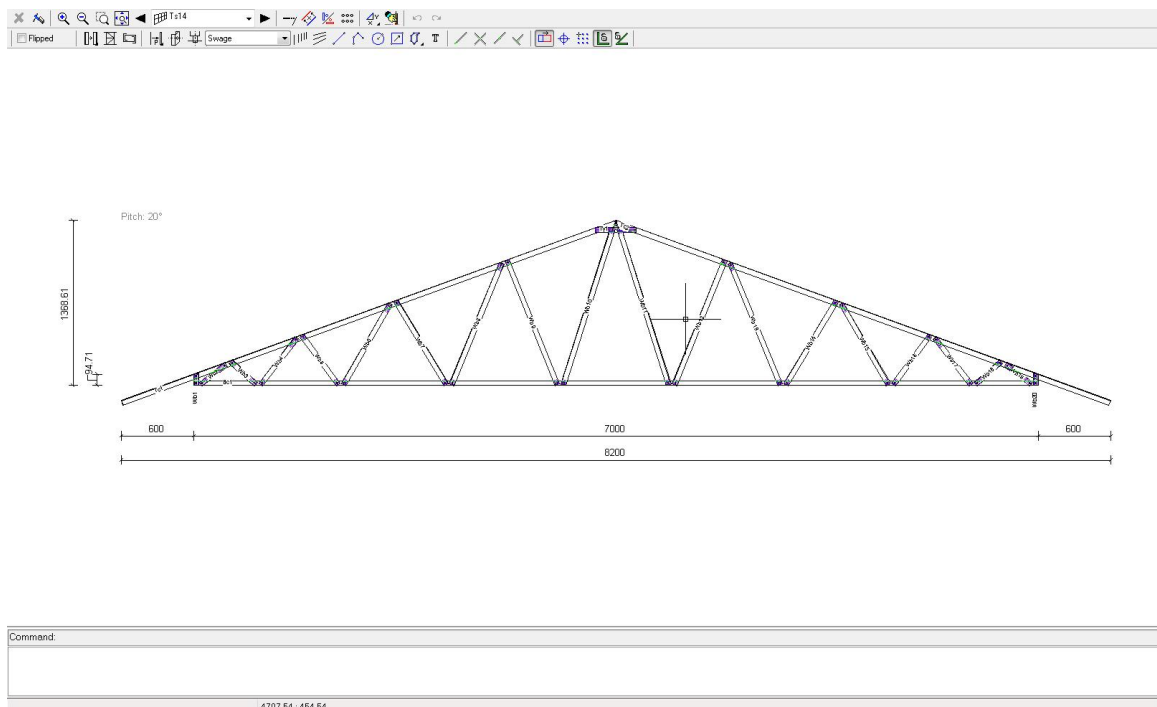
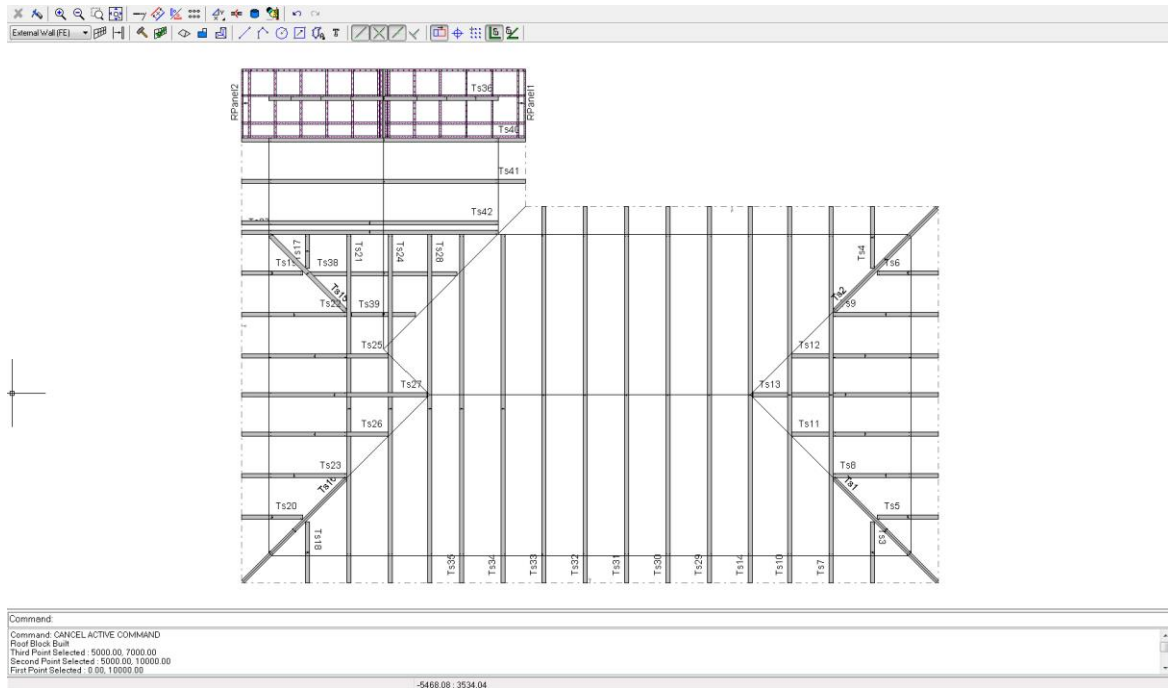


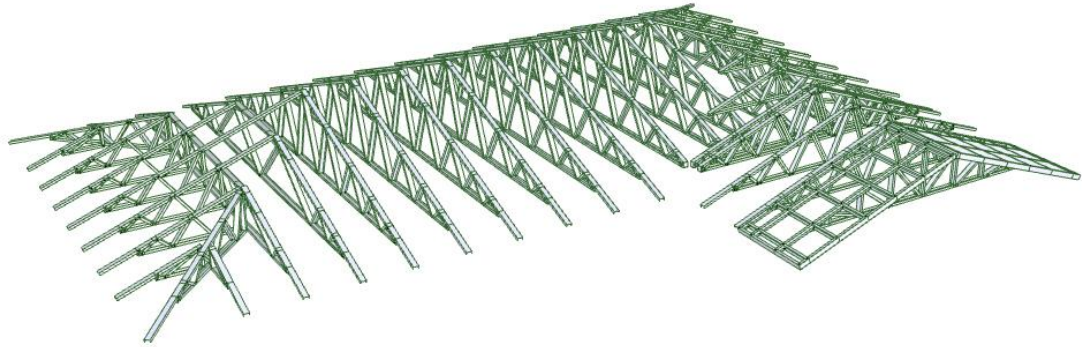
When the 3 points have been selected, the command will ask what type of roof each end of the block will have:

- Hip (H) - No further options
- Gable (G) - No further options
- Dutch Gable (D) - Setback distance required, either click a point on the face of the dutch gable or enter the setback distance. The First Full truss will be placed at the setback distance with either Half/Jack trusses or Rafters placed to the end of the block
- Saddle (S) - Saddle trusses will be placed to create valleys to connecting roof. Trusses will be spaced at Truss Spacing from final full truss (Girder).

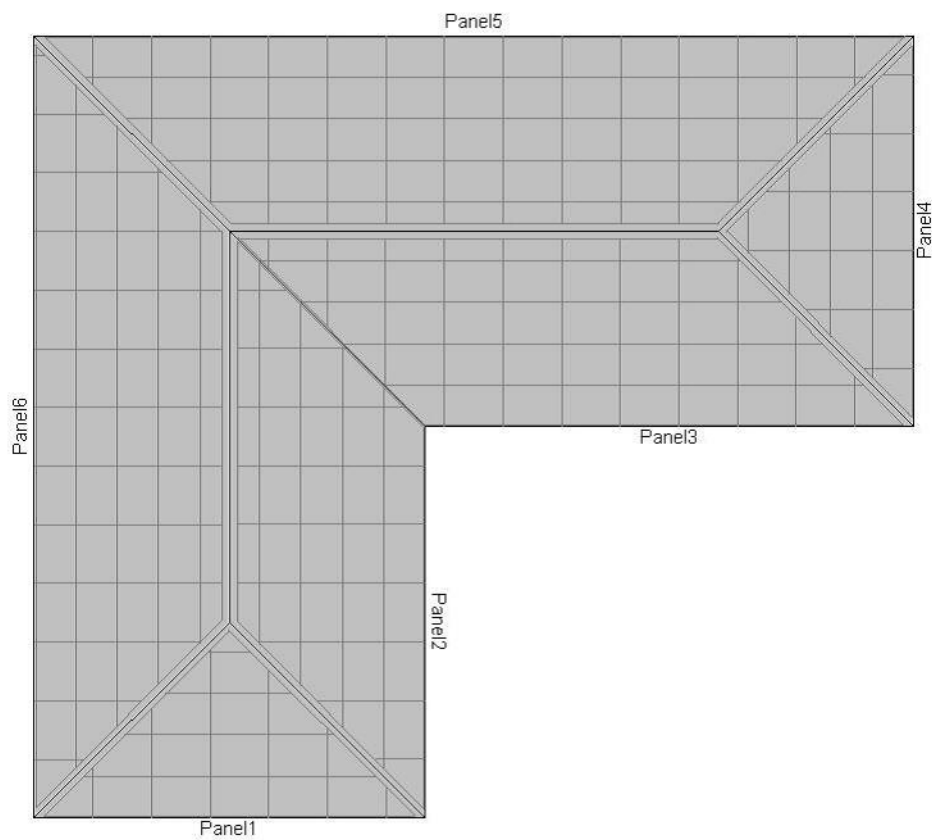
When the first roof block input command has been completed, continue to any other blocks present in the roof plan. Once all blocks have been populated, the trusses will have been built and ready for export (see images below).







9.5 PANEL ROOFS



The way you input roof and ceiling panels is very similar to drawing a polygon, setting the script variables and then you can build as per normal and you will end up with something like below (note that the members are superimposed on each panel).



After creating your roof layout in Roof Plan, select Roof Panel (FR) or Ceiling Panel (FC) from the frame type drop down box then click on 'Place Frame' (FS) . After placing a panel, it works in the same way as any other frame does. Therefore, you right click on the panel and navigate to the properties menu. Select 'Auto Panel' from the Frame Script. Ensure that you select the Make Default check box if you always intend using this script for Roof Panels in future. Go to the Main tab. The variables used for the Auto Panel script are shown below.

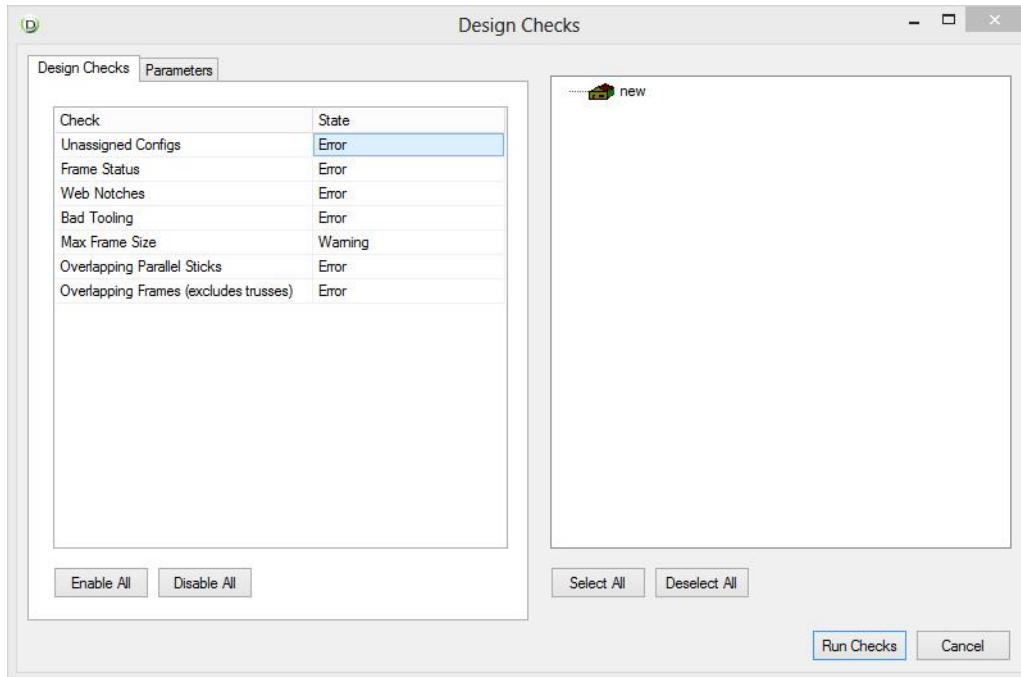
- Length – A read only variable that is equal to the length of your reference edge
- Vertical spacing – The spacing used between the vertical members
- Horizontal spacing – The spacing used between the horizontal members
- Vertical References – You can use this to choose reference points which are used for the vertical spacing (this is the same as the references you can use for a Wall stud spacing, you can also pick reference points as well)
- Horizontal References – Same as Vertical but for the horizontal members.

After assigning variables, you build the script in the same was as any other frame. Select the Make Default button if these values are to be used on future Roof Panels.

10 Project Finalisation

10.1 DESIGN CHECKS

This function automatically checks the design for potential issues. Keyboard shortcut 'DC' or '?' button on toolbar.



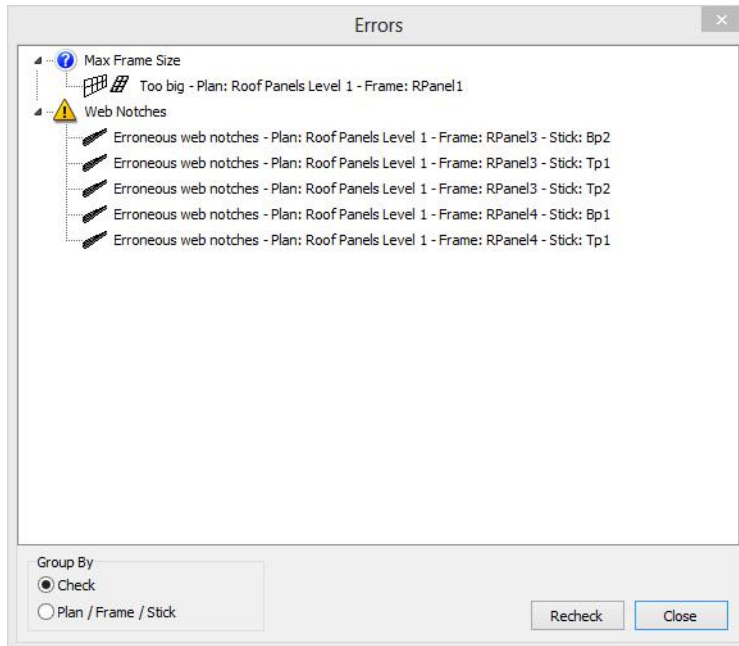
Under State column the user has the possibility to pick how the checks should be reports: as an Error, as a Warning, or Disable the check. By default, all checks are set to report errors.

The left hand pane shows the items that can be checked for:

- Unassigned Configuration Files
- Frame Status
- Frame is either not built or has been modified.
- Web Notches
- Checks Top Chord, Bottom Chord, Top Plate, Bottom Plate members for Web Notches. Does not check for explicit tool Web Notches. Note: Frames that are imported from FRAMECAD Structure® do not yet include information about what each stick is (i.e. Top Plate, Nog, Brace, etc.) and therefore cannot be checked.
- Bad Tooling
- Any bad tooling will be highlighted with a red circle.
- Maximum Frame Size
- Maximum height & length for each Frame Type can be set on the Parameters tab.
- Overlapping Parallel Sticks
- Checks for sticks in the same location or incorrectly overlapping
- Overlapping Frames
- Excludes Trusses

Clicking on the 'State' next to these items brings up the option to create either an 'Error' or a 'Warning' or 'Disable' the check item.

Once displayed, errors can be grouped by 'Check' type or by 'Plan/Frame/Stick'.



Double-clicking on an item opens the frame and highlights the stick in question. Once rectified, closing the frame returns the user back to the Errors dialogue box.

10.2 HOUSEKEEPING (KEEPING THE FILE SYSTEM TIDY)

FRAMECAD Detailer uses FRAMECAD Detailer Project Files for saving projects. This file saves all information regarding the project. The file can be named anything; however, for good 'housekeeping' of the file system, it should be named the same as the project.

The project will automatically create a backup file in the same directory as your project file every 10 minutes. If the original project was "MyGarage.fcp" then the backup file will be called "MyGarage_Backup_.fcp". Don't forget to rename the backed up file and delete the word "Backup" out of it if you ever need to use it. It is also highly recommended that backup files be saved regularly by using the Save As option. These should be named something such as the Job Name, Job Number, file version or file date. For example, ProjectName-Date-Time.fcp (Date format – DDMMYY, Time format – HHMM).

It is generally best to store this file inside a folder named to suit the project, as other files, such as AutoCAD Drawings (dwg) or DXF files may also need to be stored.

11 Creating 3 Dimensional Views

11.1 ELEVATION SETTINGS

Each plan and frame in FRAMECAD Detailer has its own elevation values. These elevation settings set the relative heights for the 3D views only.

The height specified is to the underside of the bottom plate.

Plan Properties - new

General

Name: Roof

Material Summary

Frame type	# Frames	Plate Material	Stud Material	Total Material	Plate Weight (kg)	Stud Weight (kg)	Total Weight (kg)	Fastenings
External Wall	0	0.000	0.000	0.000	0.000	0.000	0.000	0
Internal Wall	0	0.000	0.000	0.000	0.000	0.000	0.000	0
Truss	4	40.967	15.031	55.998	44.531	16.338	60.869	216
Joist	0	0.000	0.000	0.000	0.000	0.000	0.000	0
Miscellaneous	0	0.000	0.000	0.000	0.000	0.000	0.000	0
Ceiling Panel	0	0.000	0.000	0.000	0.000	0.000	0.000	0
Roof Panel	0	0.000	0.000	0.000	0.000	0.000	0.000	0
Floor Panel	0	0.000	0.000	0.000	0.000	0.000	0.000	0
Totals	4	40.967	15.031	55.998	44.531	16.338	60.869	216

Setup

Elevation: 2440

Suppress ID #'s: ☐

Plan Print Scale: Scale to fit

OK Apply Cancel

As each plan will generally be a different level of the house, at a different height, the Plan is the best place to specify heights. The heights are polar (relative to point 0), so it is generally best to leave the ground floor walls at height 0, and set all others to suit (i.e. trusses at 2440, if walls are 2440mm high).

It is also possible to set a height for an individual frame relative to the Plan elevation by entering an additional value in the Setup area of the Frames properties.

Frame Properties - Tr1

General Machine Setup Main

Name: Tr

Ref: 1

Frame type: Truss

Length: 5.00 m

Layer: Walls/Trusses

Change Layer

☐ Cloned to:

Material Usage

Plate: 10.24 m

Stud: 3.76 m

Total: 14.00 m

Plate Weight: 11.1 kg

Stud Weight: 4.1 kg

Total Weight: 15.2 kg

Fasteners: 54

Setup

Pitch: 0.00

Elevation: 0

Plan: 0

Additional: 0.00

Total: 0

Member Display

☐ Draw End Profiles

Dimension Location: None

VRML Color: Custom...

Auto Configure Pick Feature

Frame Script

Truss: Full

Build

☐ Make default

OK Apply Cancel

This is useful when just a few frames are at a different height to the others. Heights of individual frames are relative to the plan it is on. (A frame with an elevation of -400 on a plan with an elevation of 2440 will be 2040 above a plan with an elevation of 0).

11.2 FILE TYPE INFORMATION

FRAMECAD Detailer creates a VRML file (uses a .wrl extension) for 3 Dimensional Views. A VRML viewer is required to view these files. FRAMECAD recommend the Deep View VRML Viewer, available for free as part of the FRAMECAD Detailer install process.

11.3 EXPORTING TO 3D

To create the VRML file for 3D viewing, either open the File menu and click Export as 3D or click the Export 3D button. 

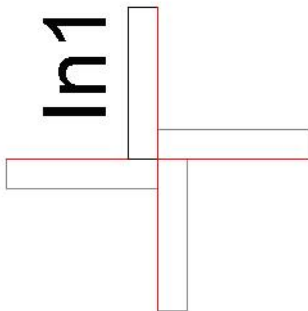
Browse to the location to export the files to and click OK. Select the items to be exported then click the Export button.

To view the 3D image, open the File menu and click View 3D or click the View 3D button.  Browse to the location of the VRML file, and click on it. Click OK. Alternatively, open My Computer, browse to the location of the VRML file and double click on it.

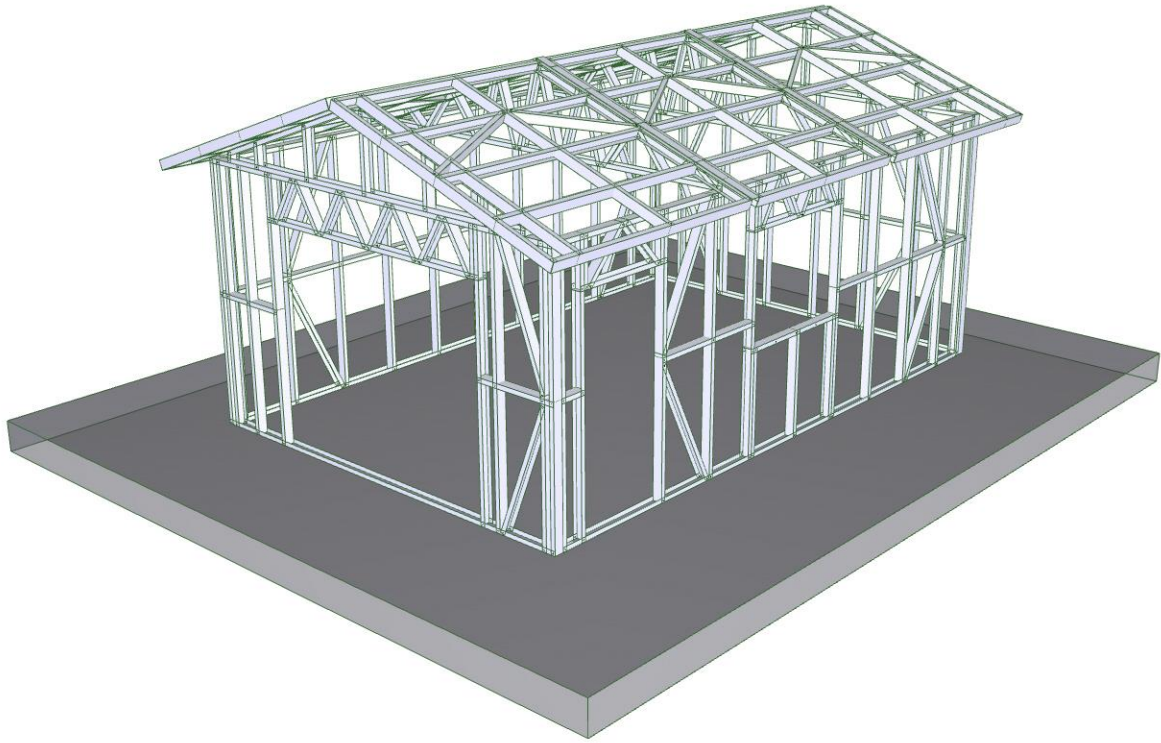
11.4 3D PITCH SETTINGS

The 3D Pitch setting indicates the roll of the frame. This is a value in metric degrees, away from 90 degrees (vertical).

The frame rolls around the Right Snap Point of the Frame. The red lines indicate the roll point of the frame, assuming the frames are drawn from the centre outwards.



Below is a 3D example of a job created in Detailer.



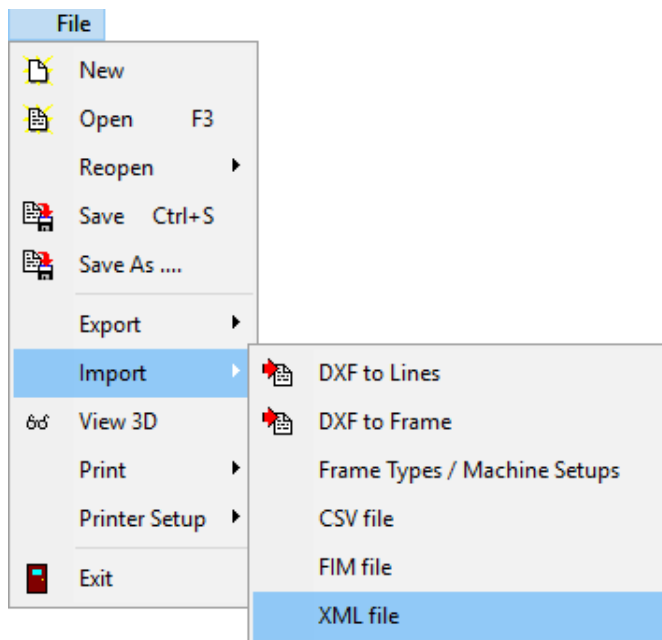
12 Import and Export Options

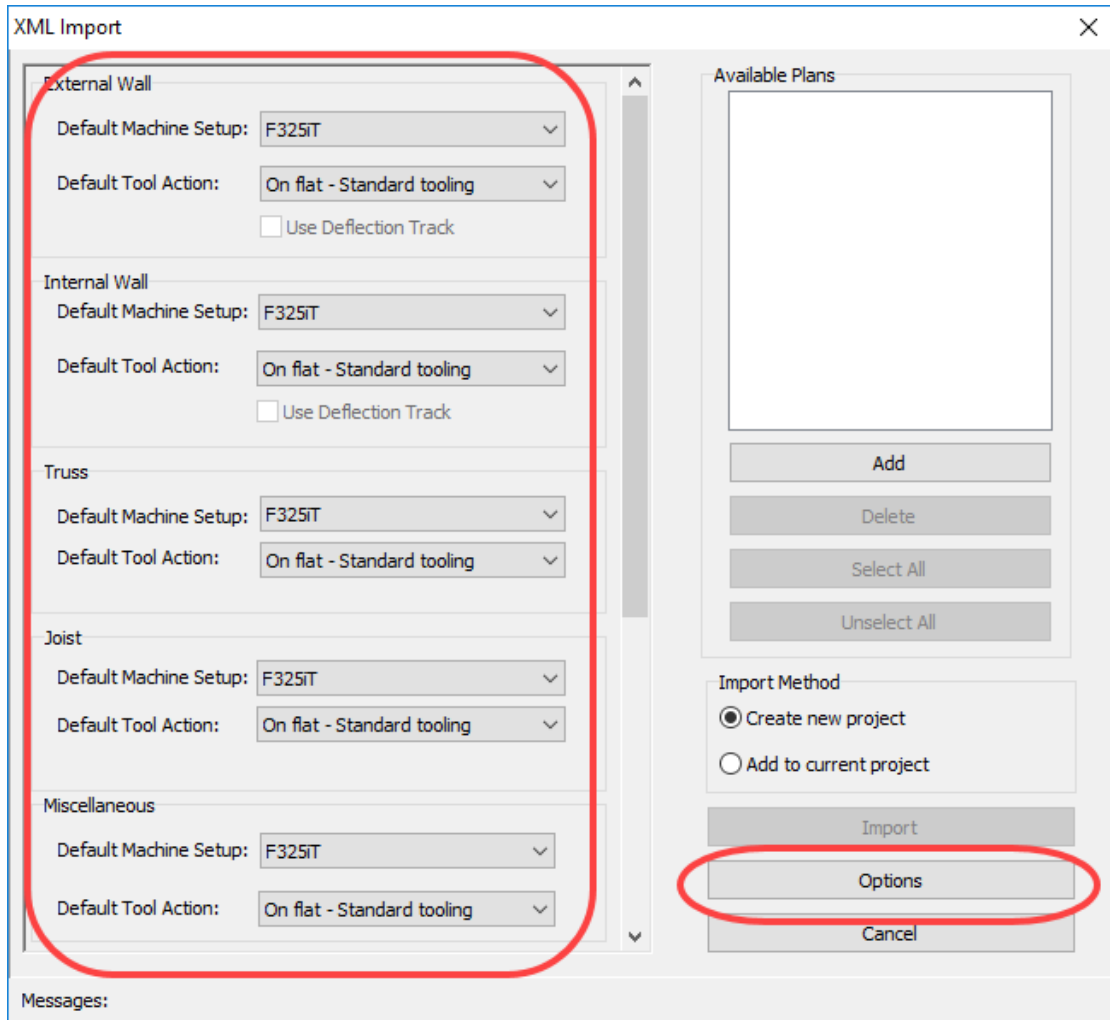
12.1 IMPORT OPTIONS

Jobs created in other software and saved in a format that Detailer can interpret, can be imported into Detailer. To do so, go to File - Import and choose the file format you wish to import. Frames exported from FRAMECAD Structure® using the 'CNC' output command are saved as XML type files.

12.1.1 XML File Import

1. Click on 'XML file' to import frames created in FRAMECAD Structure®.





2. In the left-hand pane of the XML Import dialogue, set the default machine setup and tool action for each Plan Type.

Tool Action

Choose the required **Tool Action** from the dropdown list.



When you set the 'Tool Actions' for a Frame Type, you are also telling Detailer what orientation the frame is.

There are three types of frame orientations:

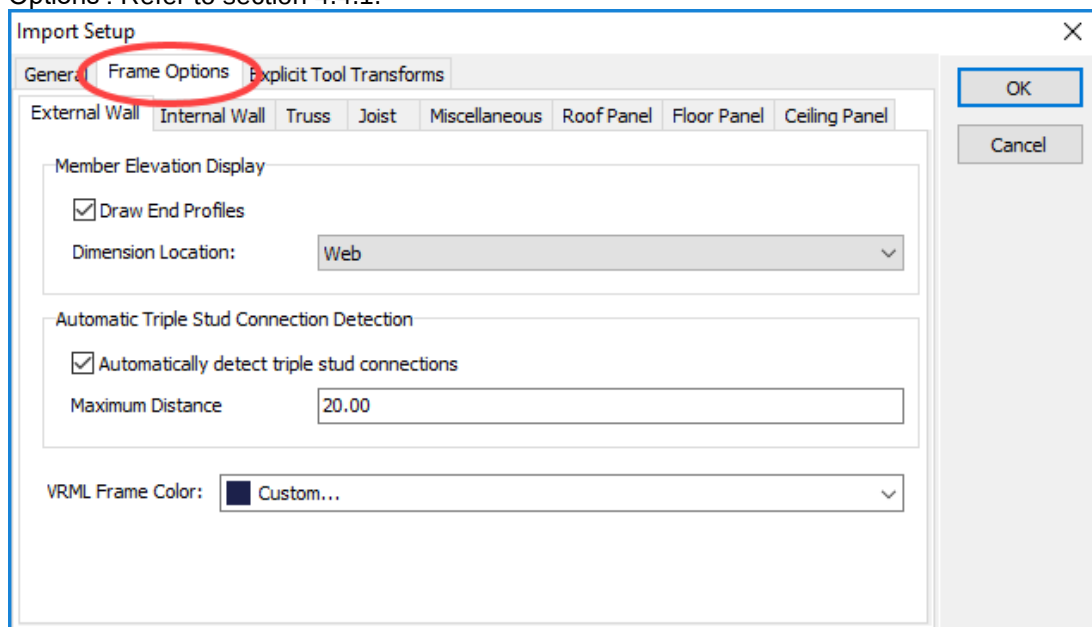
- **On Flat** – While looking at the elevation view of a frame the web of the bottom plate or bottom chord section is sitting flat on the ground. This is the standard orientation for wall frames, roof trusses and webbed joists.

- **Back to Back (B2B)** – The webs of the plates are screwed to the webs of the studs. The lips from the plate are furthest from you when looking in the elevation view while the lips of the studs are closest to you. You should be able to look at the drawing to tell this as the lip lines are only shown on the stud members. (Truss chords are referred to as plates and truss webs are referred to as studs).
- **On Edge** – While looking in the elevation view of a frame the flange of the bottom chord section is sitting on the ground and all the members are in the same plane.

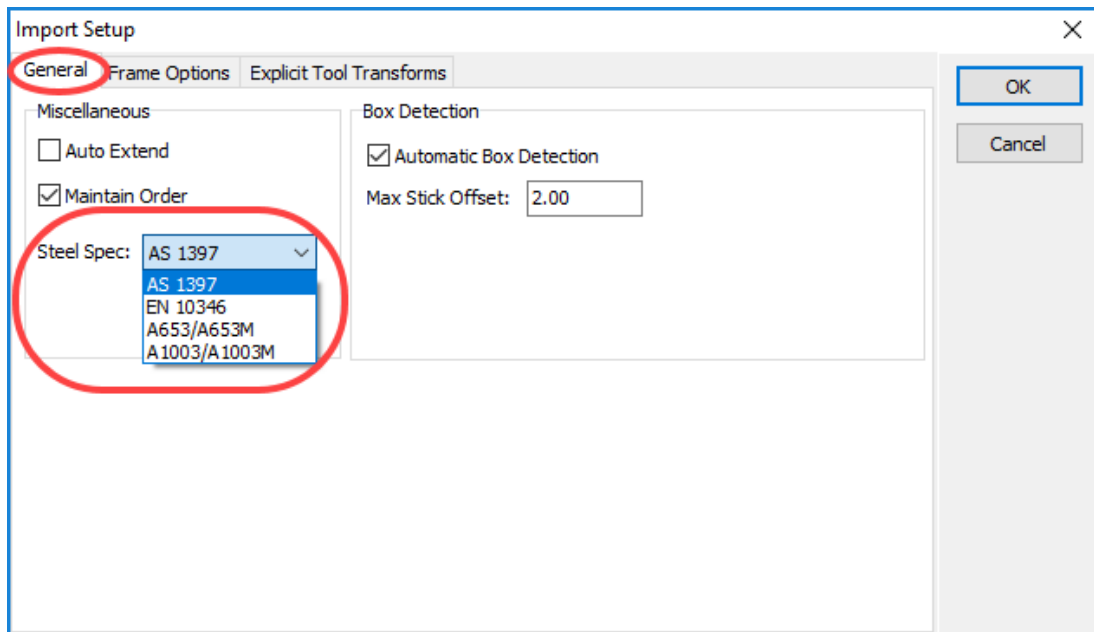
Within these frame orientations you may find various other tooling options:

- **Standard Tooling** – When members pass through each other, the vertical (stud) members are continuous and the horizontal (plate) members get notched.
- **Reversed Tooling** – The horizontal (plate) members are continuous and the vertical (stud) members get notched. This option would generally be used where ever the horizontal members are the structural members e.g. in certain 'panel roof' situations.
- **No Boxing Swages** - Any boxed or partially boxed members will not be swaged. This option would generally be applied when using thicker steel to make assembly of boxed members easier.
- **No Tooling** – No flange cut tooling is applied on B2B members.
- **Plate over Stud tooling** – the ends of nog members (generally in wall frames) are tabbed over the stud that they terminate on instead of fitting inside the stud.
- **Truss tooling** – boxed truss chords are notched to allow truss webs to fit inside them.

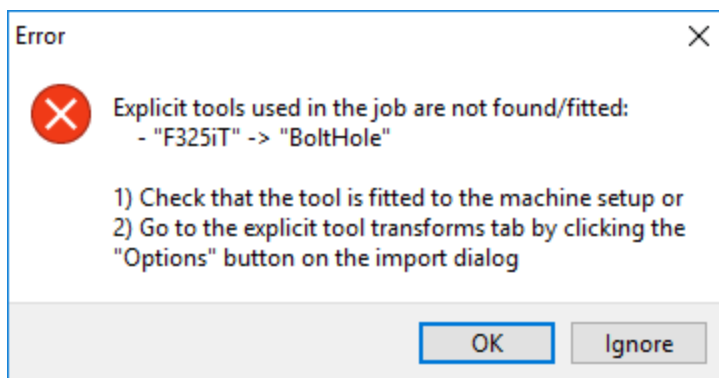
3. Other Plan Type import options can be set by clicking on 'Options' and going into 'Frame Options'. Refer to section 4.4.1.



4. Go to the 'General' tab and make sure the correct Steel Spec is selected for your region.

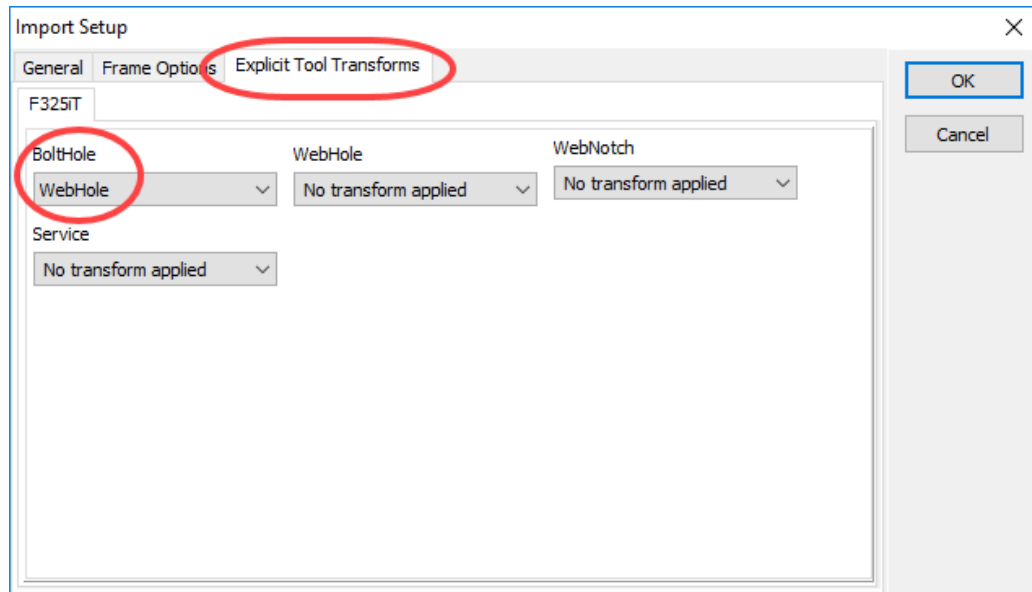


5. Click on 'OK' to go back to the 'XML Import' dialogue.
6. Click on 'Add' and locate the XML file(s).
7. Tick the box in front of the available plans (or click on 'Select All').
8. Select the desired 'Import Method'. Once a part of a job (walls for example) has been imported, select the 'Add to current project' option, otherwise a new project will be created and the already imported plan will not be contained within it.
9. Click on 'Import' to import the selected plans into Detailer.
10. If an explicit tool used in the job is missing from the default machine setup, a pop-up window will warn the user about it. The user has 2 options:



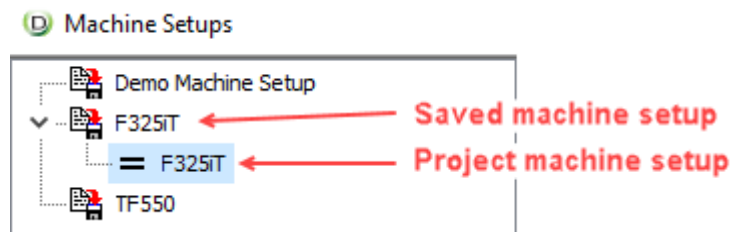
- Check that the explicit tool is fitted to the machine by looking at the profile drawing provided with the roll-forming machine. If the tool is present on the profile drawing, then the machine setup should be updated accordingly.

- Go to the 'Explicit Tool Transforms' tab by clicking the 'Options' button on the 'XML Import' dialogue, then replace the explicit tool that is missing with an appropriate tool that is available on the machine. For example, if a machine only has a triple web hole punch and no bolt hole punch, the bolt holes from the imported job can be transformed into web holes.



- If, for example, the user forgot to add the web hole punch in the machine setup, check the profile drawing provided with the roll-forming machine and confirm that the web hole punch is fitted on your machine. Go to Edit-> Machine Setups-> Tools and move over the Web Hole from the right column to the left. See section 4.2.1.
11. Once the job is imported, a plan will be created and populated with frames. You can now go back into the Machine Setups (ctrl+M) to see if the imported profile is compatible with the profiles that have initially been set up.
- If the Project Machine Setup is equal to (=) the Saved Machine Setup, then nothing more needs to be done.

The example below shows the machine setup of a project that was created using the saved setup:

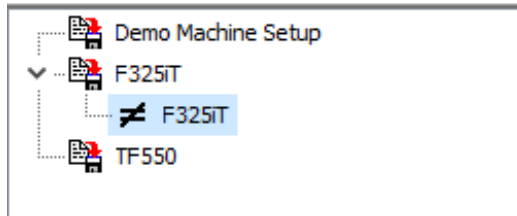


The equals sign indicates that the section setups are identical between the project and the saved machine setup.

- If the Project Machine Setup is not equal (≠) to the Saved Machine Setup, then there may be some differences. This occurs when a job is imported from FRAMECAD Structure® and the section profile setup in the job is not identical to what has been setup in the machine settings. There is no need to make any changes to minor variances but do ensure the Export Compatibility is correct in the Project Setup. However, you can select the Project's machine setup and click on 'Update to Default'. This will add the project's section profile to the saved setup therefore ensuring all future imported jobs are fully compatible.

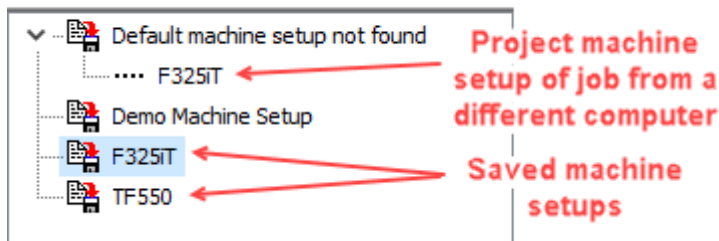
The example below shows the project machine setup being not equal to the saved machine setup:

D Machine Setups



- The example below shows the project machine setup of a job that was created on another computer:

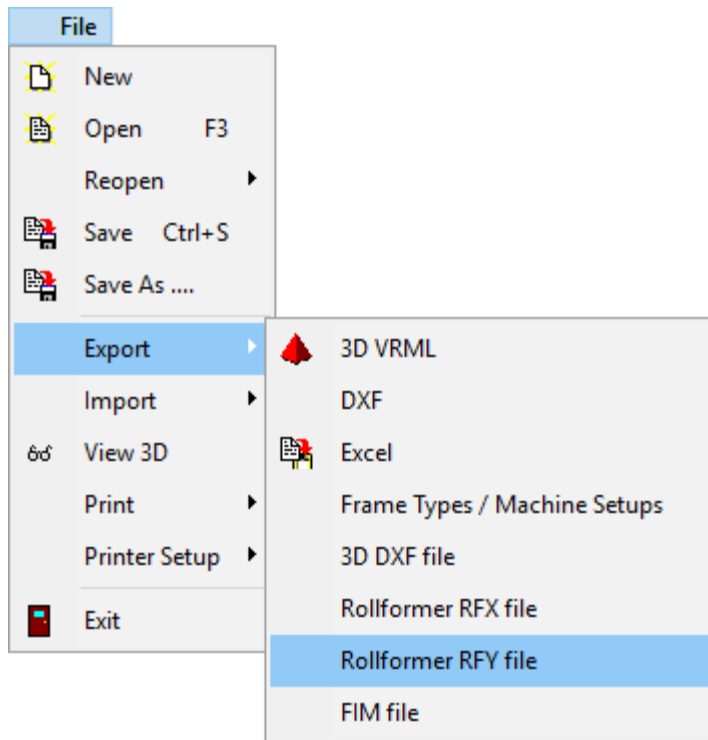
D Machine Setups



12.2 EXPORT OPTIONS

To export the design ready for production, it must be exported from the FCP (FRAMECAD Project) file to a RFY (Rollformer) file for the Machine Control Software to read. You should always use our latest machine control software and machine file format.

To do this, go to File | Export | Rollformer file



Select the location to save your file to (generally this should be saved to a portable USB device to be transferred to the machine).

Selecting the Project (Top Level) by right clicking on it will export the entire project, selecting a Plan by right clicking on it will export all the frames contained within that plan, and selecting an individual frame will export just that frame. Right click again on a project, plan or frame to deselect it.

The export order is able to be changed from the default output to either a plates first or studs first output if required.

NB. Ensure the 'Export progress' indicator at the bottom of the dialogue box has finished before removing any portable USB device being saved to.

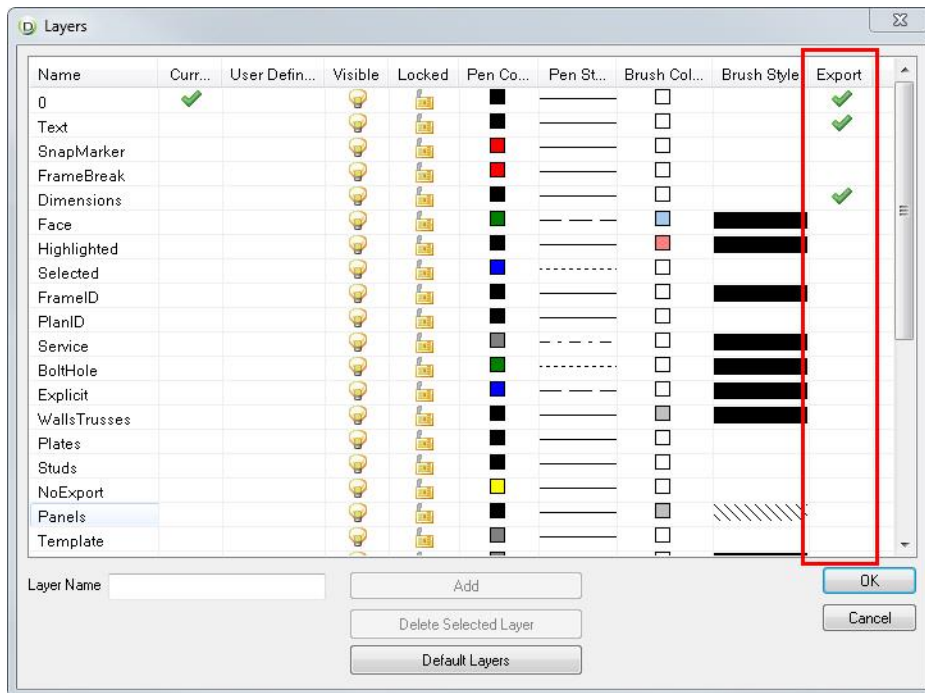
12.3 RFY FILES

RFY files are our latest machine file format, introduced in version 2.9 of FRAMECAD Factory (roll former's control software). We advise all our customers to use the latest machine file formats which means that your machines will need the latest version of FRAMECAD Factory to be able to open .rfy files. Once your machine has been updated, your Detailer HASP can then be updated to enable .rfy export.

The advantages of using rfy are:

- "Length" tools (e.g. Webnotch, Swage etc.) are given a range with start and end positions, rather than a series of individual punch operations
- Factory can then figure out where to place punches to give the right punched length on the stick
- Because Factory has a complete understanding of the tooling required, it can perform a variety of scrap cut operations to:
 - Allow combining operations across sticks
 - Allow very short tool operations on the ends of sticks, without affecting neighbouring sticks
 - Prevent tools with long lead-in/lead-out (e.g. Swage) from affecting neighbouring sticks

Lines, text, and other items that are set to Export in the Layers dialogue box (see below) will be included in the .rfy file and will be visible on the machine - this is for both plan view as well as elevation view.



13 Working with External Programs

13.1 IMPORTING TO DETAILER

- Open Detailer
- Select File-> Import-> FIM File
- Select 'Import Method'
- Click on 'Open' and go to the .fim file location
- Select the file and open.
- In the FIM Import dialogue box, click on 'Select All' then 'Import'.
- The imported frames will appear in a new plan.
- Right click on a frame and select either 'Build' or 'Properties'
- From the 'Frame Script' drop down select 'Auto Frame'
- Click on 'Build'
- Your frame will now be generated

13.2 EXPORTING FROM DETAILER

- Select -> File -> Export -> Export FIM file
- Select a file location to export to and then select the frames you wish to export.
- Click on 'Export'

14 Layers

Layers have a number of useful features that allow you to manipulate the way objects are drawn to the screen. A single layer will have a name as well as some visual and state properties (explained later) that describe all of the objects on that layer. You could think of layers as being like a collection of transparent plastic sheets that are laid on top of one another. Each sheet of plastic represents a layer and the order of which you place each sheet of plastic determines how it would appear from above. For example you may have drawn a red circle on one sheet and then a blue square on the other, having the red circle sheet on top of the blue square sheet will look different compared to having them the opposite way around. When you place an object in FRAMECAD Detailer the item is placed on the currently selected layer (unless disabled from the options menu). An objects layer will determine what pen colour, pen style, brush colour and brush style the object uses to draw itself.

14.1 A SINGLE LAYER



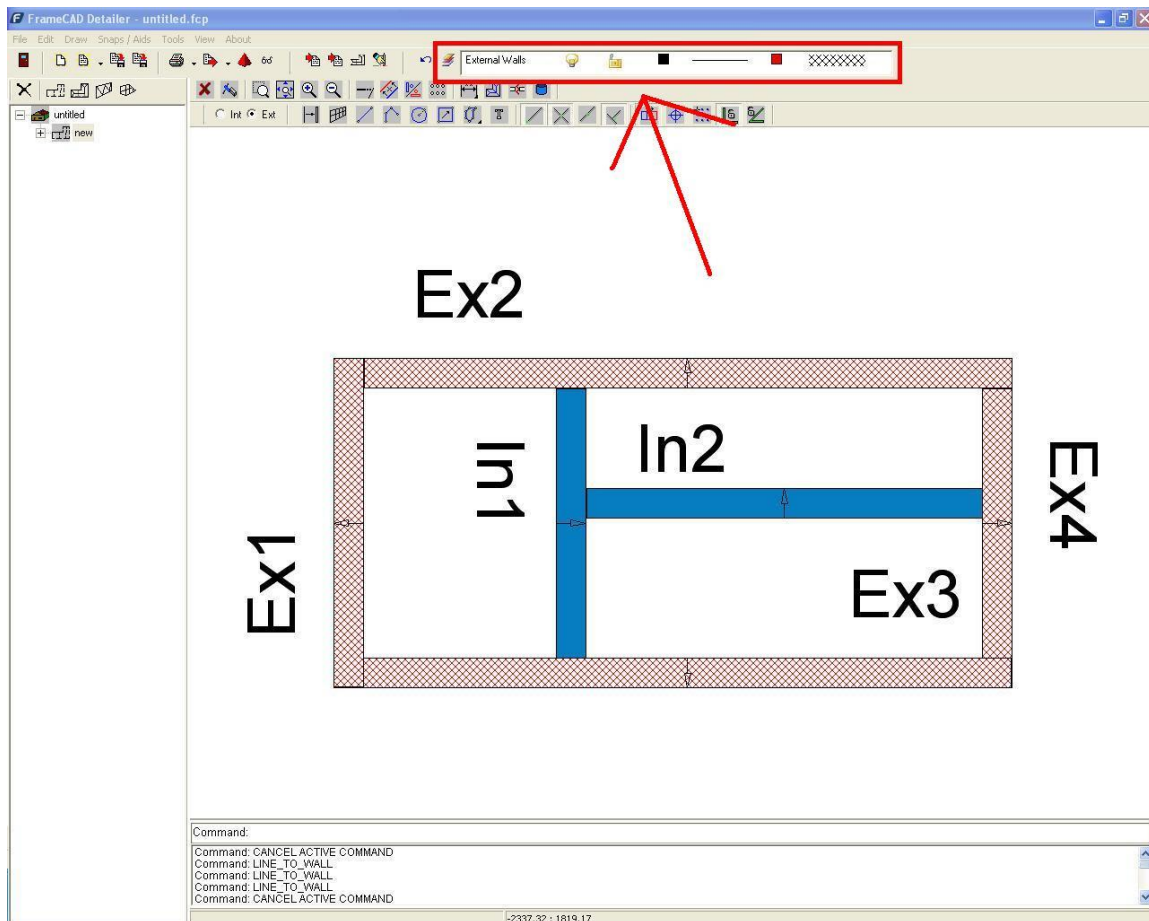
The above image shows how a single layer is represented, from left to right the image shows:

- A** Name
- B** Visibility (On/Off)
- C** Locked/Unlocked
- D** Pen Colour
- E** Pen Style
- F** Brush Colour
- G** Brush Style
- H** Export (to RFX file)

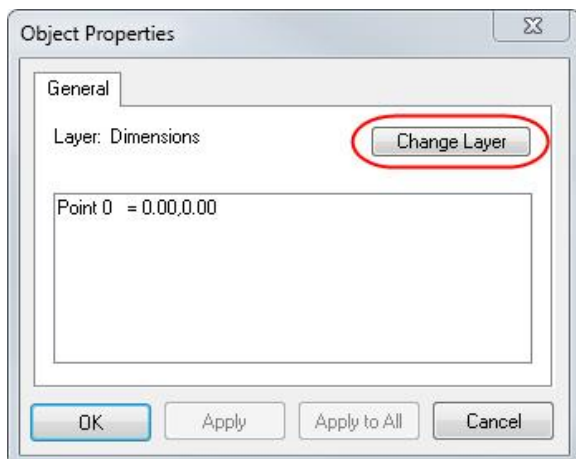
Visibility is either on or off. If a layer is locked it means that you cannot select any items that are drawn on that layer but you can still snap to them. The pen colour is the colour used to draw the edges of an object and the pen style shows how the edges are represented. The brush colour is the fill colour used and the brush style shows what pattern is used on the fill. The export option determines whether the drawing objects on this layer should be exported to the RFX file. Machines will need an updated version of FRAMECAD Factory to be able to open .rfy files. Once your machine has been updated, your Detailer HASP can then be updated to enable .rfy export.

If you were to draw an object with the above Panels layer selected then the edges would be solid black lines and there would be no fill colour.

14.2 PLAN VIEW



To change the layer of an object other than a frame, right click on it to view the object's properties. From here you can click on the change layer button.



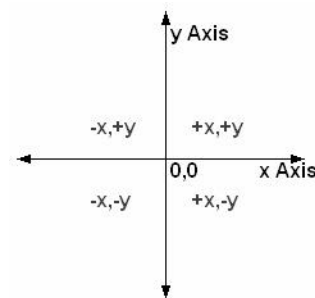
15 Coordinate System

The Coordinate System plays a very important part in the accuracy of FRAMECAD Detailer. It is very important to understand this section. There are several other options available for entering coordinates. The most basic is Absolute Coordinates.

15.1 ABSOLUTE COORDINATE ENTRY

By entering any of the coordinate methods described below, the mouse cursor will automatically be snapped to that point. Coordinates can be used for any purpose that a position needs to be specified. If accuracy is not required, a mouse click can be used instead.

The plan view is divided into 2 axes. The 'x' axis is horizontal, and the 'y' axis is vertical.



The axes extend infinitely in each direction. Coordinates are described by stating the x position first, followed by a comma (,) and the y position.

All coordinates are described from a point called the Origin. In metric, this point is described as 0,0 (or 0mm on the x axis and 0mm on the y axis). In imperial, the origin is described as 0',0' (0 feet on the x axis and 0 feet on the y axis) or 0",0" (0 inches on the x axis and 0 inches on the y axis).

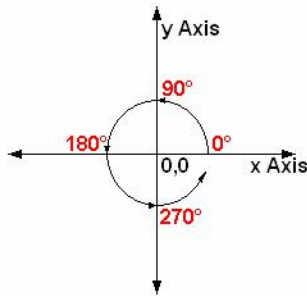
When describing Metric coordinates, the distance is stated in millimetres, and only the number is stated. For instance, a point 1 meter above x axis and 1 meter in front of the y axis, is described as 1000,1000. Negative coordinates are also possible, and are as simple as placing a minus (-) in front of the number. For instance, 1.5m below the x axis and 400mm in front of the y axis is shown as -1500,400.

Imperial coordinates are very similar. The only difference is, instead of using millimetres to show distances, feet, inches and fractions are used. An example of an imperial co-ordinate is 7'1",-4'3-2/3". This coordinate describes a point 7 feet and 1 inch above the x axis, and 4 feet, 3 and 2/3 inches behind the y axis.

When drawing buildings in FRAMECAD Detailer, it is a good idea to use a specific point on the house as the origin, and draw all layouts from this point, positioned at 0,0 or 0",0". If a corner of a house is used, this corner should be the same throughout all layouts. If the house has a soffit/eave line, it should be inside the soffit line.

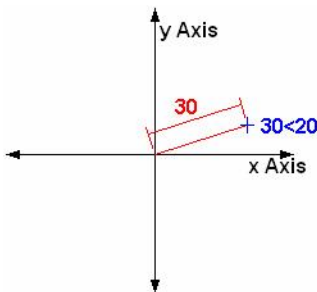
15.2 ANGULAR COORDINATE ENTRY

Some of the entry methods describe a measurement and an angle, as opposed to 2 measurements. The angle given, is in decimal degrees, and is taken anti-clockwise from the positive x-axis.



15.3 POLAR COORDINATE ENTRY

Polar Coordinates describe a point by a given dimension, the less-than symbol (<) (signifies angle), followed by an angle, relative to the origin (0,0). For instance, 30<20 calculates 20°, and travels in that direction 30 and uses that point.



15.4 RELATIVE COORDINATE ENTRY

Relative Coordinates are quite a lot more useful than Absolute Coordinates. The syntax is the same as that of the Absolute Coordinate, with the addition of the 'at' symbol (@) in front of the coordinates entered. Using relative coordinates will move both distances, however, it will move relative to the starting point. For instance, if a line was being drawn and its start position was 10,20, typing a relative coordinate of 10,10 would move the mouse and finish the line at the absolute coordinate of 20,30 (10 in each direction from the original point of 10,20).

15.5 RELATIVE POLAR COORDINATE ENTRY

Relative Polar Coordinates are just like Polar Coordinates, but relative to the current point, just as Relative Coordinates are described above. The syntax for a relative polar coordinate is as follows:

@distance<angle

I.e. If the start point is 10,20 and the Relative Polar Coordinate of @20<25 is used, a line will be drawn from 10,20 20 long, at 25° anticlockwise.

15.6 LAST POINT SNAP

To draw from the last point, simply type @ (at symbol) and press an action key to snap to the last point.

15.7 DIRECT DISTANCE ENTRY

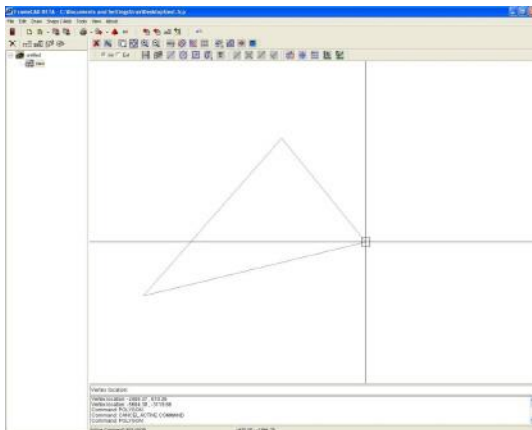
The final input method is Direct Distance Entry. This is the quickest and most efficient way of drawing buildings when they have 90° and 45° walls and trusses. To use this method, begin drawing the object, using either the snaps or any of the coordinate entry methods described above, drag the mouse (and object) in the direction required. Enter the length of the object, and press an action key. The object will be drawn in the direction it was pointing to the length entered.

16 Basic Actions

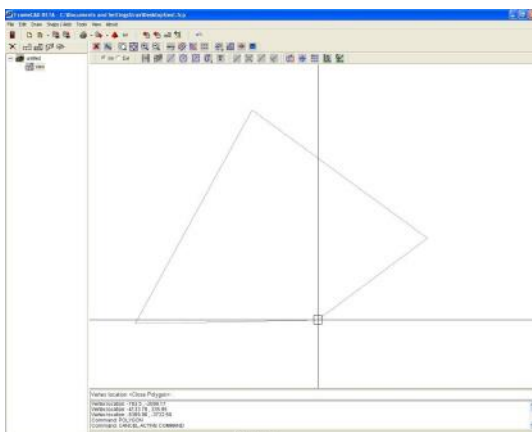
16.1 ACTION KEYS

The right mouse button, enter key and spacebar are referred to as action keys and depending on what is currently being done they will do different things.

- If there is no active command/tool and there is no typed text in the command prompt, and you press an action key, it will unselect any selected items or if there are no items selected it will start up the last used command/tool if available.
- If there are no active commands, and you have typed text into the command prompt and you press an action key, FRAMECAD Detailer will check if the characters match a command shortcut and if so will start up the relevant command otherwise it will try and use it as the start coordinate for a fence.
- If you are using a command/tool and the command prompt doesn't show a "< >" then an action key will cancel the active command otherwise an action key will do whatever is prompted inside the less then and greater then characters. For example if you are drawing a polygon and after the second point has been placed the command prompt says "vertex location", so if you were to hit the action key it would cancel the use of the polygon tool. (A polygon needs 3 or more points)



- After you've placed three points the command prompt changes to the below picture so if you hit the action key it would close the polygon.



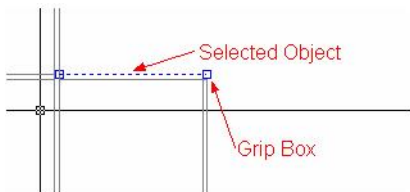
- *Note that sometimes the spacebar is disconnected from the action keys (i.e. when asked to enter text) as it is needed as a character.

16.2 OBJECT SELECTION

After an object is drawn, it is possible to select it for the purpose of modifying or deleting it.

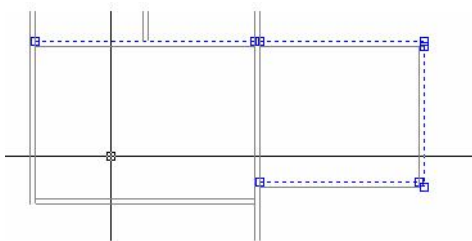
16.2.1 Single Object Selection

To select a single object, simply click on it. The object will appear blue with small grip boxes at each end.



16.2.2 Multiple Object Selection

To select multiple objects, click on each object successively. All selected objects will appear blue with blue grip boxes at each end.



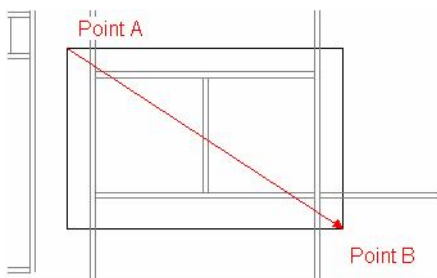
16.2.3 Unselecting

You can unselect an object by holding down the "shift" key and clicking on it.

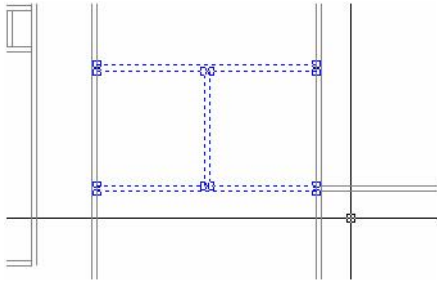
16.2.4 Selection by Fencing

Selection by Fencing is a very efficient way of selecting multiple objects. The fence is visually represented by a rectangle and the direction you draw the fence in will determine which objects are selected.

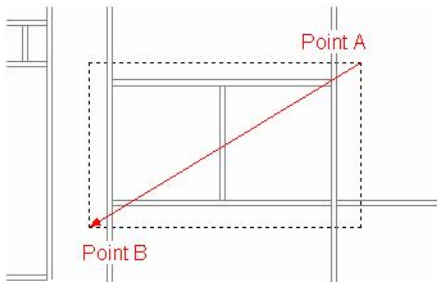
To start fencing, click on a clear place on the plan when no commands/tools are activated. When you move your mouse, you will notice a transparent rectangle and the colour will indicate what mode the fence is in. If you move the mouse to the right of the start point, it is in "all in" mode and if you move towards the left of the start point it will be in "any in" mode. If the fence is in "all in" mode it will only select/deselect objects that are completely within the rectangle and if it's in "any in" mode it will select/deselect any objects that are partly or completely within the rectangle. If you hold the shift key down when you finish a fence, it will deselect objects according to the mode the fence is in.



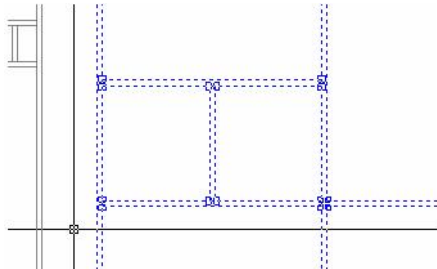
Objects completely contained in fence



Objects selected



Objects enclosed or crossed by the fence



Objects Selected

16.3 DELETING OBJECTS

To delete an object which is not required on the plan, select it using one of the methods listed above, and press the Delete key (DEL) on your keyboard. It is possible to delete multiple selected objects.

16.4 MOUSE

16.4.1 Wheel Mouse Zooming

It is possible to zoom using the wheel on many modern computer mice. To Zoom In, rotate the wheel forwards. This will zoom in, centring the new view on the mouse cursor.



To Zoom Out, rotate the wheel backwards. This will zoom out, centring the new view on the mouse cursor.



16.4.2 Mouse wheel zoom all

By clicking the middle mouse button the draw area will zoom to the extents of the object/s.

16.4.3 Panning

By holding down the middle mouse button for more than a second or using the arrow keys you can pan your drawing.

16.5 MOVING OBJECTS AND DRAGGING

To adjust the position of any objects, select the object/s that need repositioning. Multiple objects can be selected by clicking on each item, or selecting them using the selection by fencing method.

Once selected, each object will appear with blue grip boxes. By using the left mouse button to click on any of these, it will become gripped and this node can then be dragged to another location (either left click new location or use a coordinate entry method).

Holding down the SHIFT key while clicking on a grip box, will allow you to move all of the selected objects to a new position.

After a drag or move has started you can press an action key to cancel a drag or move. This will return the objects back to their original positions.



A Selected Line

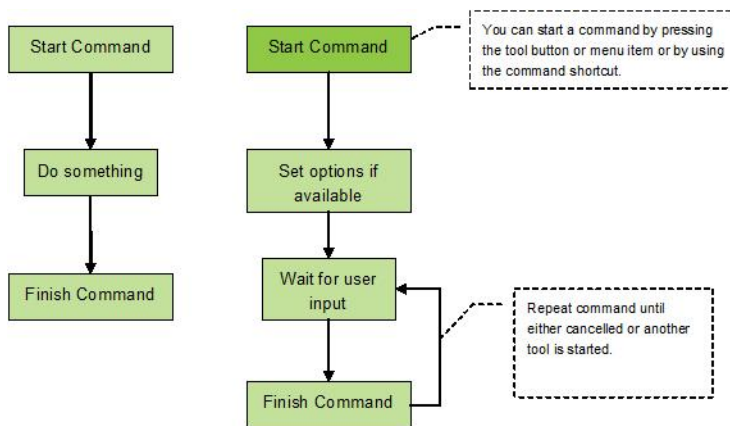
16.6 TOOL / COMMAND STRUCTURE

All of the commands within FRAMECAD Detailer follow a similar structure and there are two different types of command structures used:

The user starts a command and it does something immediately with no other input required

The user starts a command, sets any available options and the command then uses some kind of input from the user (mouse moves, clicks or keyboard characters), when the command has finished the tool will stay active until the user cancels the command or starts up another command.

An example of the first type of command would be something like the zoom in or zoom out tool, while the place line tool uses the second type of structure. The below diagram illustrates these structures.



16.7 TOOL / COMMAND OPTIONS

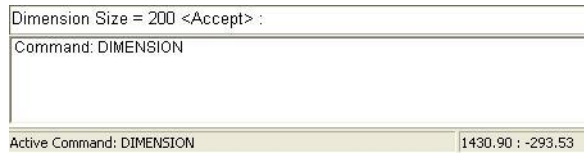
Some commands require options to be set prior to using the command. The image below shows the options that are available for the dimension command.

Parameters: (S)tyl = Aligned / (D)imension Size = 200 / (P)recision = 2 / (F)ixed Extensions = False <Accept> :	
Command: DIMENSION	
Active Command: DIMENSION	-300.80 : 3330.59

In this particular case you can see that the style is currently set to Aligned, its dimension size is 200, its precision is 2 and fixed extensions is set to false. The commands remember the last used options and will display these when the command starts up. You may also notice the "<Accept>" at the right hand end of the options and as explained in **Action Keys** (in section 16.1), this means if you press an action key you accept the values that are currently set and will then start to use the command. If you want to change any of the options then type in the character/s that are within the brackets and press an action key, this will then list the settings available for this option. For example if we wanted to change the style we would type "s" (it's not case sensitive) and then press an action key and would get the below image

Style = Aligned - (A)ligned / (V)ertical / (H)orizontal <Accept> :	
Command: DIMENSION	
Active Command: DIMENSION	196.93 : 1863.31

The above image shows that the style is currently set to 'aligned' and also lists that aligned, vertical and horizontal are the available settings for this option. If we wanted to change it to horizontal, you would type "h" and press an action key and you would be returned to the options listing to see the updated changes. Not all option settings will be listed as above, some may just require some text or a number as in the dimension size as shown below.



Therefore, in this case you would either accept the value of 200 or type in a new value then press an action key.

17 How To's

Q. How do I change my frames to use a different machine for an existing job?

A. Select all the frames in a plan (excluding cloned frames), go to the Properties and change the machine in the Machine Setup tab.

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