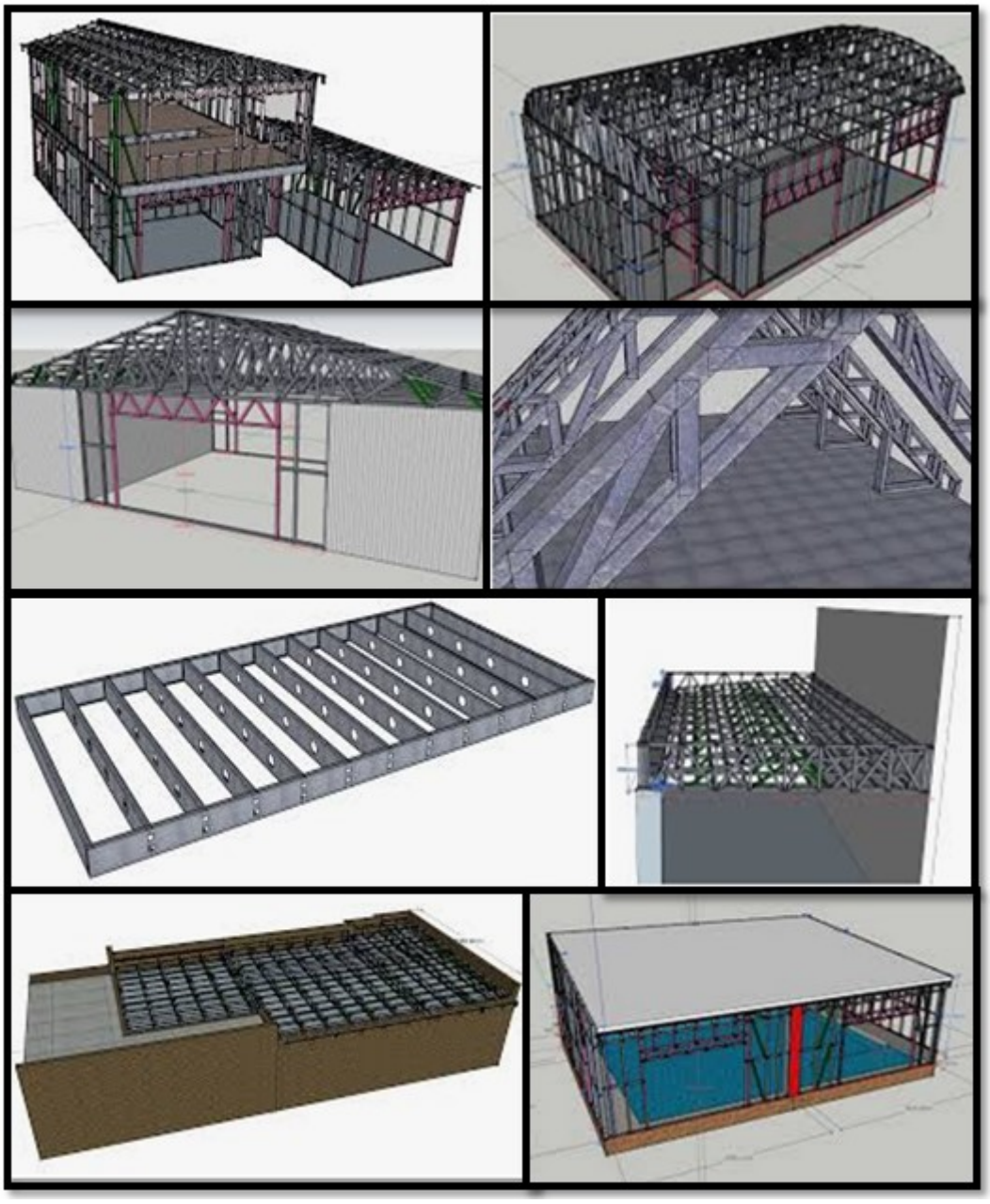
FRAMEBUILDER–MRD
Machine Ready Designer
www.framebuilder-mrd.com

USER MANUAL

INTRODUCTION

FrameBuilder-MRD offers a comprehensive set of tools for SketchUp and modules to make LSF design and construction a breeze. Design Structures, do Costing and Invoicing and Generate Machine CNC files instantly.



SUMMARISED CONTENTS

DETAILED CONTENTS

1. ICONS USED IN THE MANUEL

Throughout this document, the pictograms below are used to underline points or important notions

	Important information
	Good to know - Tricks
	**Risk** in front of a parameter setting or of a specific action
	Action to be avoided
	Mandatory action
	Sensitive or difficult procedure. To take into account necessarily
	Actions reserved for the Machine Specialist
	Actions reserved for the Administrator

2. FRAMEBUILDER-MRD

2.1 BRIEF DESCRIPTION

Developed as a PlugIn within SketchUp, FrameBuilder-MRD (Machine Reading Designer) aims to provide a total affordable software solution for Light Steel Construction. ***What you draw is what you get***.

2.2 SUPPORT

Email: Support@framebuilder-mrd.com

Whatsapp: +27826742448

Website: www.framebuilder-mrd.com

3. INSTALLATION

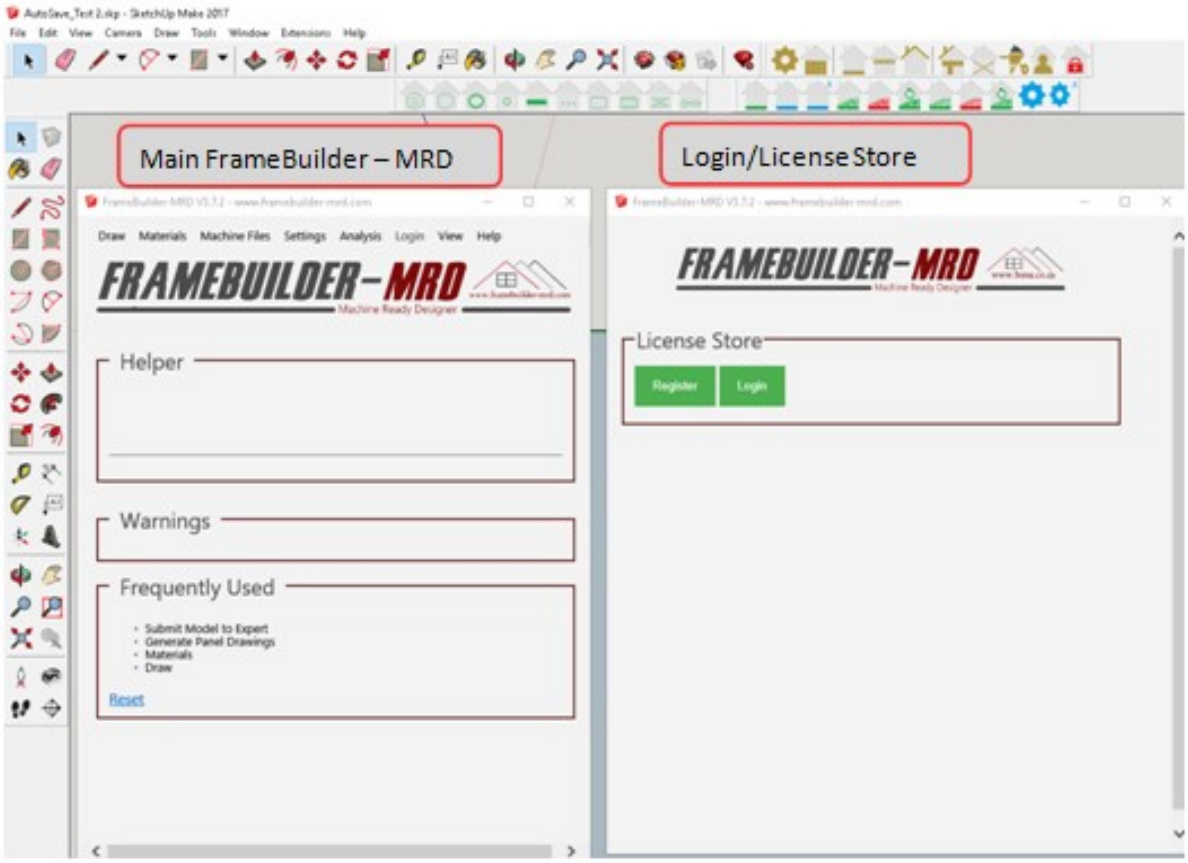
3.1 PREREQUISITES

- **Microsoft Windows 7+**
- **SketchUp 2016+**
- **Microsoft Excel 2010+**

3.2 INSTALLATION

- Download SketchUp
  https://www.sketchup.com/download/all
- Install SketchUp
- Download FrameBuilder-MRD
  http://www.framebuilder-mrd.com/forum/forum_posts.asp?TID=8&SID=6-z6b14bbb7bfbzca734ab4199884259&title=framebuildermrd-download
- Unzip FrameBuilder-MRD
- Install FrameBuilder-MRD (rbz extension) into SketchUp
- SketchUp 2016 and lower version
  https://help.sketchup.com/en/article/38583
- SketchUp 2017 and higher
  https://help.sketchup.com/en/article/3000264

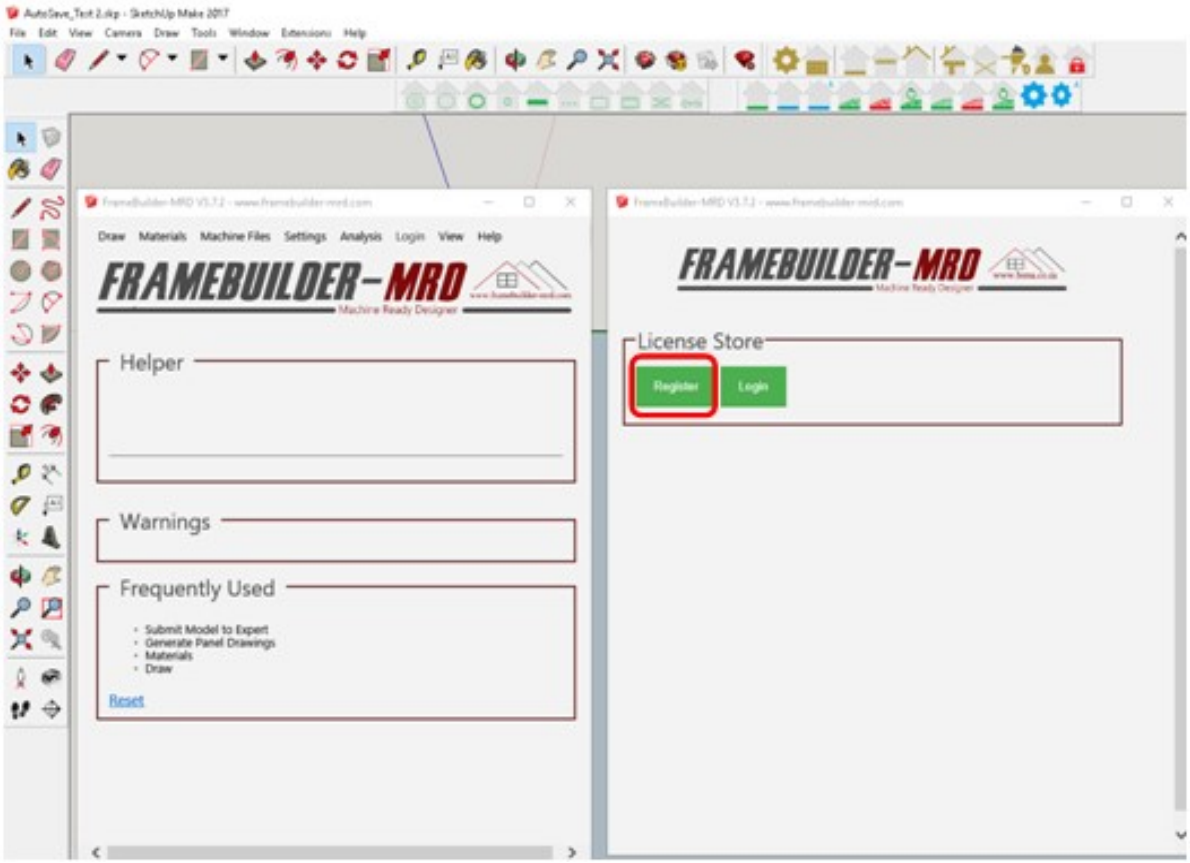
3.3 FIRST SCREENS



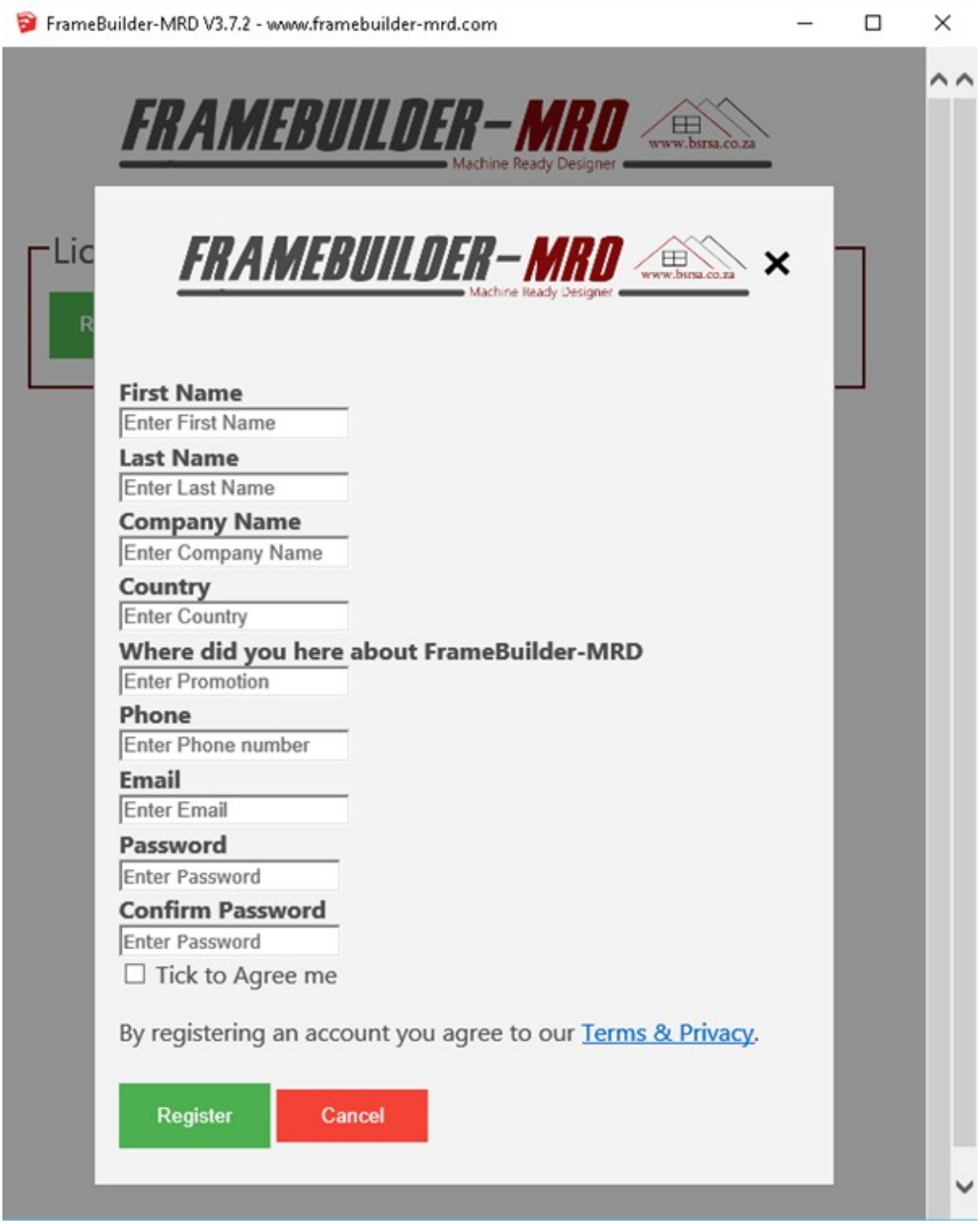
You will be presented with two windows after FrameBuilder-MRD PlugIn has been installed successfully. The window on the left is the main application window for FrameBuilder-MRD. The second window on the right is where you will register and login.

4. REGISTRATION AND LOGIN PROCESS

4.1 FIRST TIME REGISTRATION



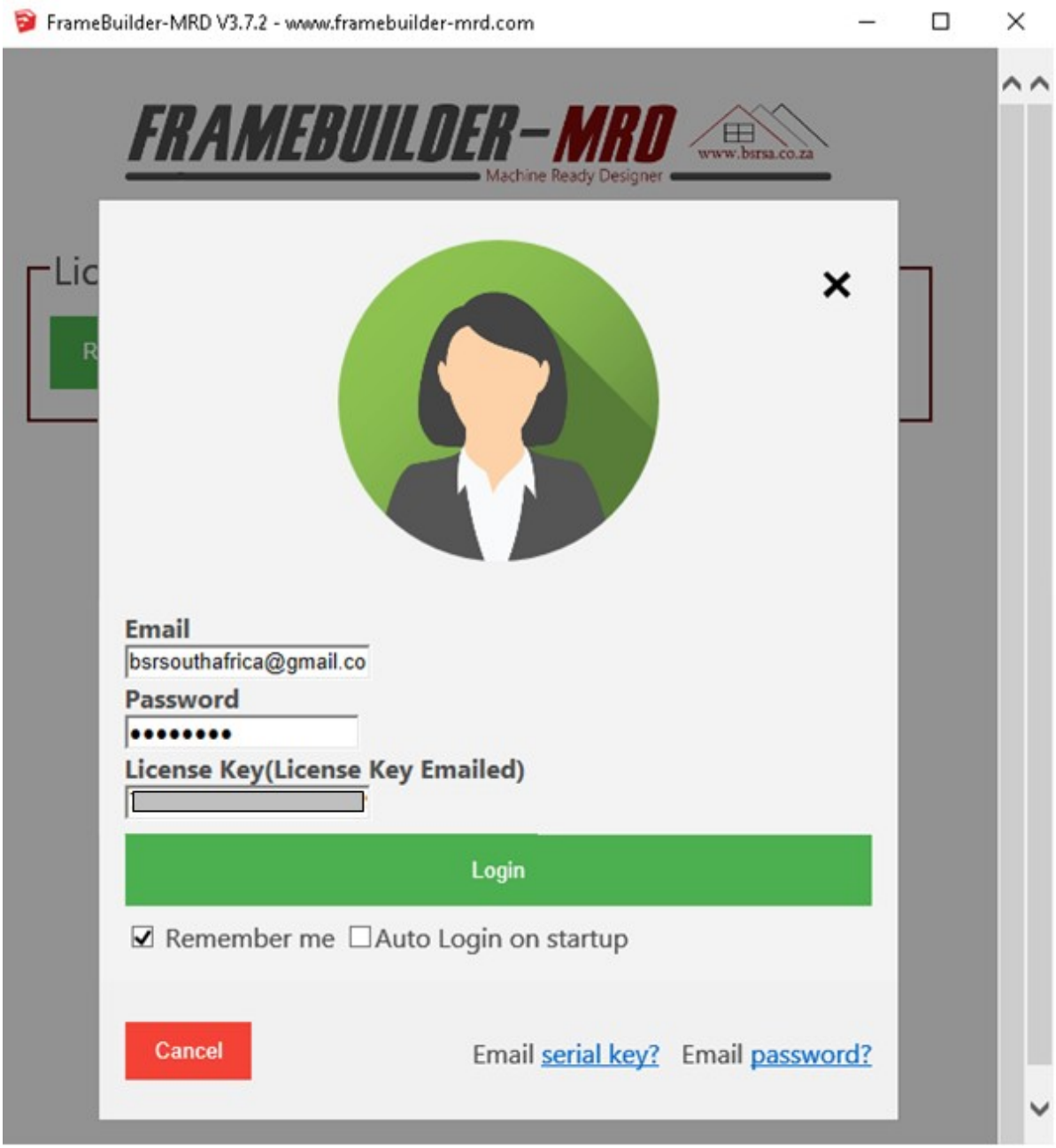
4.2 REGISTRATION FORM



4.3 LOGIN

Upon completing registration you will be emailed a Trial License Key. Please also be sure to check your spam folders. This license key is valid for 15 days. It can be converted to a full license before or after expiration.

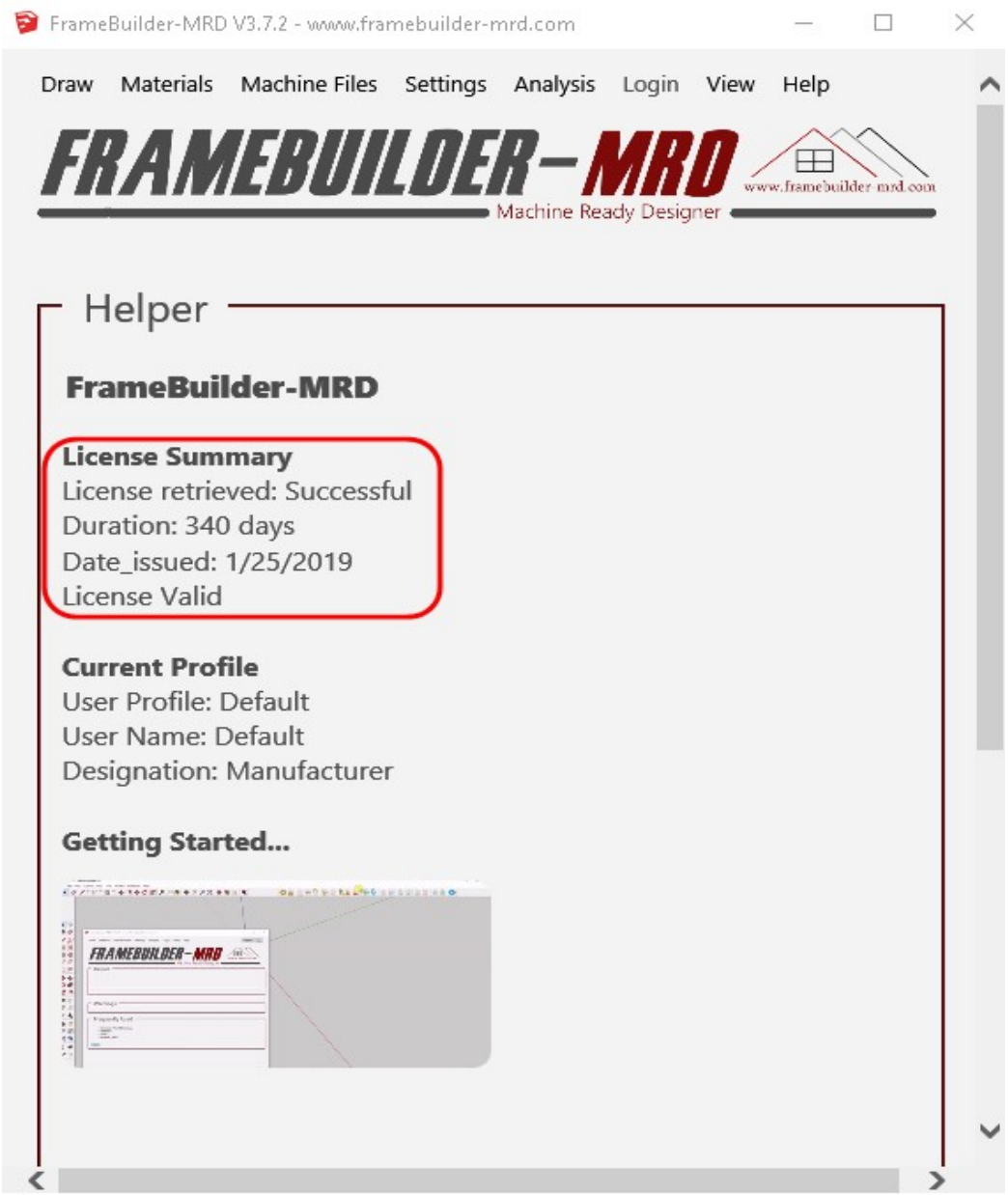
If you have not received your License Key or need a reminder, use the email serial Key option in the Logon window at the bottom right of the window to have your license key or password emailed to you.

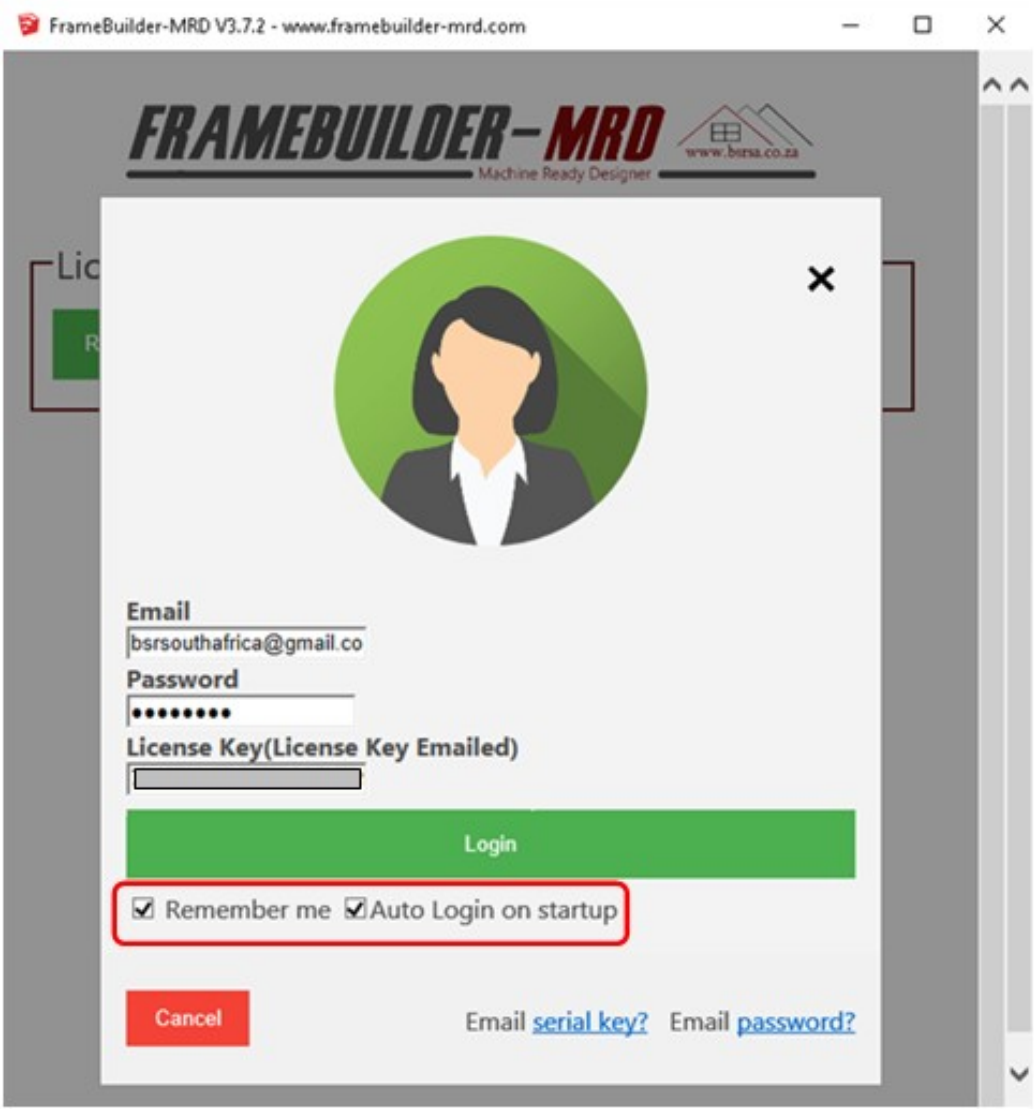


4.4 SUCCESSFUL LOGIN

- Once you have logged in successfully you should see the following screen below with license information.

Should you are have any trouble logging in; assistance is always available on support@framebuilder-mrd.com.

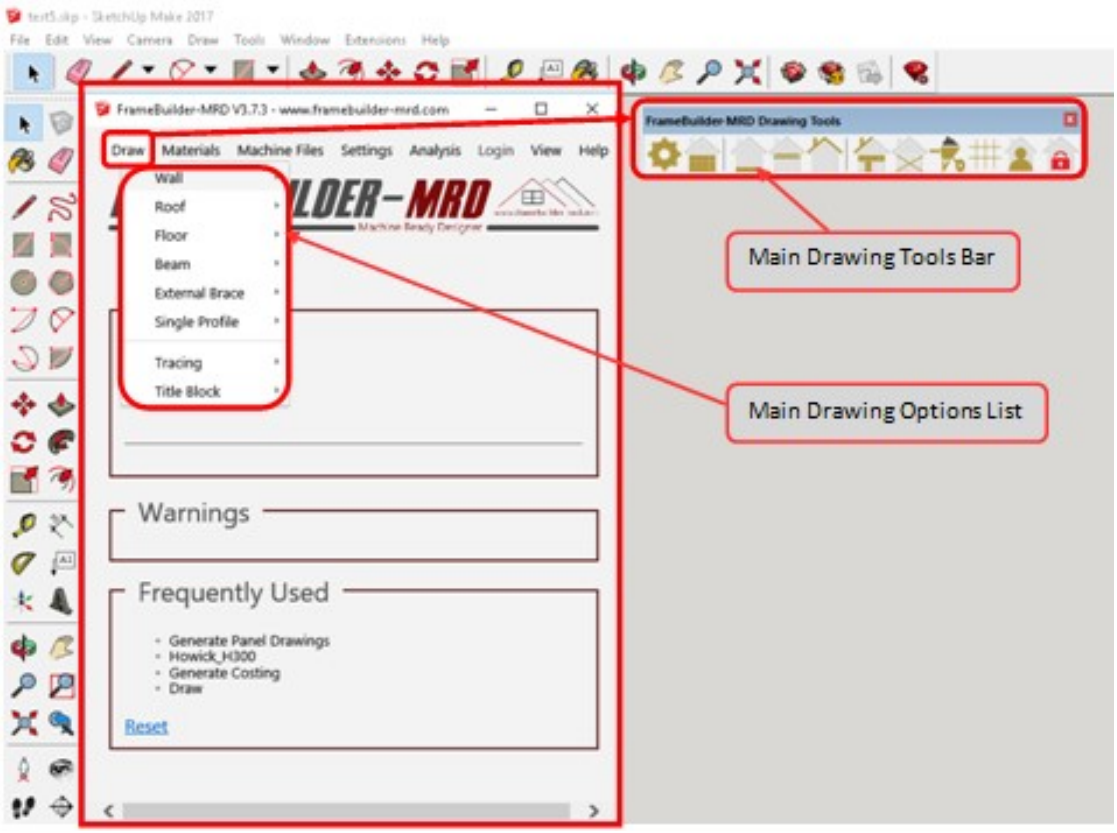




Use the Remember me and Auto Login to save password and close this window automatically on start-up.

4.5 MENUS

- Main Menu



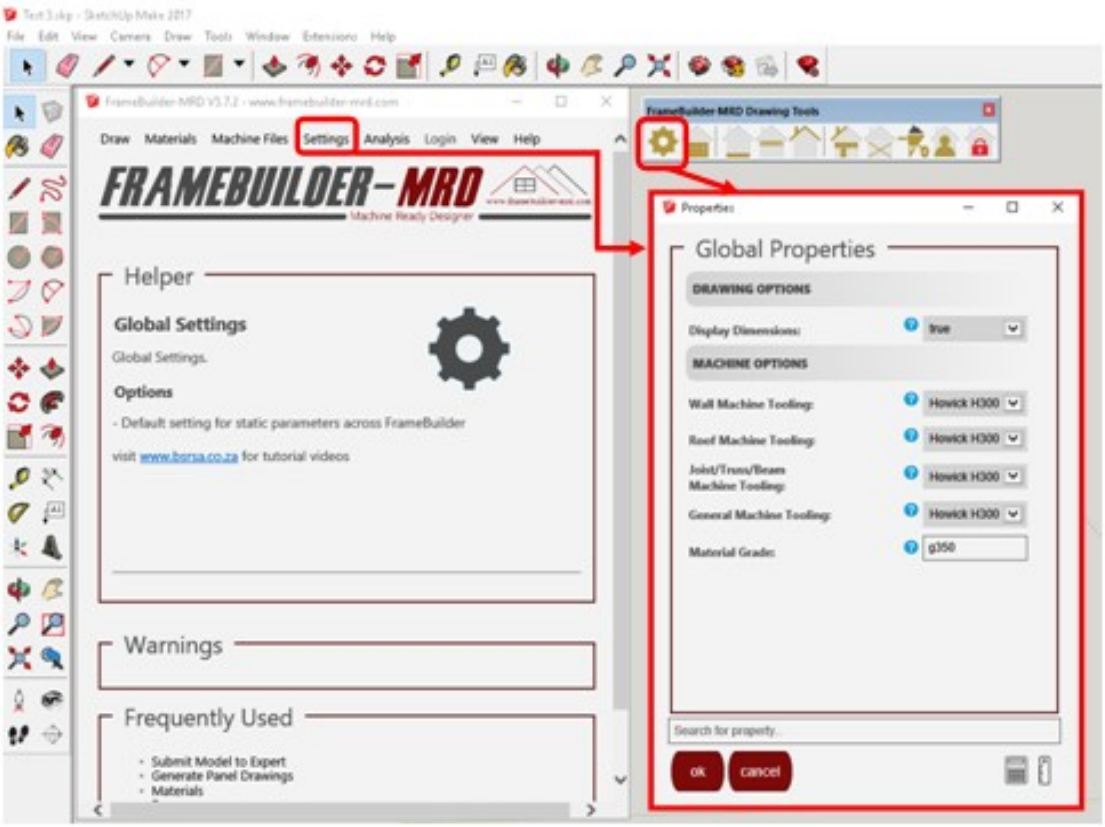
Click on the Draw Menu to access the Main Tool Bar.

Or

Click on the Draw Menu to drop down the Main Drawing Options

Main Tool Bar maybe be hidden under the FrameBuilder-MRD Window.

- Global Settings



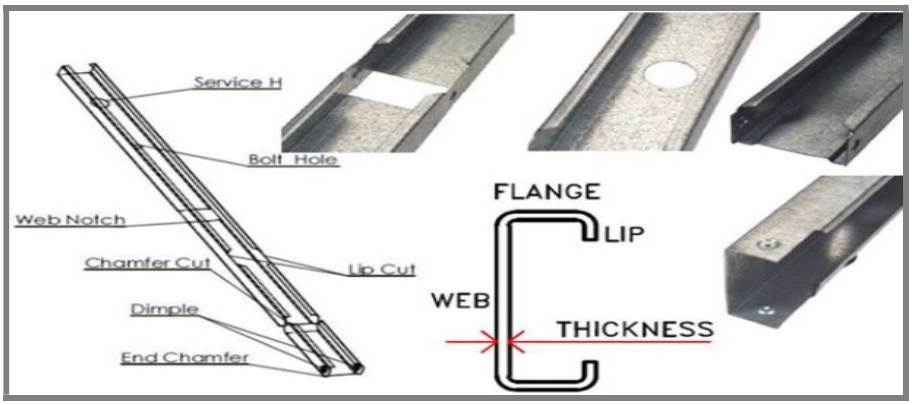
Global settings for the different modules can be set here.

This mainly includes machines settings that govern the tool sizes for swages, notches, lip cuts and others.

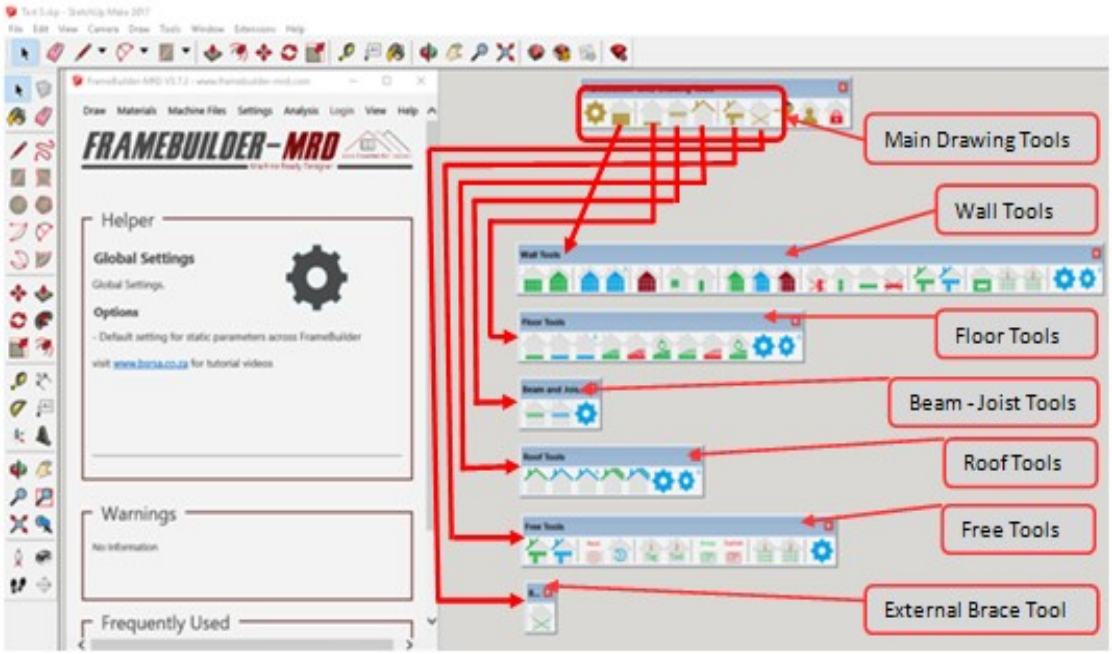
Popular Machines have already been preconfigured.

However, if you have customized tooling from the manufacturer, it is highly recommended you go through some of the tooling sizes to make certain it reflects the correct size for the different tooling options on your machine.

How to change tool sizes for your machine is discussed in Section:*******



- Main Drawing Icons - General Overview

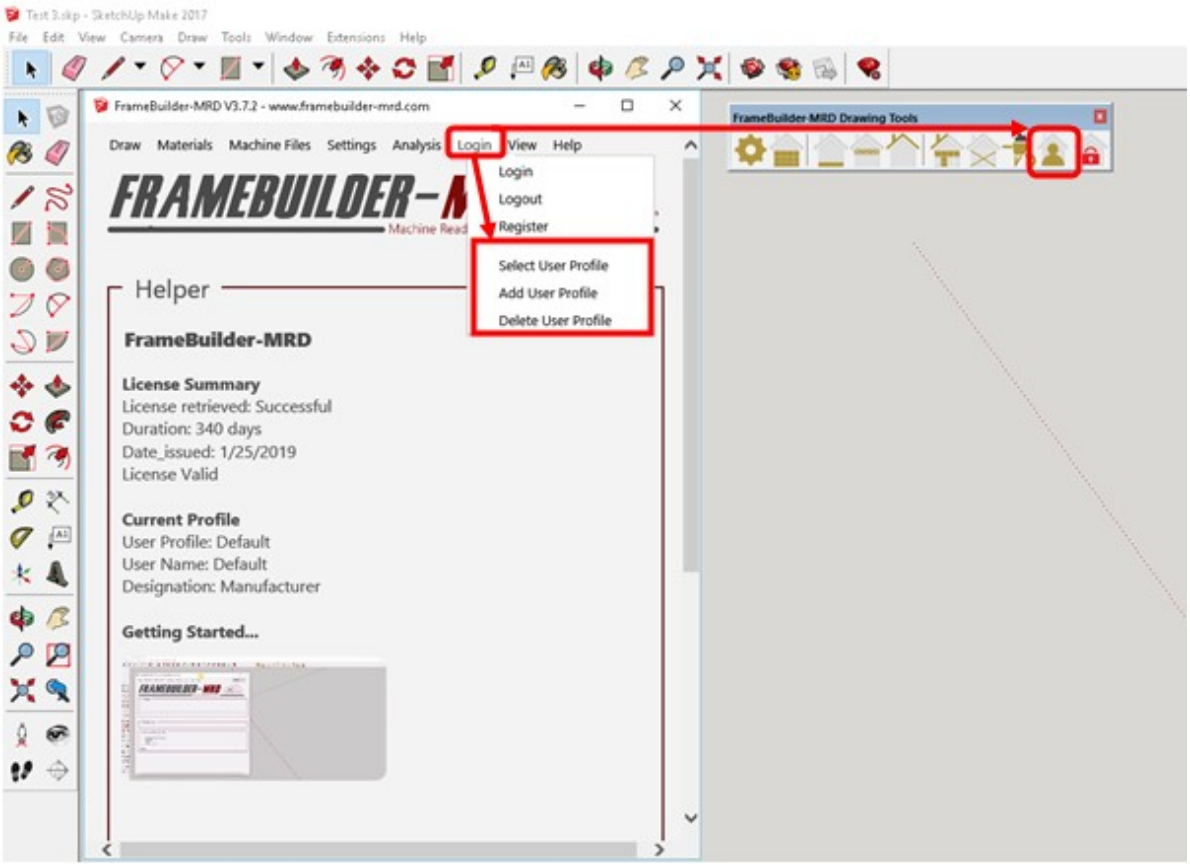


- Click on the Wall, Floor, Beam, Roof, Free Tool Icons to access the Drawing Tools
- These icons give you access various drawing options to draw and edit various styles of walls, floors, joists and roof styles
- **Green** Icons – For Example, Draw a **New** wall or add a new component within a frame, such as windows, extra studs, nogs or internal lateral bracing.
- **Blue** Icons - **Edit** properties for a selected frame or components within a frame.
- **Red** icons – **Delete**, **Move**, **Resize** selected frame or components within a frame.
- **Cog** icons to set default settings for standard or advance settings.

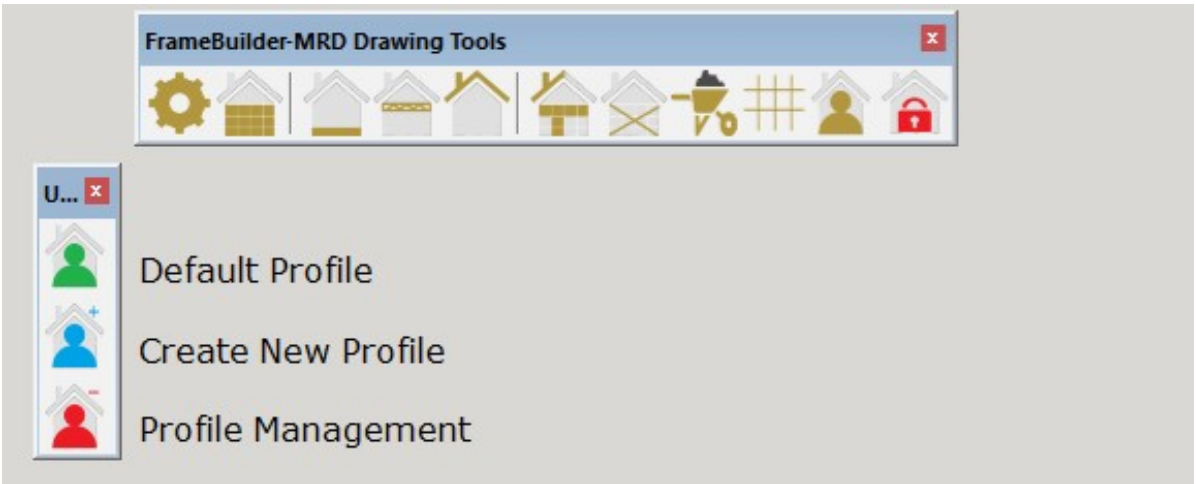
- Getting Started

It is important to create a new profile to ensure a user's custom settings are not overwritten with new updates or future releases of FrameBuilder-MRD.

4.6 How to Setup a New User Profile



Click on the User profile menu option under login or main tool bar.

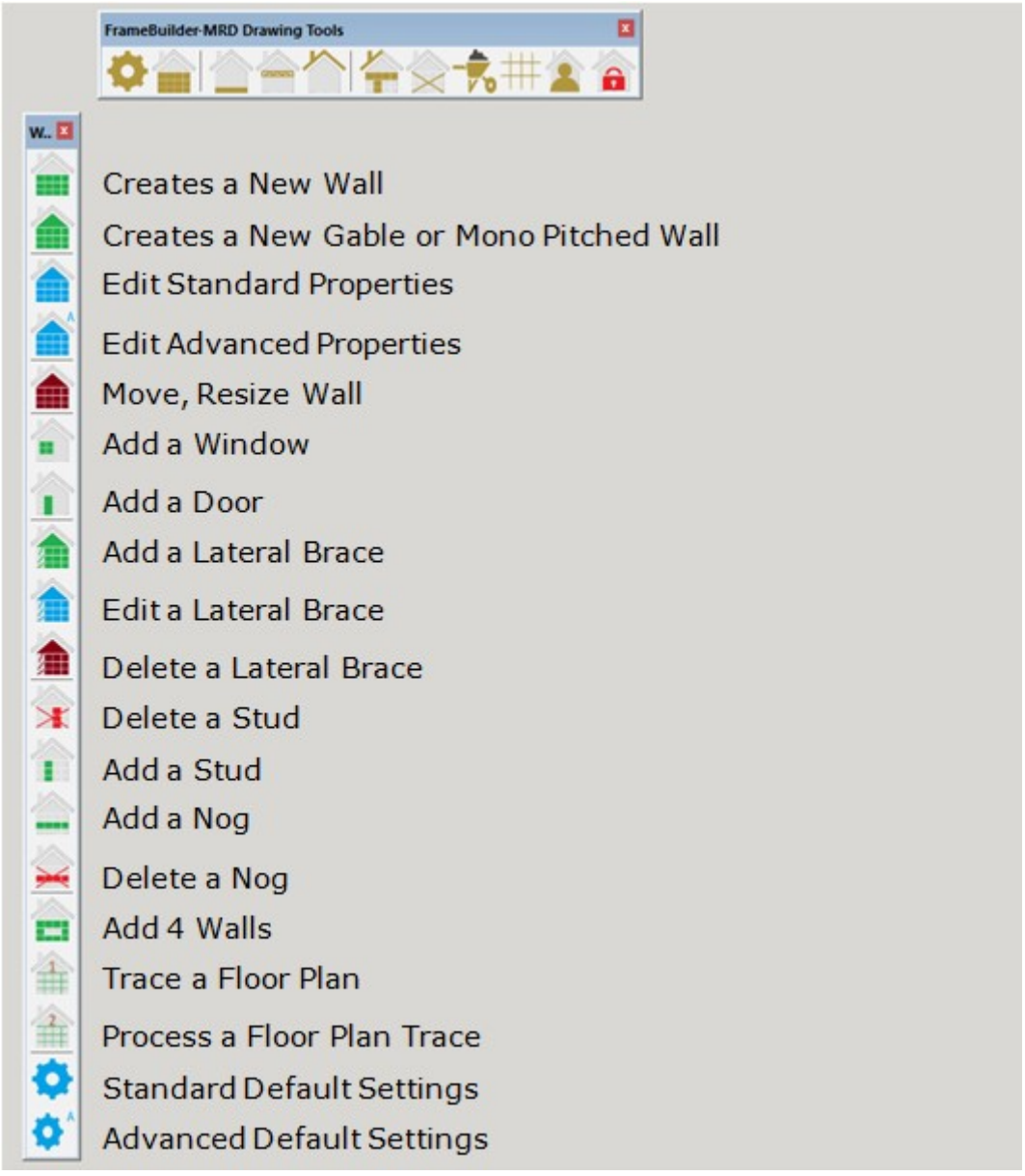


- Click on the **Create New Profile** Icon to save a New profile
- Click on the **Default Profile** Icon to set the profile to the selected profile

5. WALL MODULE

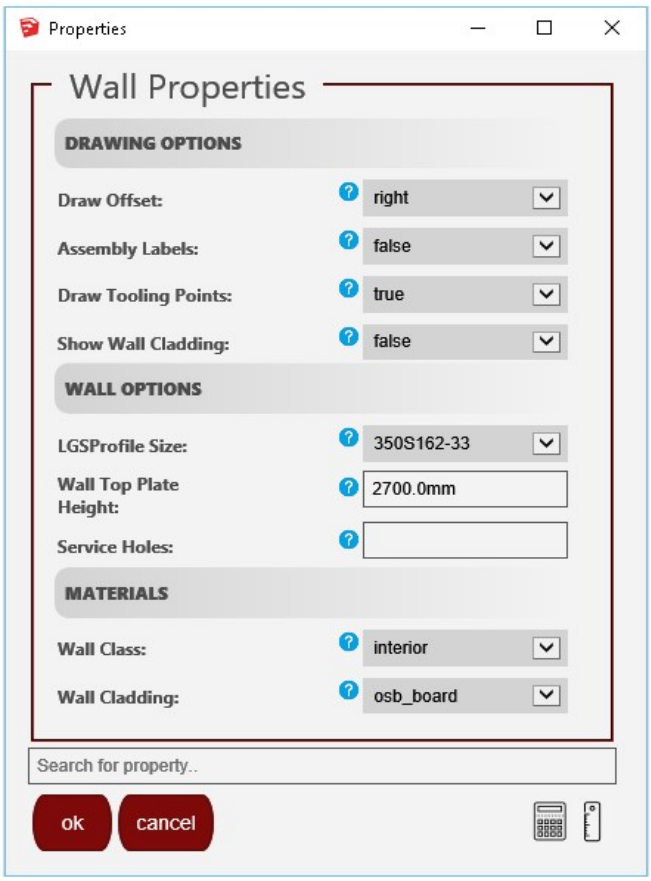
In this section you will learn how to draw a typical wall, update properties and add internal components such as openings and braces.

5.1 ICONS

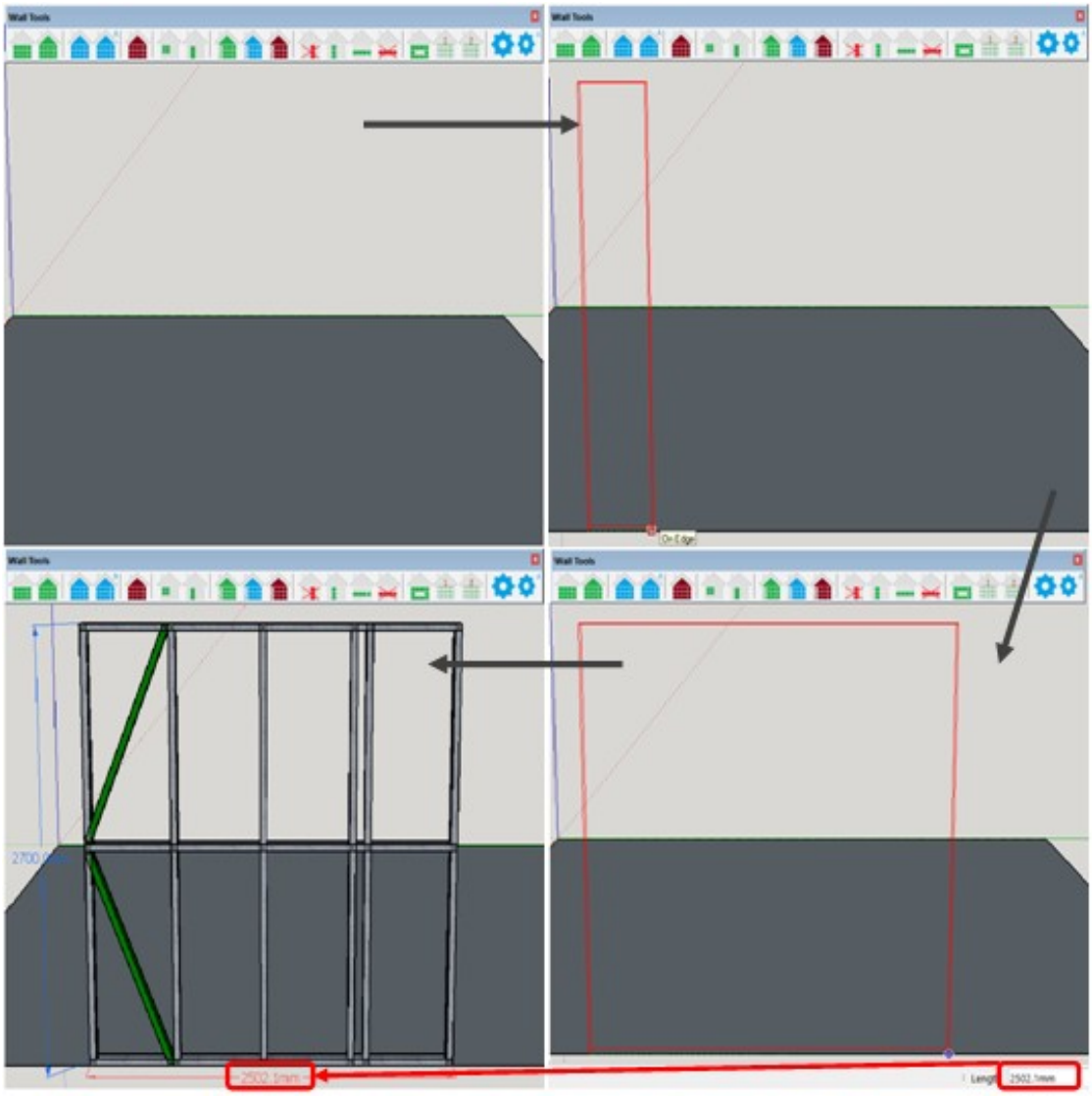


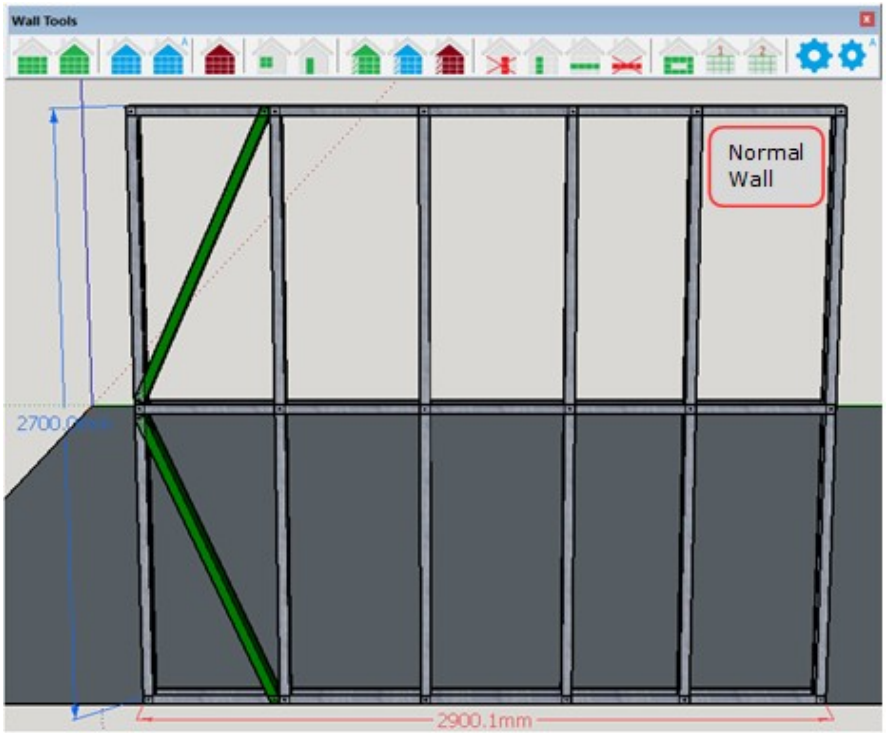
5.2 How to Create a New Wall

Click on "**Creates a Wall**" Icon, the following will open up:



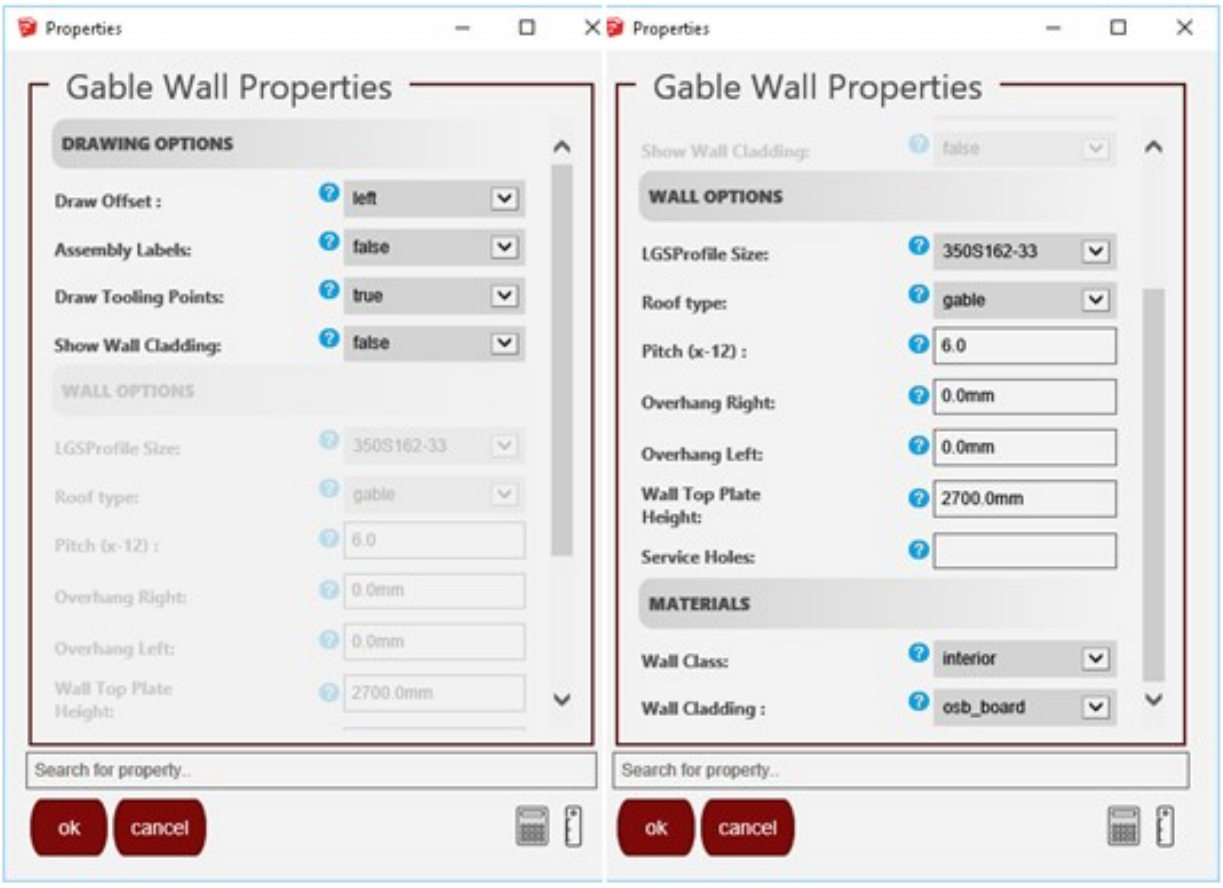
Once you are sure that all your settings for your wall is correct, click "ok" and then start drawing your wall. Start by first clicking on your start position and then drag your mouse to the end position or simply type the width of your wall in the bottom right corner of the screen.

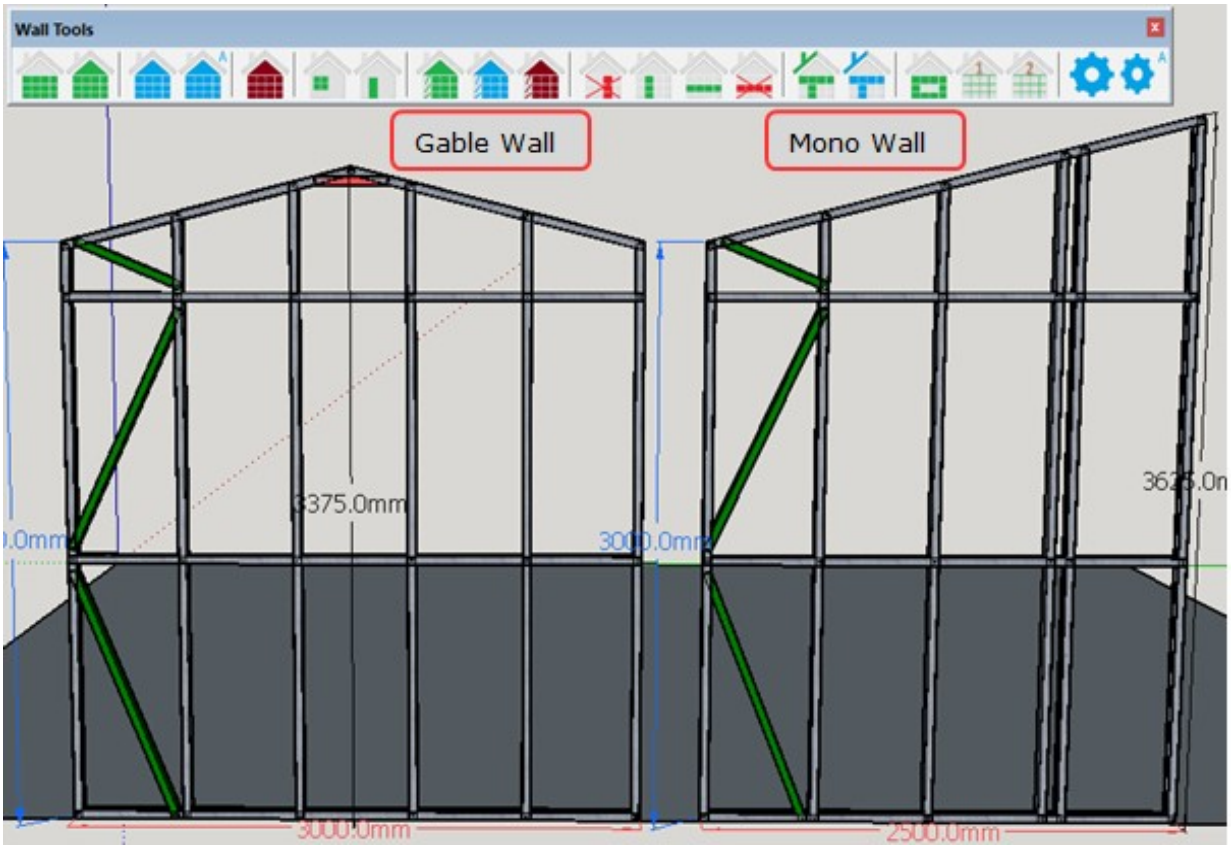



Wall Tools
Normal
Wall
2900.1mm

NB: ***The process for Normal walls is the same as for Gable (Or Mono) Walls, thus follow the same instructions going forward***

For the Gable Roof, however, when you click on "**Creates a Gable Wall**" Icon, the following will open up:

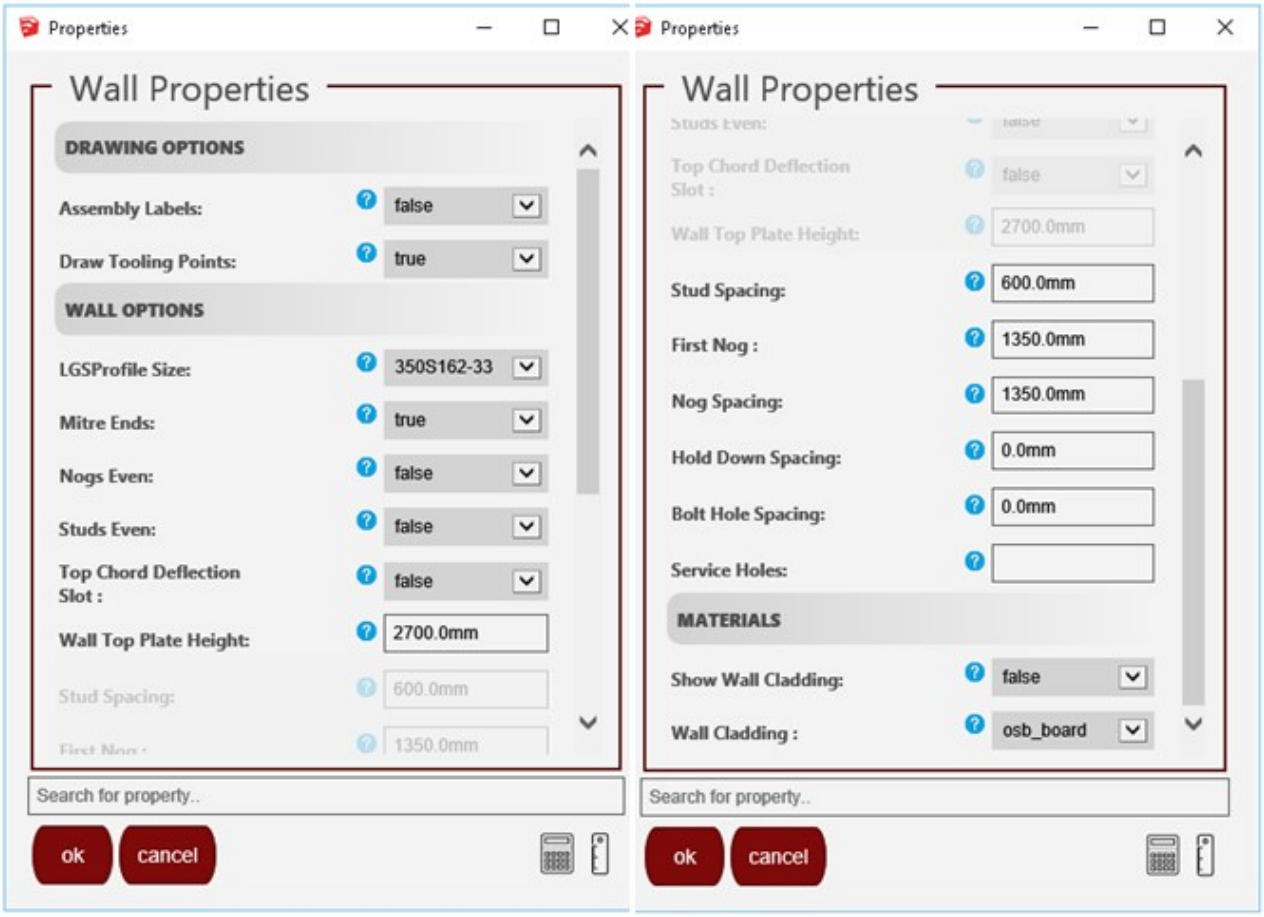



Wall Tools
Gable Wall
Mono Wall
3375.0mm
3000.0mm
2500.0mm

5.3 EDIT PROPERTIES OF A WALL

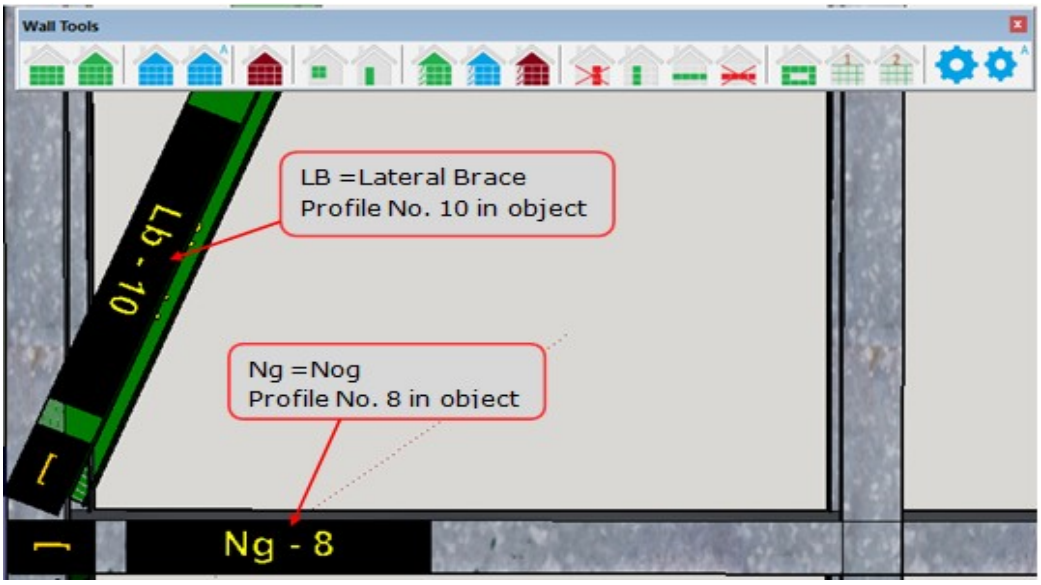
Select the Wall Frame you want to change

Click on the **Blue** Icons called "**Standard and Advance Wall Properties**". The following window will open up and you will be able to change the default wall properties for your wall.



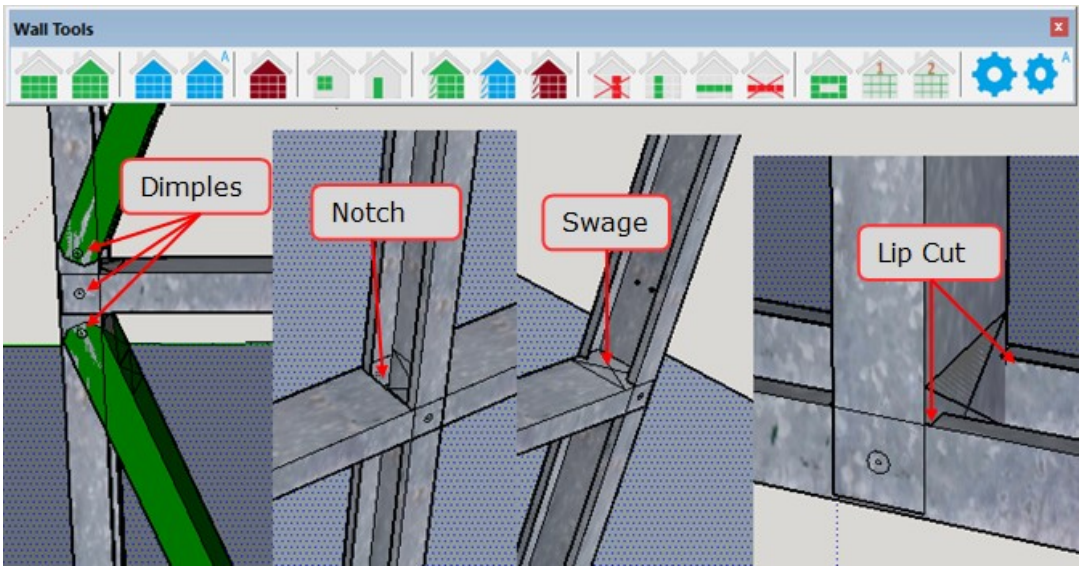
- Drawing Options
  - Assembly Labels

    Enable or Disable labels on individual profiles within the selected wall



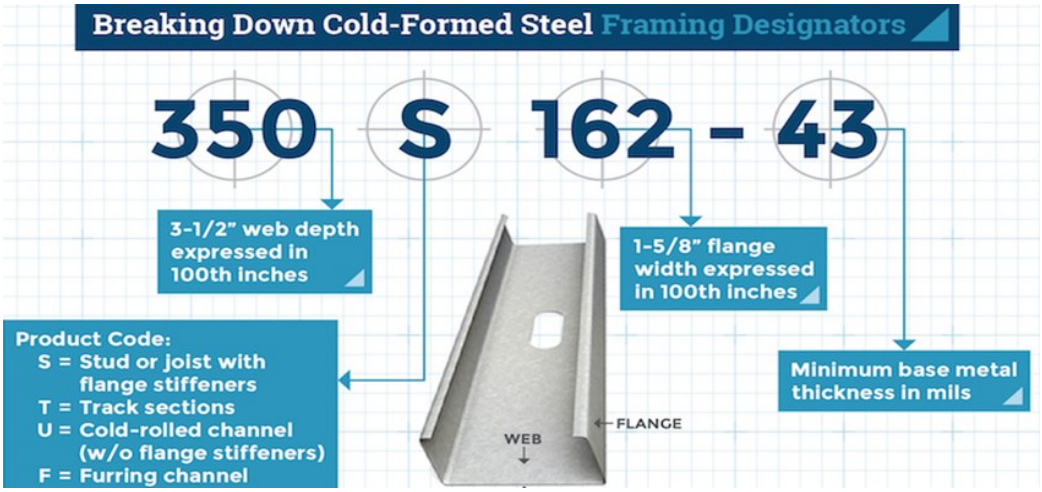
- Draw Tooling Points

  Enable or Disable rendering of dimples, notches,swages and lip cuts etc



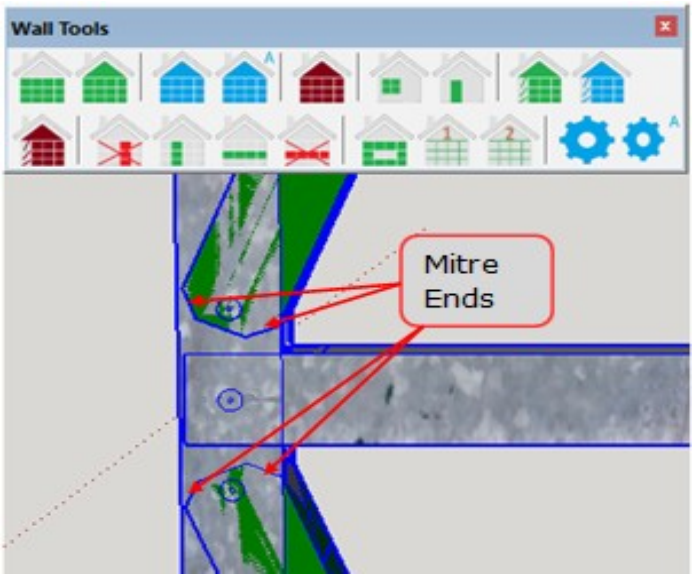
- Wall Options
  - LGSProfile Size

    This is the profile of the steel to used in the manufacture of the product you are designing.



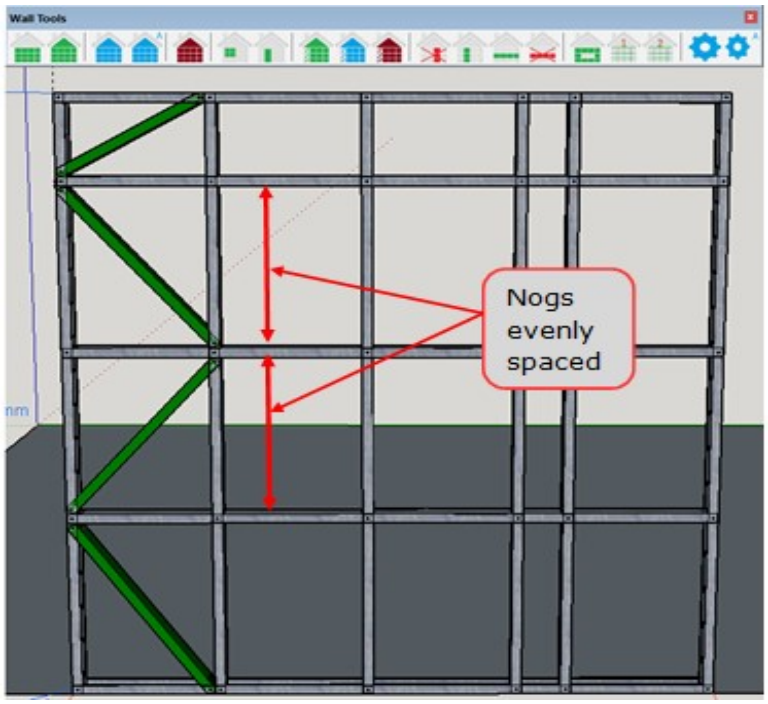
- Mitre Ends

  Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.



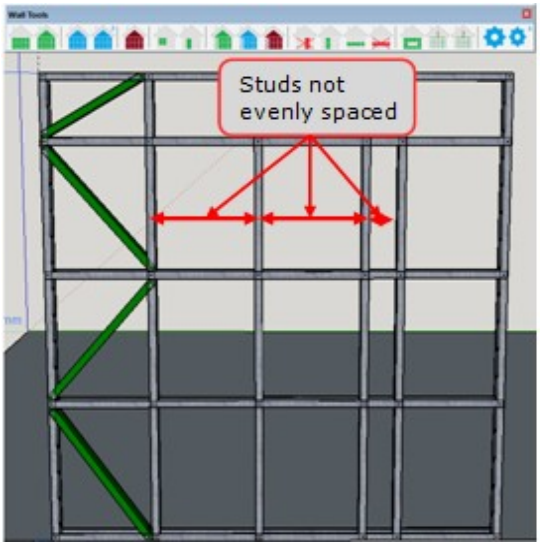
- Nogs Even

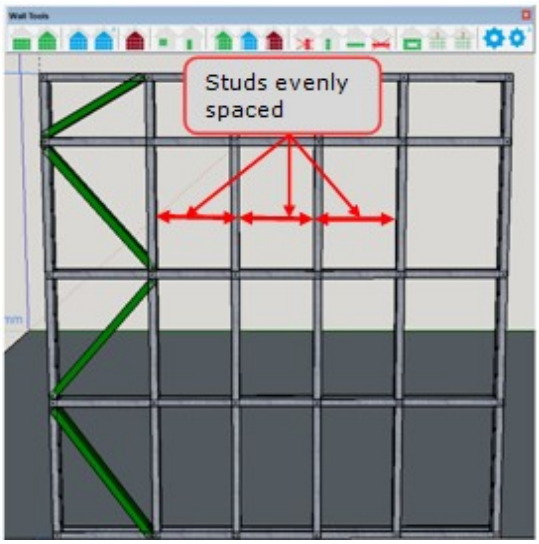
  Nogs are spaced from top to bottom in an even spacing. (This excludes the top and bottom spacing, as the bottom spacing has a different setting and the top space is a default space.)



- Studs Even

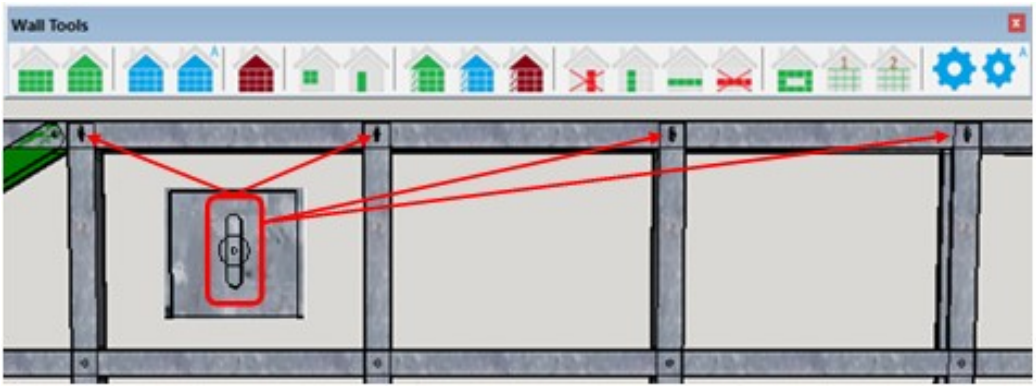
  Studs are spaced from side to side in an even spacing. (This is only for the middle spacing, it does not affect the spacing fromthe two sides)





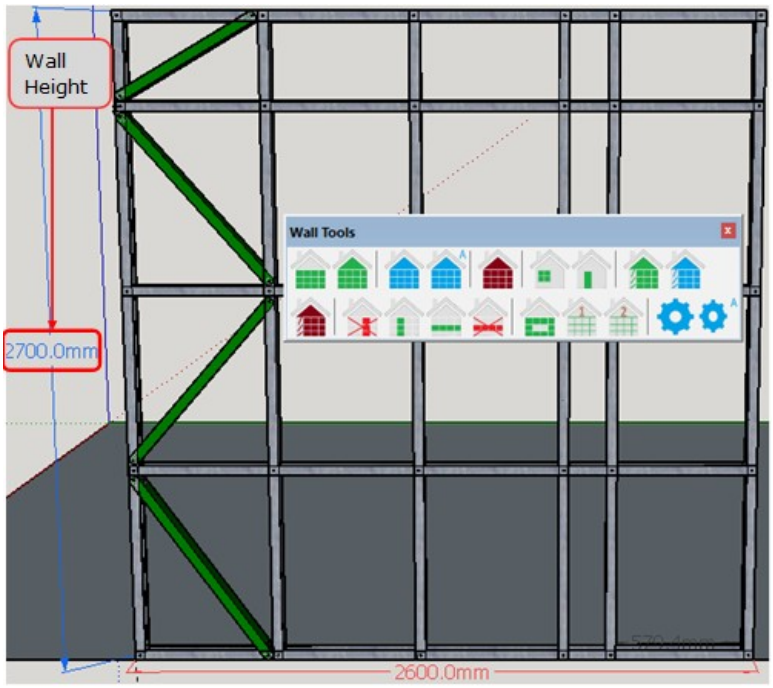
- Top Chord Deflection Slot

  ***Special Howick Machine Specific Option**. This option allows for the top plate on a standard wall from to be adjusted in situations where existing ceiling heights are not true or square.*



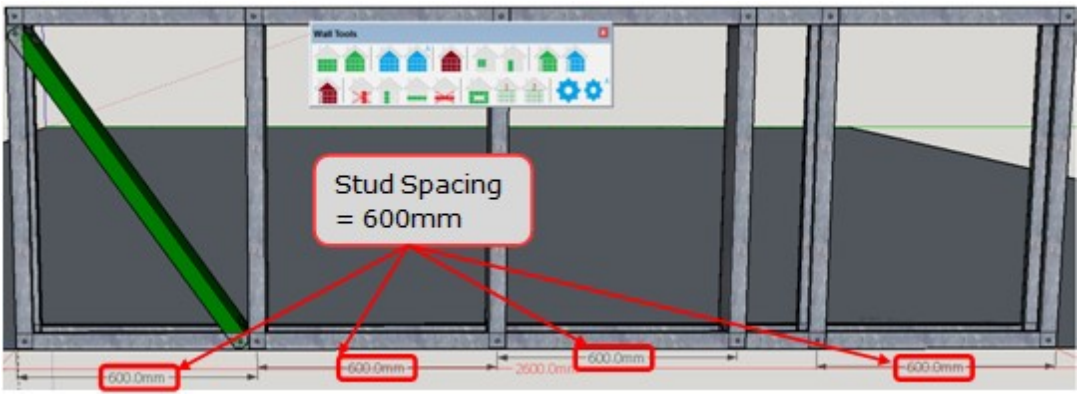
- Wall TopPlate Height

  The height of the wall that you want to design



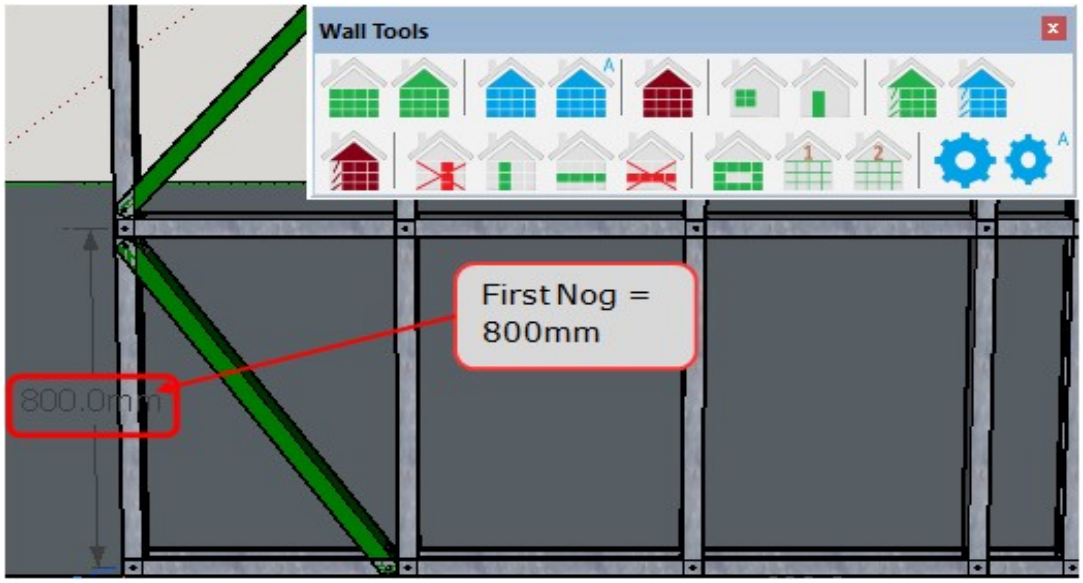
- Stud Spacing

  Spacing of Studs from each (Recommended is 600mm)



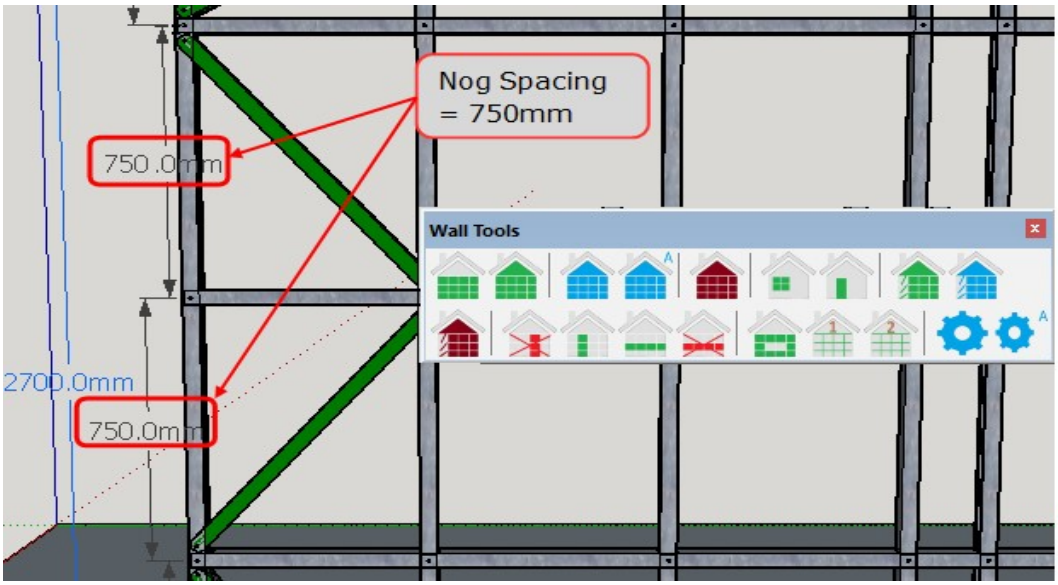
- First Nog

  Start Position of the First Nog



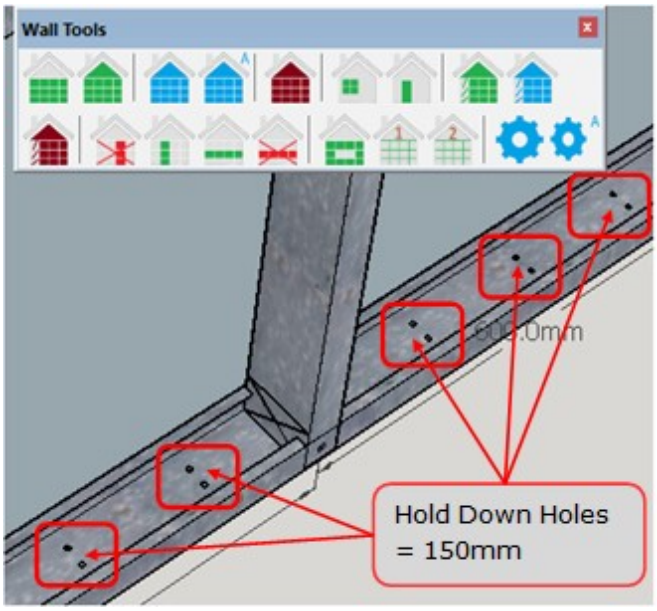
- Nog Spacing

  Spacing of Nogs from each other.



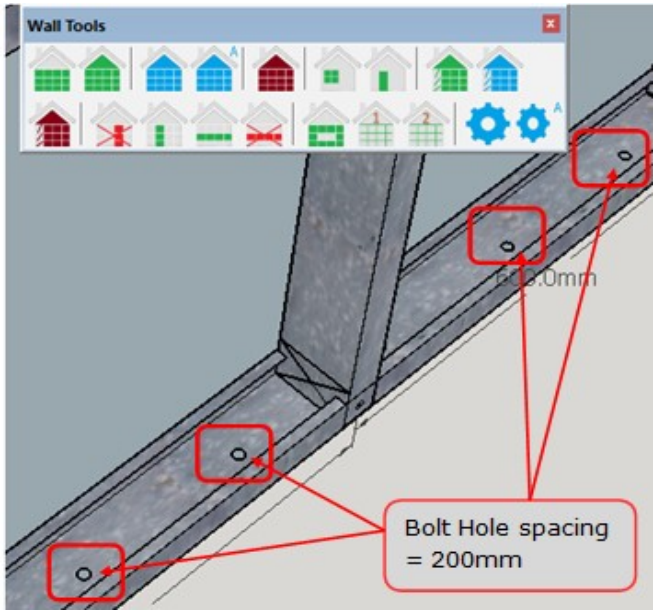
- Hold Down Spacing

  Hold Tool Spacing, specific to certain machines.



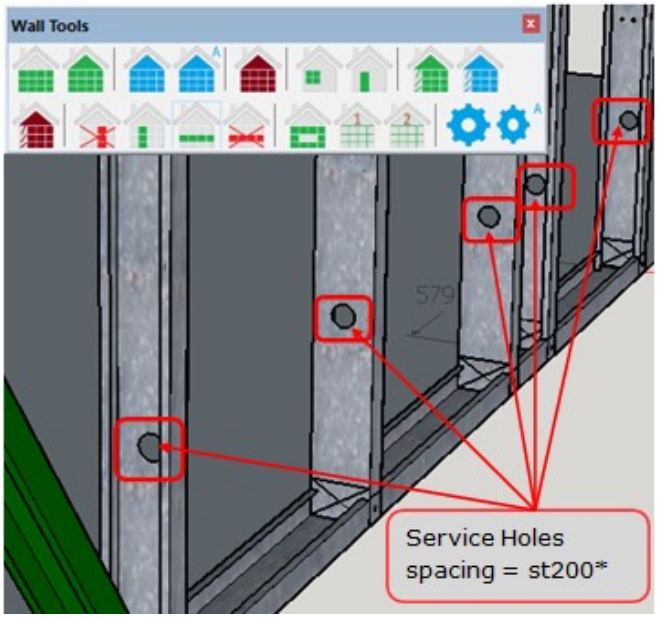
- Bolt Hole Spacing

  Bolt Hole Tool Spacing, specific to certain machines. Places bolt holes on the bottom plate of a wall frame.



- Service Holes:

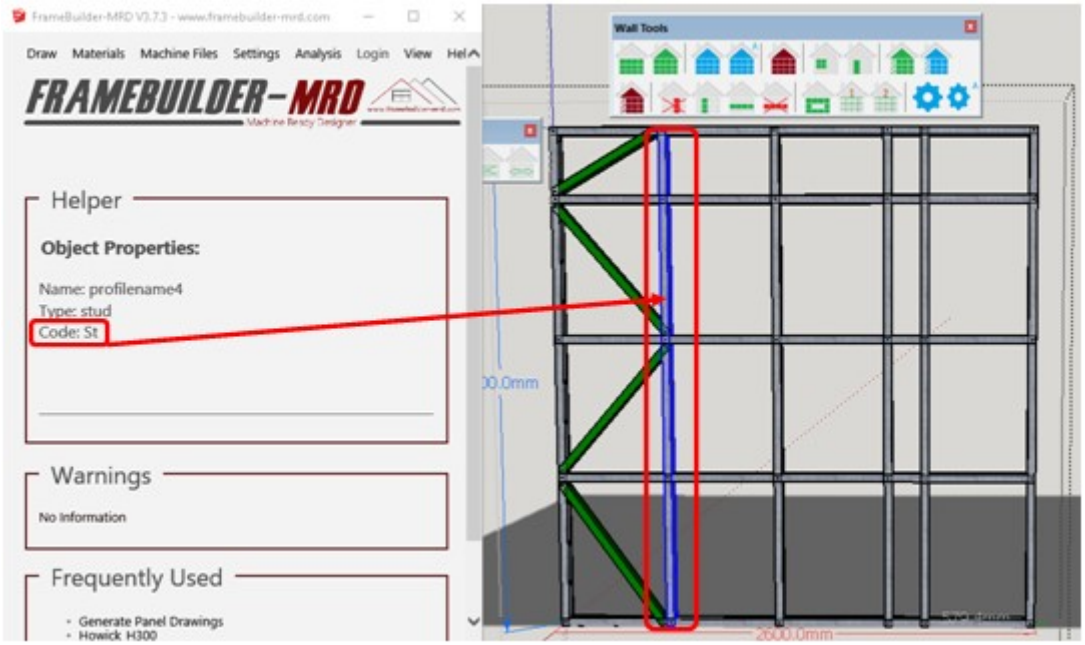
  The point at which you want the service holes to be cut by the machine

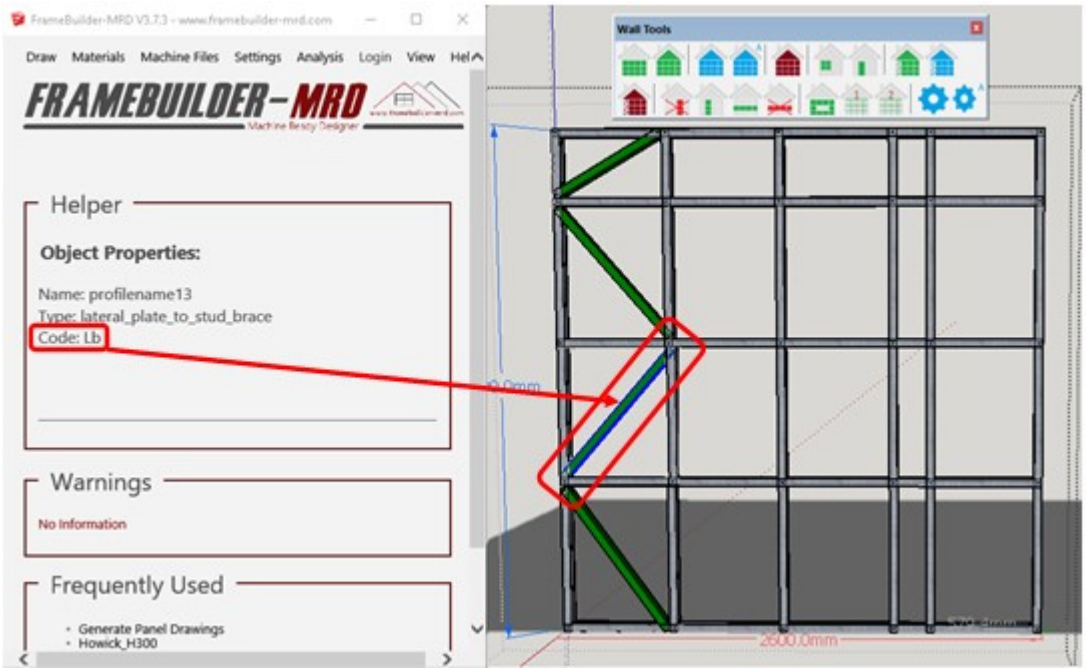


Enter Service Holes Properties with the following codes delimited by |

Stud:st
Nog:ng
Jamb Stud: jb
Jack Stud: jk
Diagonal Profile:lb
Vertical: vt
Brace Profile: br
For Example:br300|br400|st400|ng400

Double click on a the wall and then click on the member to get the code of the member so that you can define the members that need to have the service hole cut out on them.





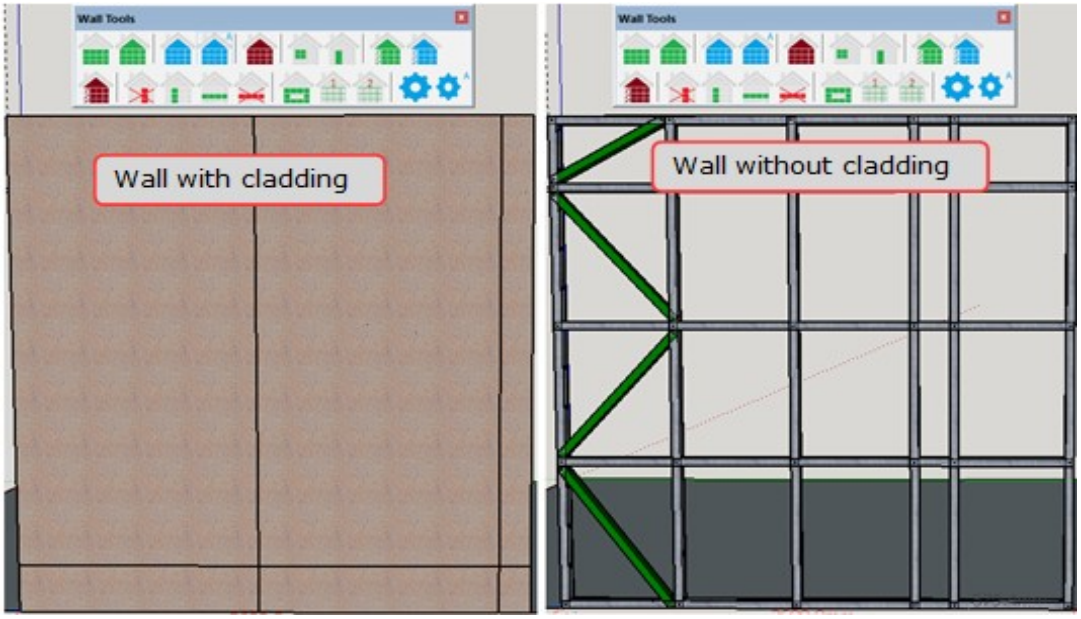
Entering st300|st500 places services holes at 300mm and 500mm on each Stud.

Entering ng300|st500 places services holes at 300mm on a nog and 500mm on each Stud.

Entering lb300 places a service hole at 300mm on a lateral brace.

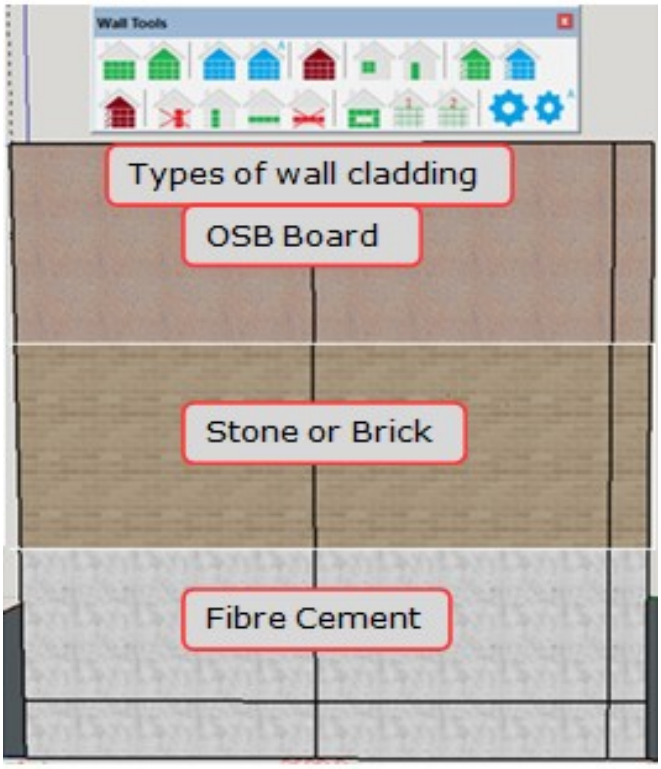
- Materials
  - Show Wall Cladding

    This option will show the selected Wall Cladding chosen in the design you are drawing. You have the option to switch it off or on so that you can view the final product.



- Wall Cladding

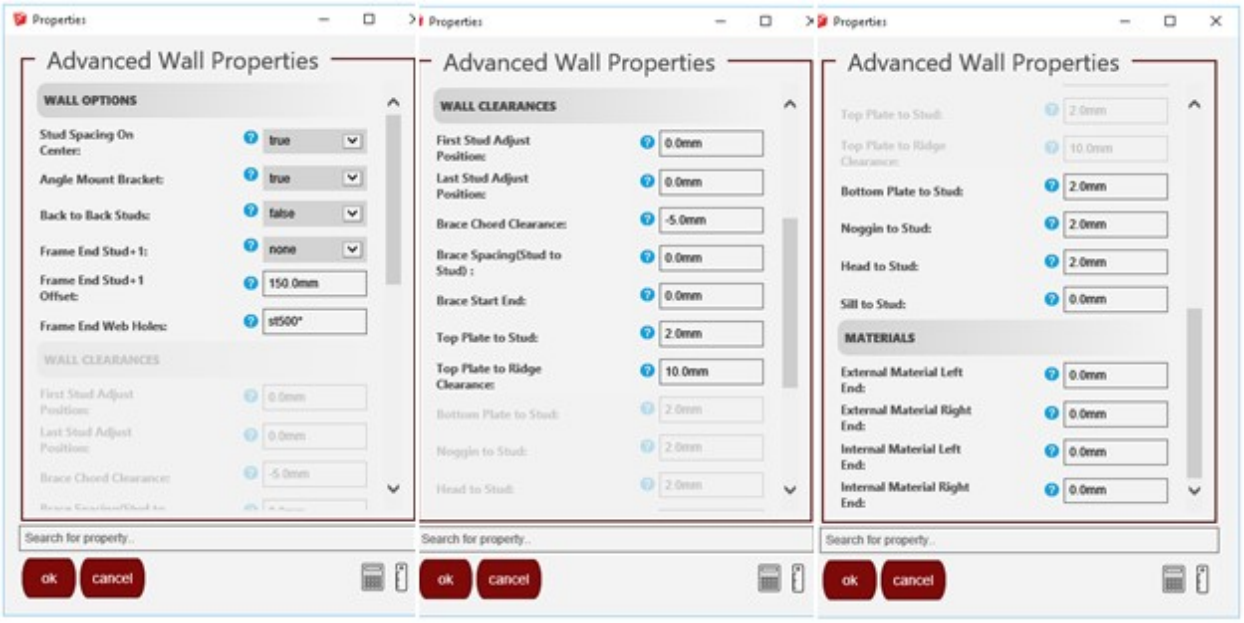
  Choice of Wall Cladding such as OSB_Board, Stone_ Brick, and Fibre Cement.



5.4 ADVANCED WALL PROPERTIES OVERVIEW

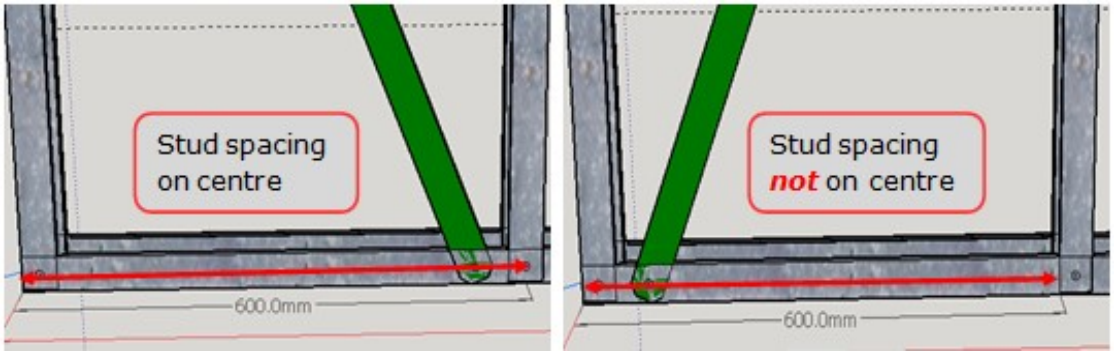
Select the Wall Frame you want to change

Click on the **Blue** Icon called "**Advance Wall Properties**".



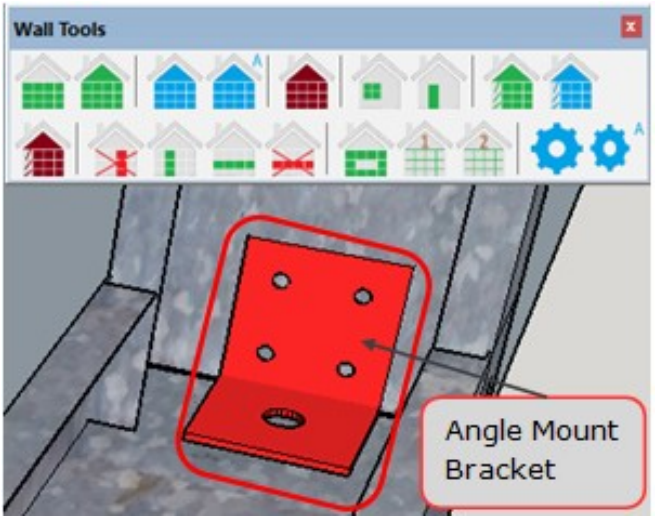
- Wall Options
  - Stud Spacing On Centre

    Allows you to choose the stud spacing to be measured either from the start of the first stud to the midpoint (Centre) of the next stud or from the start of the first stud to the start of the next stud.



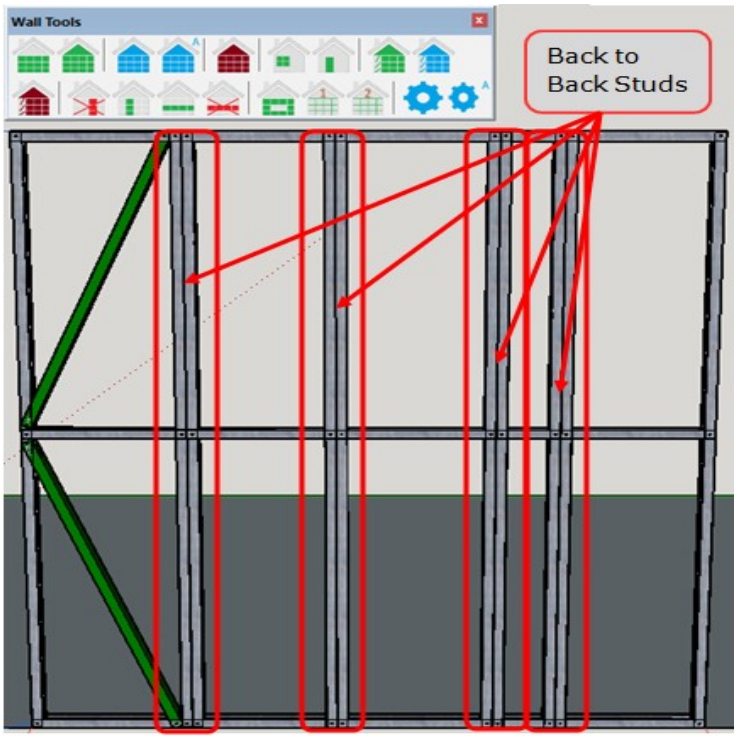
  - Angle Mount Bracket

    The angle mount bracket is a bracket used to mount the wall to the floor



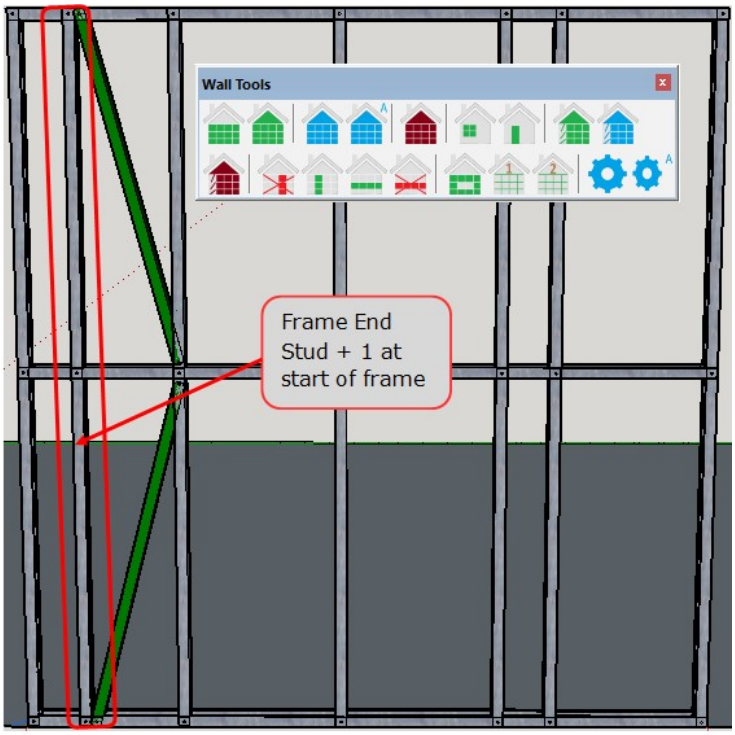
- Back to Back Studs

  Adds a stud next to a stud (back to back) for each stud in the wall.



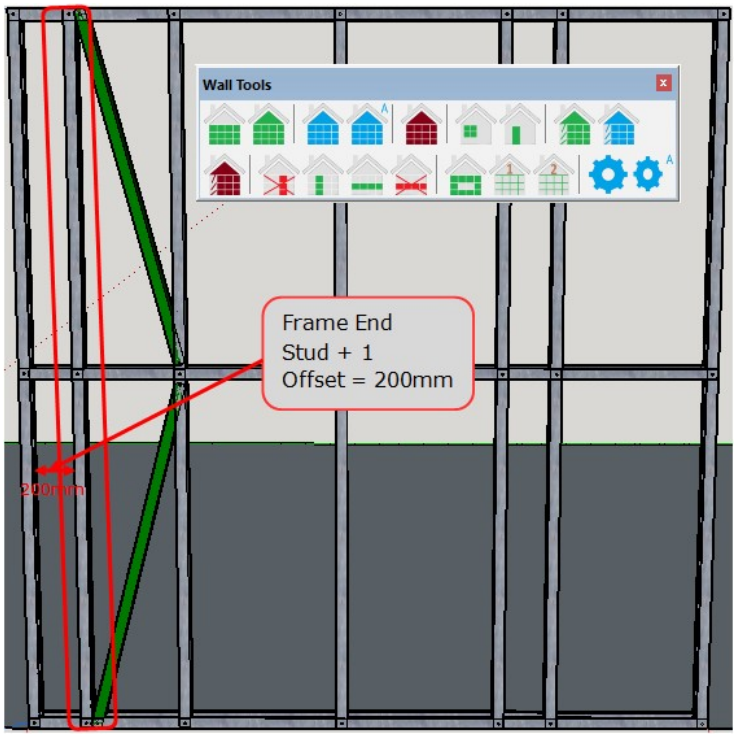
- Frame End Stud +1

  Adds an extra stud on either the start, at the end or even on both sides side of a wall.



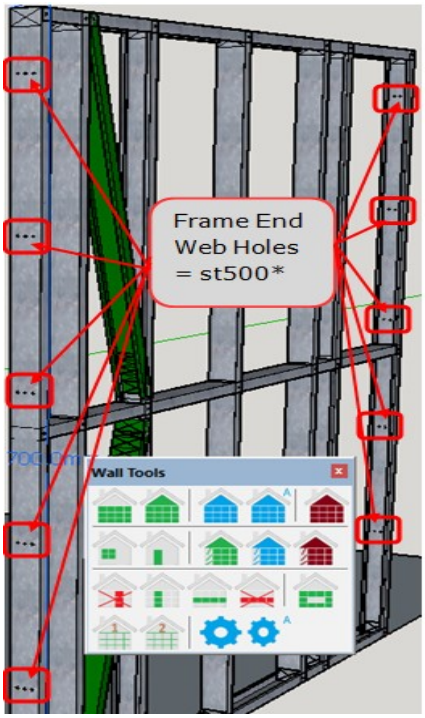
- Frame End Stud + 1 Offset

  Allows you to define the space you would like for you additional stud added in the previous step.



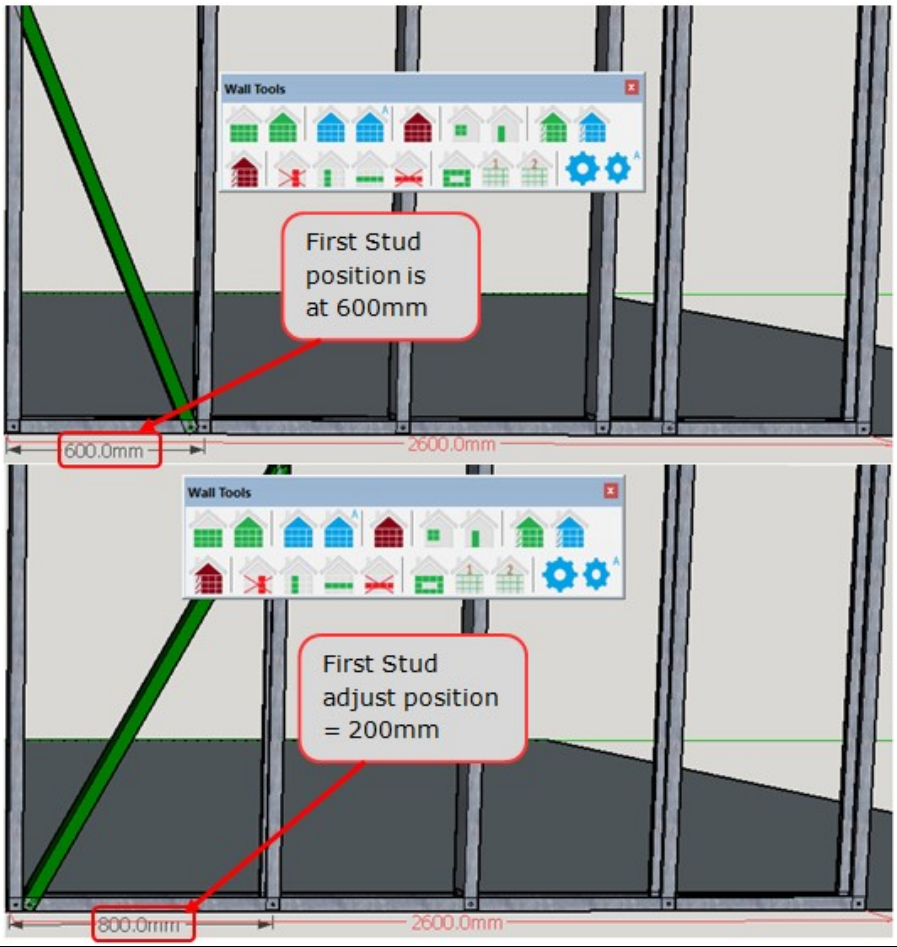
- Frame End Web Holes

  You can select the spacing at which you want web holes to be made by the machine (example: st500 - makes the holes on the stud at the end of the wall at 500mm intervals)*



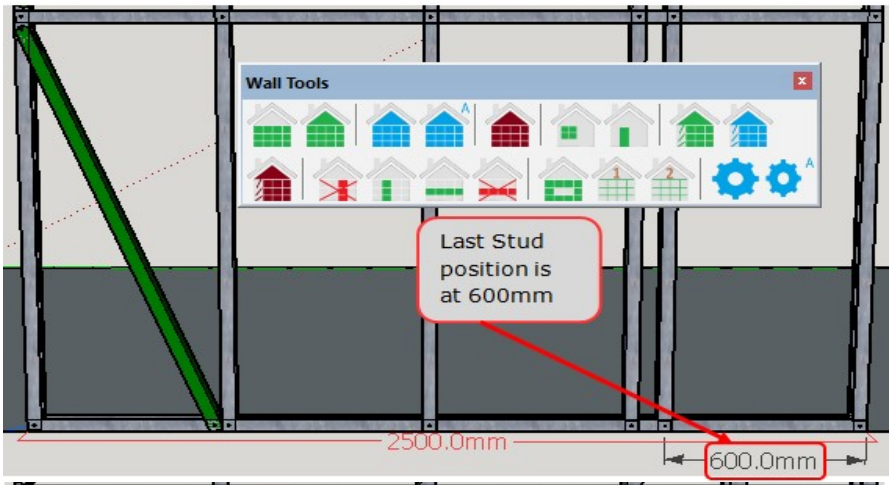
- Wall Clearances
  - First Stud Adjust Position

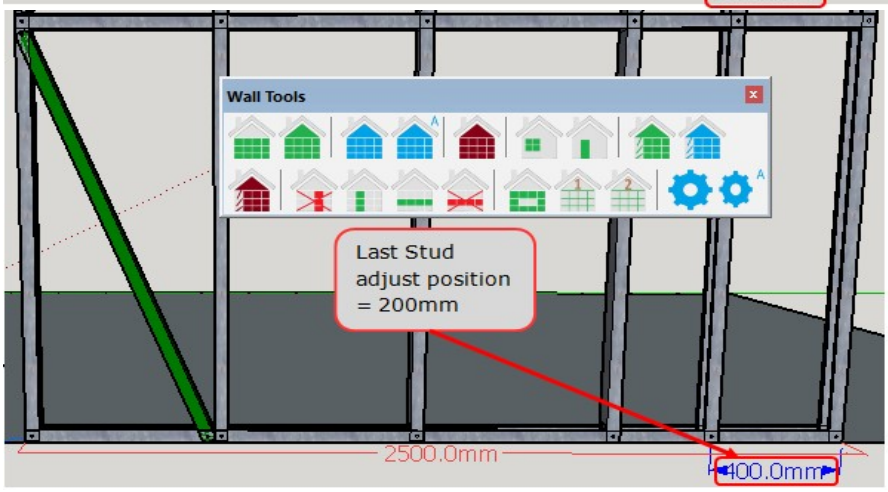
    Moves the first stud a certain distance away from the start of the wall



- Last Stud Adjust Position

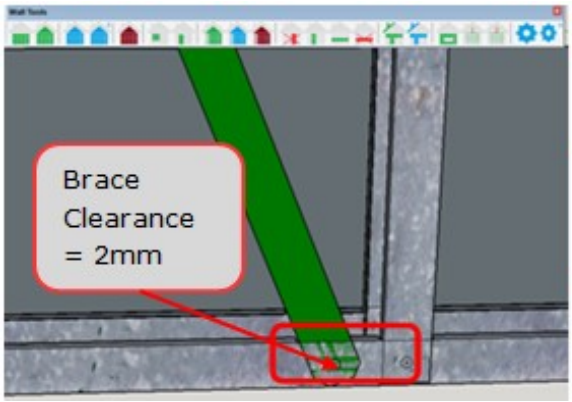
  Moves the last stud a certain distance closer to the end of the wall. (as can bee seen below. The stud was initially 600mm away from the end of the wall and on adjustment it moves 200mm closer = 400mm).

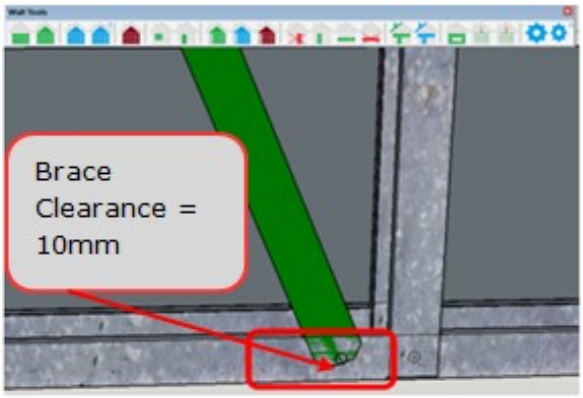




- Brace Clearance

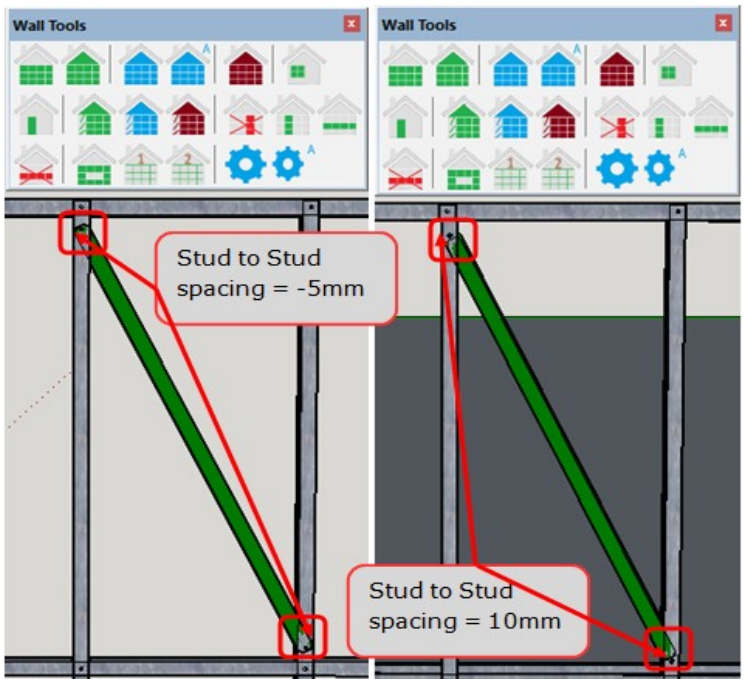
  Allows you to change the space between the end of the brace and the edge of the intersecting stud or nog.





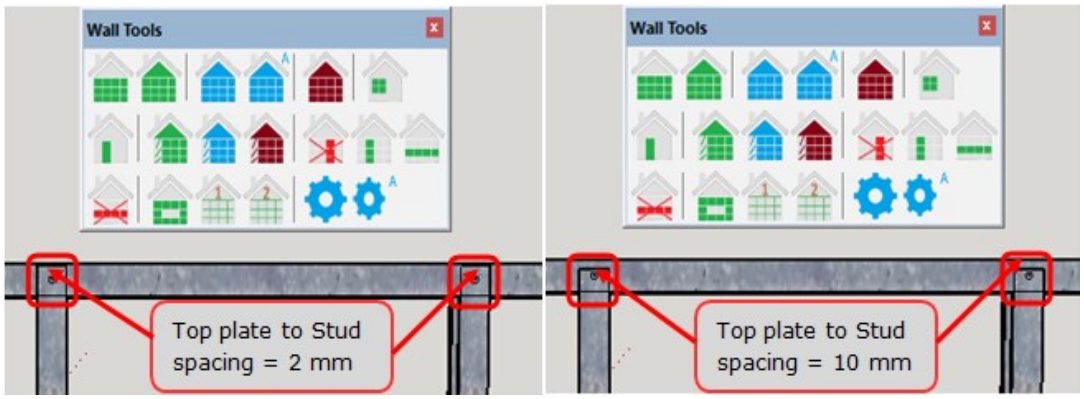
- Brace Spacing (Stud to Stud)

  Allows you to change the space between the brace and the edge of the intersecting stud for your stud to stud bracing.



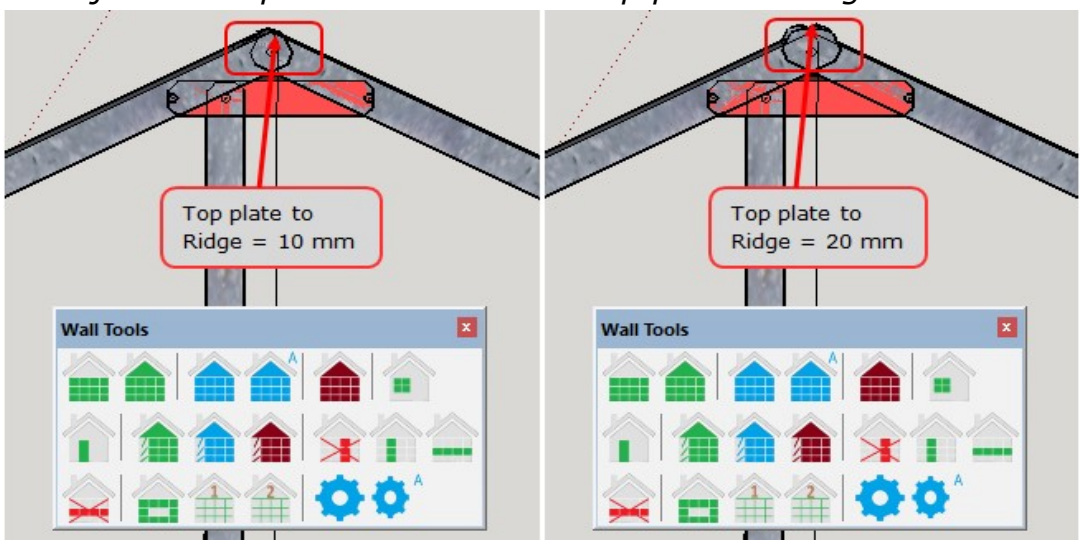
- Top Plate to Stud

  Allows you to change the space between the top plate of the wall and the intersecting stud.



- Top Plate to Ridge Clearance

  Adjusts the space between the 2 top plates on a gable roof.

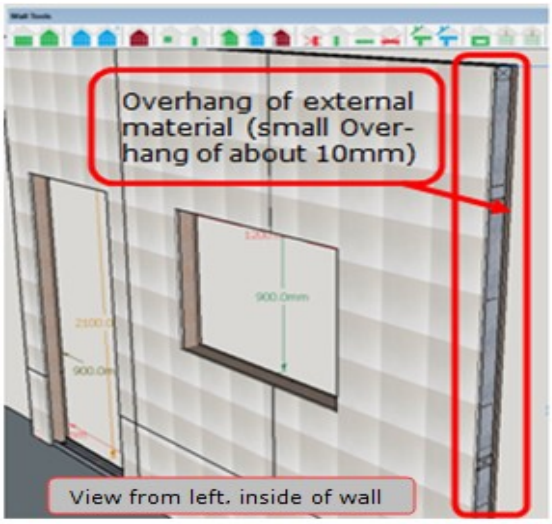


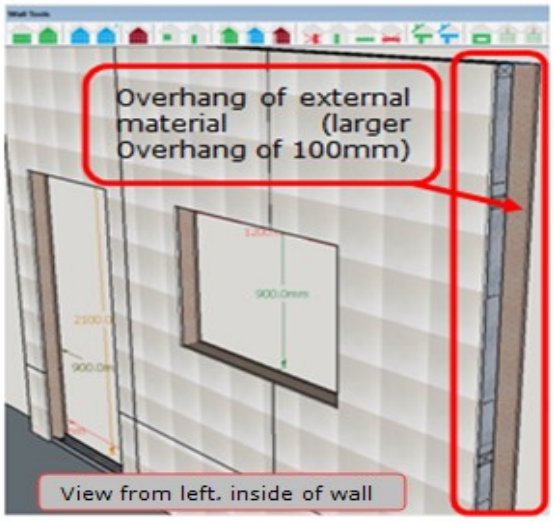
- Bottom Plate to Stud
  Adjusts the space between the bottom plate and its intersecting stud on the wall
- Noggin to Stud
  Adjusts the space between the nogs and its intersecting studs on the wall
- Head to Stud
  Allows you to change the clearance from the header of the window to the studs intersecting it at that point.
- Sill to Stud
  Allows you to change the clearance from the bottom of the window sill to the studs intersecting it at that point.

- Materials

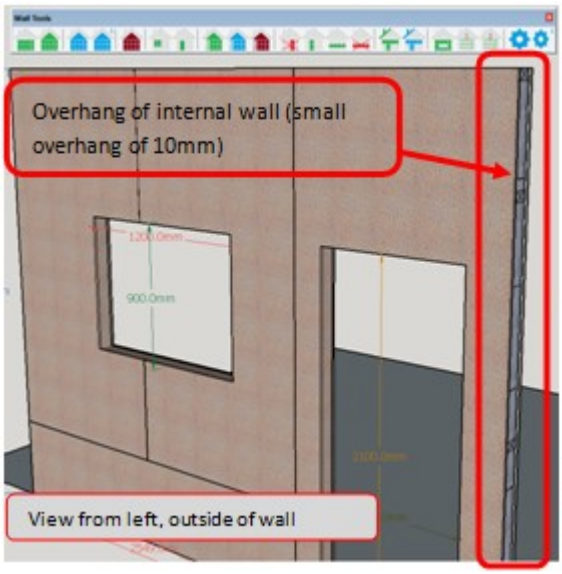
(These settings are usefull when two walls are joined together, especially at a corner, to cover up the exposed steel of the one wall)

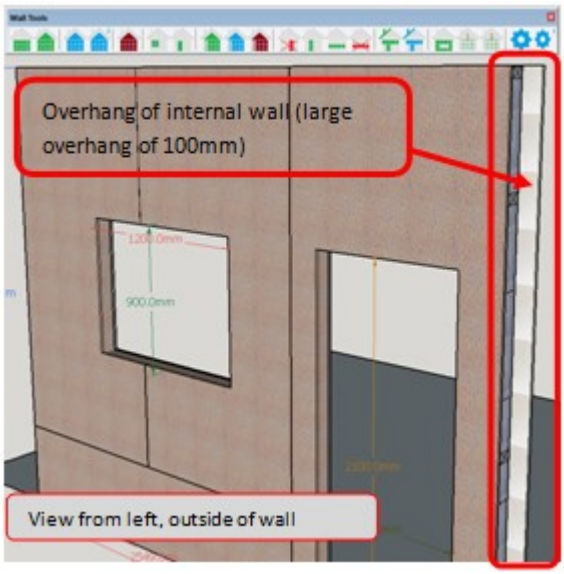
- External Material Left End
  Allows you to change the overhang of your external material on the left side of the wall.





- External Material Right End
  Allows you to change the overhang of your external material on the right side of the wall.
- Internal Material Left End
  Allows you to change the overhang of your internal material on the left side of the wall.
- Internal Material Right End
  Allows you to change the overhang of your internal material on the right side of the wall.


Overhang of internal wall (small overhang of 10mm)
View from left, outside of wall

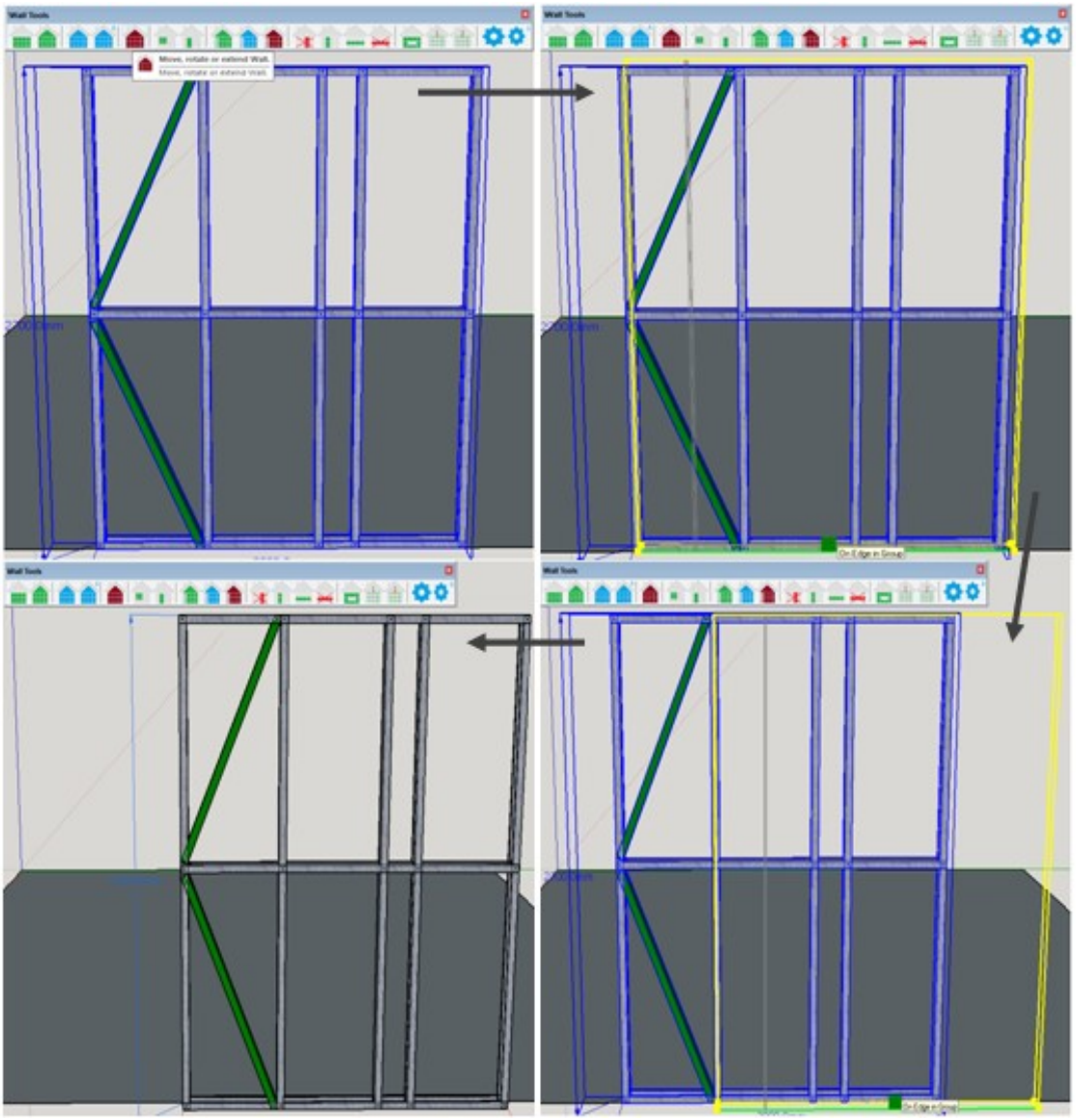

Overhang of internal wall (large overhang of 100mm)
View from left, outside of wall

5.5 MOVE, RESIZE WALLS

You can move, resize or extend a wall already drawn by using the **red** "**move, rotate or extend wall**" icon on the wall tool bar.

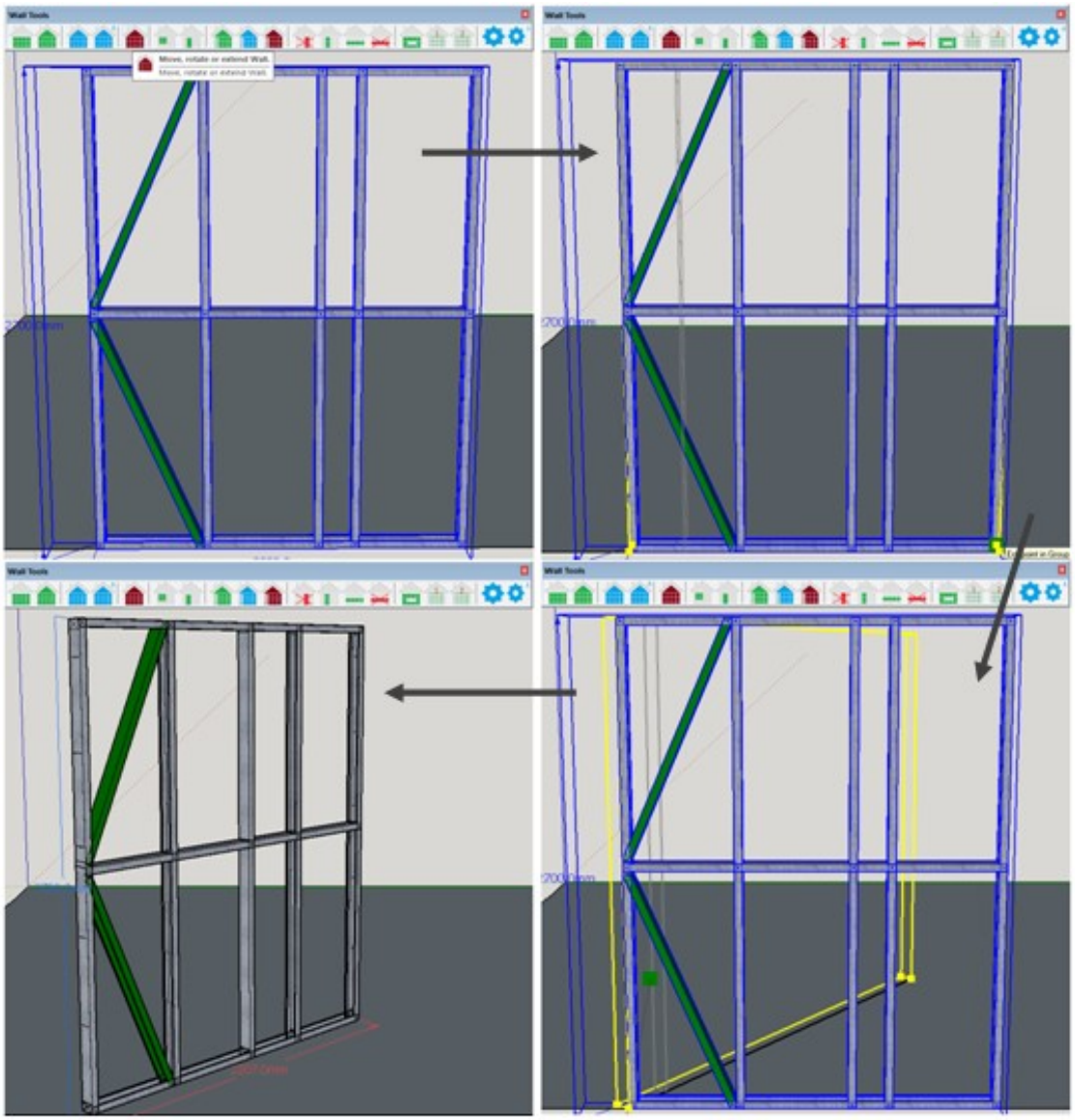
5.5.1 MOVE A WALL

To move a wall, first click on the wall to be moved and then click the **red** "**move, rotate or extend wall**" icon. Now click on the bottom centre of the wall to be moved (the wall will be highlighted in **yellow** with a **green** square in the centre) then hold the mouse and drag it to the position you require it to be moved to. (You can move the wall anywhere on the plane and not just from right to left)



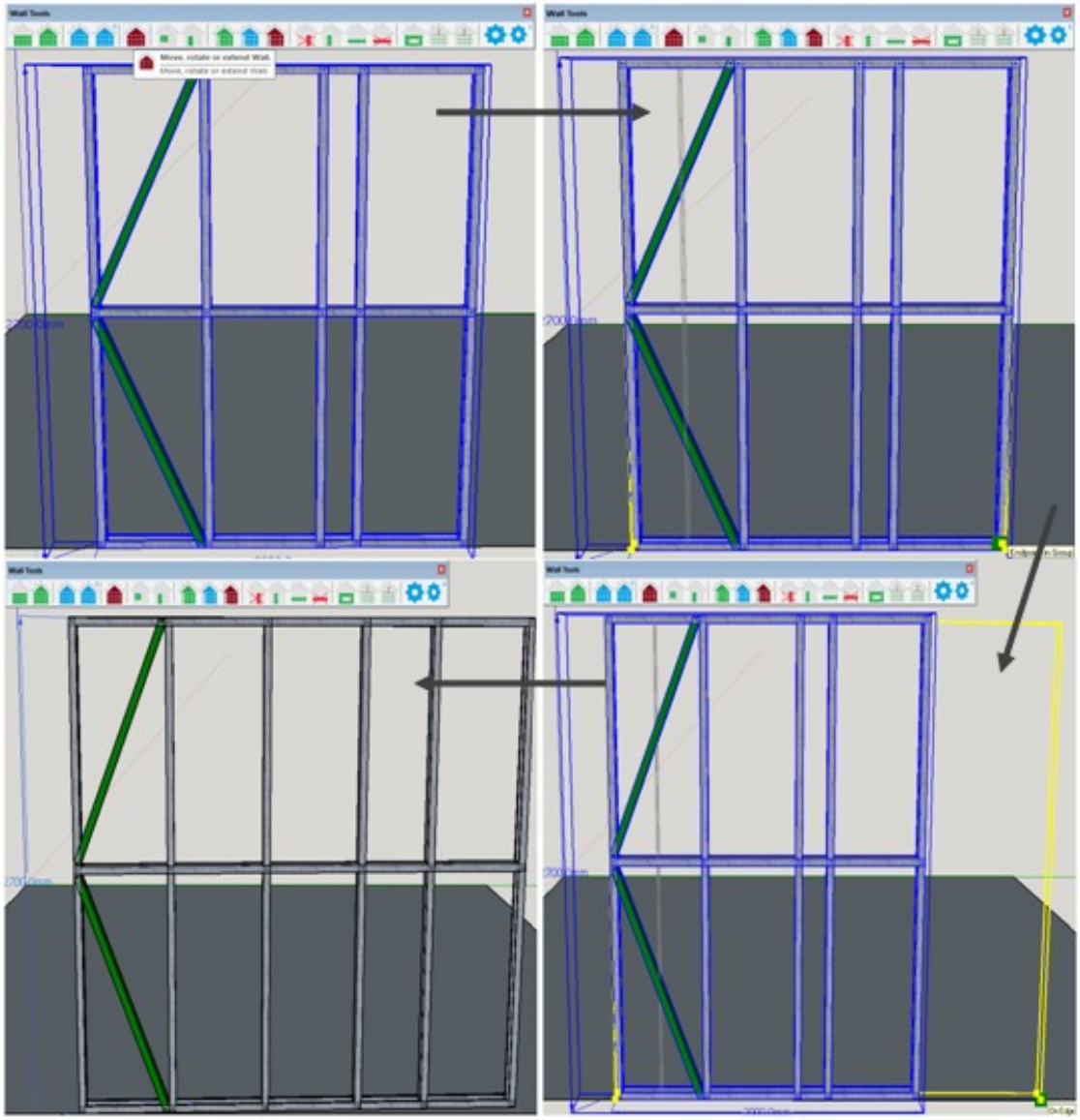
5.5.2 ROTATE A WALL

To rotate firts click on the wall and then click the **red** "**move, rotate or extend wall**" icon. Once again a **yellow** highlight will appear around the wall with a **green** square on the corner that you select to be rotated. Click and drag this corner to rotate the wall where you need it to be roated to (the **yellow** outline of the wall will be visibleto guide you) and then release your mouse. The wall should appear in the position that you rotated it to.



5.5.3 RESIZE (EXTEND) A WALL

To resize or extend click on the wall to be resized and then click the **red** "**move, rotate or extend wall**" icon.

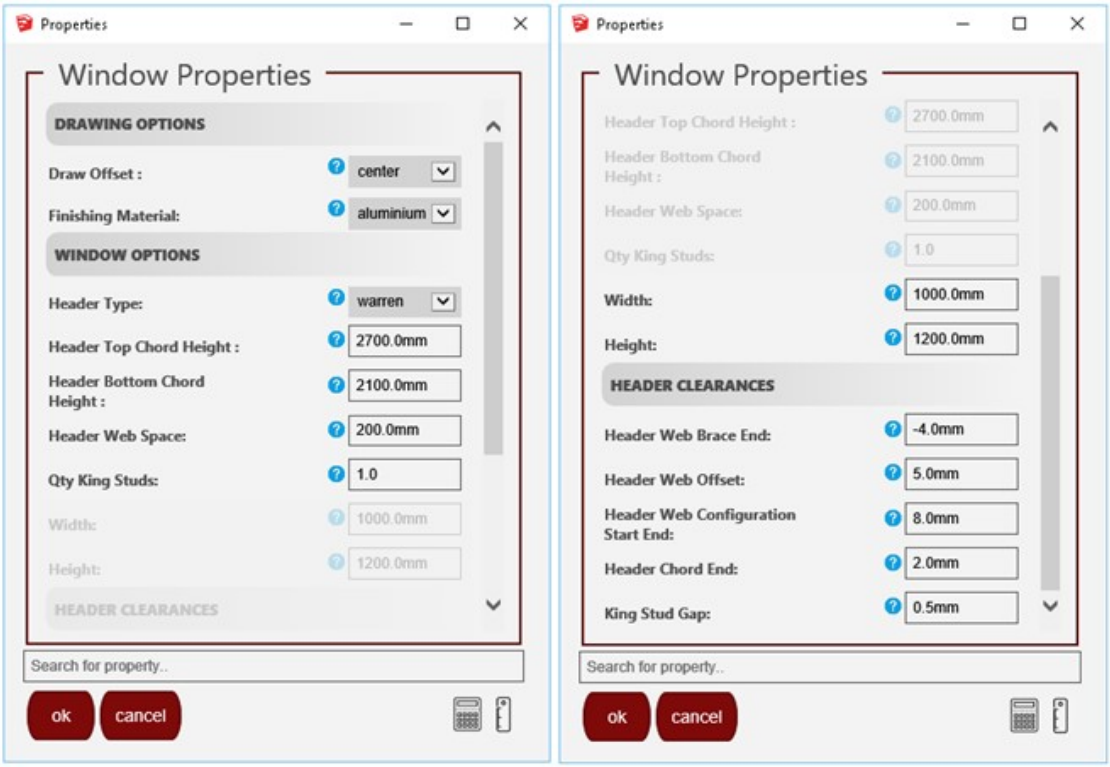


5.6 ADD A WINDOW

You can add a window to any wall by using the "Window Tools Bar". The Windows Tools Bar is located on the Wall Tools Bar. You need to click on the "**Window**" icon on the Wall Tools bar to open the Window Tools Bar.

Start by selecting the wall on which the window will be added. Once you have selected the wall click on the **green** "window" icon on the window tool bar. This will open up the Window Properties window. Ensure that the options listed are what you need to draw your window before clicking OK at the bottom of the window.

5.6.1 WINDOW PROPERTIES



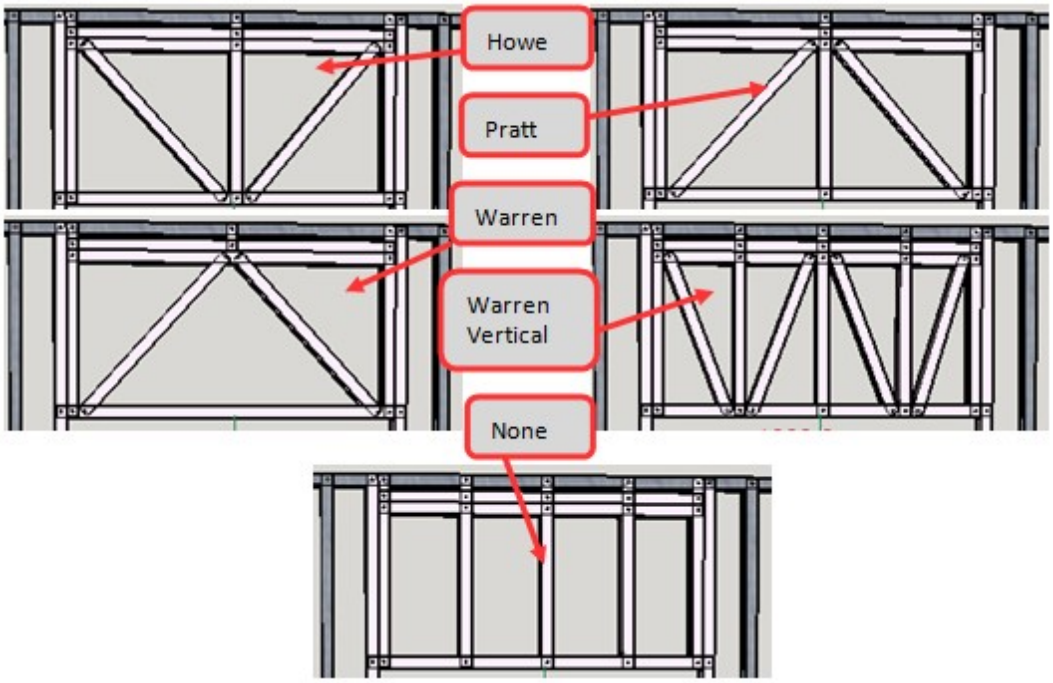
- Drawing Options
  - Draw Offset

    The draw offset allows you to select the window to either be offset to the left, the centre or the right of the wall.
  - Finishing Material

You are able to select between Aluminium or Wood window

- Window Options
  - Header Type

    You can select between the following header design for your window: Howe, Pratt, Warren, Warren Vertical or None (No Header)



  - Header Top Chord Height

    The height on the wall at which the Top chord of the window will end.
  - Header Bottom Chord Height

    The height on the wall at which the Bottom chord of the window will start.
  - Header Web Space

    The web spacing or spacing of the design on the header.
  - King Stud Gap

    The gap between the different King studs (only applicable if more than one King stud selected in the design.
  - Qty King Studs

    Number of King Studs selected next to the window on either side
  - Width

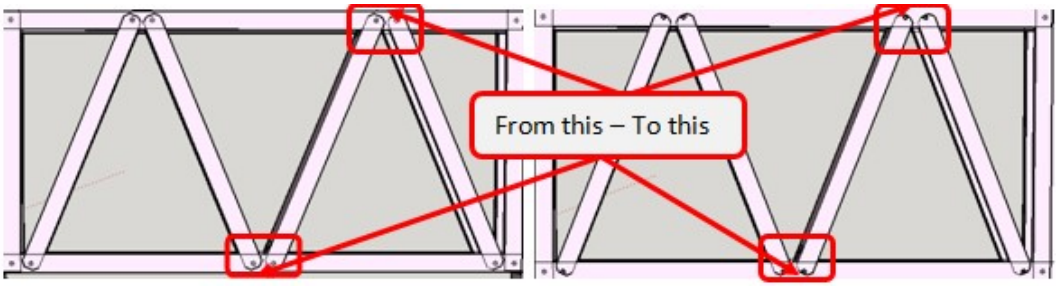
    Width of the window from left to right
  - Height

    Height of window from the Bottom chord to Top chord

- Header Clearances
  - Header Web Brace End

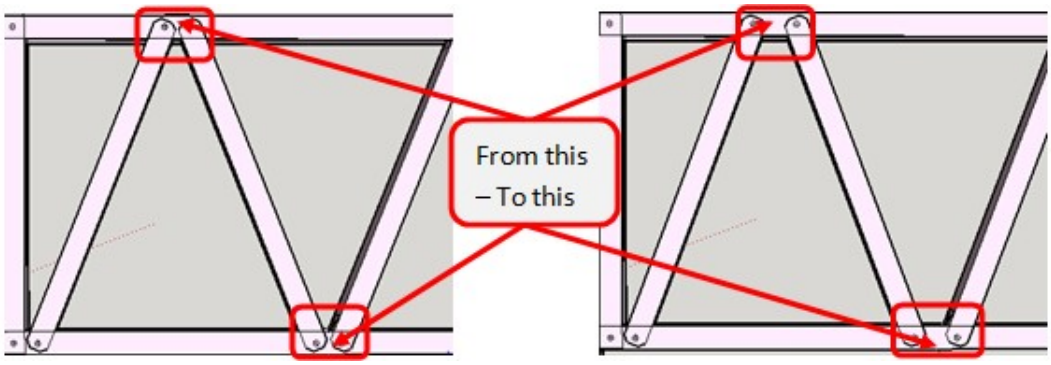
    Allows you to select the space between the header bracing and the header top and bottom plates

    Increasing the Header Web Brace end size will move the bracing closer or away from the plates to the top and bottom of the bracing



  - Header Web Offset

    Allows you to change the spacing between the two bracings on the top and bottom header plates.

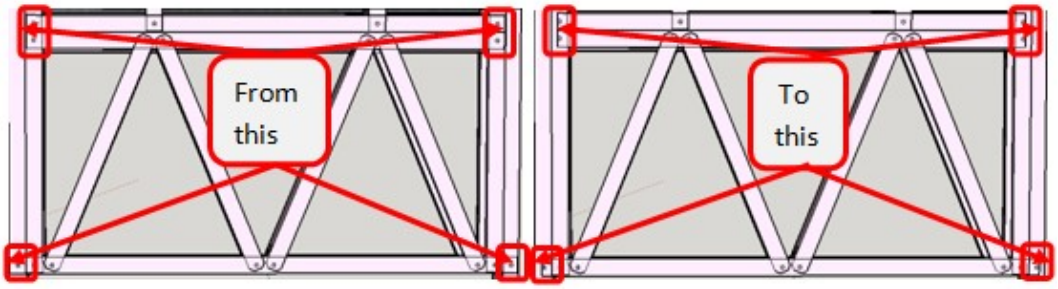


  - Header Web Configuration Start End

    This moves the header bracing away from the jam studs on the sides of the header design.

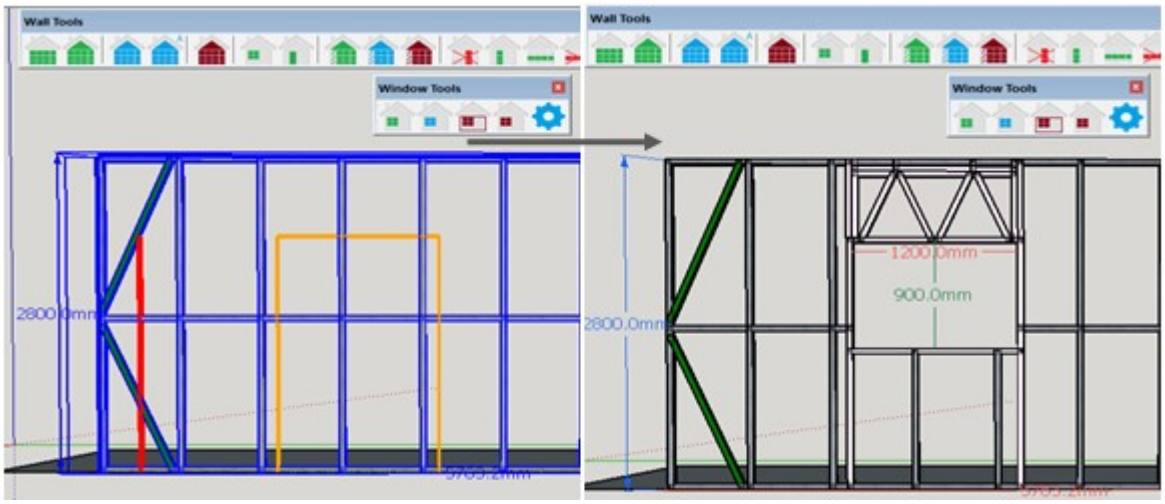
  - Header Chord End

    Adjusts the spacing from the header chords to the jam studs on either end.

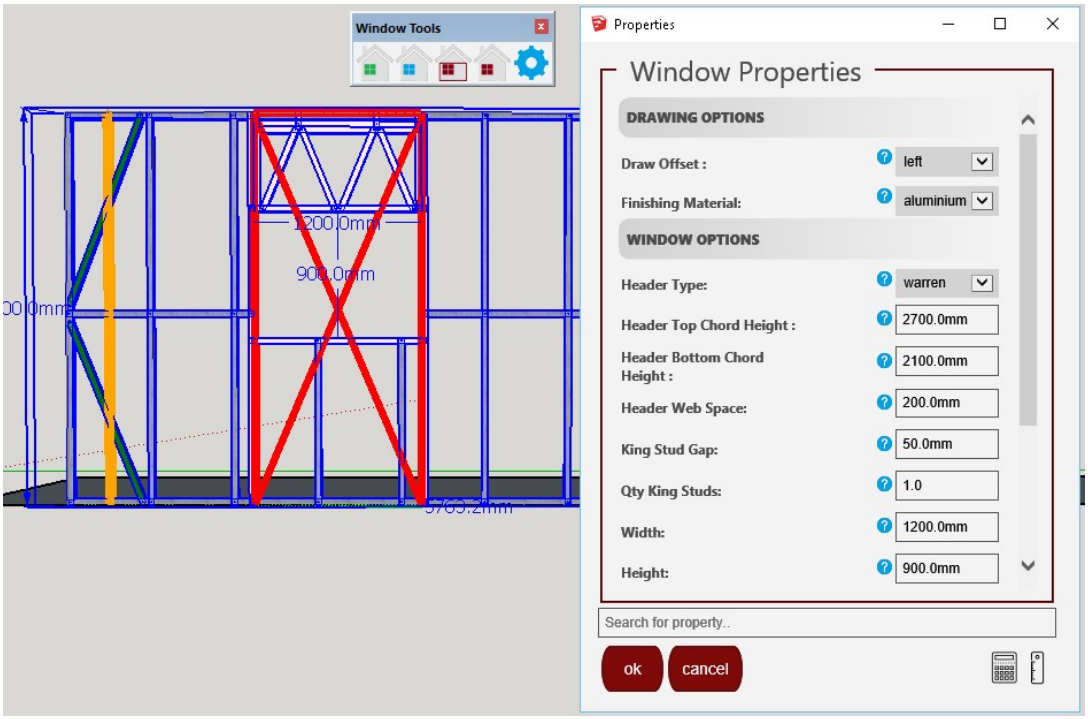


5.6.2 INSERTING A WINDOW

Once you have selected the "Wall" icon and adjusted your window properties you will have a **yellow** guide showing you where a window can be inserted into the wall. The **red** line shown on the left of the picture indicates that a window cannot be inserted in that area. Once you have your required place for your window release your mouse and your window will appear in that space.



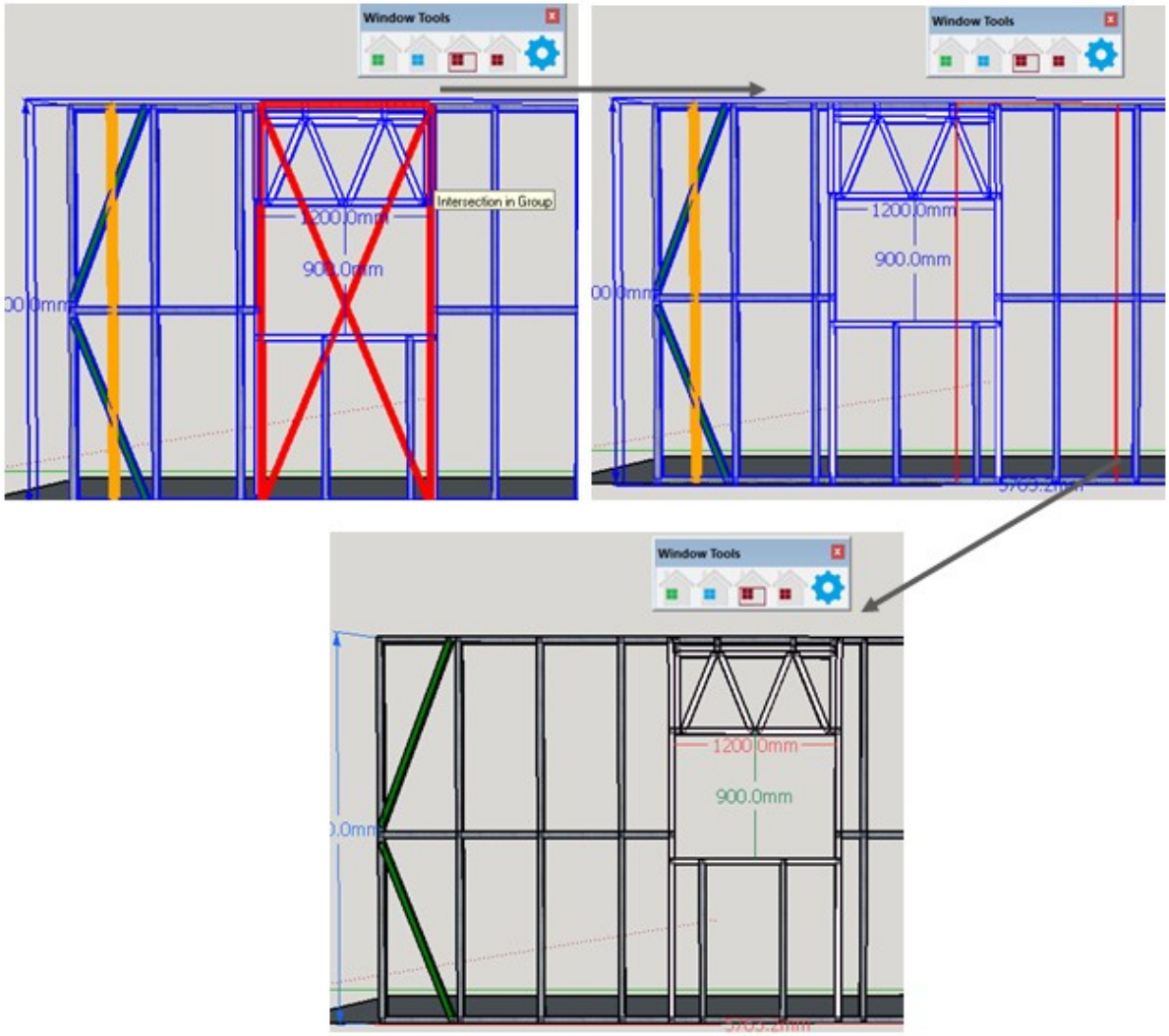
You can adjust the window by clicking on the wall, then clicking on the **blue** "Window" icon and selecting the window on the wall that you want to adjust. The window properties will reopen for you to make your adjustments.



When you have completed your adjustments, click OK and your adjustments will be incorporated on the window.

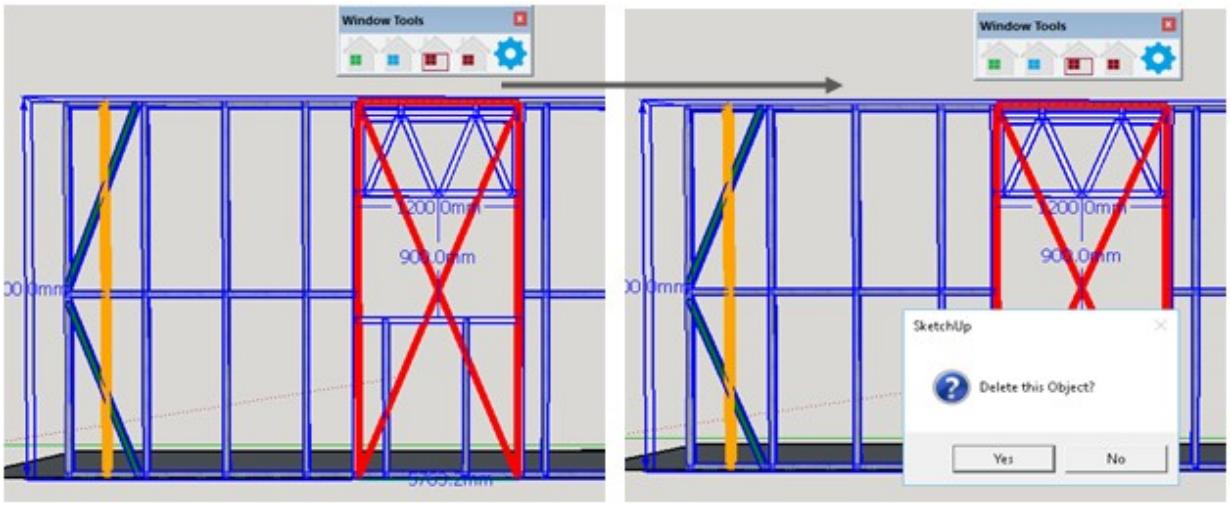
5.6.3 MOVING A WINDOW

To move a window, simply click on the wall, then click on the **red** "window" icon that has a **red** square around it and select the window on the wall that you want to move.



5.6.4 DELETING A WINDOW

To delete a window, simply click on the wall, then click on the **red** "Window" icon and select the window on the wall that you want to delete.

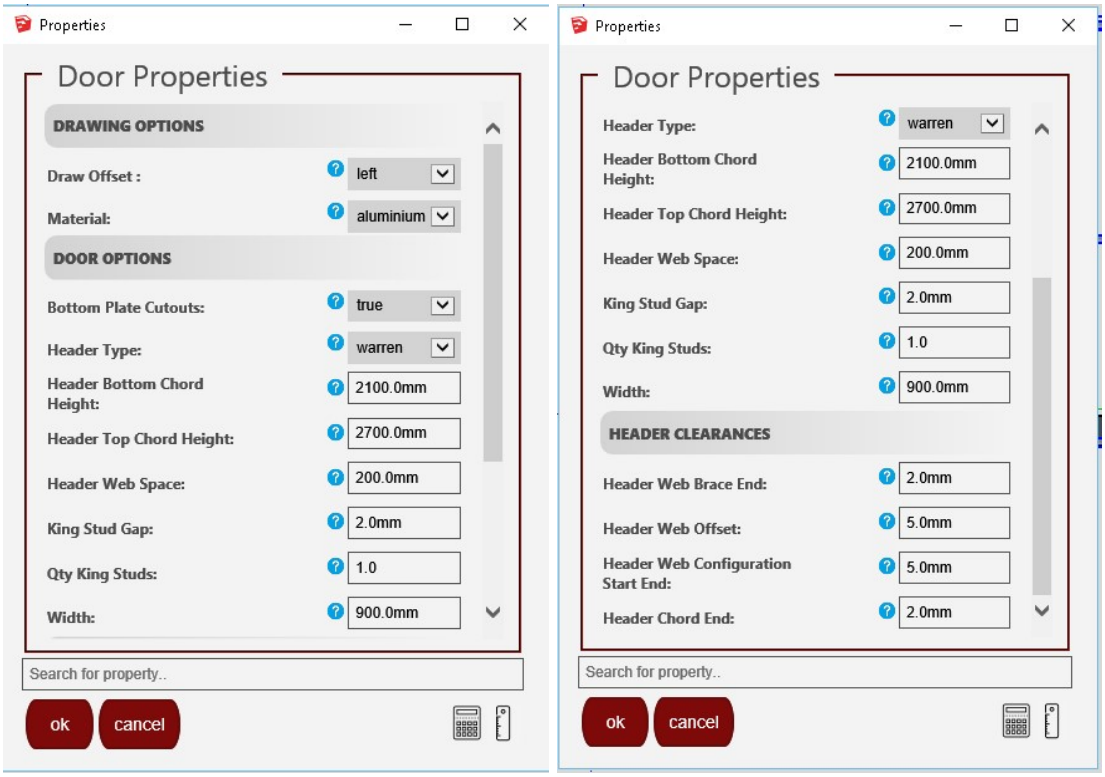


A window will appear asking if you want to delete the object. Once you select "Yes" the window will be deleted.

5.7 ADD A DOOR

You can add a door to any wall by using the "Door" icons located on the Wall icon bar. This will in turn open up the Door tools bar.

Start by selecting the wall on which the door will be added. Once you have selcted the wall click on the **green** "Door" icon on the Door tools bar. This will open up the Door Properties window. Browse the different options before selecting OK at the bottom of the window.



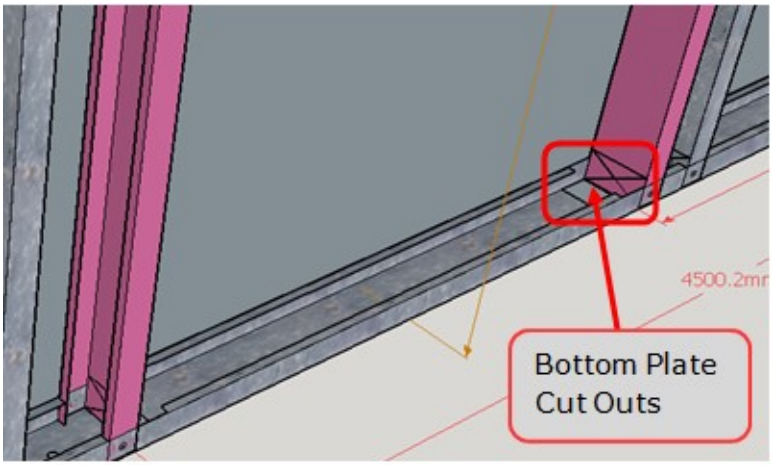
5.7.1 DOOR PROPERTIES

- Drawing Options
  - Draw Offset

    The draw offset allows you to select the door to either be offset to the left, the centre or the right of the wall.
  - Material

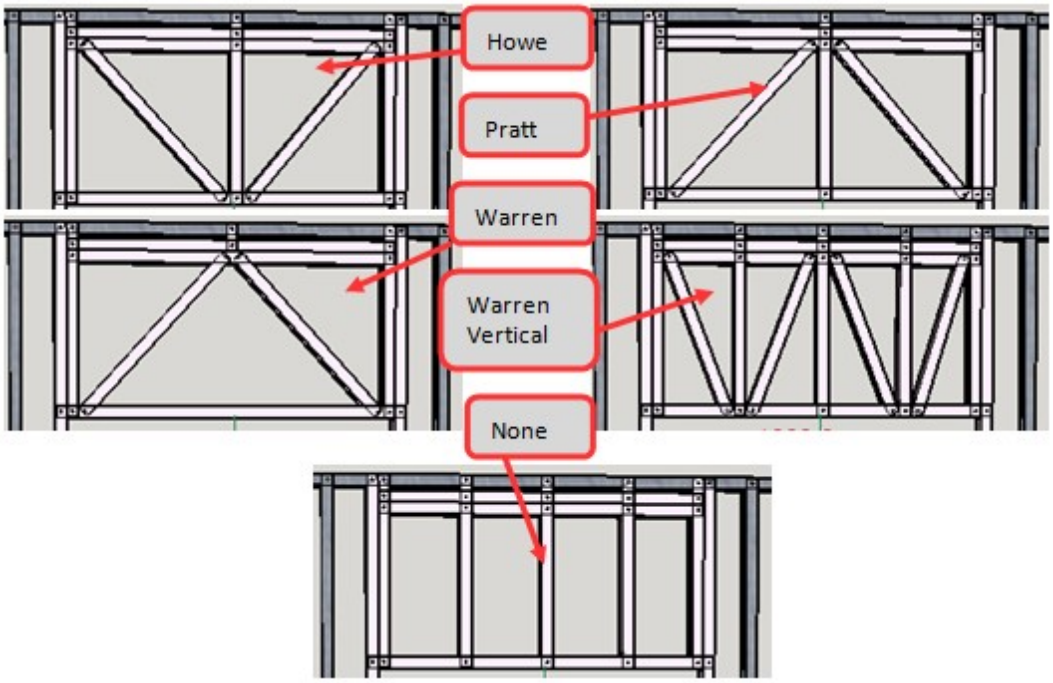
    You are able to select between Aluminium and Wood doors
- Door Options
  - Bottom Plate Cutouts

You can select to have the bottom plate of the door cut out on either side so that it may be easily removed after the wall has been completed, thus it wont in the way of the door



- Header Type

  You can select between the following header design for your door: Howe, Pratt, Warren, Warren Vertical or None (No Header)



- Header Bottom Chord Height

  The height on the wall at which the Bottom chord of the door will start.

- Header Top Chord Height

  The height on the wall at which the Top chord of the door will end.

- Header Web Space

  The web spacing or spacing of the design on the header.

- King Stud Gap

  The gap between the different King studs (only applicable if more than one King stud was selected in the design.
- Qty King Studs

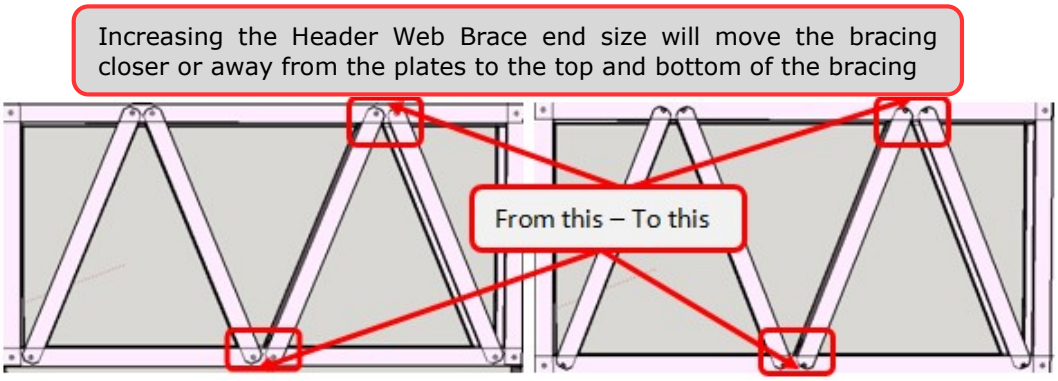
  Number of King Studs selected next to the window on either side
- Width

  Width of the door from left to right
  (note that the height of the door does not have to be selected as it is set at the default)

○ Header Clearances

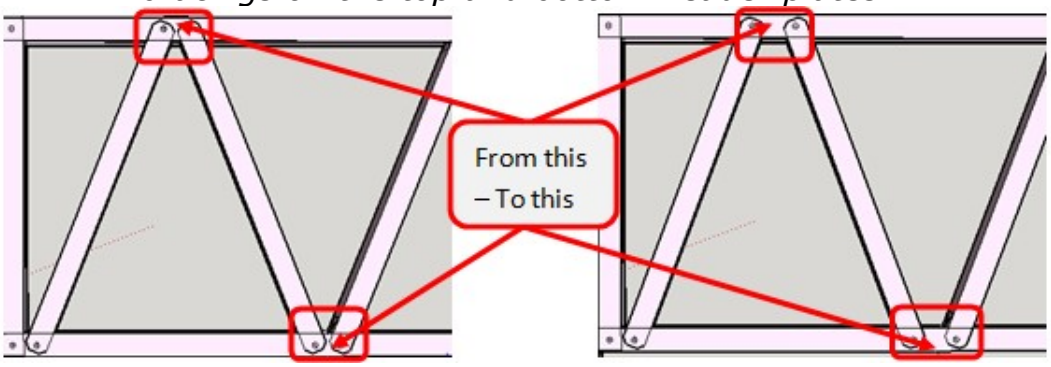
- Header Web Brace End

  Allows you to select the space between the header bracing and the header top and bottom plates.



- Header Web Offset

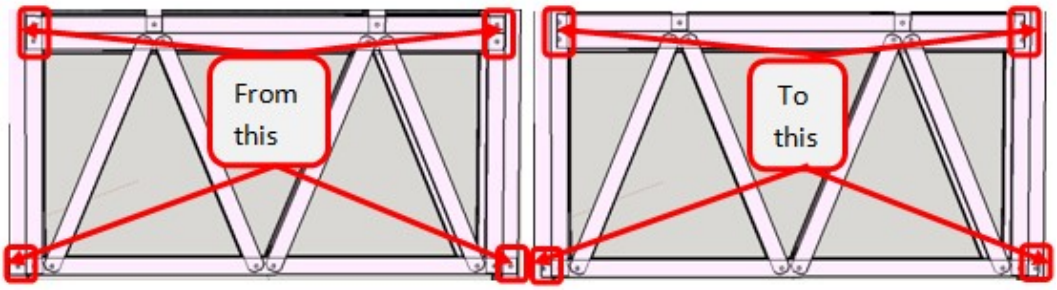
  Allows you to change the spacing between the two bracings on the top and bottom header plates.



- Header Web Configuration Start End

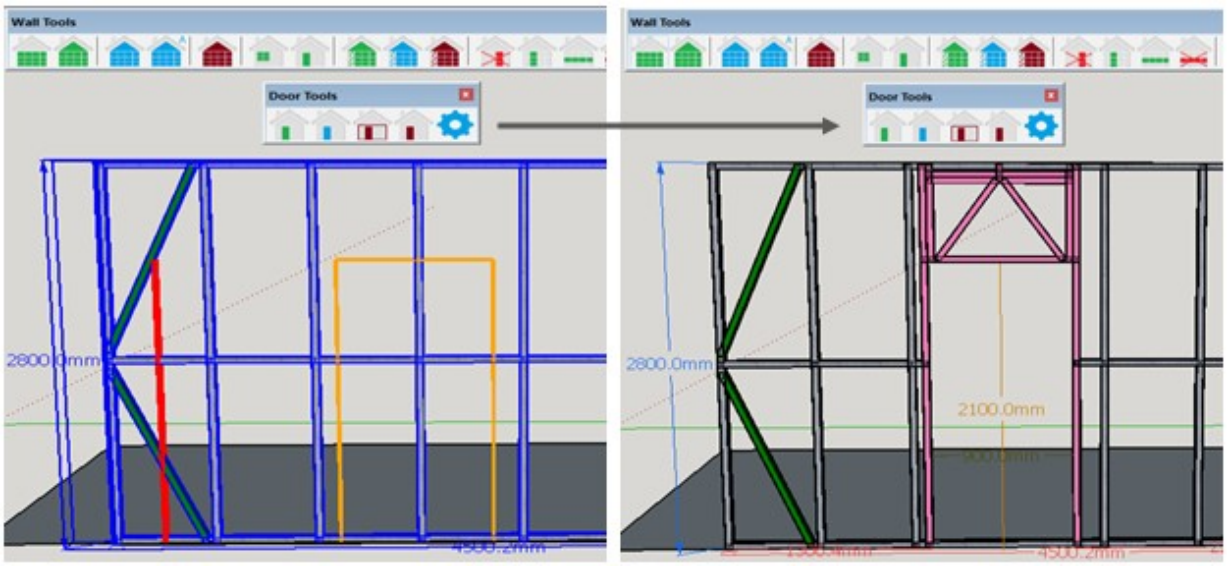
  This moves the header bracing away from the jam studs on the sides of the header design.
- Header Chord End

  Adjusts the spacing from the header chords to the jam studs on either end.

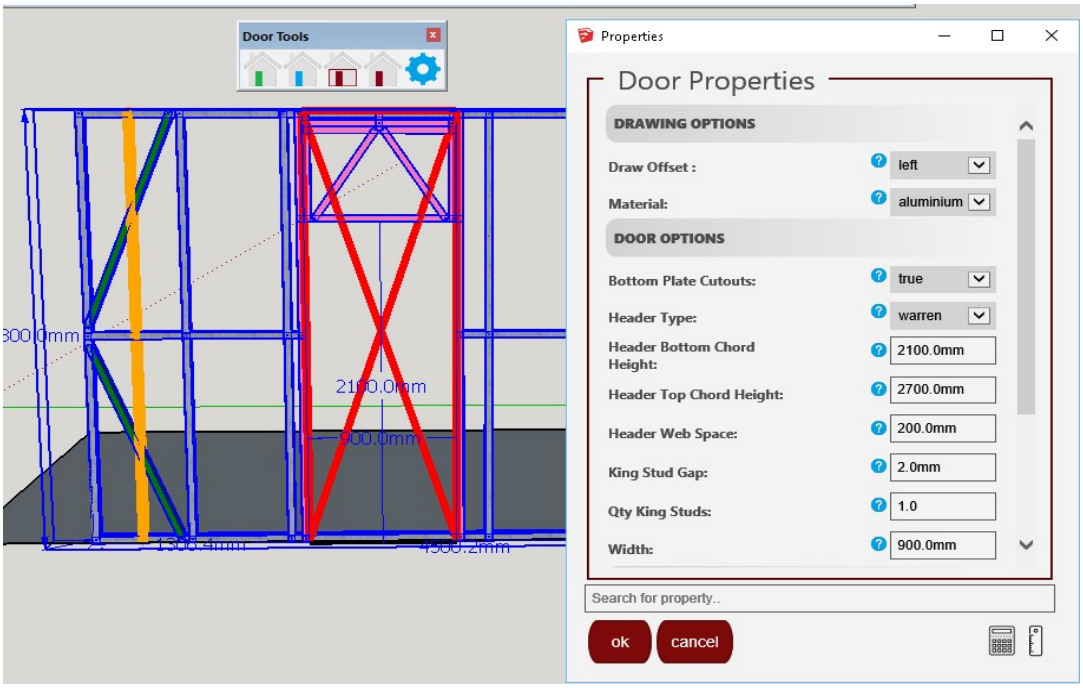


5.7.2 INSERTING A DOOR

Once you have selected the wall icon and adjusted your door properties you will have a **yellow** guide showing you where a door can be inserted into the wall. A **red** line shown on the wall indicates that a door can't be inserted in that area. Once you have your required place for your door release your mouse and your door will appear in that space.



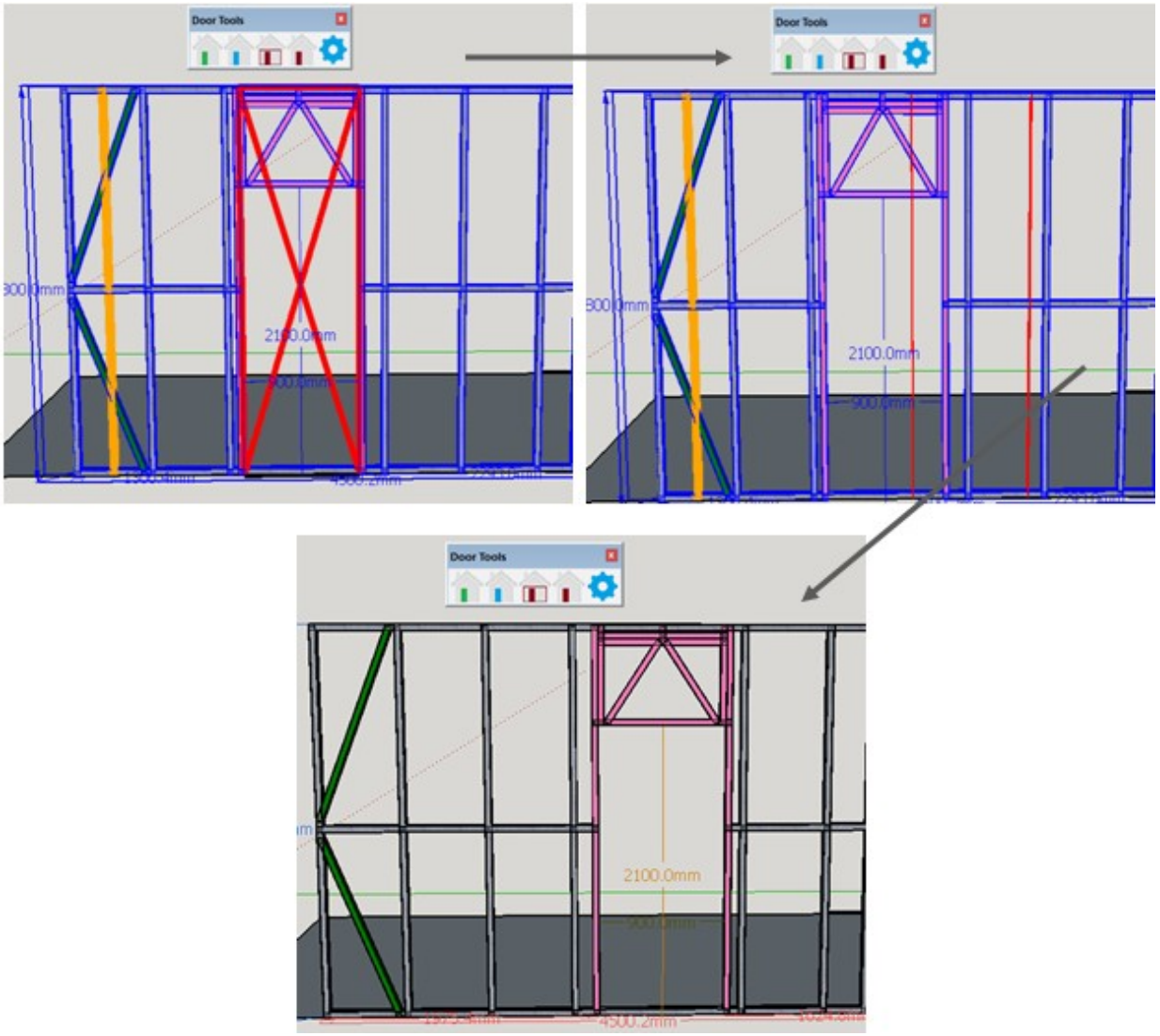
You can adjust the door by clicking on the wall, then clicking on the **blue** "Door" icon and selecting the door on the wall that you want to adjust. The Door properties will reopen for you to make your adjustments.



When you have completed your adjustments, click OK and your adjustments will be incorporated in the door.

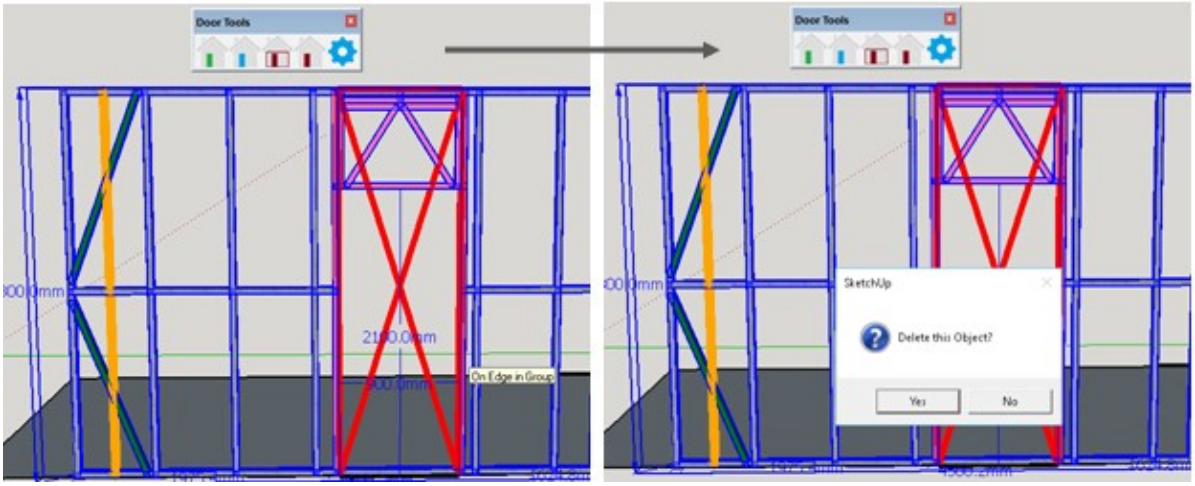
5.7.3 MOVING A DOOR

To move a door, simply click on the wall, then click on the **red** "Door" icon that has a **red** square around it and select the door on the wall that you want to move.



5.7.4 DELETING A DOOR

To delete a door, simply click on the wall, then click on the **red** "Door" icon and select the door on the wall that you want to delete.

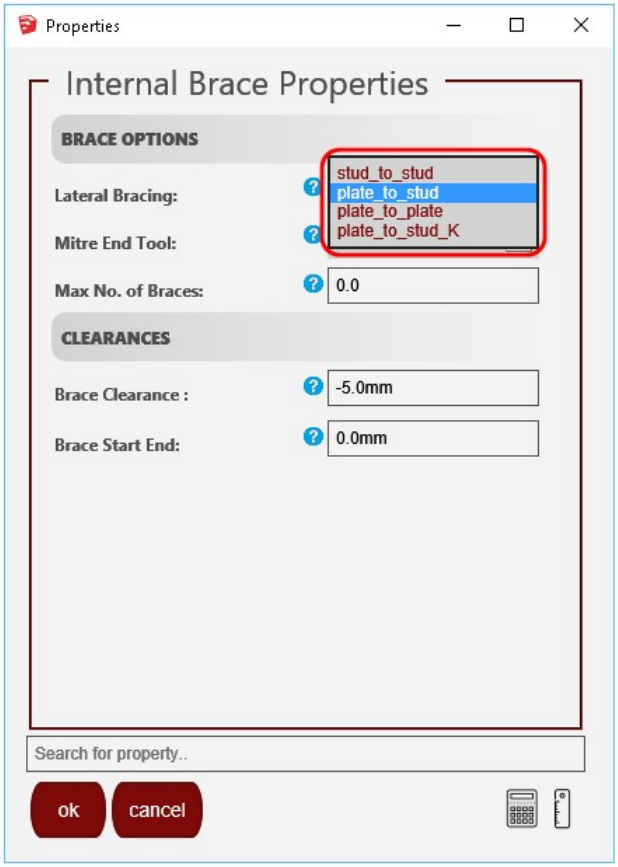


A window will appear asking if you want to delete the object. Once you select "Yes" the door will be deleted.

5.8 ADD A LATERAL BRACE

To add a lateral brace on a wall, simply click on the wall that you wish to add the bracing on. Next click the **green** "Lateral Brace" icon as indicated:

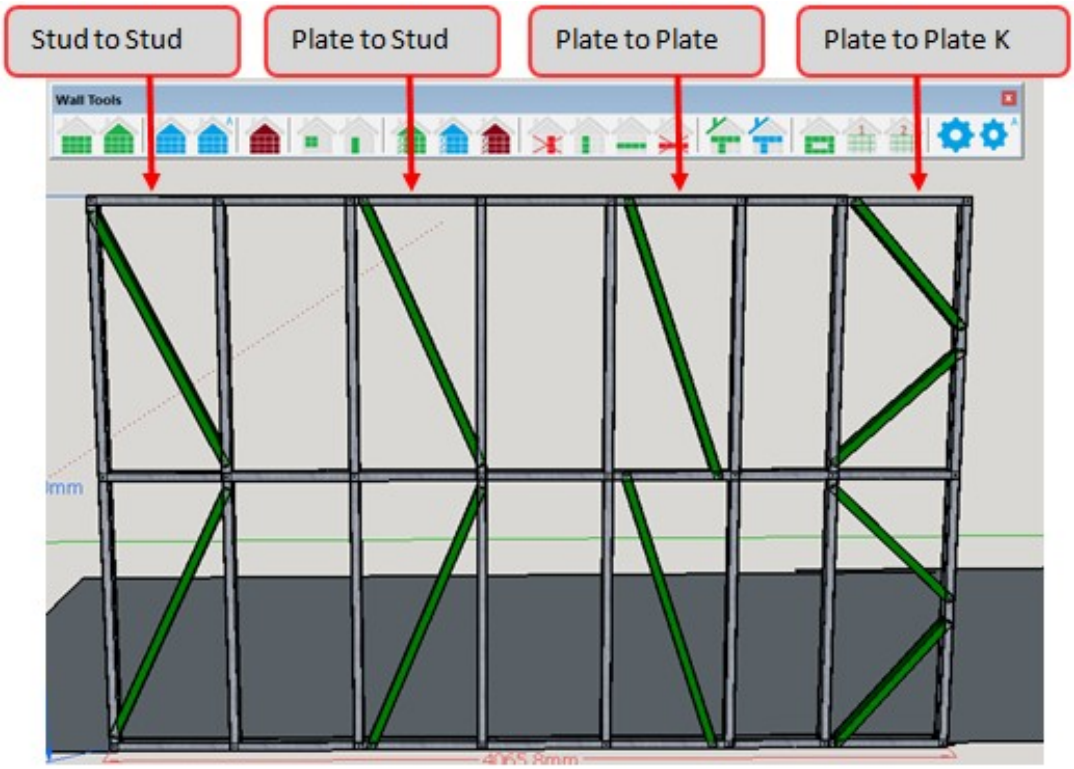
A window will open up with the Internal Brace Properties. You need to select the type of brace that you require and ensure that all the other Internal Brace properties are correct before clicking "ok" to start inserting your internal bracing.



5.8.1 BRACE PROPERTIES

- Brace Options
  - Lateral Bracing

    There are four different types of bracing available to choose from: stud to stud, plate to stud, plate to plate and plate to stud K



- Mitre End Tool

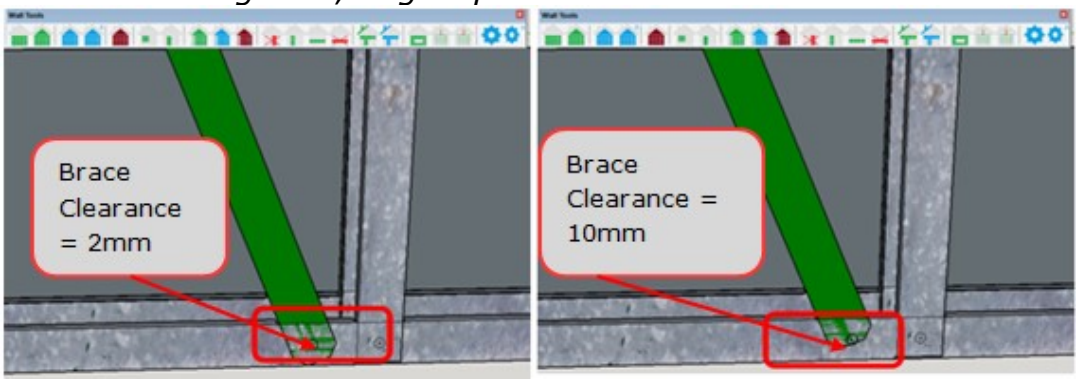
  You have the option of selecting to mitre the ends of the bracing. This gives the frame more sturdiness as the bracing will be more inside the frame.

- Max No. of Braces

  You can select the number of braces that you would require in a given space so that it does not automatically insert the maximum

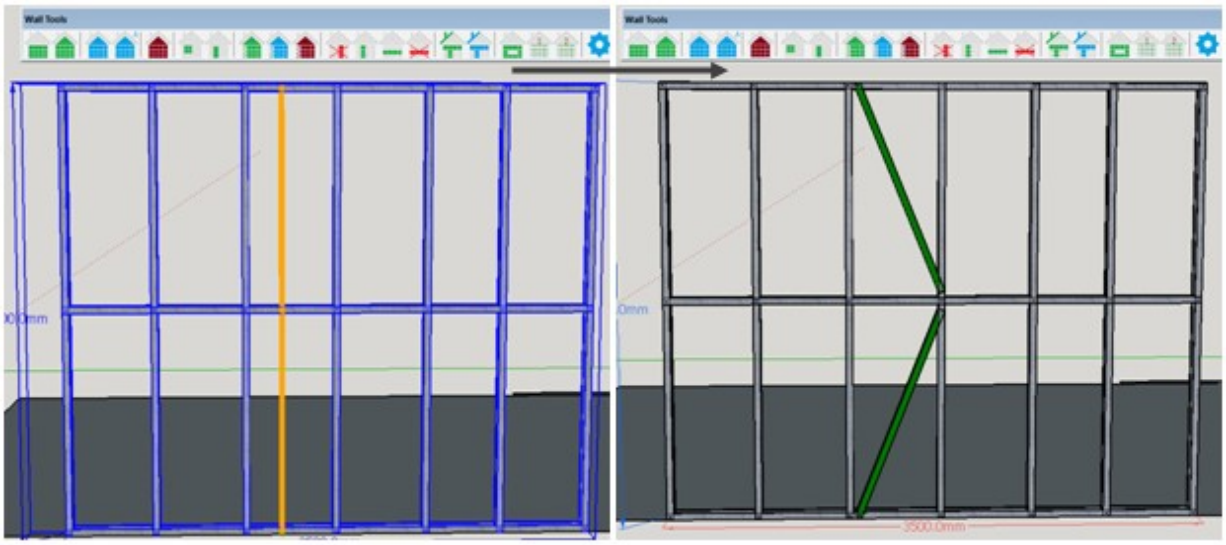
- Clearances
  - Brace Clearance

This refers to the space between the brace and the intersecting stud, nog or plate.

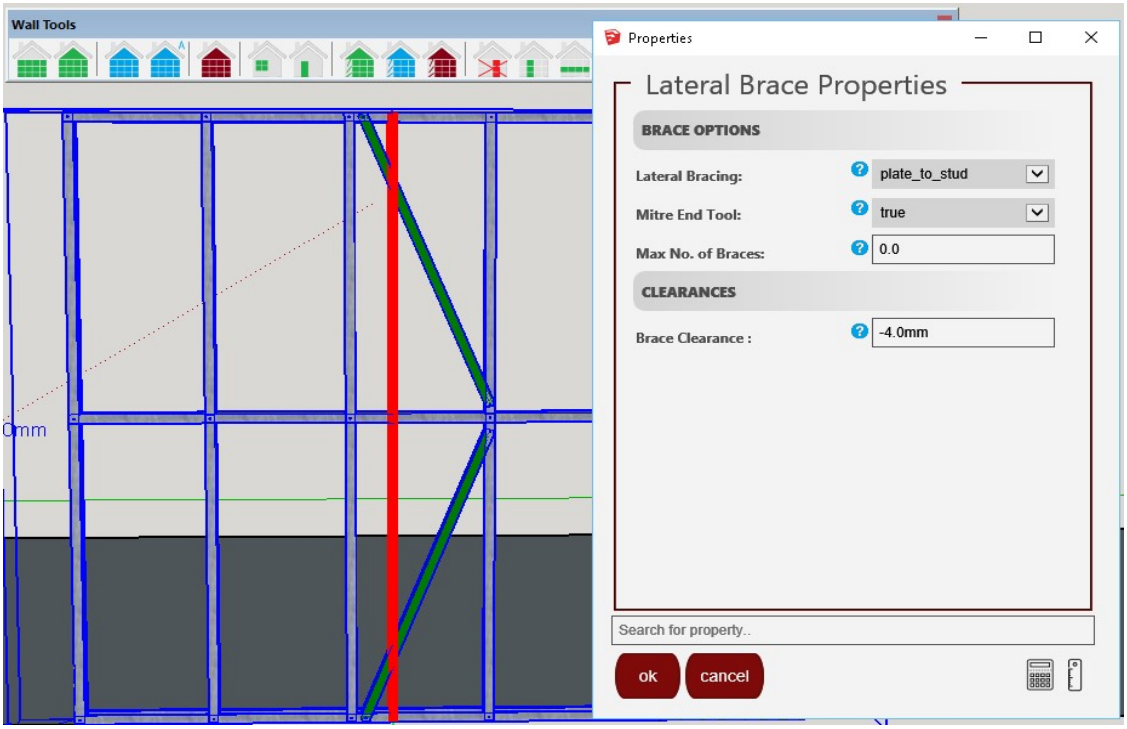


5.8.2 INSERTING A BRACE

Once you have selected the "Lateral Brace" icon and adjusted your Brace properties you will have a **yellow** guide showing you where a brace can be inserted into the wall. Once you have your required place for your brace release your hold on the mouse and your type of brace selected will appear in that space.



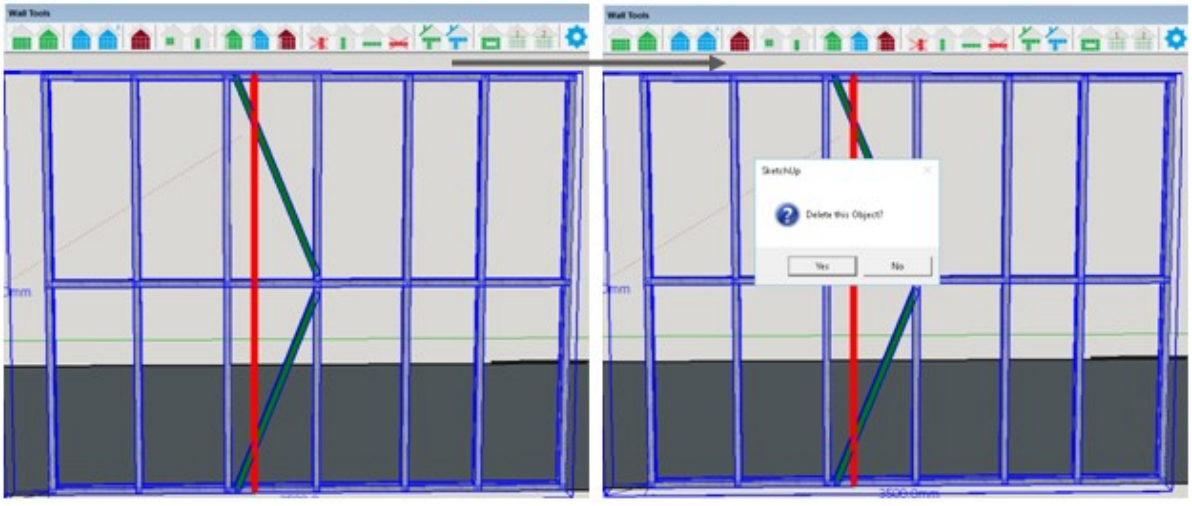
You can adjust the bracing by clicking on the wall, then clicking on the **blue** "Lateral Brace" icon and selecting the bracing on the wall that you want to adjust. The internal bracing properties will reopen for you to make your adjustments.



When you have completed your adjustments, click "ok" and your adjustments will be incorporated on the bracing.

5.8.3 DELETING A BRACE

To delete a brace, simply click on the wall, then click on the **red** "Lateral Brace" icon and select the brace on the wall that you want to delete.

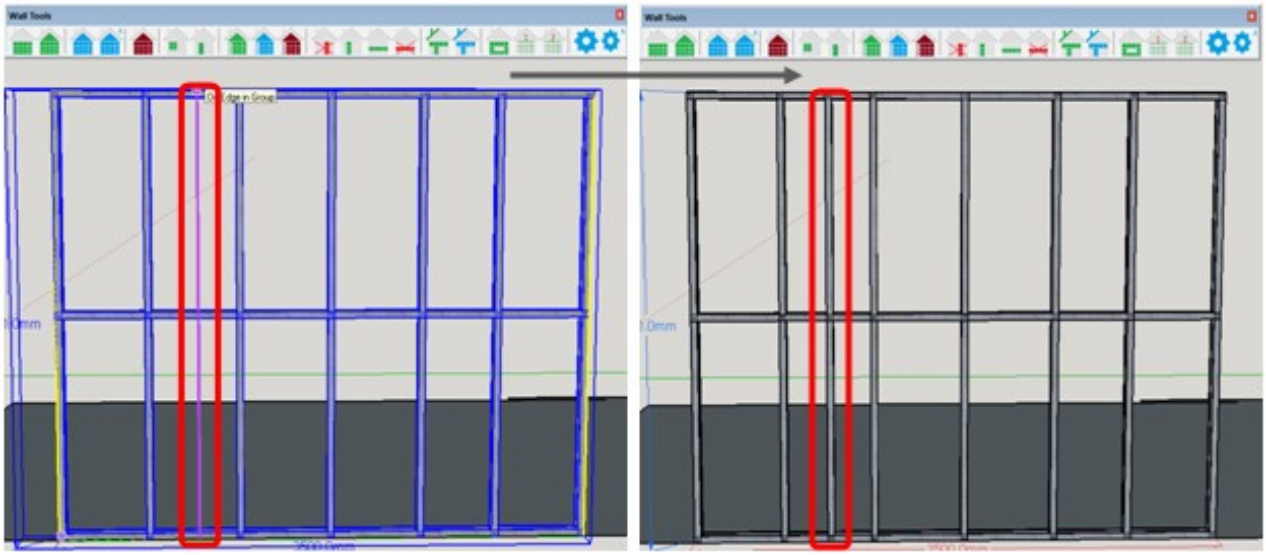


A window will appear asking if you want to delete the object. Once you select "Yes" the bracing will be deleted.

5.9 ADD A STUD

You can add a stud to any wall by using the **green** "Add a Stud" icon located on the Wall icon bar.

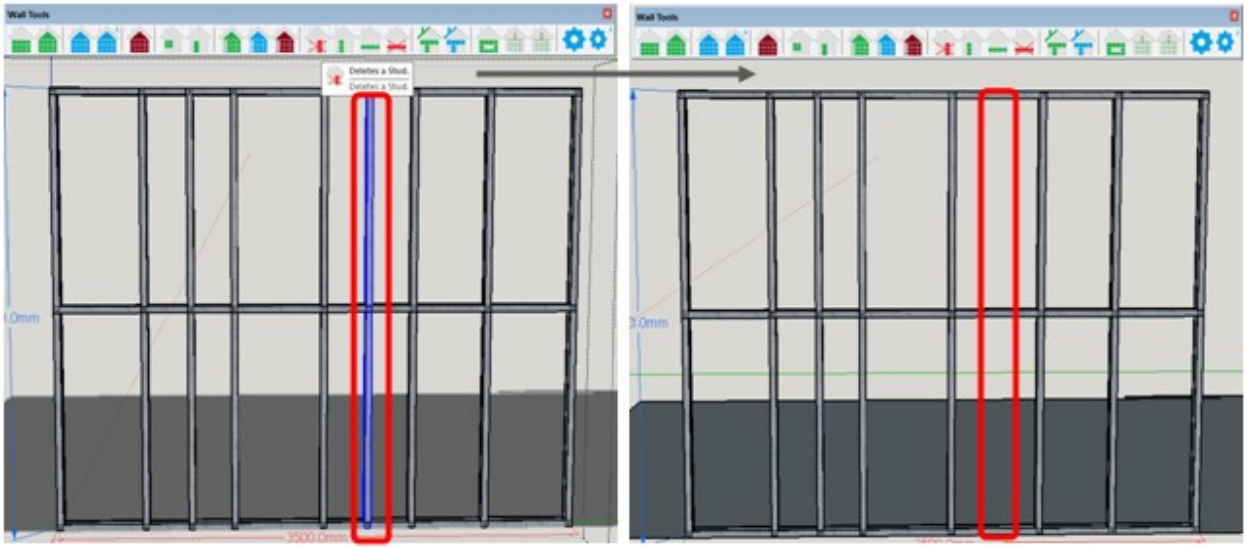
Start by selecting the wall on which the stud needs to be added. Once you have selected the wall click on the **green** "Add a Stud" icon. A purple line will be appear to highlight the position where the stud needs to be added. You can move this from side to side and then on releasing your mouse the stud will be drawn where you indicated.



5.10 DELETE A STUD

You can delete a stud to any wall by using the **red** "Delete a Stud" icon located on the Wall icon bar.

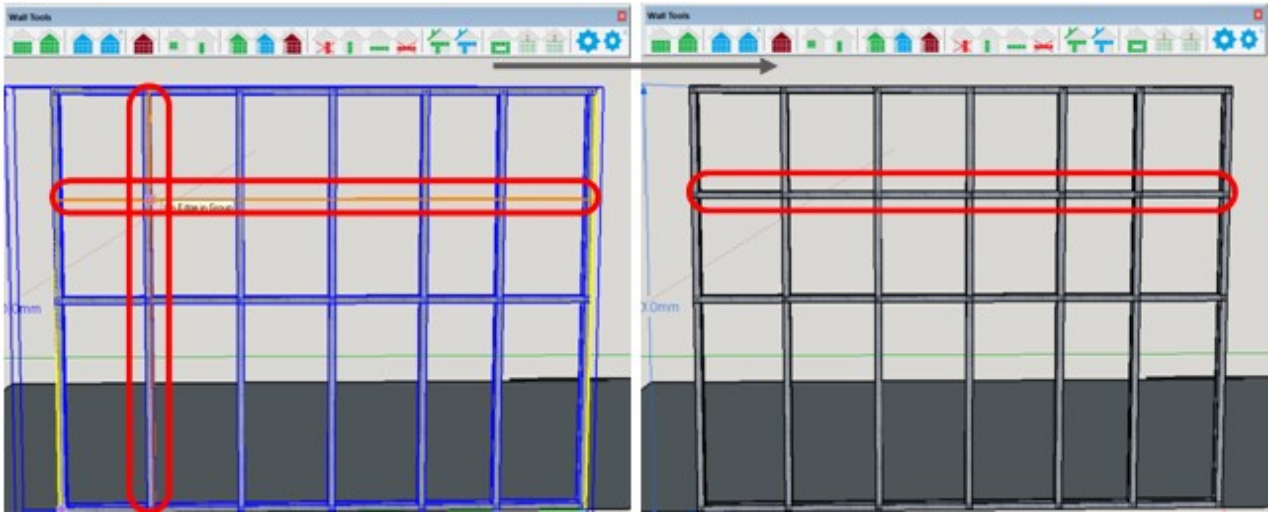
Start by double clicking the wall on which the stud needs to be deleted. Then select the stud you want to delete and click on the **red** "Delete a Stud" icon. The stud will then be removed from the wall.



5.11 ADD A NOG

You can add a nog to any wall by using the **green** "Add a Nog" icon located on the Wall icon bar.

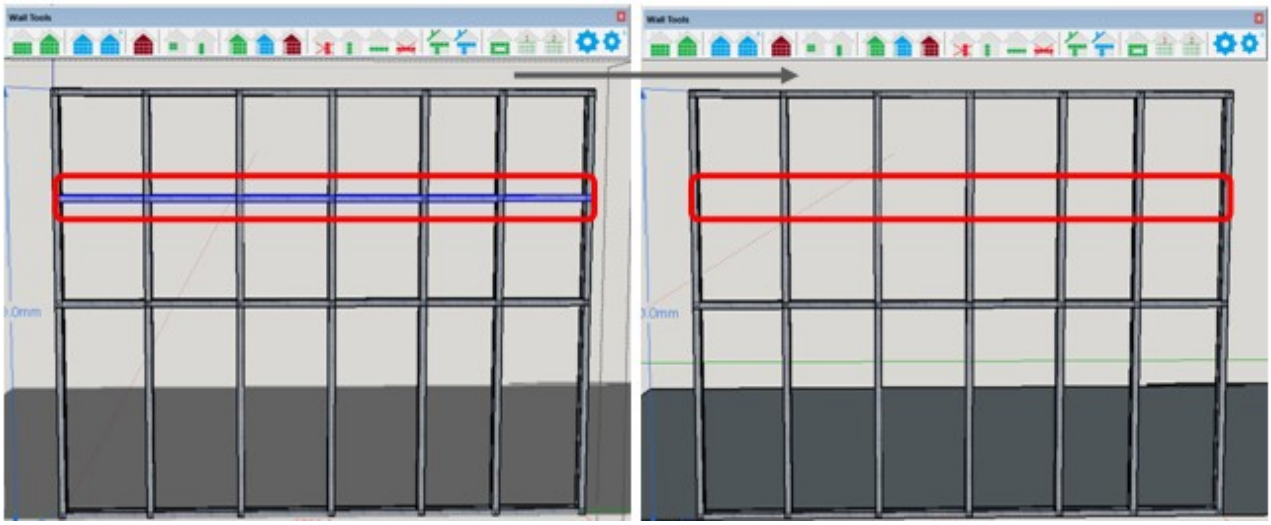
Start by selecting the wall on which the nog needs to be added. Once you have selcted the wall click on the **green** "Add a Nog" icon. A **orange** cross-line will be appear to highlight the position where the nog needs to be added. You can move this line up and down until you have the area you want to add the nog to. On releasing the mouse the nog will be drawn where you have indicated.



5.12 DELETE A NOG

You can delete a nog to any wall by using the **red** "Delete a Nog" icon located on the Wall icon bar.

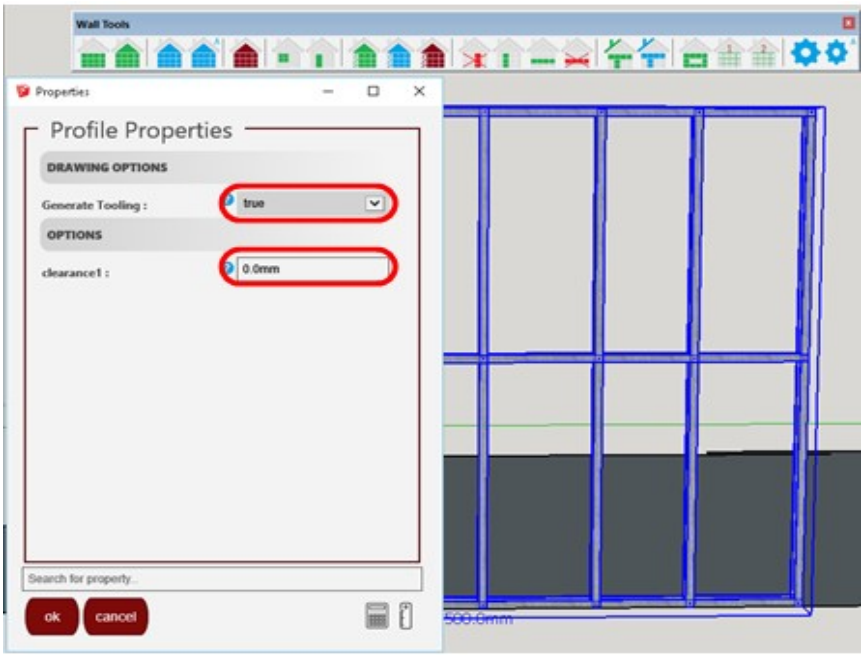
Start by double clicking the wall on which the nog needs to be deleted. Then select the nog you want to delete and click on the **red** "Delete a Nog" icon. The nog will then be removed from the wall.



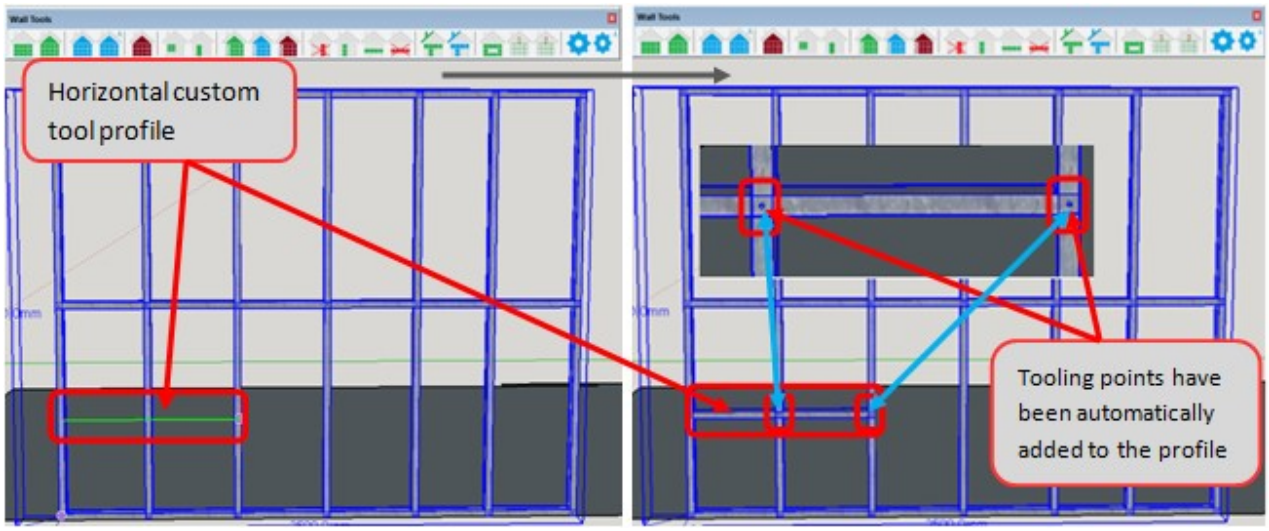
5.13 ADD A CUSTOM PROFILE

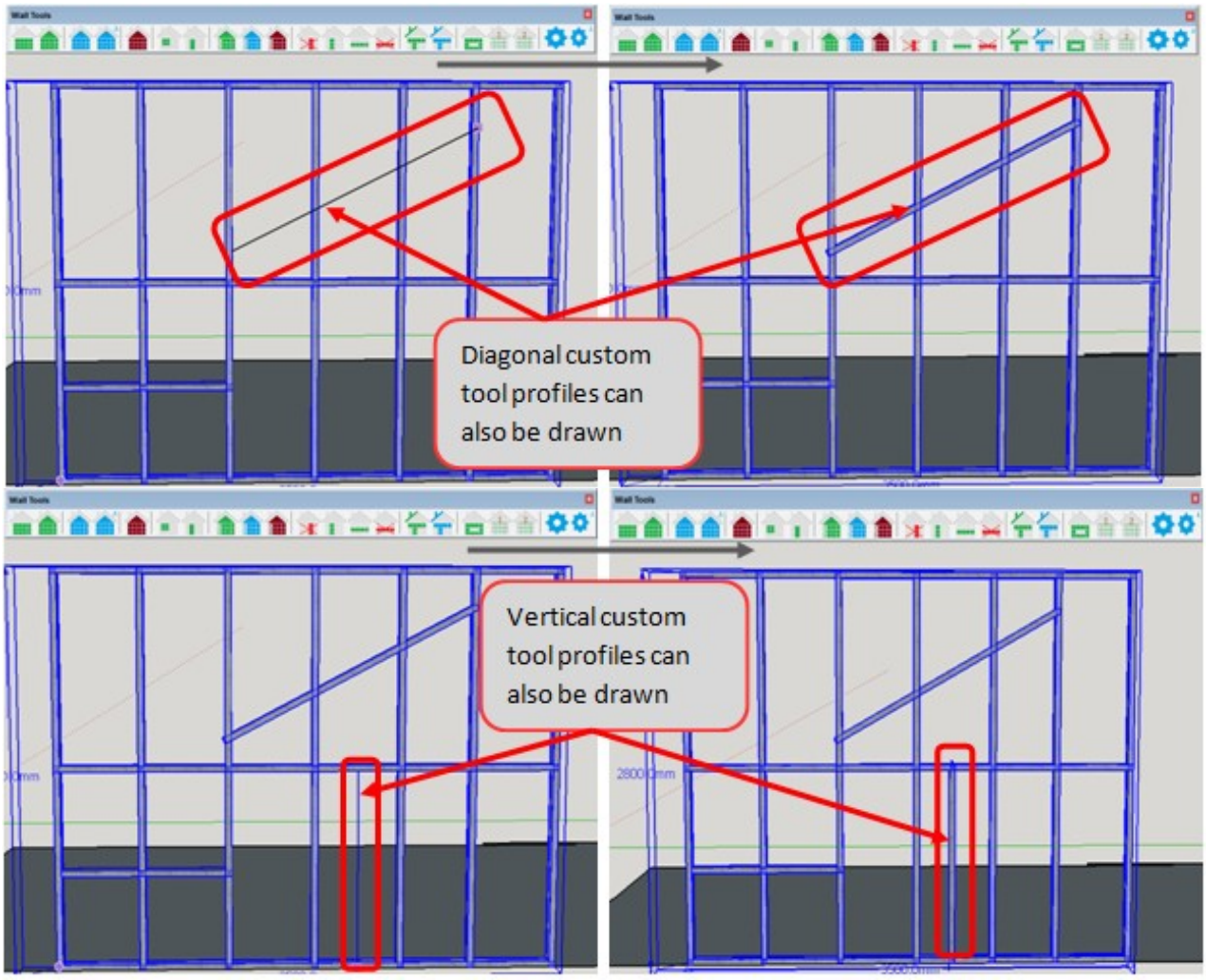
You can add a free profile within any wall by using the **green** "Creates a Free Profile" icon located on the Wall icon bar.

Start by selecting the wall on which the free profile needs to be added. Once you have selected the wall click on the **green** "Creates a Free Profile" icon. A window will first appear in which you can set whether you require the tooling to be inserted and your required clearance of the profile to the intersecting nog and studs already on the wall. Click "ok" when done.



You can now draw any type of profile you require within this wall by clicking from a start point and then to the end point of your required profile.

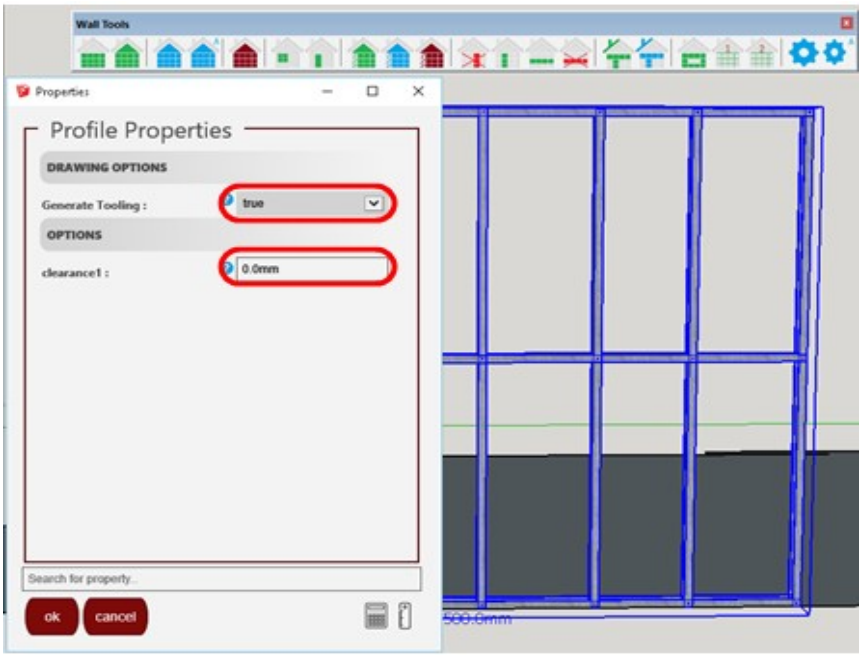



Diagonal custom tool profiles can also be drawn
Vertical custom tool profiles can also be drawn

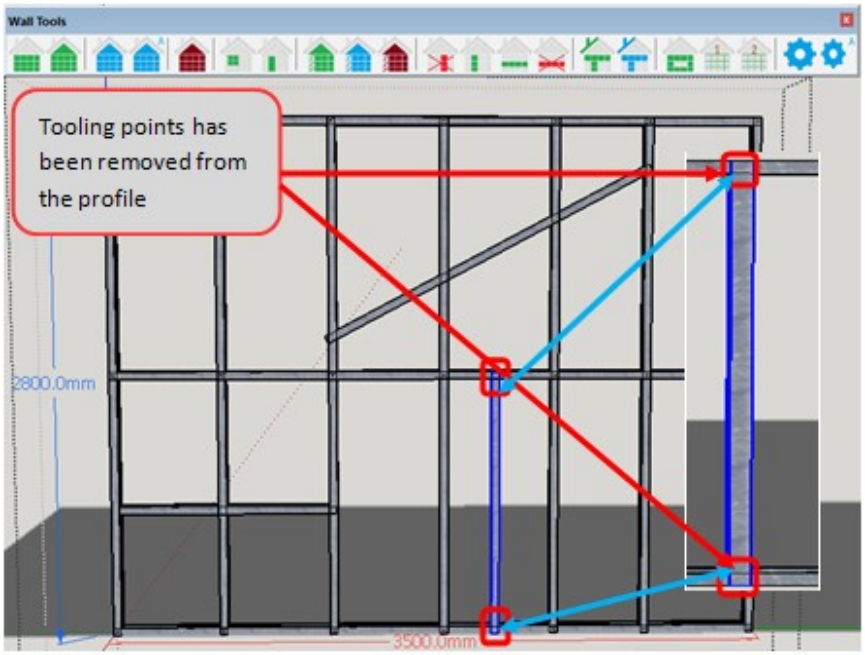
5.14 EDIT A CUSTOM PROFILE

You can edit a free profile within any wall by using the **blue** "Change Custom Profile Properties" icon located on the Wall icon bar.

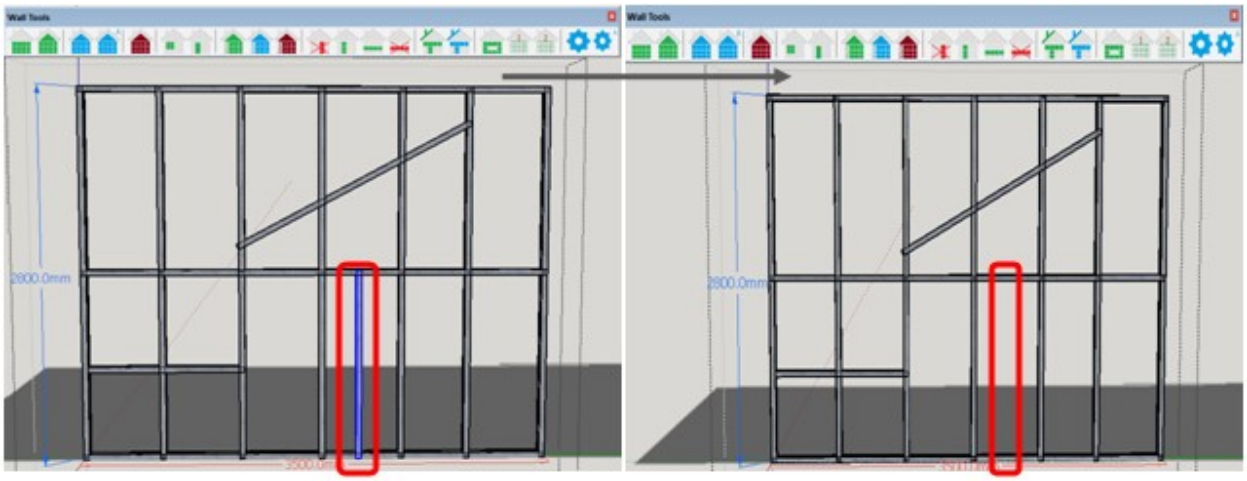
Select the wall on which the free profile needs to be edited. Once you have selected the wall click on the **blue** "Change Custom Profile Properties" icon. A window will appear in which you can edit if you want the tooling to be inserted and your required clearance of the profile. Once you have edited this click OK.



To remove a profile it will be best to remove the tooling on the profile first. You do this by selecting the wall, then click on the **blue** "Change Custom Profile Properties" icon and select the "Generate Tooling" option to be "false". The Tooling now be removed from the profile.



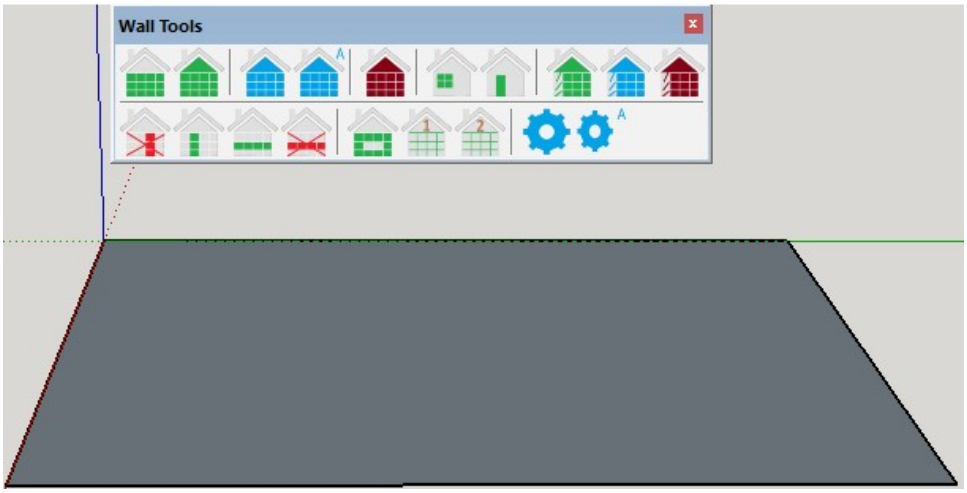
You will then double click the wall and then select the required profile to delete and press the delete button on your keyboard.



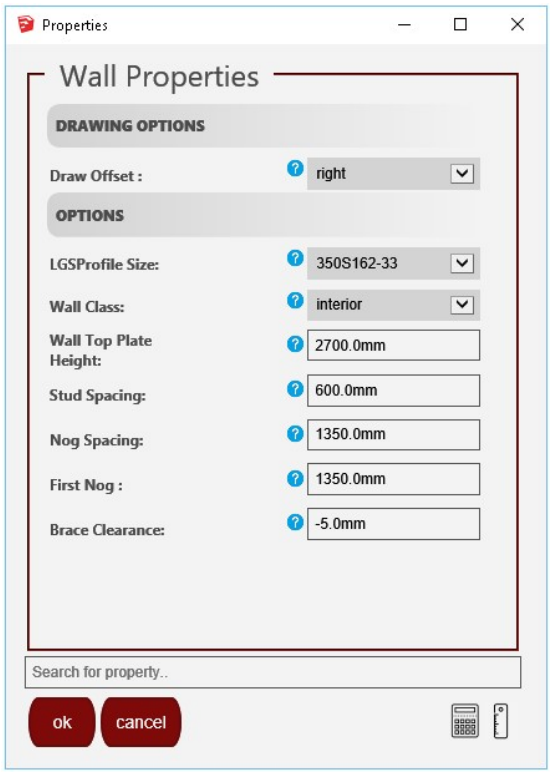
5.15 ADD 4 WALLS

You can draw 4 walls for a building all at the same time by using the **green** "Create 4 walls" tool located on the Wall Tool bar.

It is best to first draw the floor plan of the walls you want to be drawn from the starting point of the **green** and **red** axis.



Once you have created the floor plan or just inserted in an area where you will be drawing your walls, click on the **green** "Create 4 walls" icon. The Wall Properties Window will open for you to select the properties of the walls you want created.



5.15.1 WALL PROPERTIES FOR DRAWING 4 WALLS

- Drawing Options
  - Draw Offset

    The draw offset allows you to select the door to either be offset to the left, the centre or the right of the wall.
- Options
  - LGSProfile size

    You can must select the profile size that your manufacturer will be using to manufacture these walls. The size naming convention was discussed in section 5.2 above (How to create a New Wall)
  - Wall Class

    You can select between the exterior, interior or other.
  - Wall Top Plate Height

    This is the height you want the completed wall to be.
  - Stud Spacing

    Spacing of Studs from each (Recommended is 600mm.
  - Nog Spacing

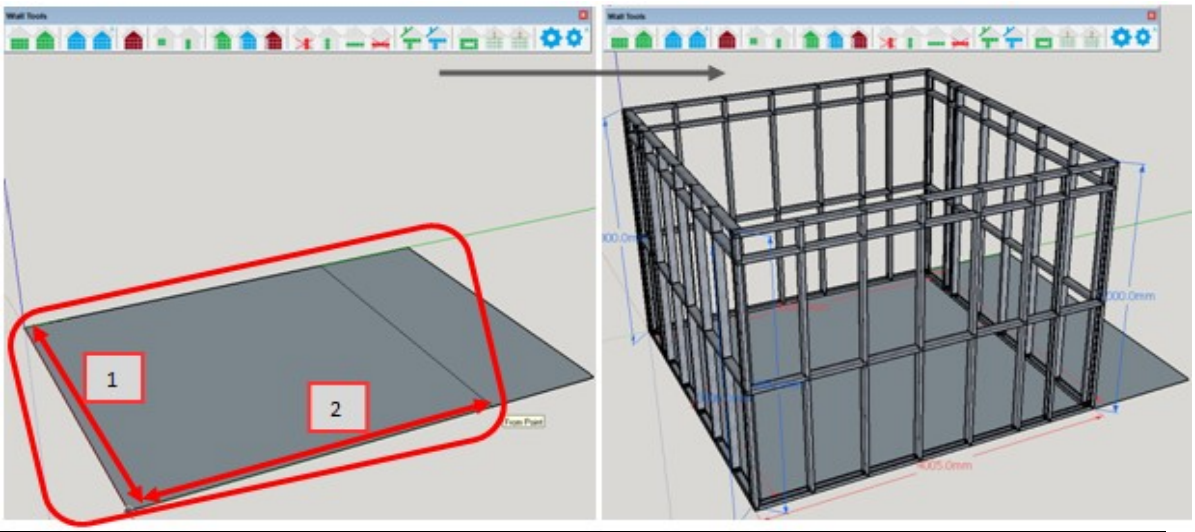
    Spacing of Nogs from each other
  - First Nog

    Start Position of the First Nog
  - Brace Clearnace

    The space required between the brace and the intersecting stud or nog.

5.15.2 DRAWING THE 4 WALLS

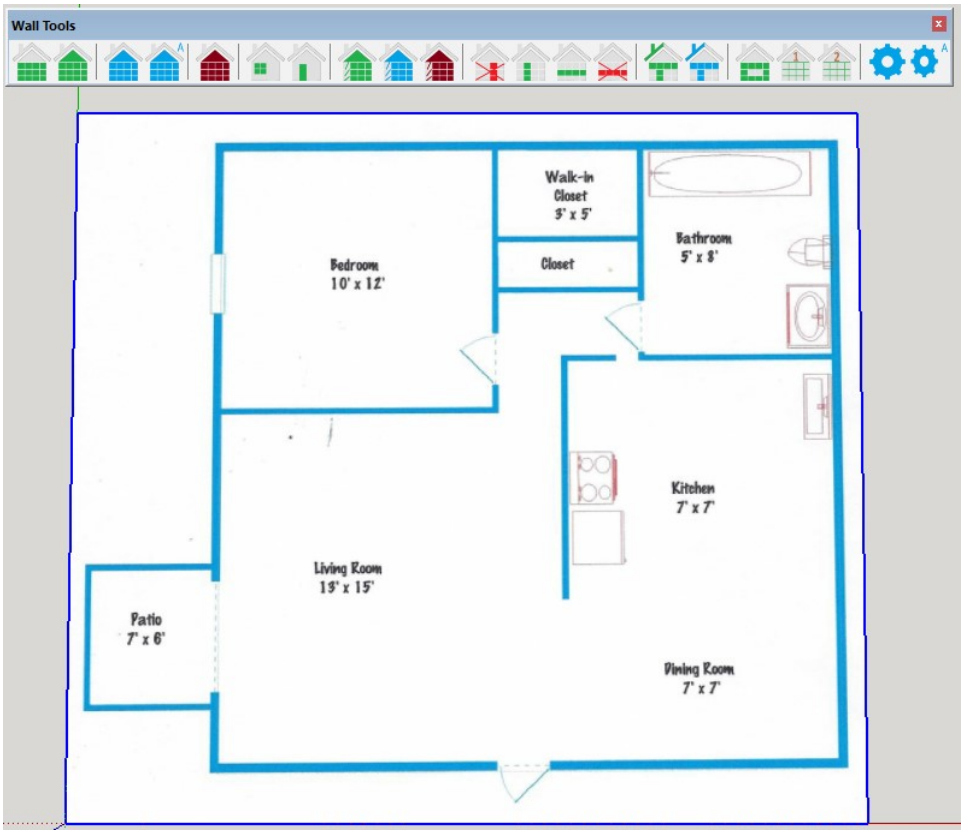
Now that you have selected your properties for your walls to be drawn you can trace the 4 walls by first tracing the one side of the wall and then moving across to complete the area of the walls. Once you are done, release the mouse and the 4 walls will appear.



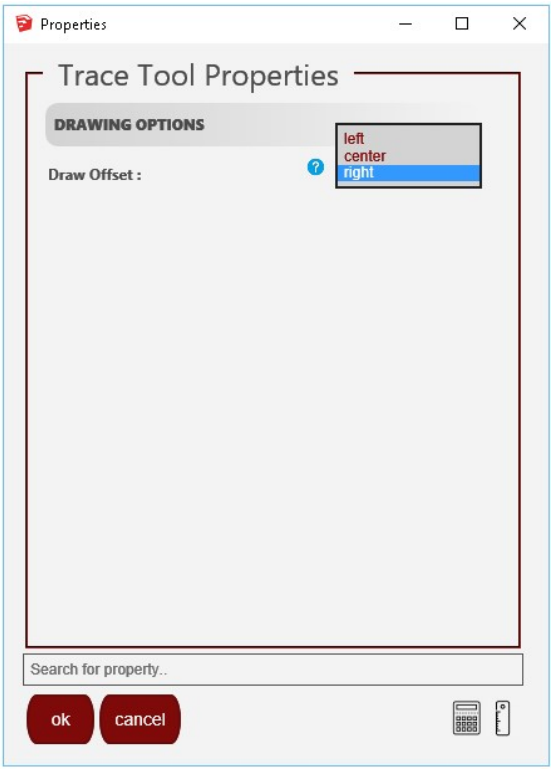
5.16 TRACE A FLOOR PLAN

You can trace the floor for a building to draw all the walls per the plan at the same time by using the "Trace a Floor Plan Step 1" tool located on the Wall Tool.

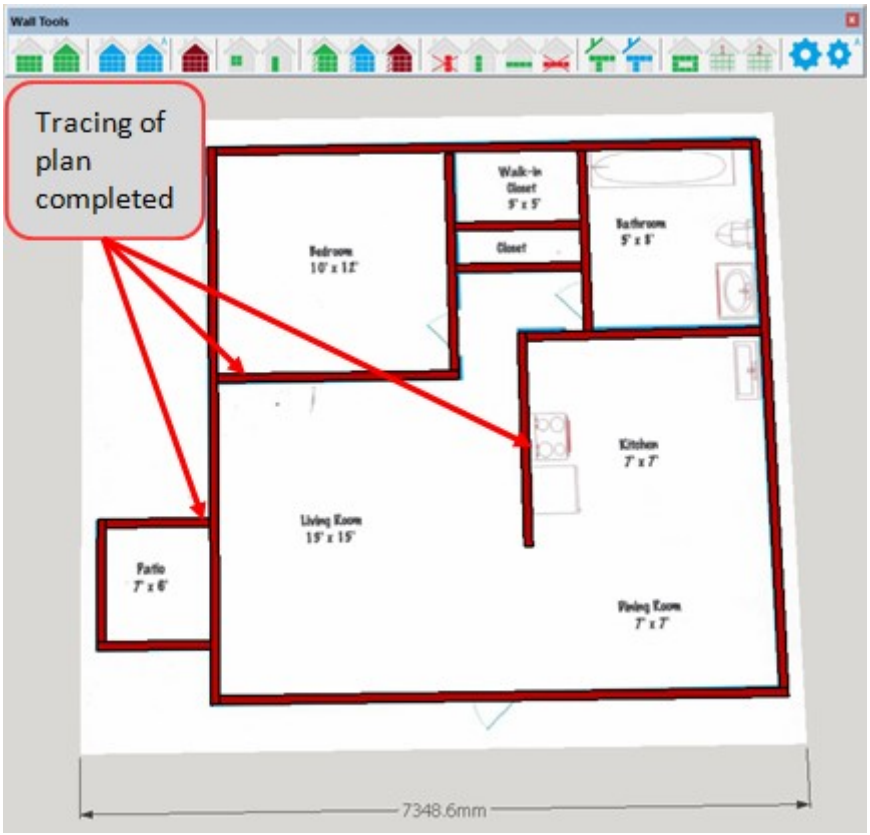
You will first have to trace all the walls directly from a plan by importing the plan into SketchUp.



Now click on the **green** "Trace a Floor Plan Step 1" tool. The Trace Tool Properties window will appear. This allows you to choose whether to off-set the walls you are drawing the right, left or centre of the lines on the plan. Once you have selected your offset, click "ok".

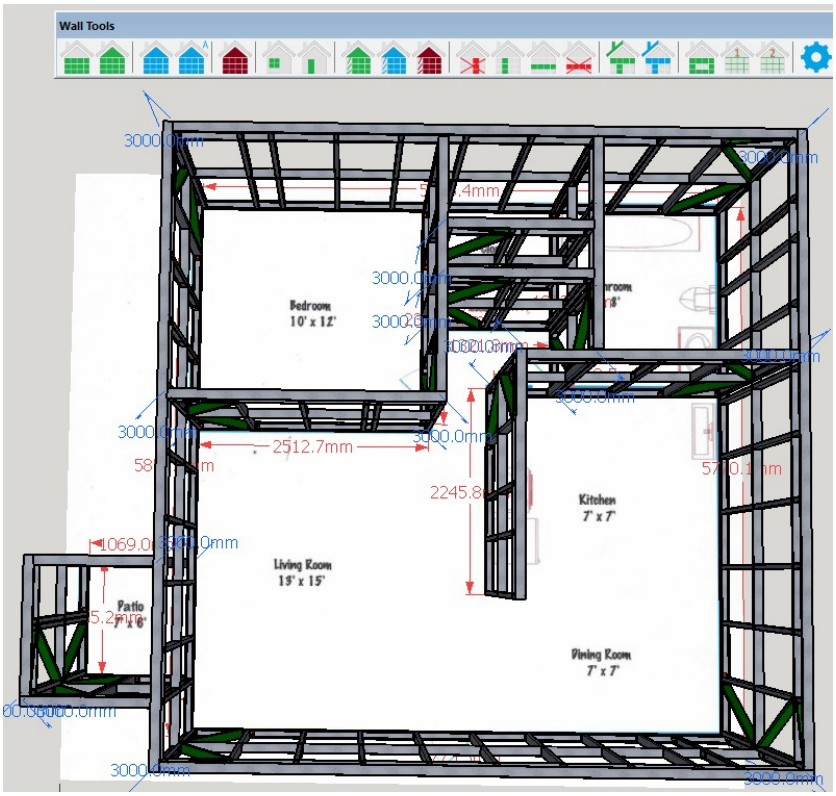


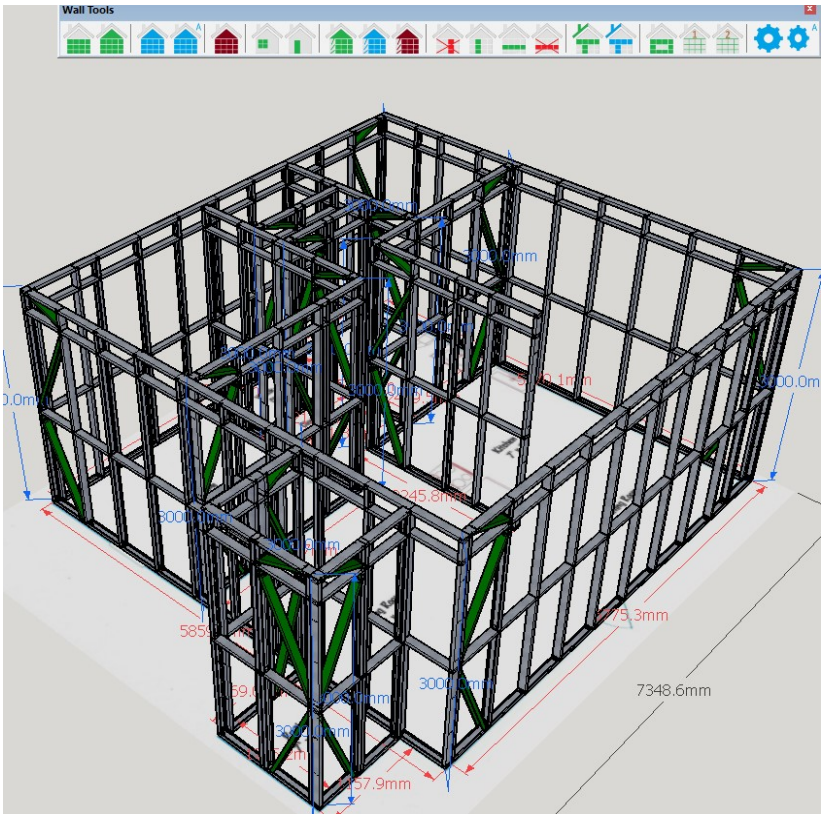
You can now start tracing the walls in the plan. Make use of the justification in the Trace Tool Properties to assist you in getting the orientation correct and to ensure that the walls are correctly aligned to each other.



5.17 PROCESS A FLOOR PLAN TRACE

Once you have completed tracing all the walls on your plan, you need to click on the **green** "Trace a Floor Plan Step 2" tool on the Wall Tool bar to complete the drawing of the walls per your properties.

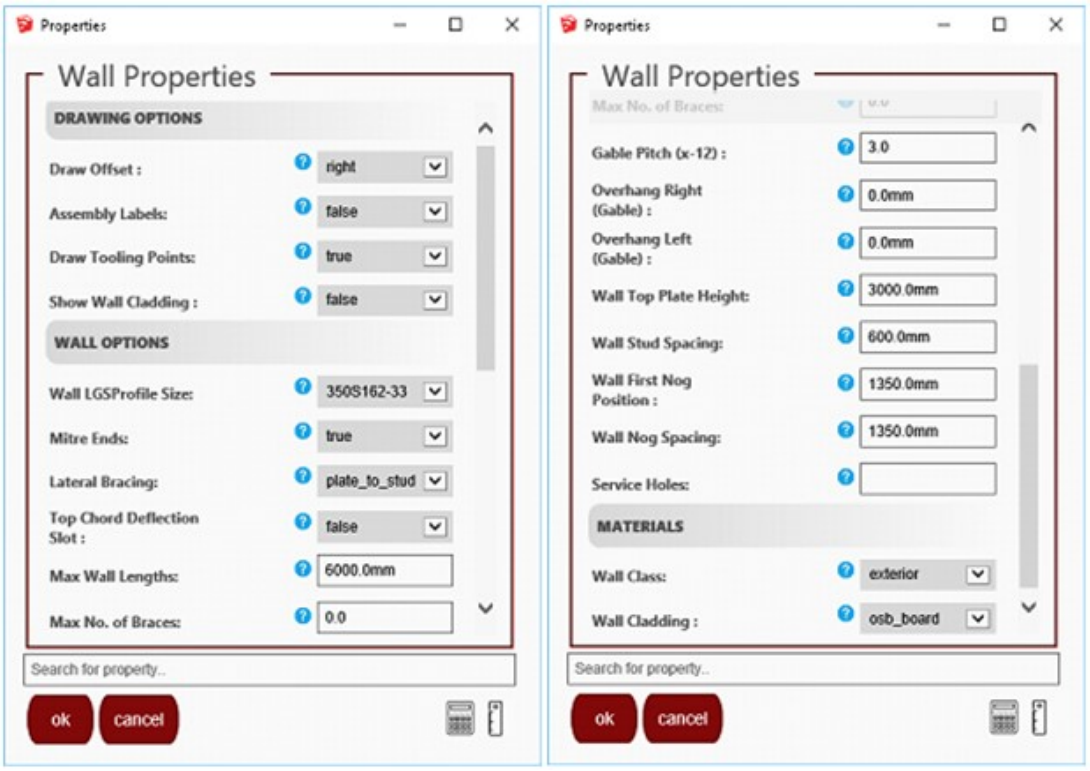




5.18 STANDARD DEFAULT SETTINGS

At the end of the Wall Tool bar is the **blue** "Standard Default Settings" icon. These settings are linked to your profile and are set-up once off.

Click on this **blue** "Standard Default Settings" icon to open up the Wall Properties window and set all your standard settings for walls.



- Drawing Options
  - Draw Offset

    The draw offset allows you to select whether your walls will offset either to the left, the centre or the right of the wall.
  - Assembly Labels

    Enable or disable labels to be printed on individual profiles within the selected wall
  - Draw Tooling Points

    Enable or disable rendering of dimples, lip cuts notches etc
  - Show Wall Cladding

    This option will show the selected Wall Cladding chosen in the design you are drawing. You have the option to switch it off or on.
- Wall Options
  - LGSProfile Size

This is the profile of the steel to used in the manufacture of the product you are designing.

- Mitre Ends

  Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.
- Lateral Bracing

  There are four different types of bracing available to choose from: stud to stud, plate to stud, plate to plate and plate to stud K
- Top Chord Deflection Slot

  ***Special Howick Machine Specific Option**. This option allows for the top plate on a standard wall from to be adjusted in situations where existing ceiling heights are not true or square.*
- Max WallLength

  The default max length of walls are set at 6000mm. This is to ensure structural integrity.
- Max No. of Braces

  You can select the number of braces that you would require in a given space so that it does not automatically insert the maximum
- Gable Pitch (x-12)

  The pitch of the Gable roof or Mono roof can be adjusted per specification from a level 1 to a level 12.
- Overhang Right (Gable)

  The amount that the Gable wall will overhang on the right side of the wall.
- Overhang Left (Gable)

  The amount that the Gable wall will overhang on the left side of the wall.
- Wall TopPlate Height

  The height of the wall that you want to design
- Wall Stud Spacing

  Spacing of Studs from each (Recommended is 600mm)
- Wall First Nog Position

  Start Position of the First Nog
- Wall Nog Spacing

  Spacing of Nogs from each other
- Service Holes:

  The point at which you want the machine to cut service holes. (Example: br300| br400| st400| ng400)

- Materials
  - Wall Class

You select the nature of the wall by choosing between external, internal or other wall classes

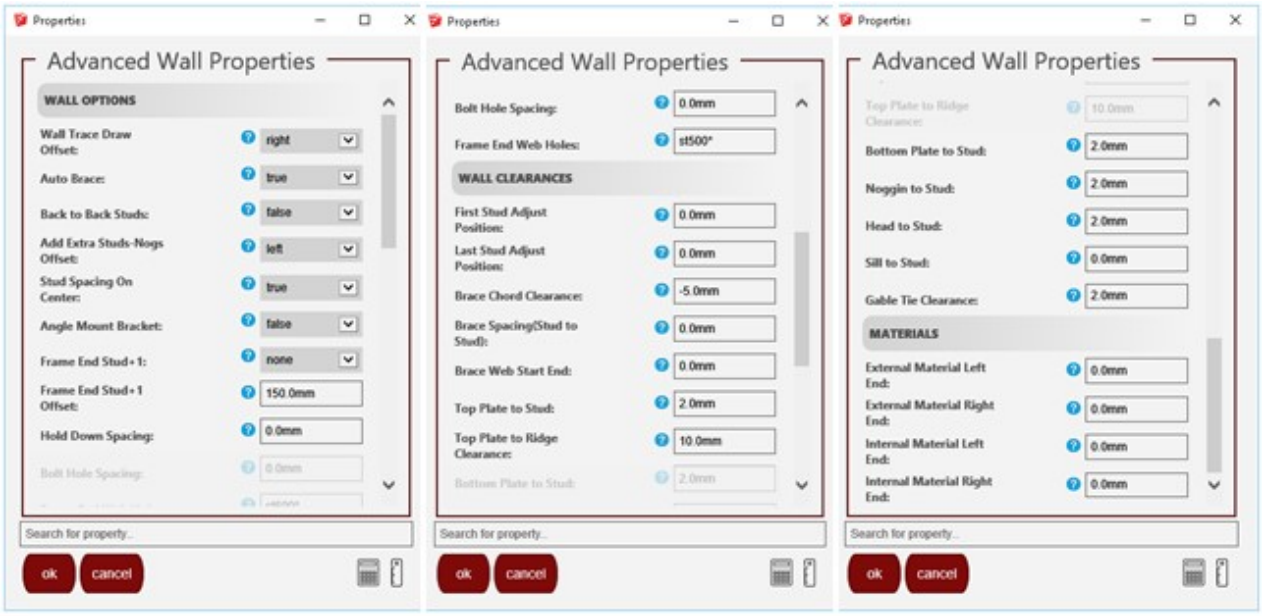
- Wall Cladding

  Choice of Wall Cladding such as OSB Board, Stone orBrick, and Cement.

5.19 ADVANCED DEFAULT SETTINGS

Also at the end of the Wall Tool bar you will find the **blue** "Advance Default Settings" icon for drawing walls. These settings are linked to your profile and are set-up only once.

Click on this **blue** "Advance Default Settings" icon to open up the Advanced Wall Properties and set all your advanced settings for walls.

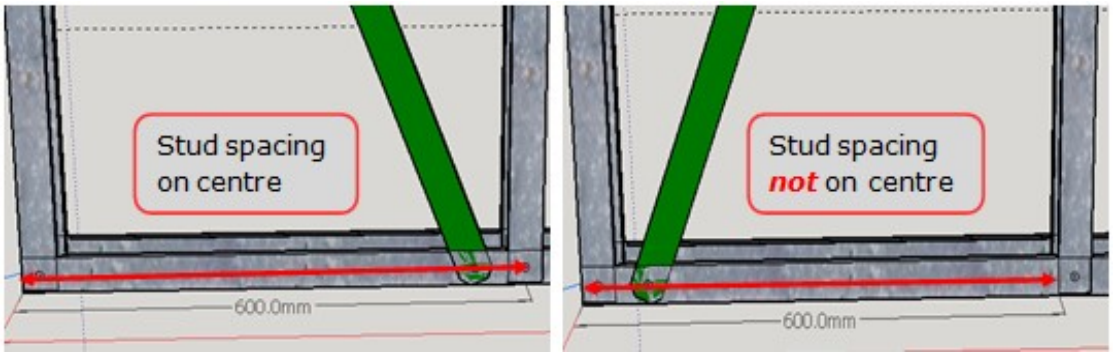


- Wall Options
  - Wall Trace Draw Offset

    The draw offset allows you to select whether your walls will offset either to the left, the centre or the right of the wall.
  - Auto Brace

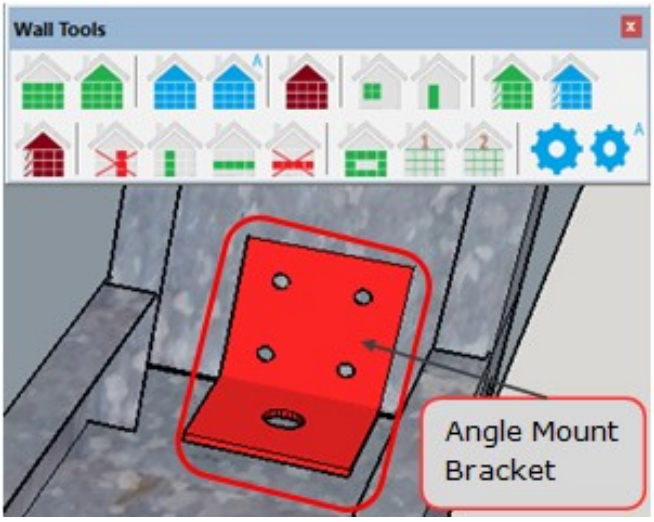
    You can select to have a bracing on the left side of your wall to be automatically drawn when drawing a wall.
  - Stud Spacing On Centre

    Allows you to choose the stud spacing to be measured either from the start of the first stud to the midpoint (Centre) of the next stud or from the start of the first stud to the start of the next stud.



- Angle Mount Bracket

  The angle mount bracket is a bracket used to mount the wall to the floor



- Frame End Stud +1

  Adds an extra stud on either the start, at the end of the wall or you can even add one on each side of the wall.
- Frame End Stud + 1 Offset

  Allows you to define the space you would like for you additional stud added in the previous step.
- Hold Down Spacing

  Hold Tool Spacing, specific to certain machines.
- Bolt Hole Spacing

  Bolt Hole Tool Spacing, specific to certain machines. Places bolt holes on the bottom plate of a wall frame.
- Frame End Web Holes

  You can select the spacing at which you want web holes to be made by the machine (example: st500 - makes the holes on the stud at the end of the wall at 500mm intervals)*

  - Wall Clearances
    - First Stud Adjust Position

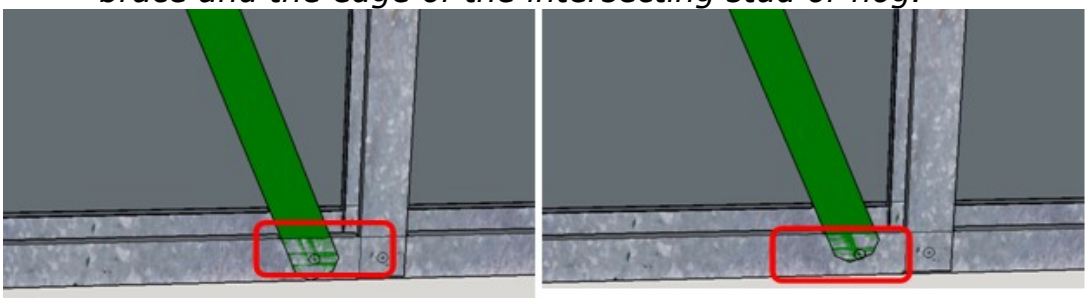
Moves the first stud a certain distance away from the start of the wall

- Last Stud Adjust Position

  Moves the last stud a certain distance closer to the end of the wall

- Brace Clearance

  Allows you to change the space between the end of the brace and the edge of the intersecting stud or nog.



- Brace Spacing (Stud to Stud)

  Allows you to change the space between the brace and the edge of the intersecting stud for this type of bracing.

- Top Plate to Stud

  Allows you to change the space between the brace and the edge of the intersecting stud or plate for this type of bracing

- Top Plate to Ridge Clearance

  Adjusts the space between the 2 top plates and the ridge on a gable roof

- Bottom Plate to Stud

  Adjusts the space between the bottom plate and its intersecting stud on the wall

- Noggin to Stud

  Adjusts the space between the nogs and its intersecting studs on the wall

- Head to Stud

  Allows you to change the clearance from the header of the window to the studs intersecting it at that point.

- Sill to Stud

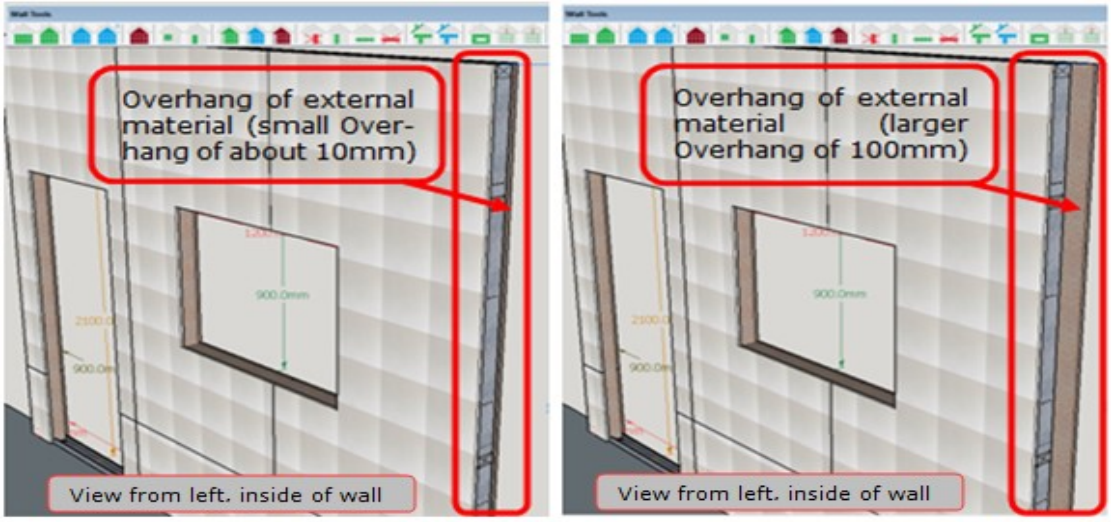
Allows you to change the clearance from the bottom of the window sill to the studs intersecting it at that point.

- Gable Tie Clearance

  Allows you to change the space between the ridge and the intersecting gable ties.

- Materials
  - External Material Left End

    Allows you to change the overhang of your external material on the left side of the wall.

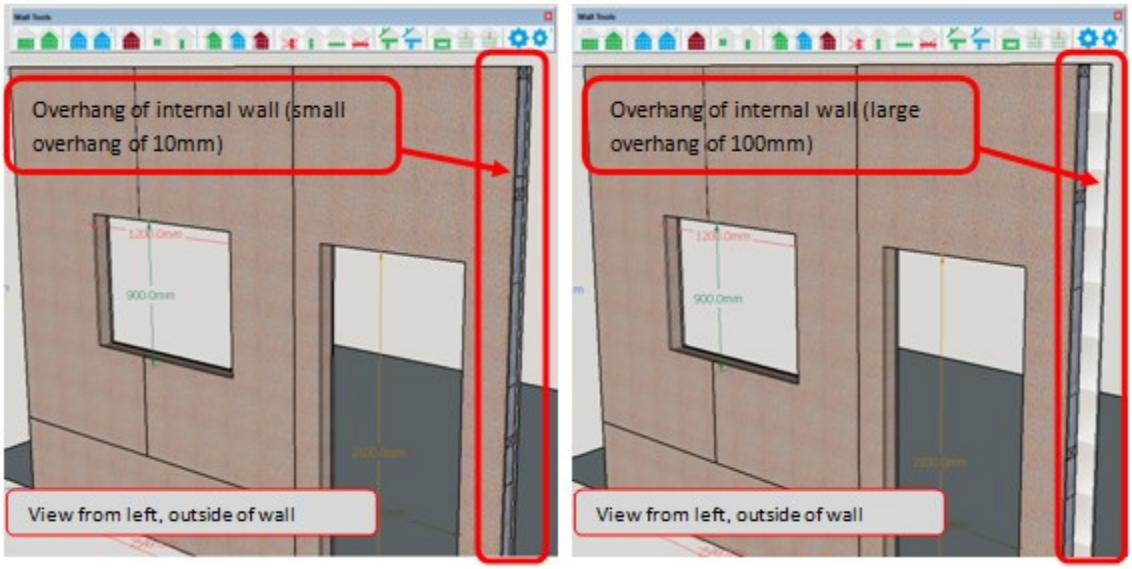


  - External Material Right End

    Allows you to change the overhang of your external material on the right side of the wall.
  - Internal Material Left End

    Allows you to change the overhang of your internal material on the left side of the wall.
  - Internal Material Right End

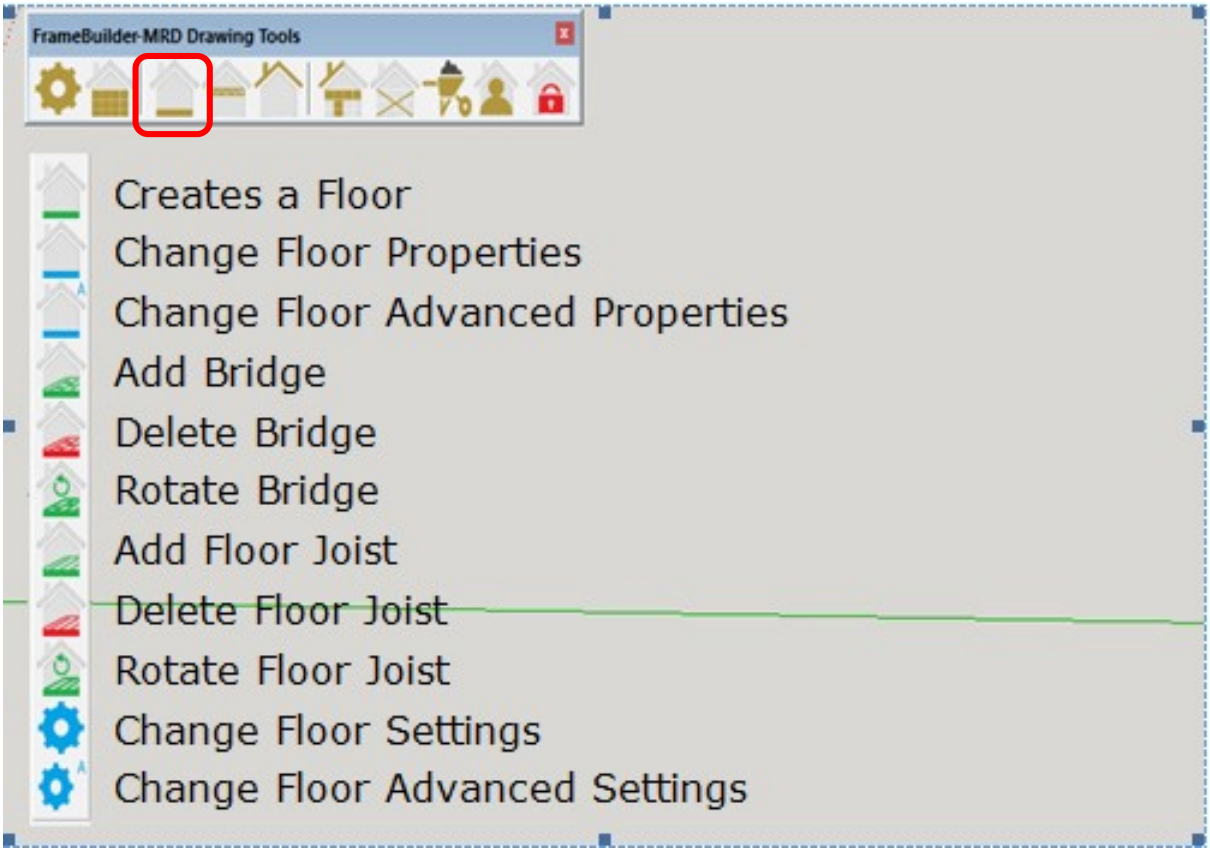
    Allows you to change the overhang of your internal material on the right side of the wall.



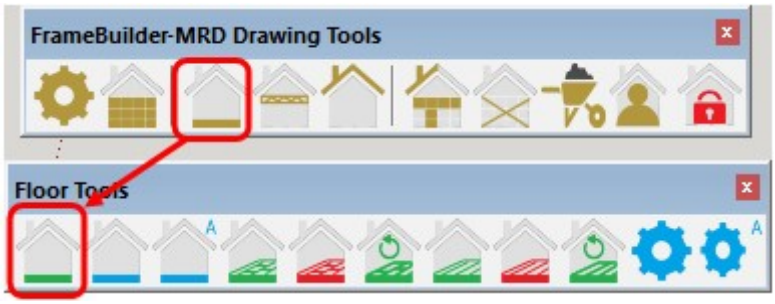
6. FLOOR MODULE

In this section you will learn how to draw a floor, update properties and add bridges and Floor Joists.

6.1 ICONS

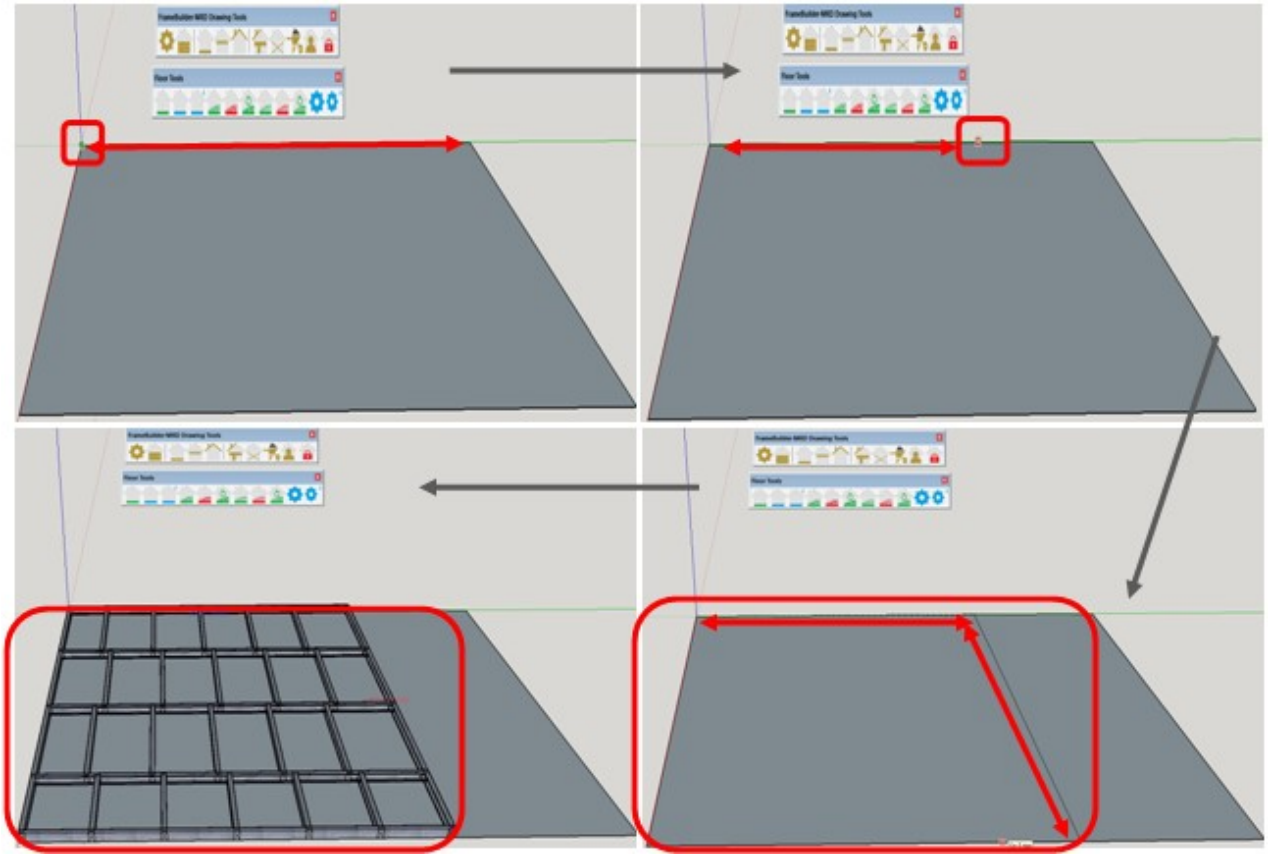


6.2 How to Create a Floor



Click on the Floor Tools icon on the main menu and then on the **green** "Creates a Floor" icon on the Floor Tools menu bar. The Floor Properties window will then open up. Ensure that all the settings on the properties menu are correct and click "ok" to continue to draw your floor.

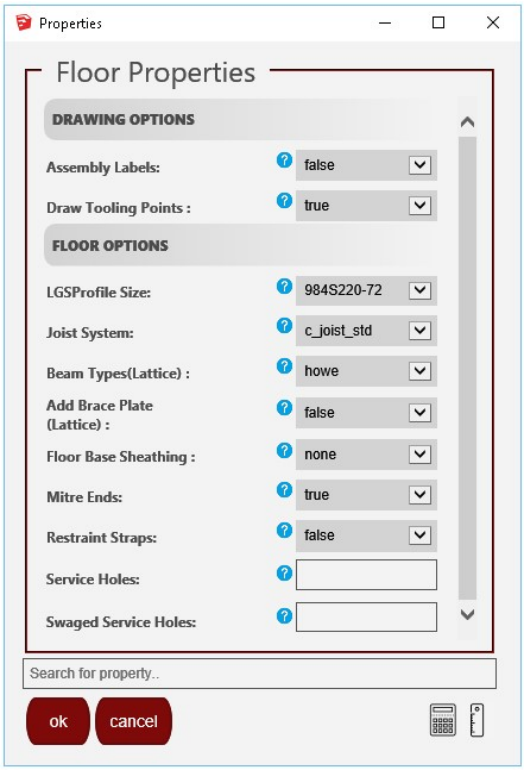
It is preferable to start by drawing from the corner of the two axis. Click in this corner then move your mouse to the right along an axis. Next click to stop drawing the first side and drag your mouse downwards to draw the second side of the frame. You will notice a rectangle being drawn to depict the size of frame you are tracing. Once you let go of the mouse your frame will appear.



6.3 CHANGE FLOOR PROPERTIES

On the Floor Tools bar is the **blue** "Change Floor Properties" icon for drawing floors.

Click on the **blue** "Change Floor Properties" icon to open up the Floor Properties and set all your standard properties for floors.



- Drawing Options
  - Assembly Labels

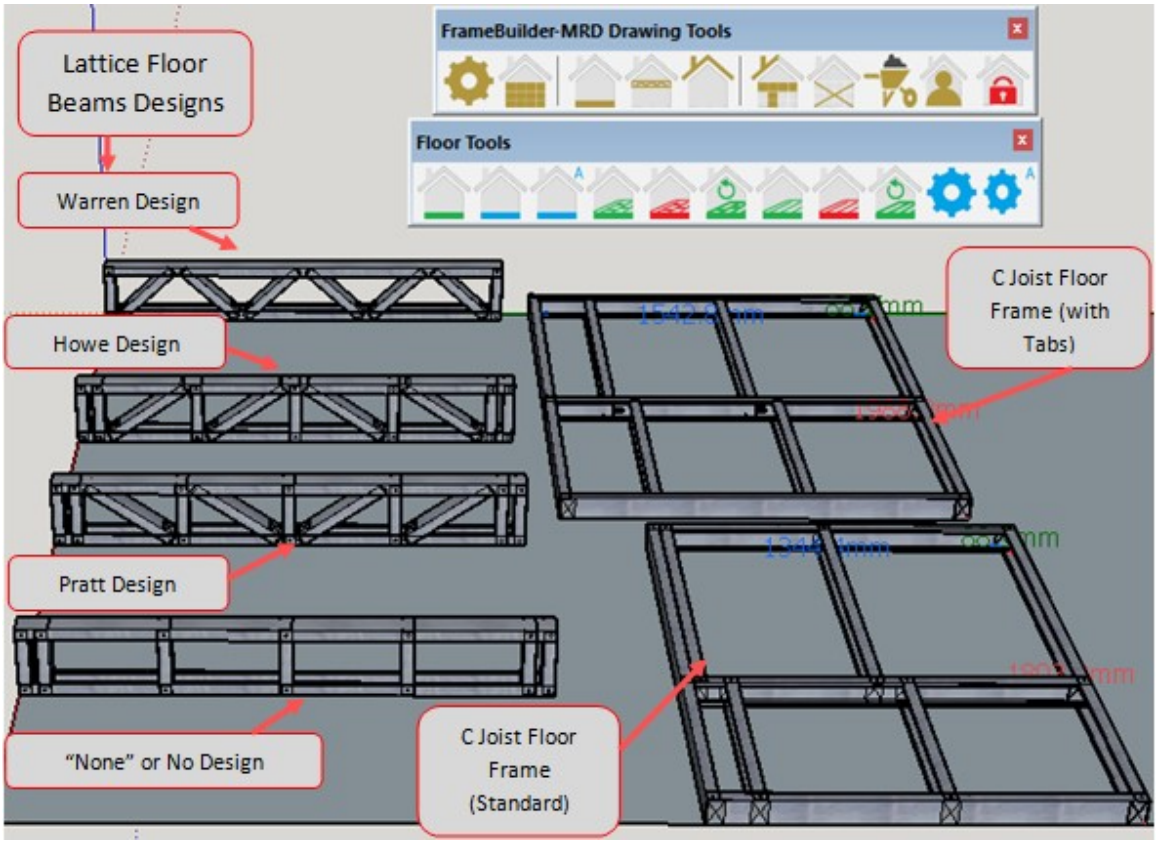
    Enable or Disable labels to be printed on the individual profiles within the floor frame
  - Draw Tooling Points

    Enable or Disable rendering of dimples, lip cuts notches etc
- Floor Options
  - LGSProfile Size

    This is the profile of the steel to used in the manufacture of the product you are designing.
  - Joist System

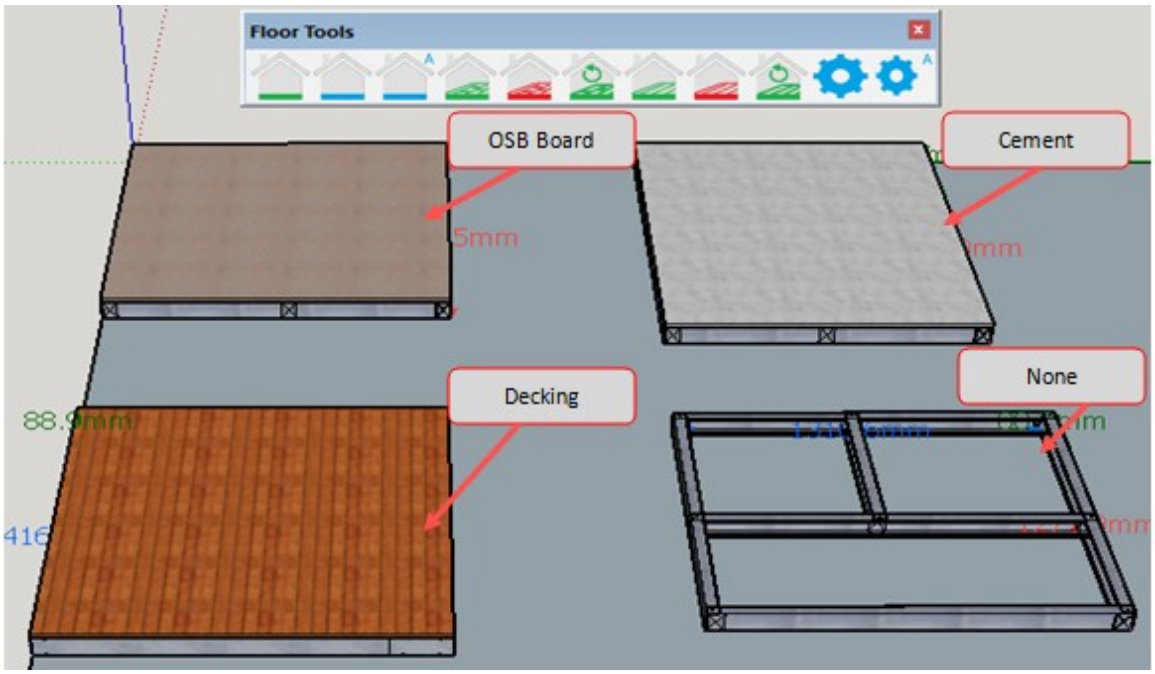
    The design of the different floor joist systems are lattice, c_joist _Tab and c_joist_std. The difference between the std and tab c_joist systems is based on the standard

machines and the floor joist machine(as per Howick Machines). Lattice Floor beams come in Warren, Howe, Pratt and "none or no Design.



- Floor Base Sheathing

  Select the finish of your floor between OSB_Board, Cement, Decking or none to be able to view how the floor will look completed while drawing the floor.

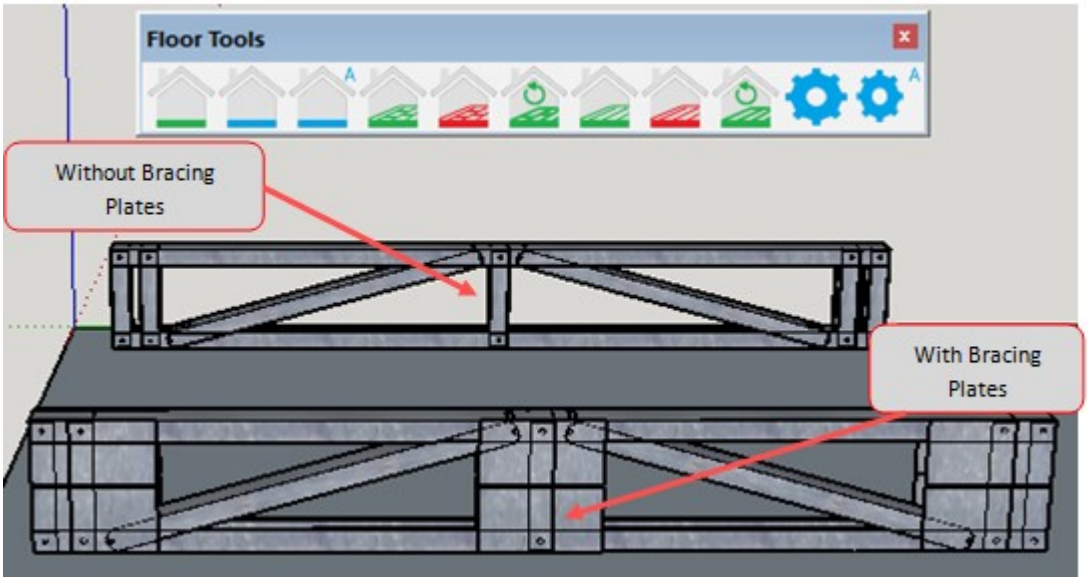


- Mitre Ends

  Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.

- Add Brace Plate (Lattice)

  Bracing plates can be added to the Lattice floor beam in order to give more strength and support to your.

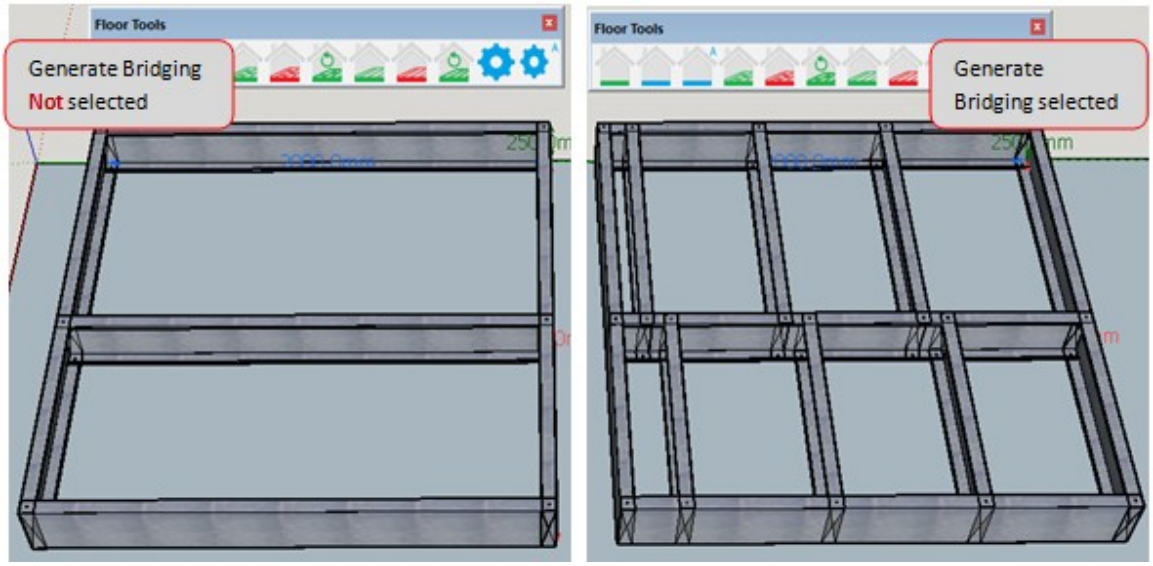


- Beam Styles (Lattice)

  Lattice Beams have 4 different design styles being, Howe, Pratt, Warren and "None" or No style. (The styles can be seen above under Joist Systems)

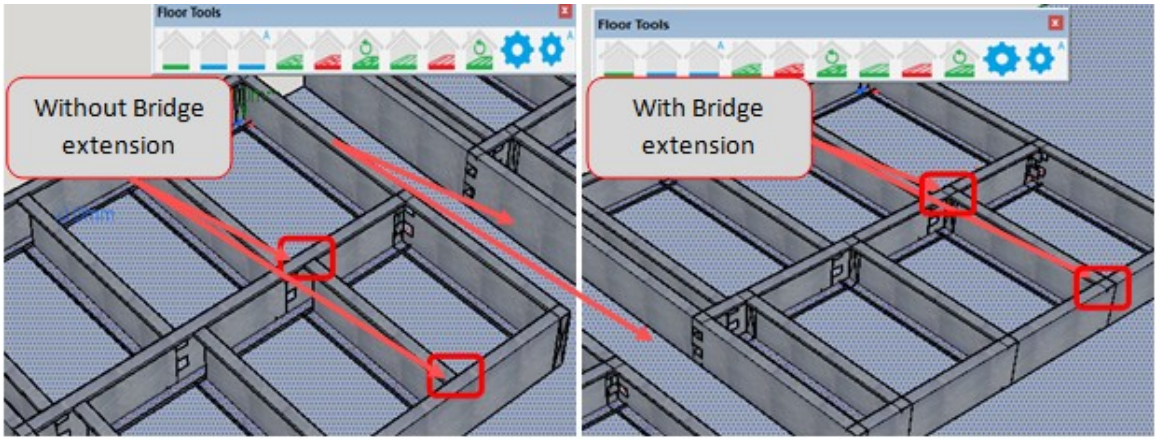
- Generate Bridging

  When you select this tool to be "True", it means that while drawing the C-Joist Frame, the bridging will automatically be generated according to your set properties.



- Bridge / Blocking Extension

  This tool is used to extend the bridging over the joists so that a bracket is not required ***(only applicable for the C_Joist_tab on the Joists Machines)***



- Bridging Tab Bias

  Allows you to select your bias to the front or the back.
- Recommend Bridging

  This tool will automatically insert bridging on your behalf onto the joist.
- Bridge Staggering Space

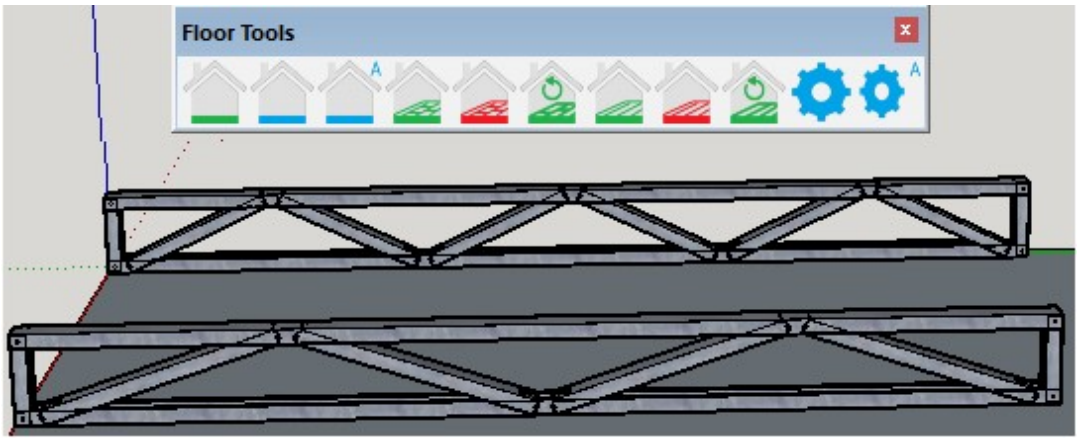
  Allows you have your bridging staggered at a certain distance from each other.
- Bridge Spacing

  This allows you to select the spacing between your bridging that will be automatically inserted on the C joists.
- Joist Spacing

  This is the spacing between the joists on the C Joist frame.
- Joist Height (Lattice)

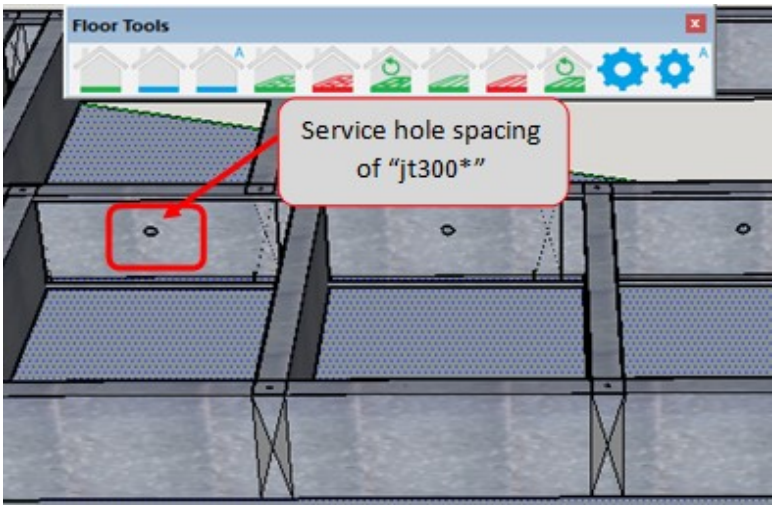
  On the lattice beams, you can change the height of the beam using this tool.
- Web Diagonal Spacing

  Aloows you to select the space between the web diagonals on the lattice beams.



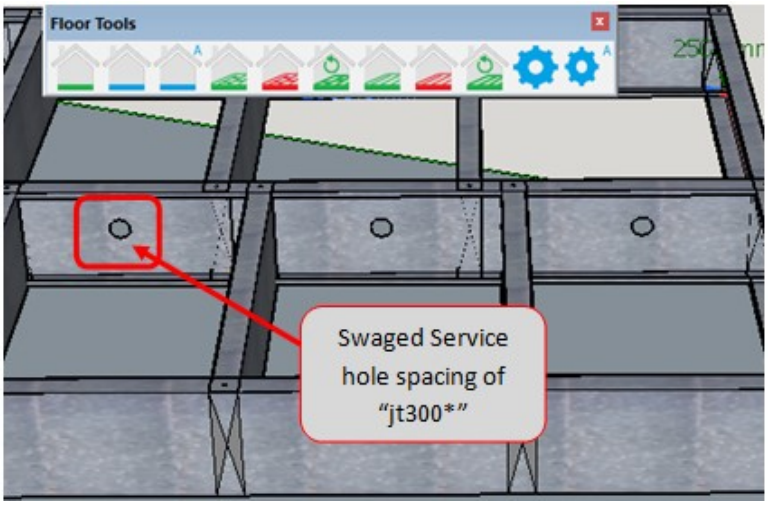
- Service Holes:

  The point at which you want the service holes to be cut by the machine. Insert the place to insert the service by typing "jt"followed by the spacing required. A ""after the spacing will repeat the spacing throughout the frame.*



- Swaged Service Holes

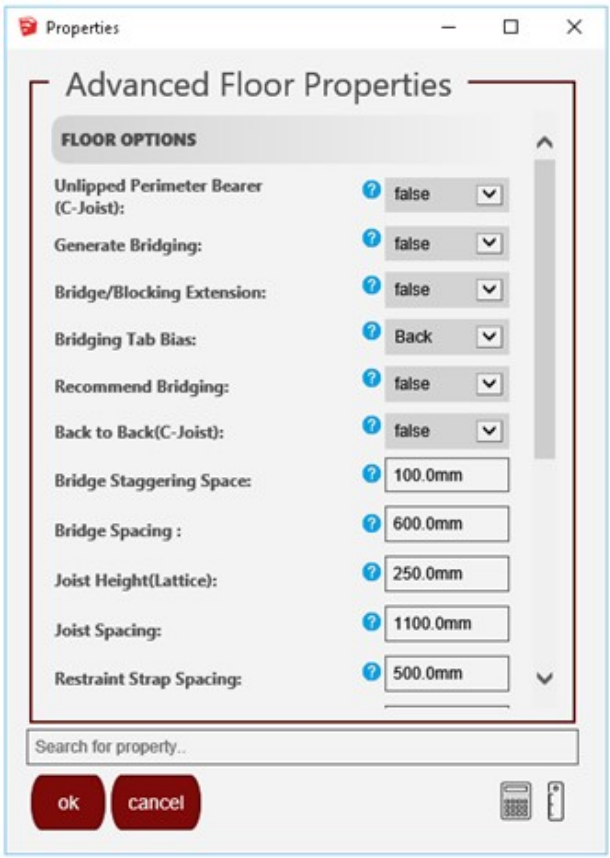
  Swaged Service holes are bigger service holes that could be inserted for cutting by the machine.

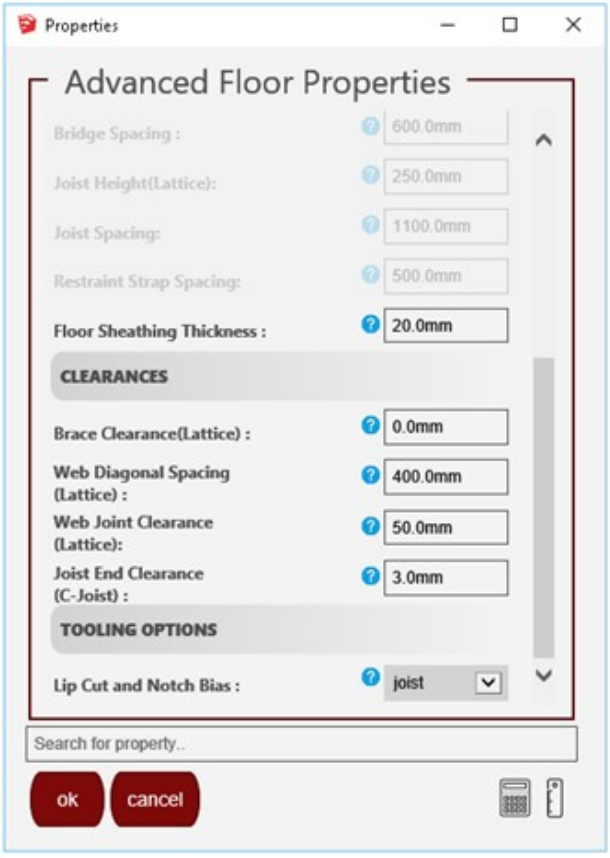


6.4 CHANGE FLOOR ADVANCED PROPERTIES

On the Floor Tools bar is the **blue** "Change Floor Advanced Properties" icon for drawing floors.

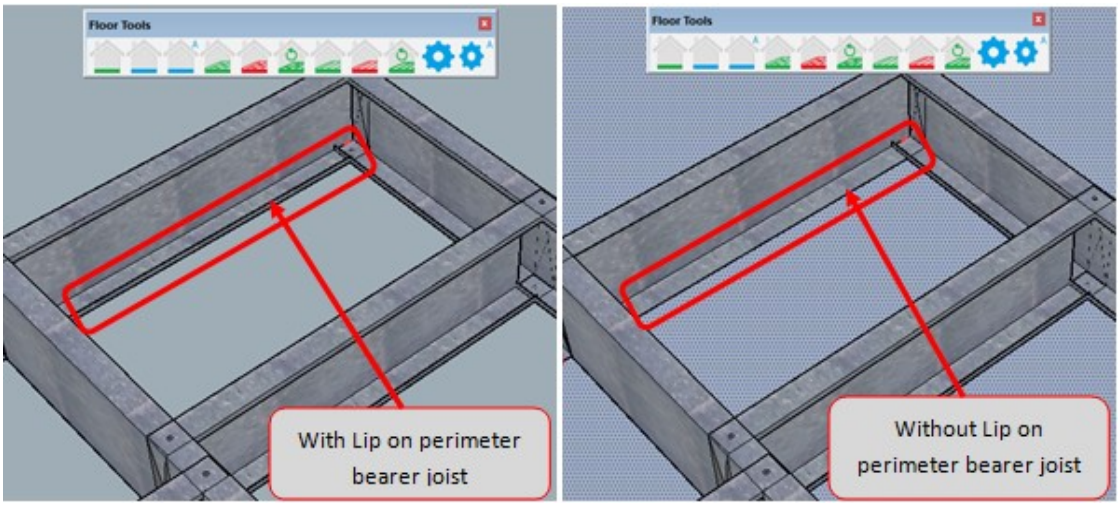
Click on the **blue** "Change Floor Advanced Properties" icon to open up the Advanced Floor Properties window and set all your advanced properties for floors.





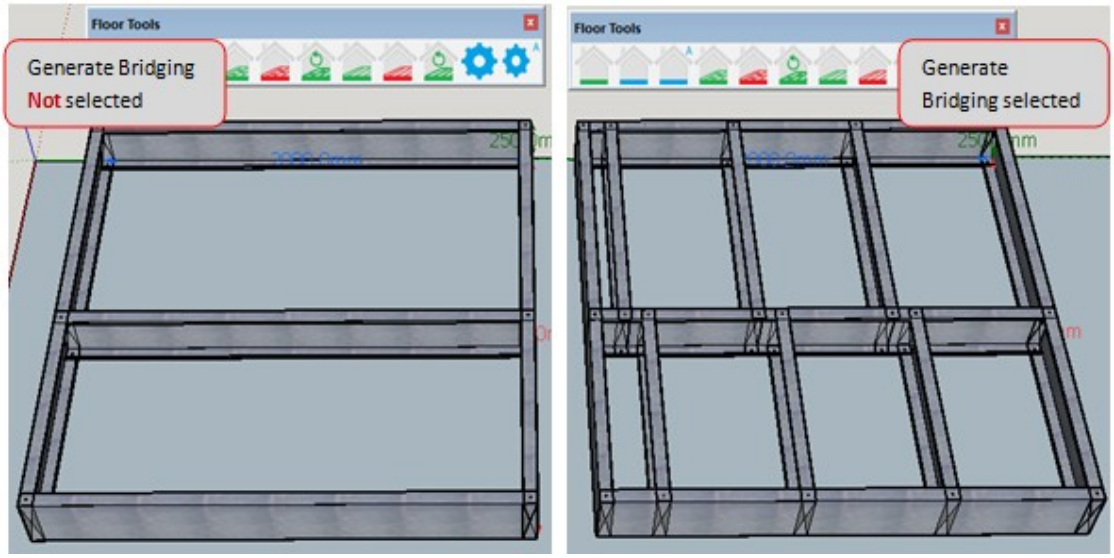
- Floor Options
  - Unlipped Perimeter Bearer (C-Joist)

    On the C-Joist Floor system you have the option of having a lip on the perimeter joists or having no lip on the perimeter joists only. All other joists will still have the lip on them.



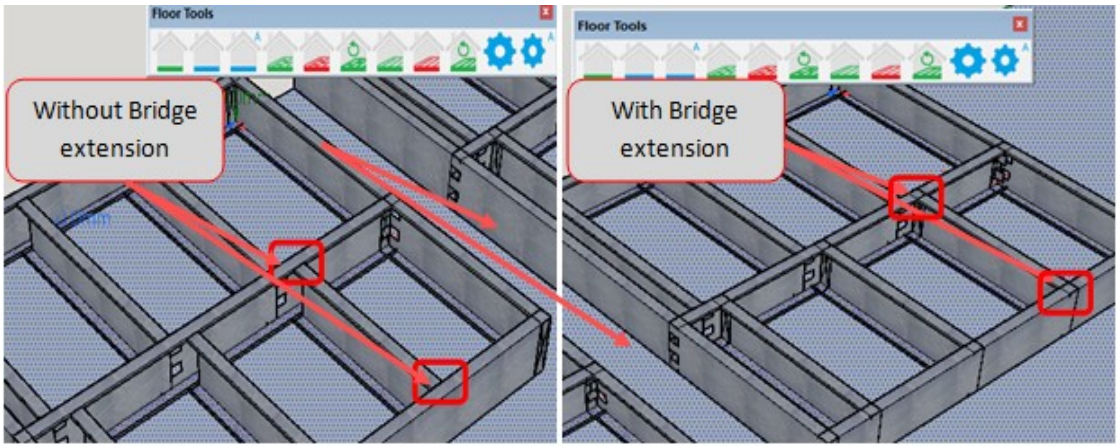
- Generate Bridging

  When selected this tool to be "True", it means that while drawing the C-Joist Frame, the bridging will automatically be generated according to your set properties.



- Bridge / Blocking Extension

  This tool is used to extend the bridging over the joists so that a bracket is not required ***(only applicable for the C_Joist_tab on the Joists Machines)***



- Bridging Tab Bias

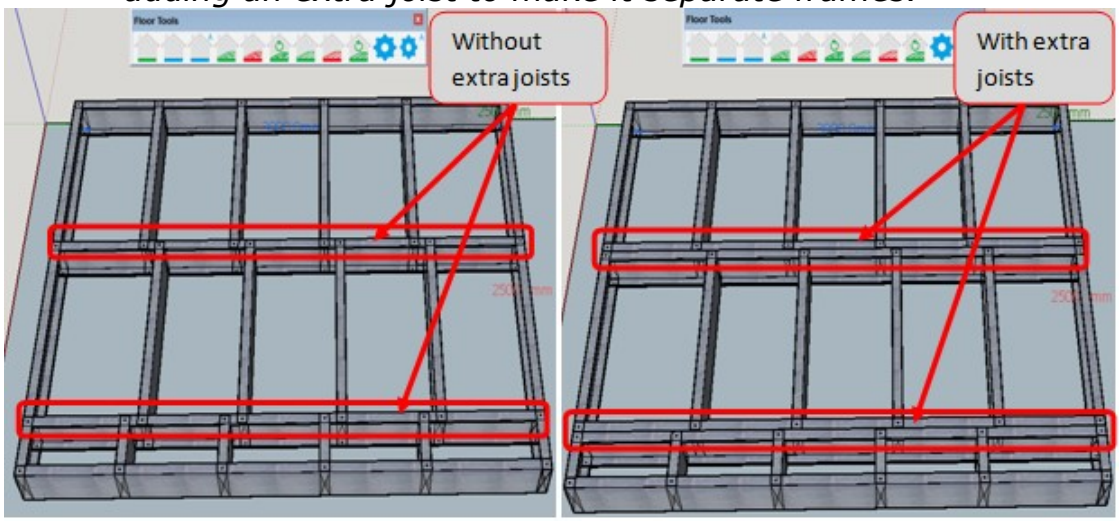
  Allows you to select your bias to the front or the back.

- Recommend Bridging

  This tool will automatically insert bridging on your behalf onto the joist.

- Back to Back (C-Joist)

  C-Joists can be placed as separate frames back to back and this tool designs it so that you are able to do so by adding an extra joist to make it separate frames.



- Bridge Staggering Space

  Allows you have your bridging staggered at a certain distance from each other.

- Bridge Spacing

  This allows you to select the spacing between your bridging that will be automatically inserted on the C joists.

- Joist Height (Lattice)

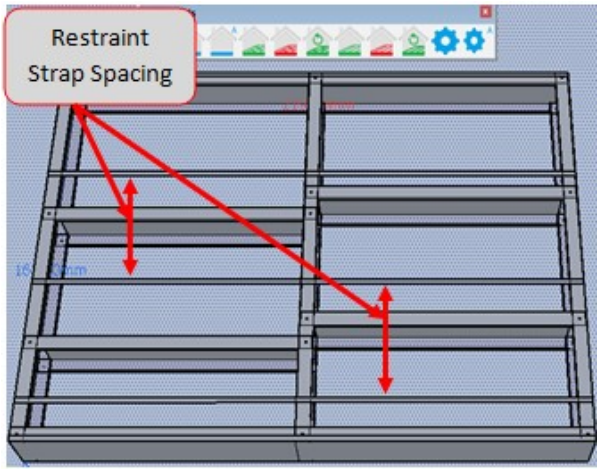
  On the lattice beams, you can change the height of the beam using this tool.

- Joist Spacing

  This is the spacing between the joists on the C Joist frame.

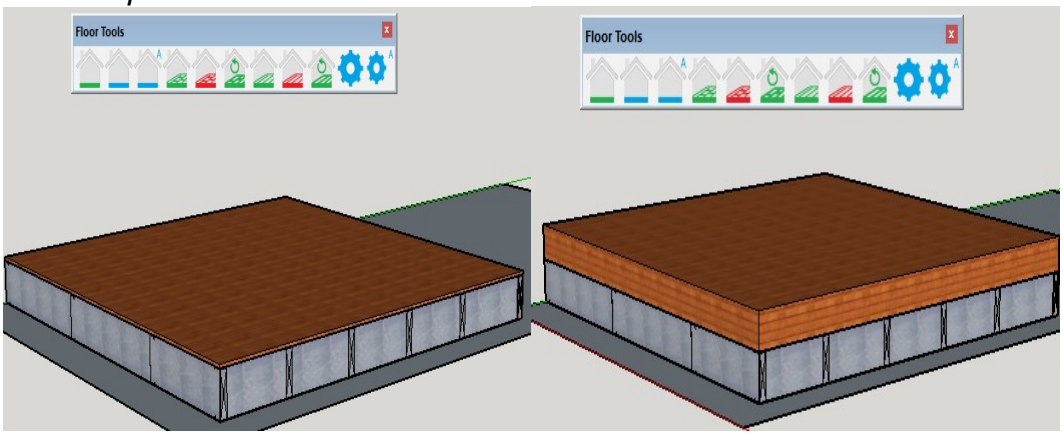
- Restraint Strap Spacing

  When the restraint straps are activated on the advanced settings, you have the option to change the spacing between straps.



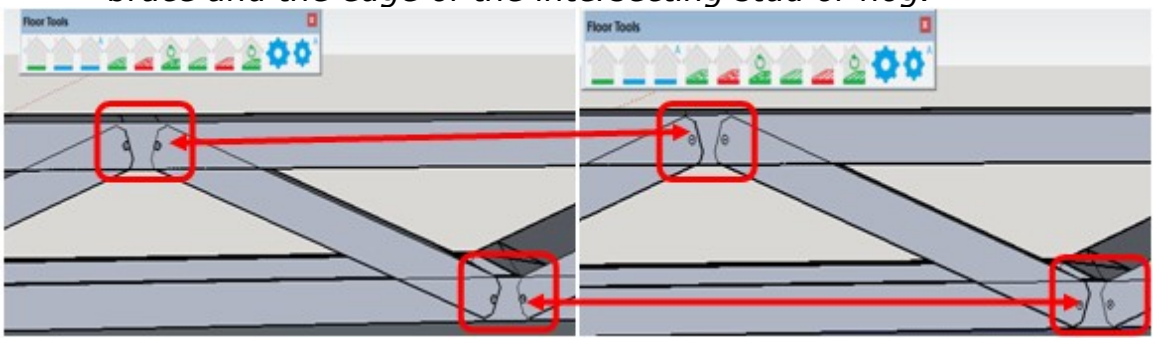
- Floor Sheathing Thickness

  As per diagram below, the thickness of the floor can be specified to the thickness of the actual floor.



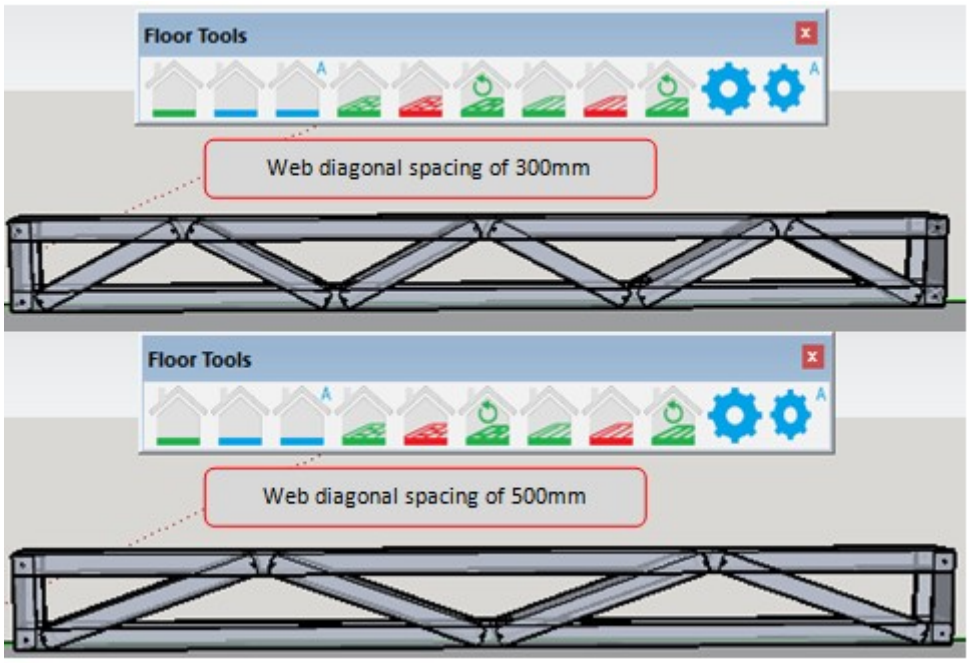
- Clearances
  - Brace Clearance (Lattice)

    Allows you to change the space between the end of the brace and the edge of the intersecting stud or nog.



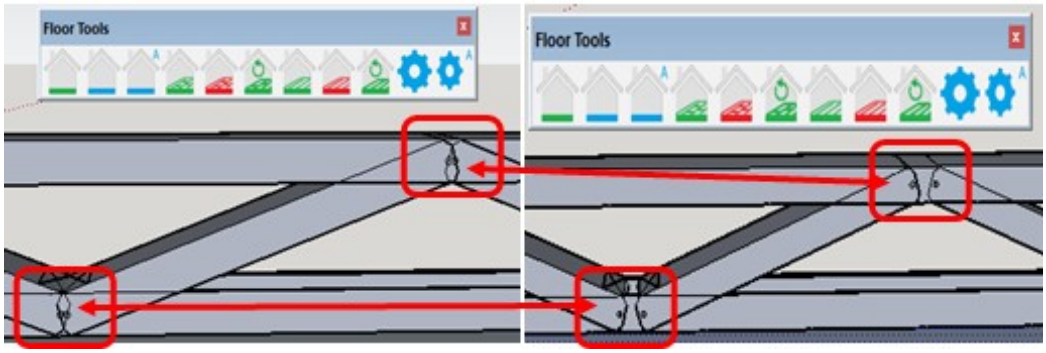
  - Web Diagonal Spacing (Lattice)

    Allows you to change the space between the web diagonals on the different styles of lattice beams.



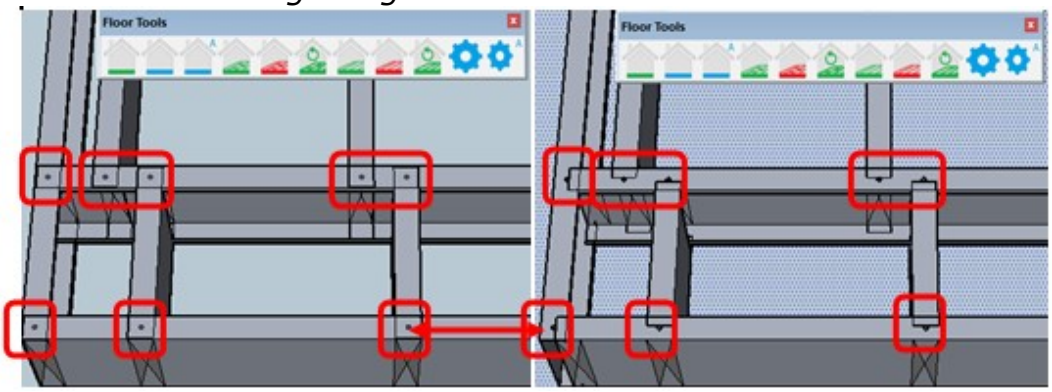
- Web Joist Clearance (Lattice)

  Allows you to change the space between the web joists as per the diagram below.



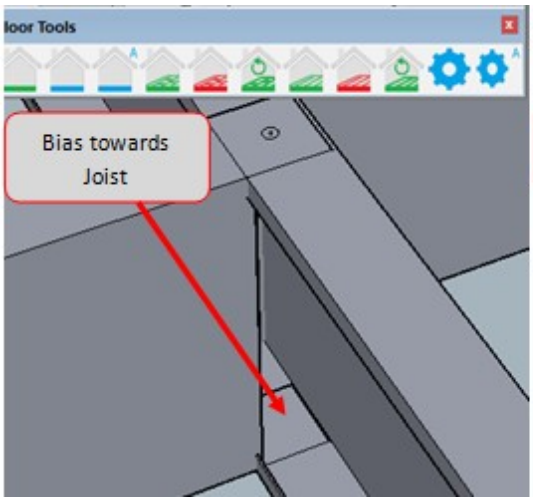
- Joist End Clearance (C-Joist)

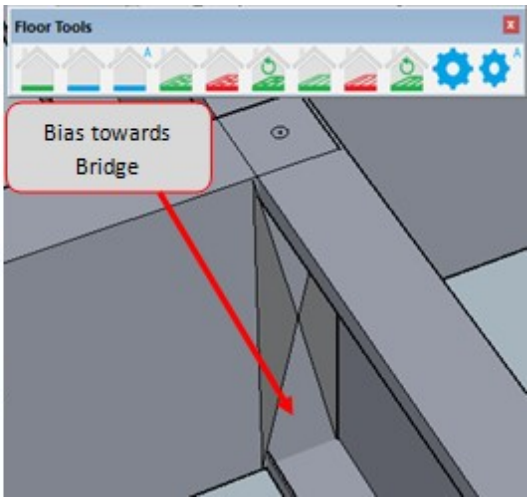
  Allows you to change the space between the joists and the intersecting bridges or the end of the frame.



- Tooling Options
  - Lip Cut and Notch Bias

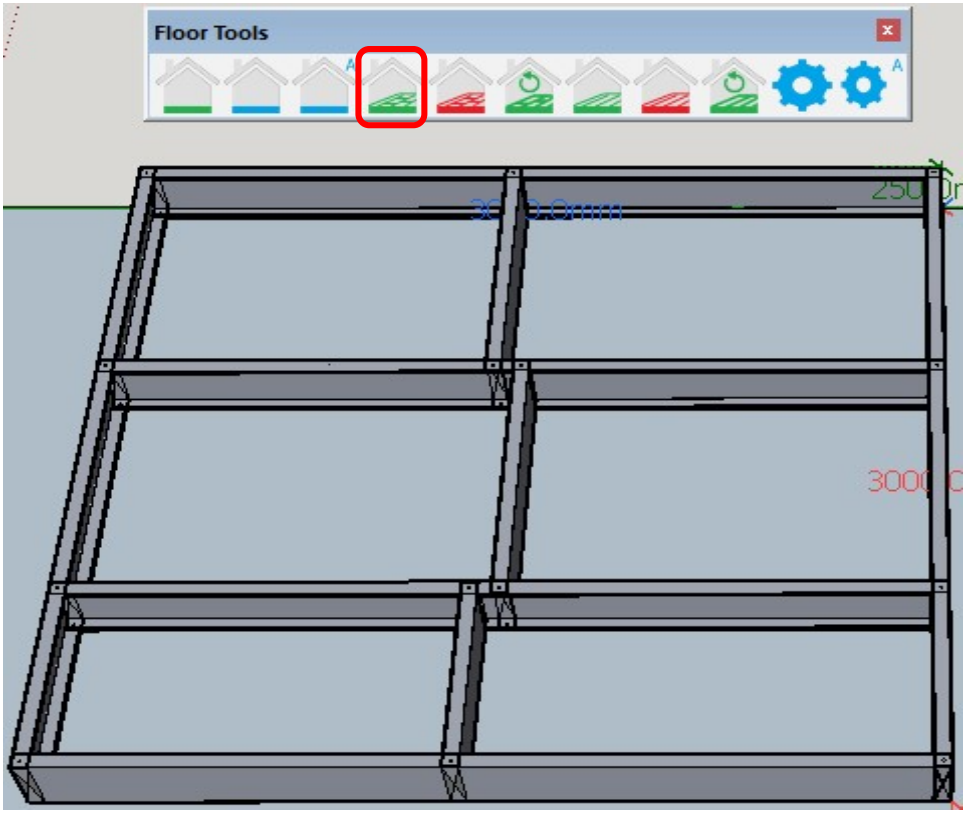
    Allows you choose whether the tooling should be bias towards the joist or towards the bridge.


loor Tools
Bias towards
Joist

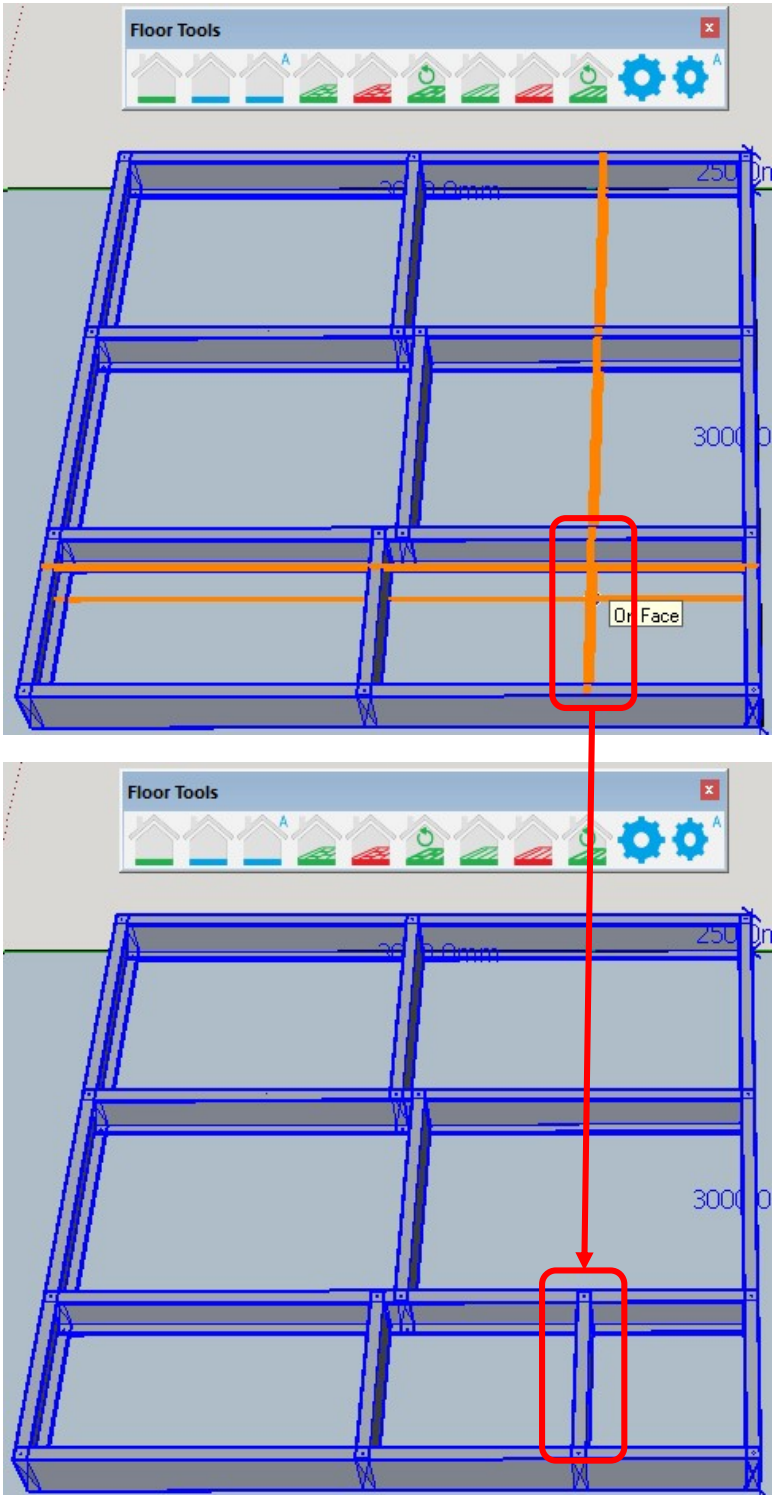

Floor Tools
Bias towards
Bridge

6.5 ADD BRIDGE

Add a bridge to an existing Floor Joist by selecting the "Add Bridge" icon on the Floor Tools icon Bar.

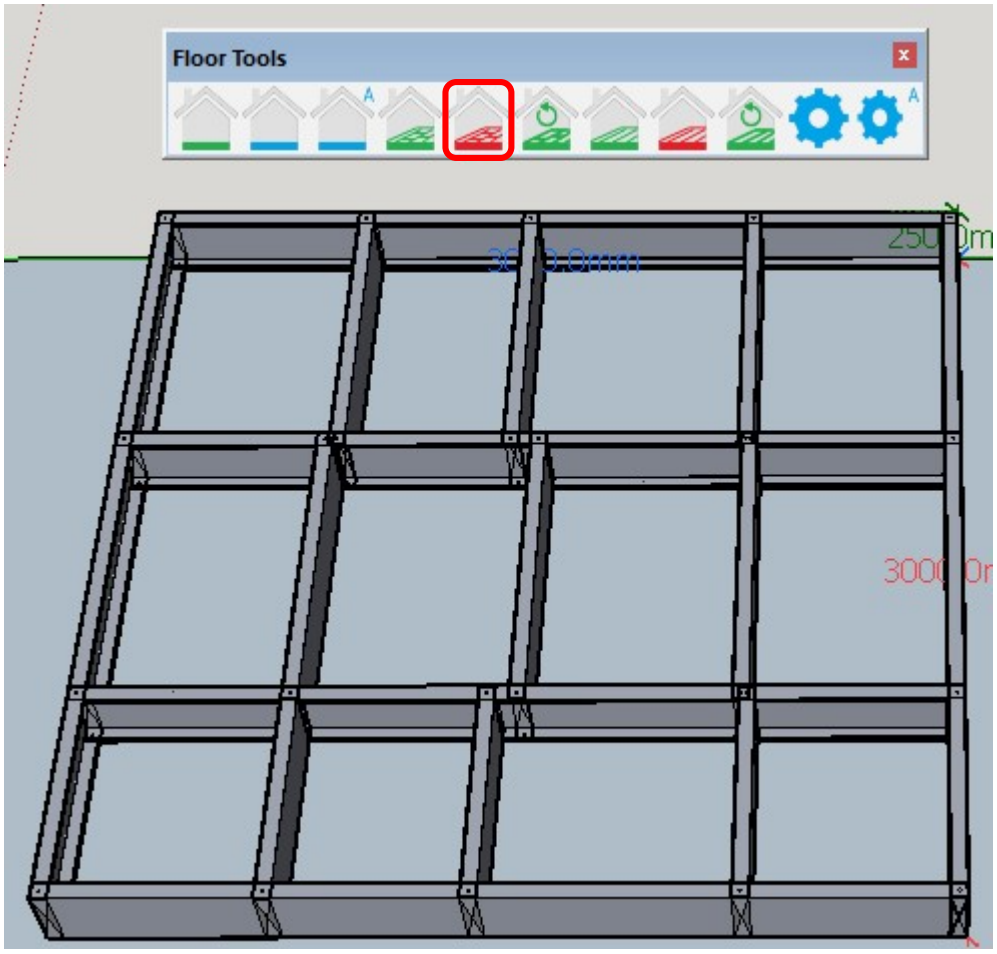


Start by selecting the floor frame on which the bridge needs to be added. Click on the **green** "Add Bridge" icon. A orange cross-line will appear to highlight the position where the bridge needs to be added. You can move this line up and down and side to side until you have the area you want to add the bridge to. Releasing the hold will enable the bridge to be drawn where you have indicated.

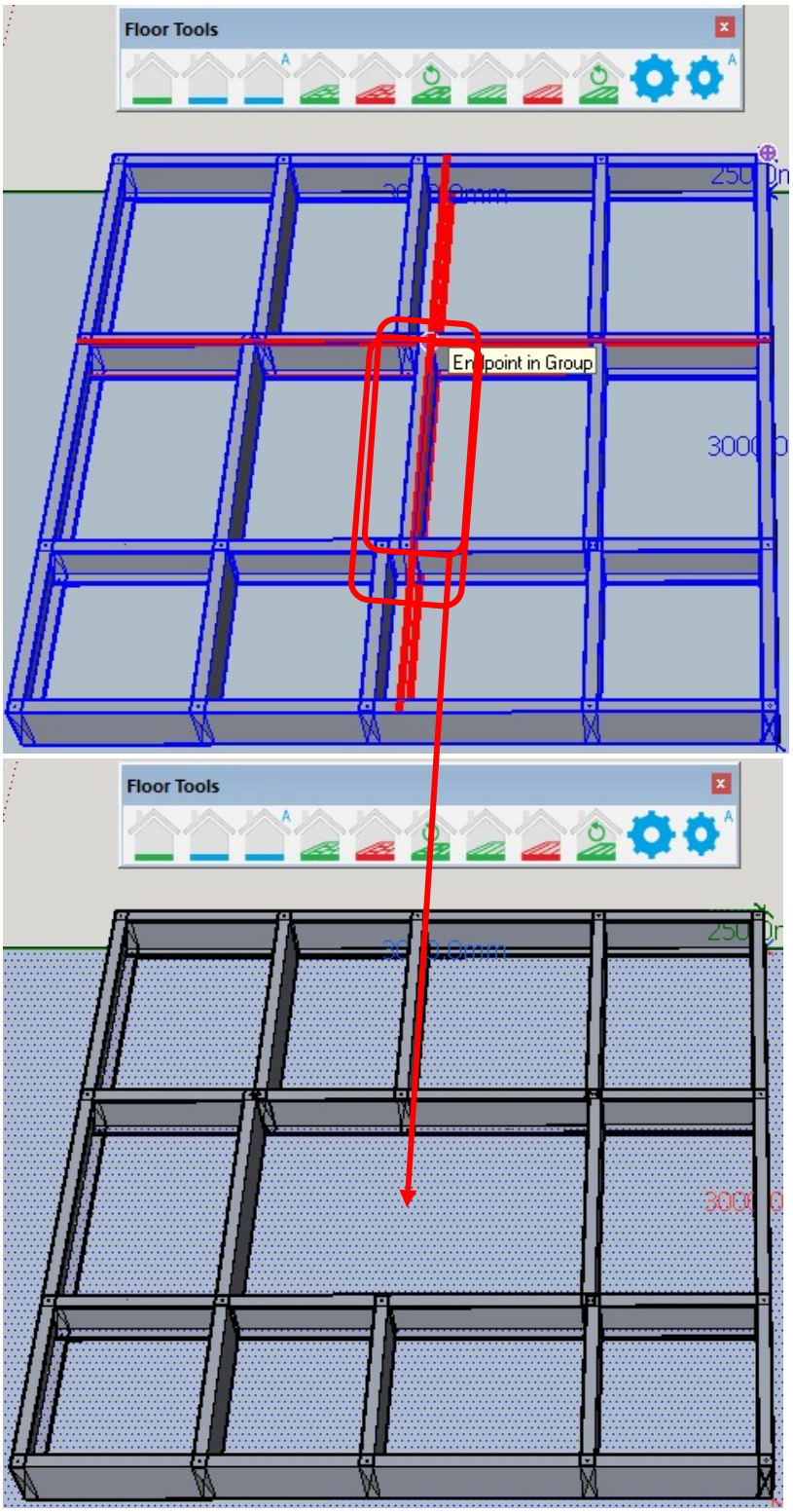

Floor Tools
Face
Floor Tools

6.6 DELETE BRIDGE

Delete a bridge to an existing Floor Joist by selecting the "Delete Bridge" icon on the Floor Tools icon Bar.

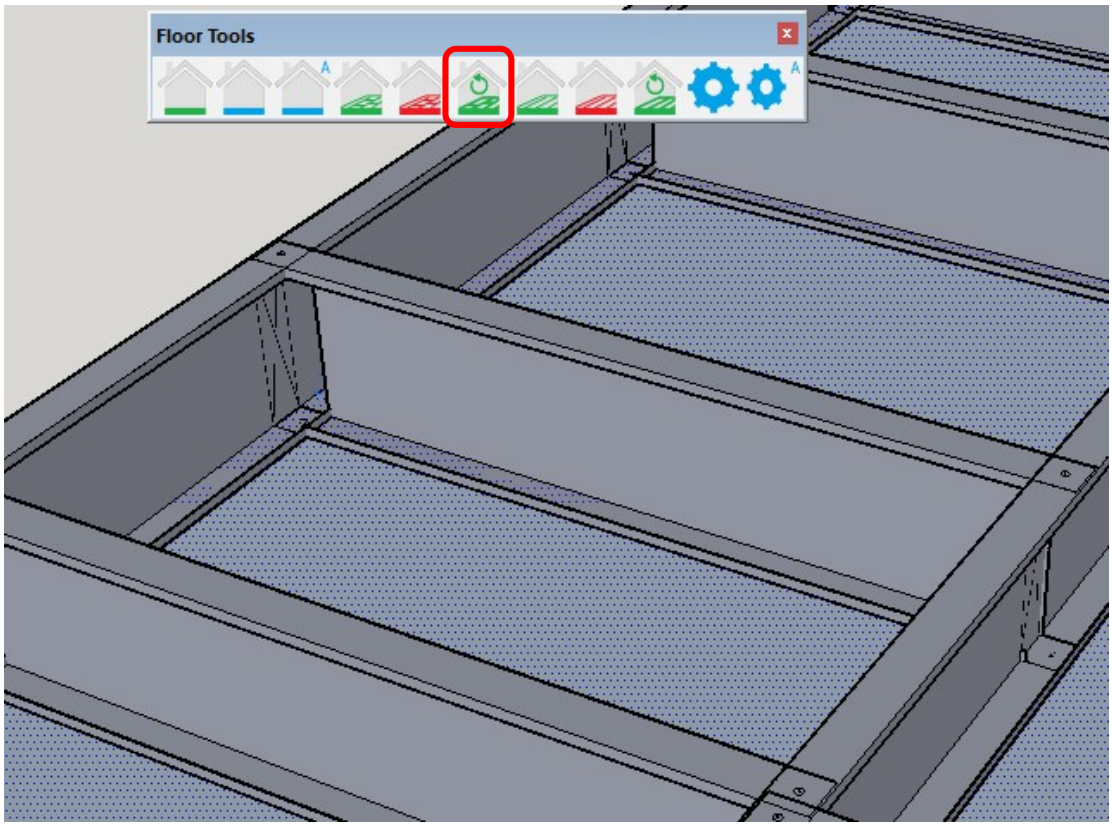


Start by selecting the floor frame on which the bridge needs to be deleted. Click on the **red** "Delete Bridge" icon. A **red** cross-line will appear to highlight the position where the bridge needs to be deleted. You can move this line up and down and side to side until you have the bridge you want to delete. Click on the **red** intersecting cross-line over the bridge to be removed from the frame and notice that the bridge will disappear.

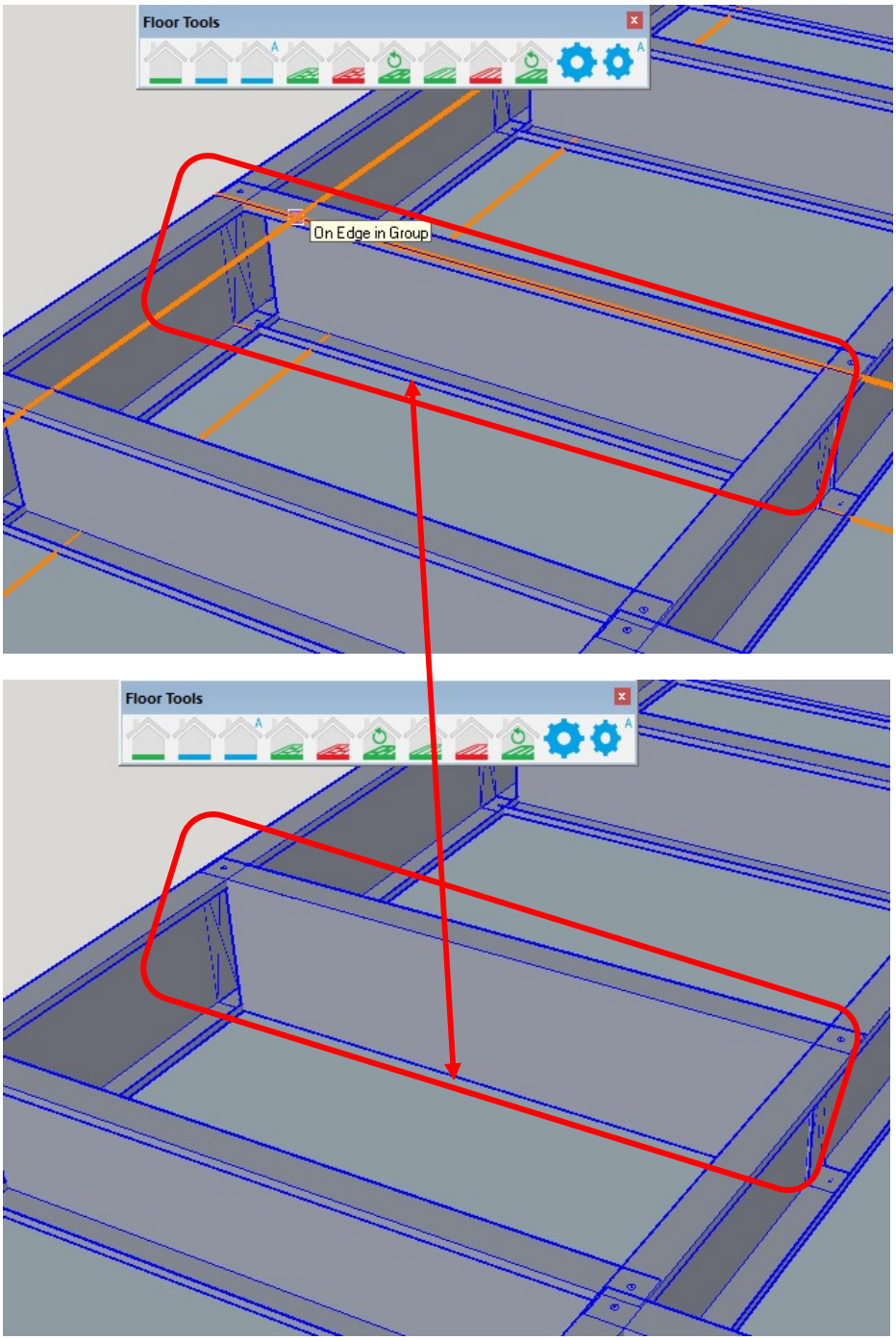

Floor Tools
Endpoint in Group
Floor Tools

6.7 ROTATE BRIDGE

You can rotate a bridge on an existing Floor Joist by selecting the "Rotate Bridge" icon on the Floor Tools icon Bar.

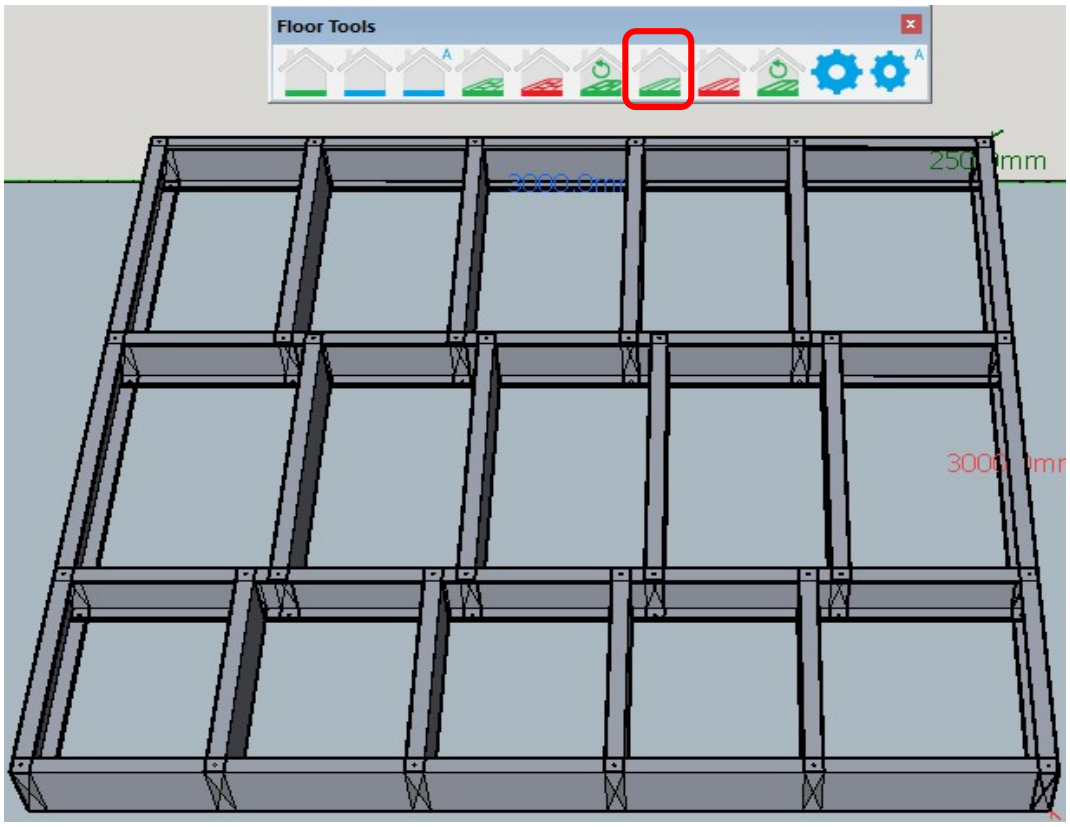


Start by selecting the floor frame on which the bridge needs to be rotated. Click on the **green** "Rotate Bridge" icon. An orange cross-line will appear to highlight the bridge that needs to be rotated. Click on the orange intersecting cross-line over the bridge to be rotated in the frame and notice that the bridge will be rotated with the lip facing the opposite side.

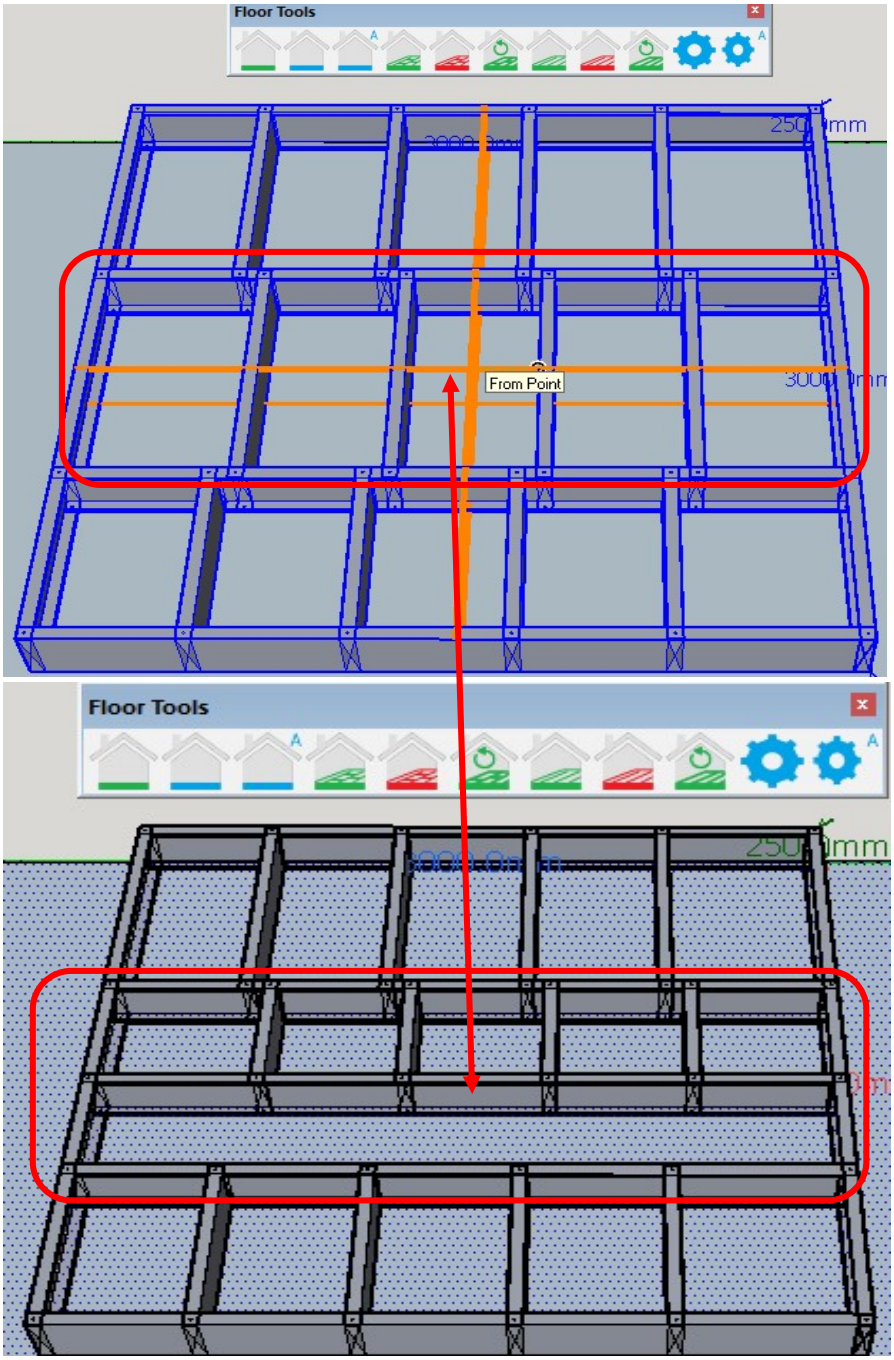

Floor Tools
On Edge in Group
Floor Tools

6.8 ADD FLOOR JOIST

You can add an additional floor joist to an existing Floor Joist frame system by selecting the "Add Floor Joist" icon on the Floor Tools icon Bar.

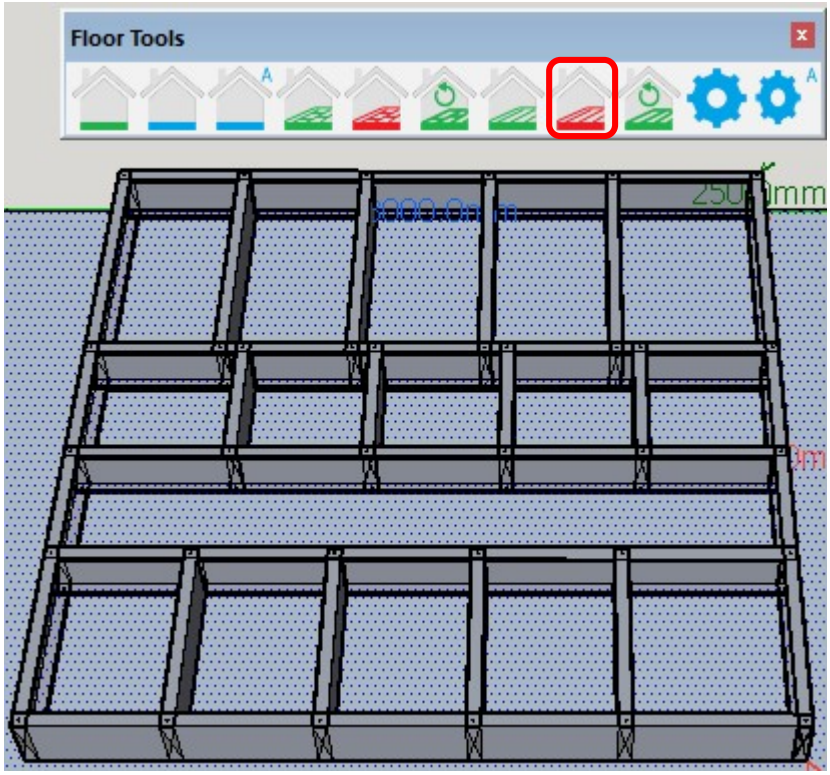


Start by selecting the floor frame on which the joist needs to be added. Click on the **green** "Add Floor Joist" icon. An orange cross-line will appear to highlight the position that the joist needs to be added. Click on the orange intersecting cross-line at the point that the joist needs to be added and notice that a new joist will appear in that position.

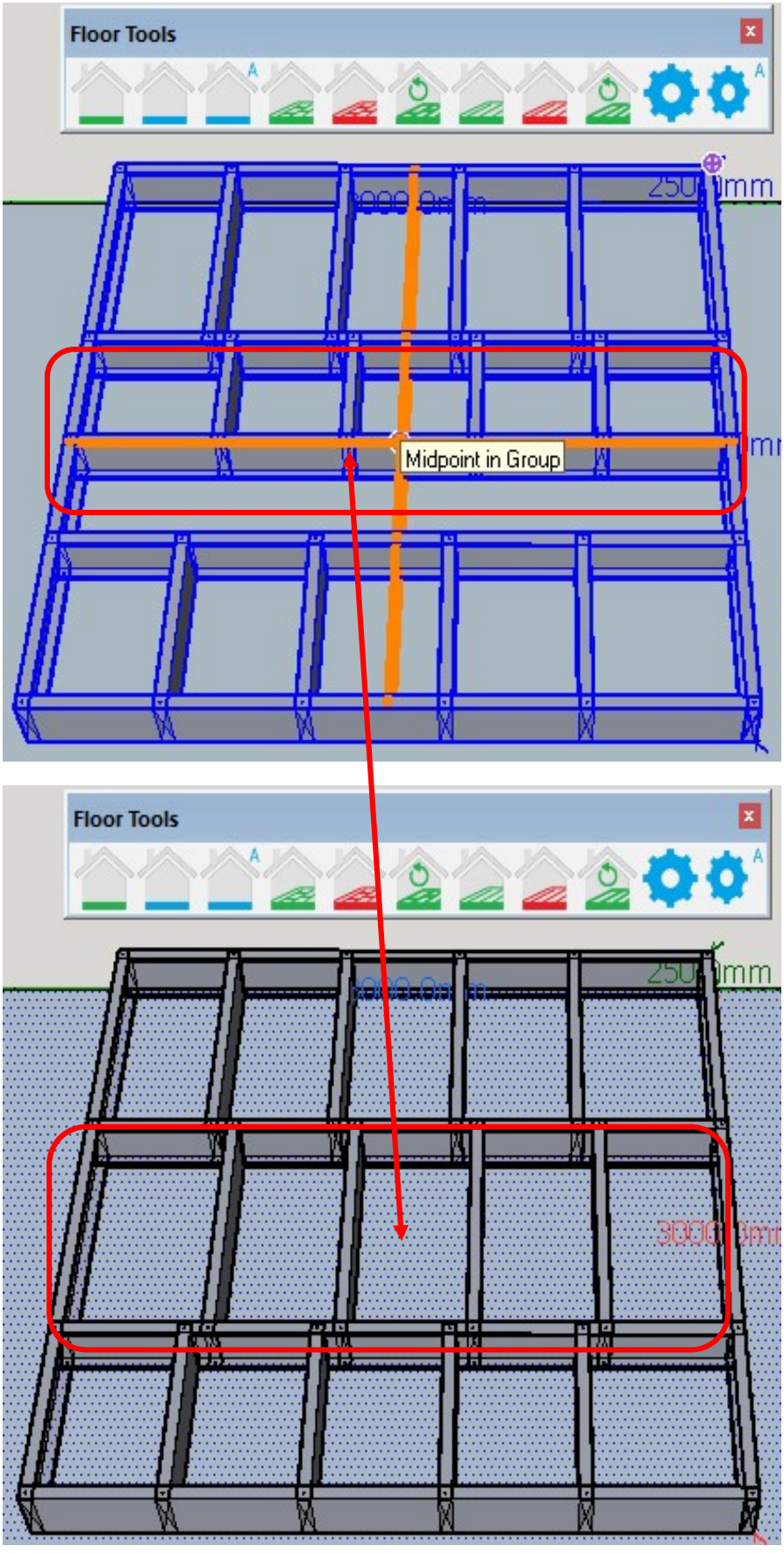

Floor Tools
From Point
Floor Tools

6.9 DELETE FLOOR JOIST

You can delete a floor joist on an existing Floor Joist frame system by selecting the "Delete Floor Joist" icon on the Floor Tools icon Bar.

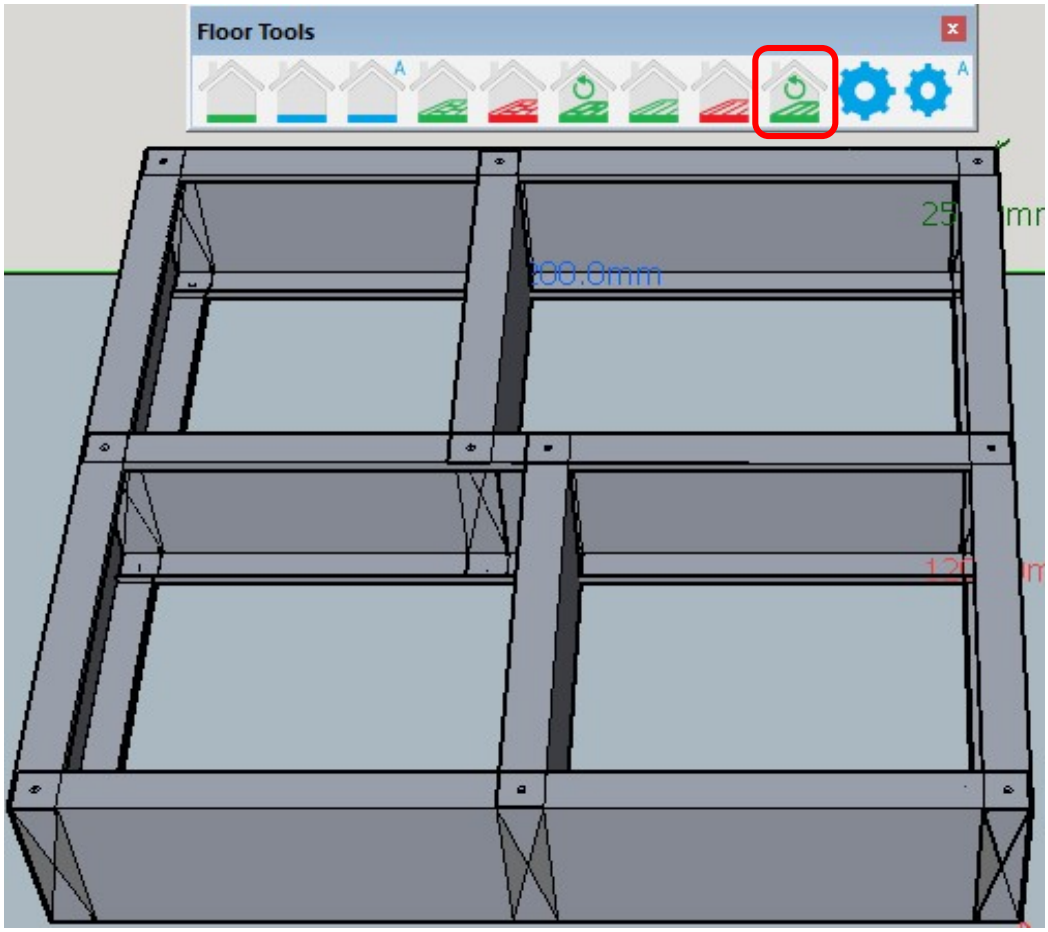


Start by selecting the floor frame on which the joist needs to be deleted. Click on the **red** "Delete Floor Joist" icon. A **red** cross-line will appear to highlight the position that the joist needs to be deleted. Click on the **red** intersecting cross-line at the point that the joist needs to be deleted and notice that the joist will be removed.

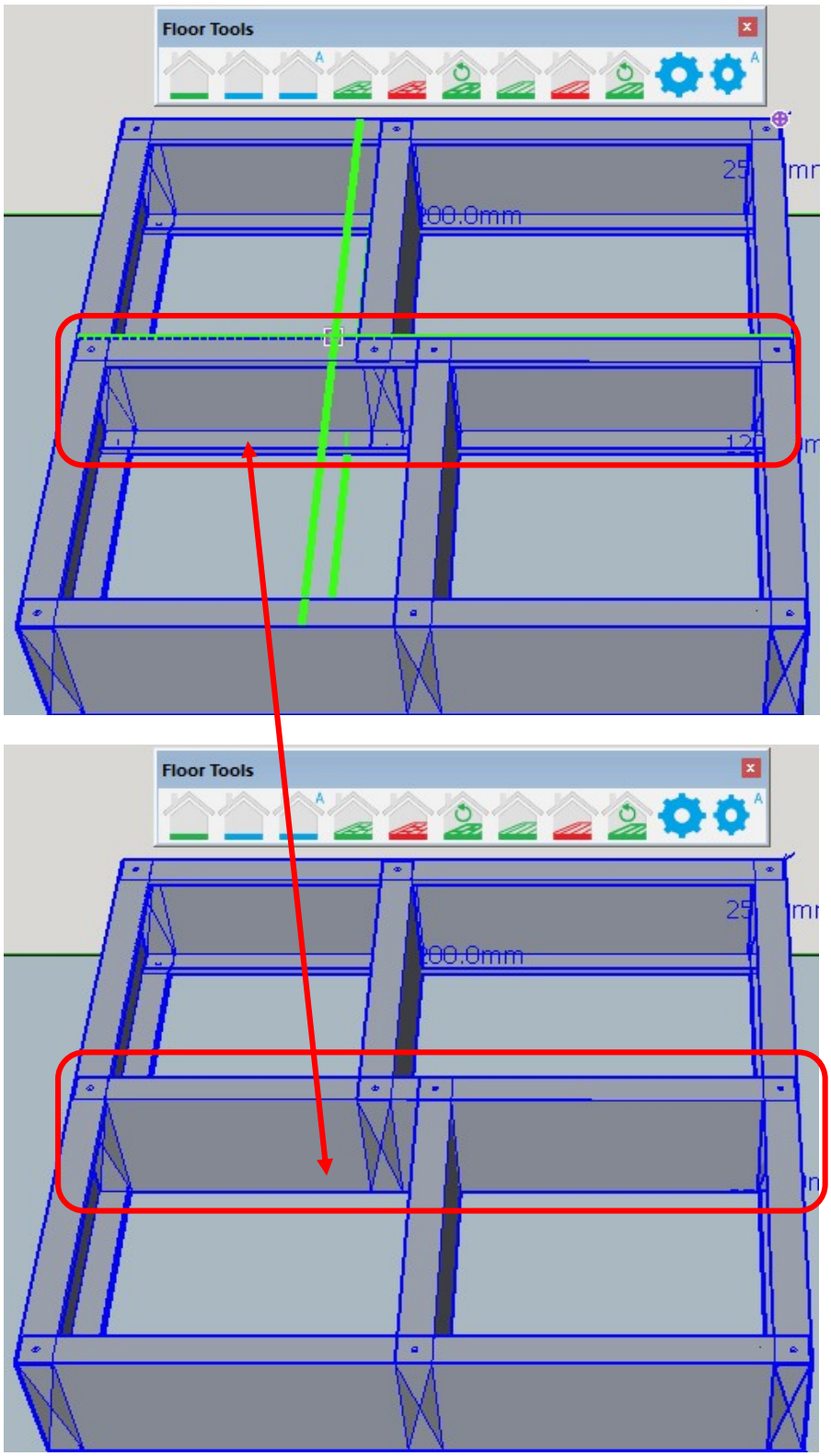

Floor Tools
Midpoint in Group
Floor Tools

6.10 ROTATE FLOOR JOIST

To rotate a floor joist on the Floor Joist system, select the "Rotate Floor Joist" icon on the Floor Tools icon Bar.



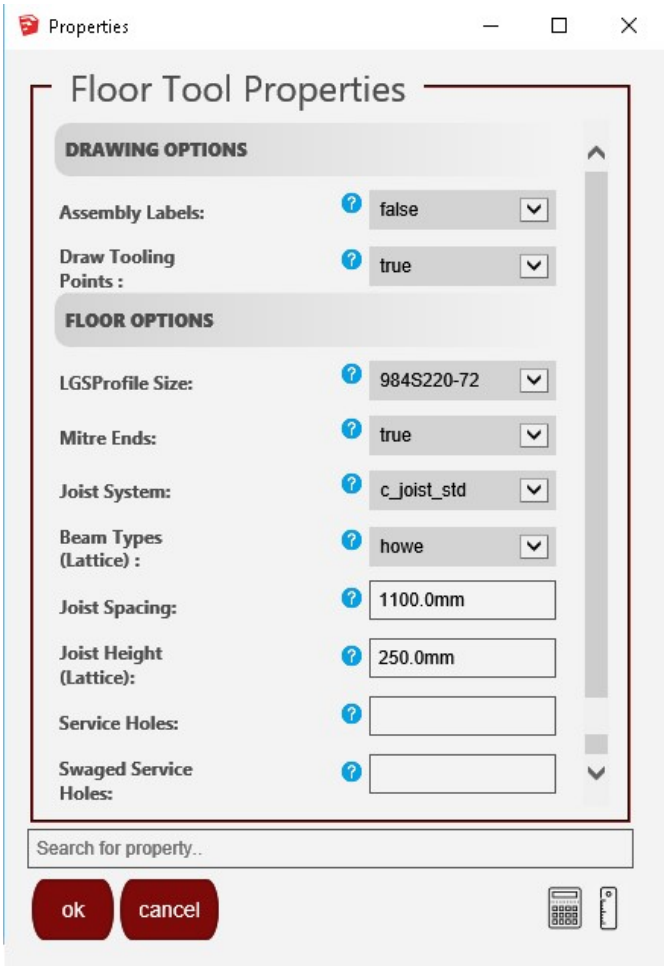
Start by selecting the floor frame on which the joist needs to be rotated. Click on the **green** "Rotate Floor Joist" icon. An orange cross-line will first appear to guide you to the joist that needs to be rotated. If you are not in the region of the joist the line remains orange. Once it changes to **green** it means that the joist can be rotated. Click on the **green** intersecting cross-line and the joist will be rotated to face the other side of the frame.


Floor Tools
Floor Tools

6.11 CHANGE FLOOR SETTINGS

On the Floor Tools bar is the "Change Floor Settings" icon, being the global settings for drawing floors.

Click on the Change Floor Settings Icon to open up the Floor Tool Properties and set all your standard properties for floors.



- Drawing Options
  - Assembly Labels
    Enable or Disable labels to be printed on the individual profiles within the floor frame
  - Draw Tooling Points
    Enable or Disable rendering of dimples, lip cuts notches etc
- Floor Options
  - LGSProfile Size

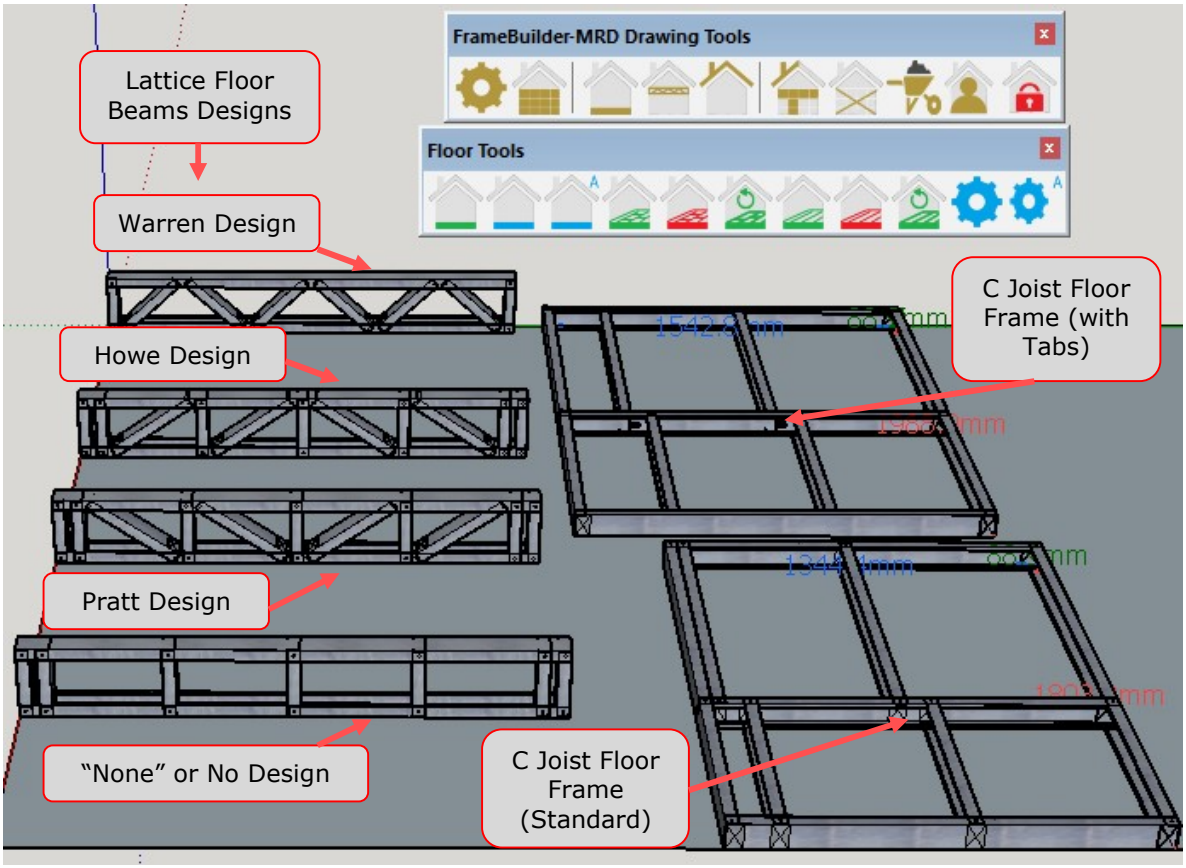
This is the profile of the steel to used in the manufacture of the floor system you are designing.

- Mitre Ends

  Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.

- Joist System

  The design of the different floor joist systems are lattice, c_joist _Tab and c_joist_std. The difference between the std and tab c_joist systems is based on the standard machines and the floor joist machine(as per Howick Machines). Lattice Floor beams come in Warren, Howe, Pratt and "none or no Design.



- Beam Types (Lattice)

  Lattice Beams have 4 different design styles being, Howe, Pratt, Warren and "None" or No style. (The styles can be seen above under Joist Systems)

- Joist Spacing

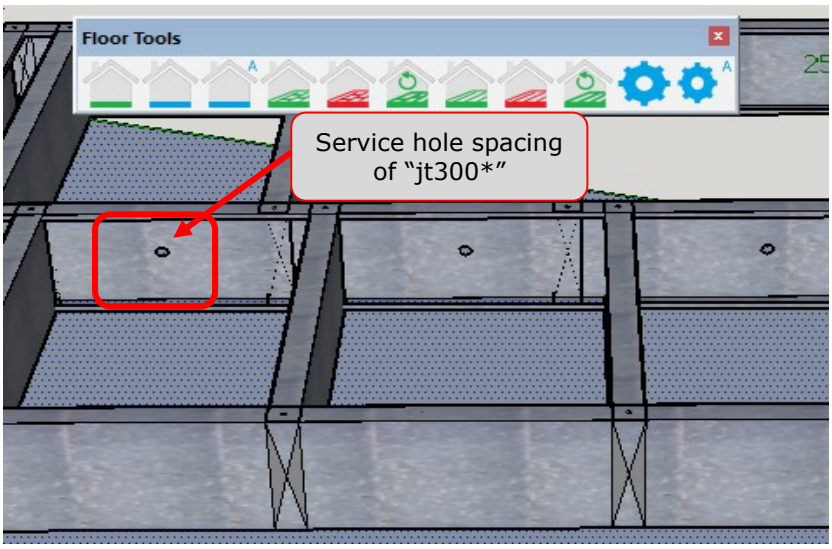
  This is the spacing between the joists on the C Joist frame.

- Joist Height (Lattice)

On the lattice beams, you can change the height of the beam using this tool.

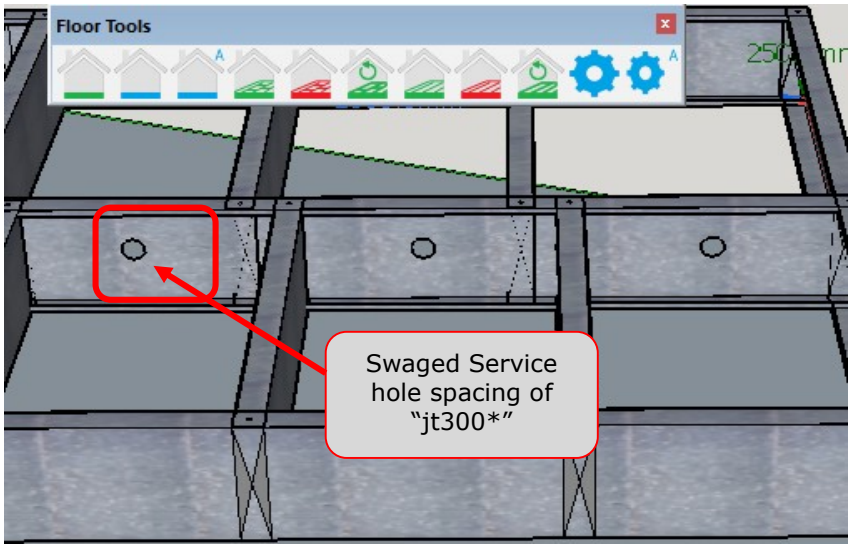
- Service Holes:

  The point at which you want the service holes to be cut by the machine. Insert the place to insert the service by typing "jt"followed by the spacing required. A ""after the spacing will repeat the spacing throughout the frame.*



- Swaged Service Holes

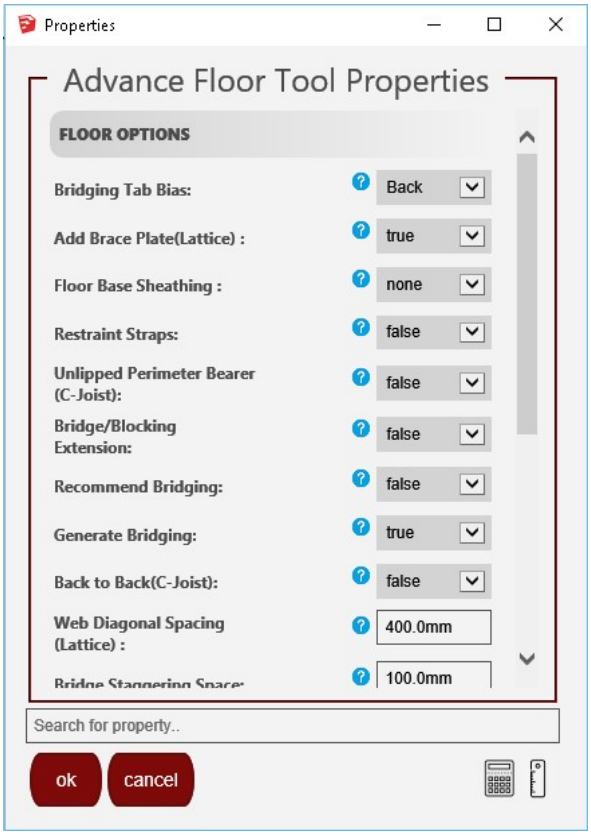
  Swagered Service holes are bigger service holes that could be inserted for cutting by the machine.

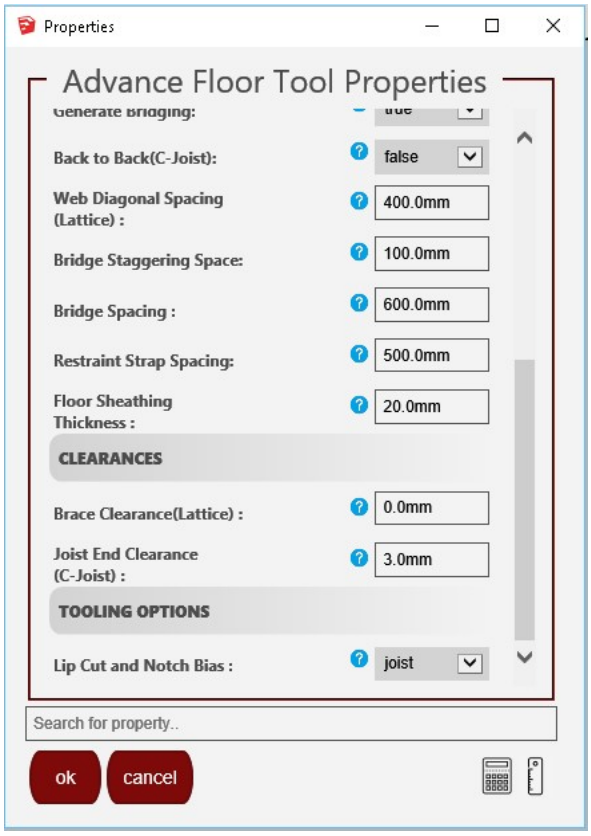


6.12 CHANGE FLOOR ADVANCED SETTINGS

On the Floor Tools bar is the "Change Floor Advanced Settings" icon, being the global settings for drawing floors.

Click on the Advanced Settings Icon to open up the Advanced Floor Properties and set all your advanced properties for floors.

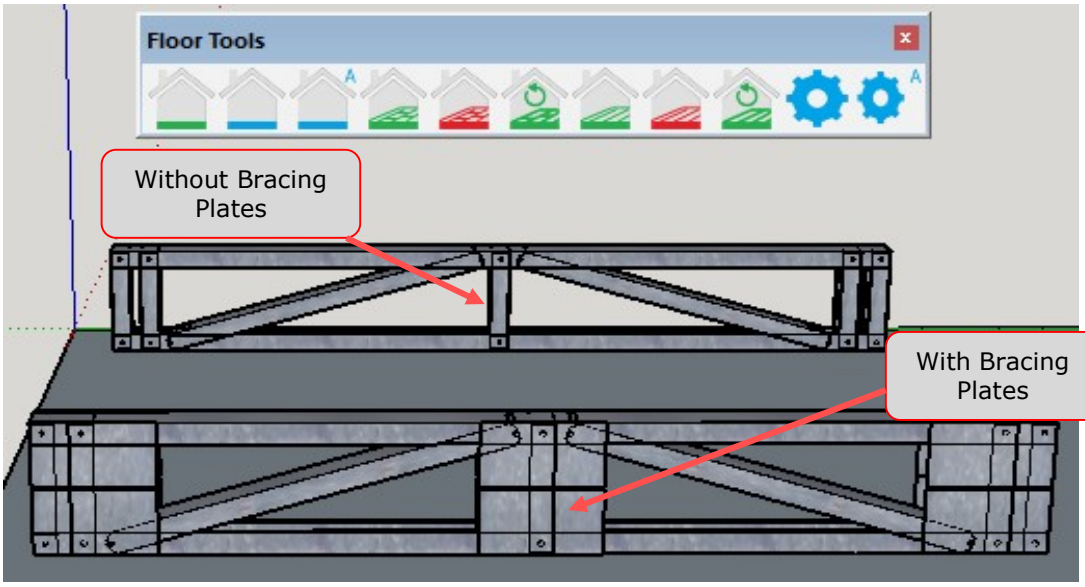




- Floor Options
  - Bridging Tab Bias

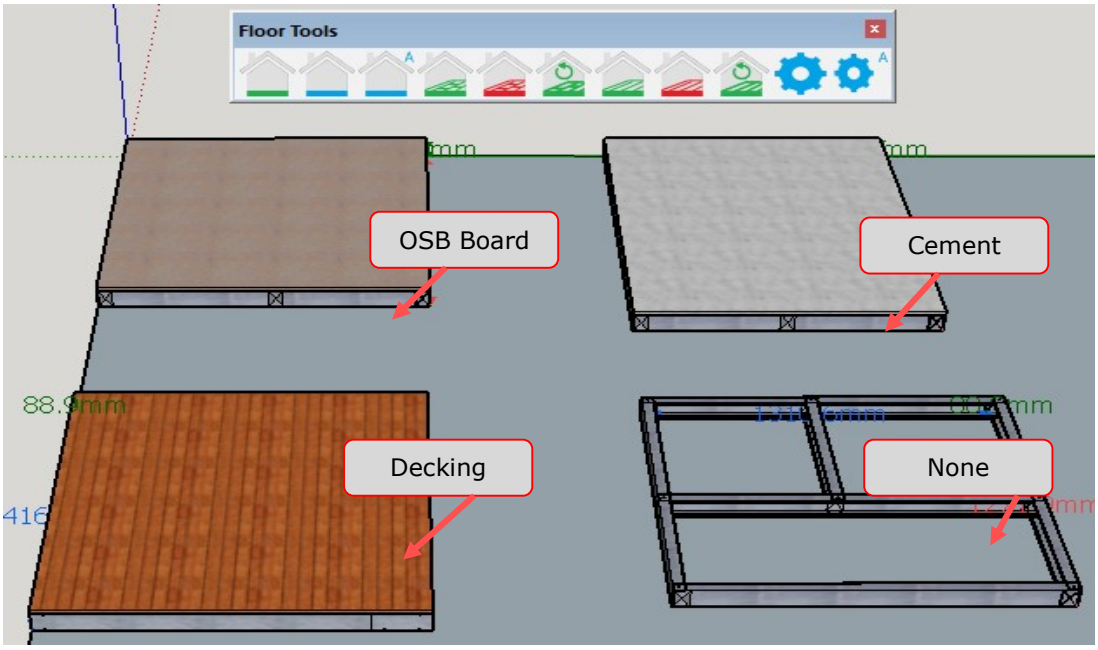
    Allows you to select your bias to the front or the back of the bridging tabs.
  - Add Brace Plate (Lattice)

    Bracing plates can be added to the Lattice floor beam in order to give more strength and support to your floor joist.



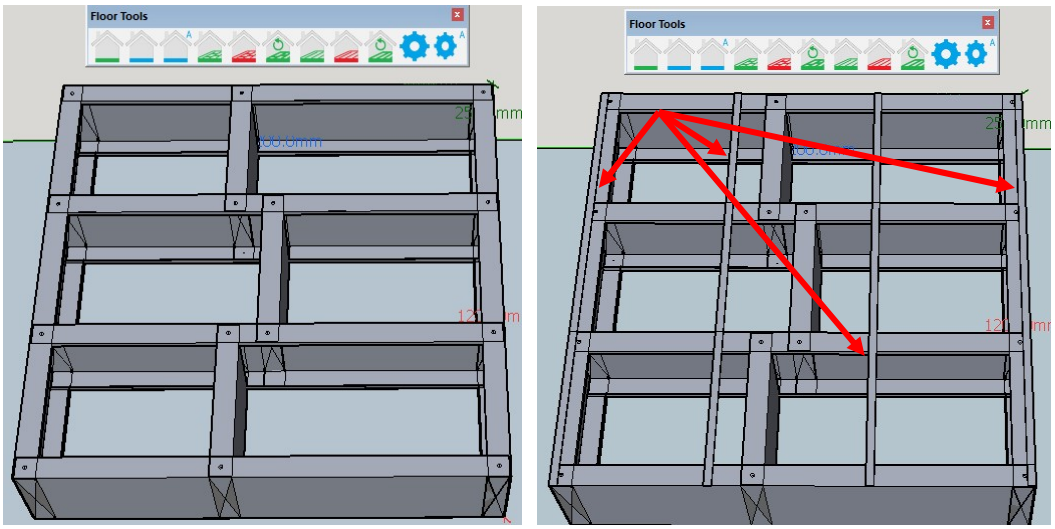
- Floor Base Sheathing

  Select the finish of your floor between OSB_Board, Cement, Decking or none to be able to view how the floor will look completed while drawing the floor.



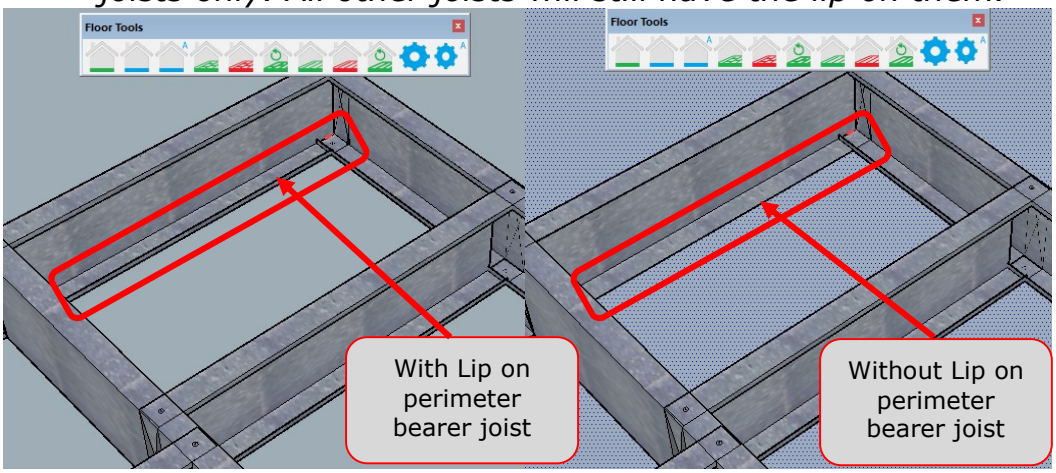
- Restraint Straps

  You can activate restraint straps to be added to your floor frame to give it more sturdiness.



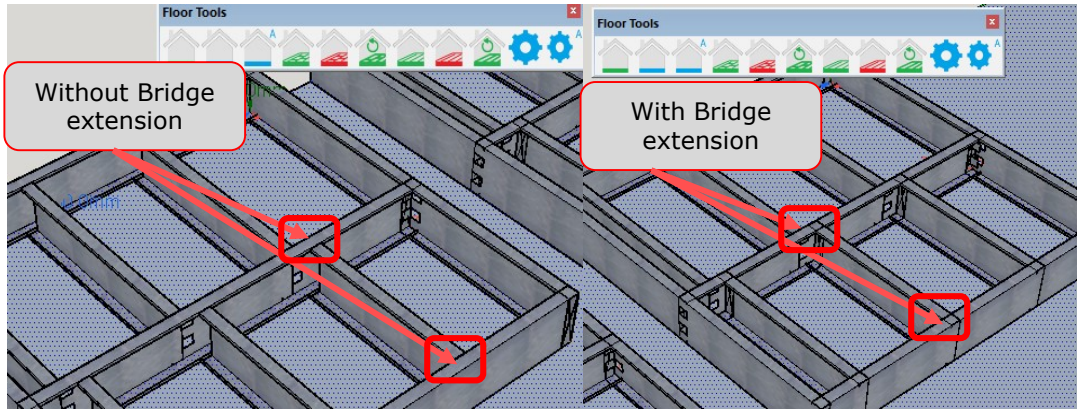
- Unlipped Perimeter Bearer (C-Joist)

  On the C-Joist Floor system you have the option of having a lip on the perimeter joists or having no lip on the perimeter joists only. All other joists will still have the lip on them.



- Bridge / Blocking Extension

  This tool is used to extend the bridging over the joists so that a bracket is not required ***(only applicable for the C_Joist_tab on the Joists Machines)***

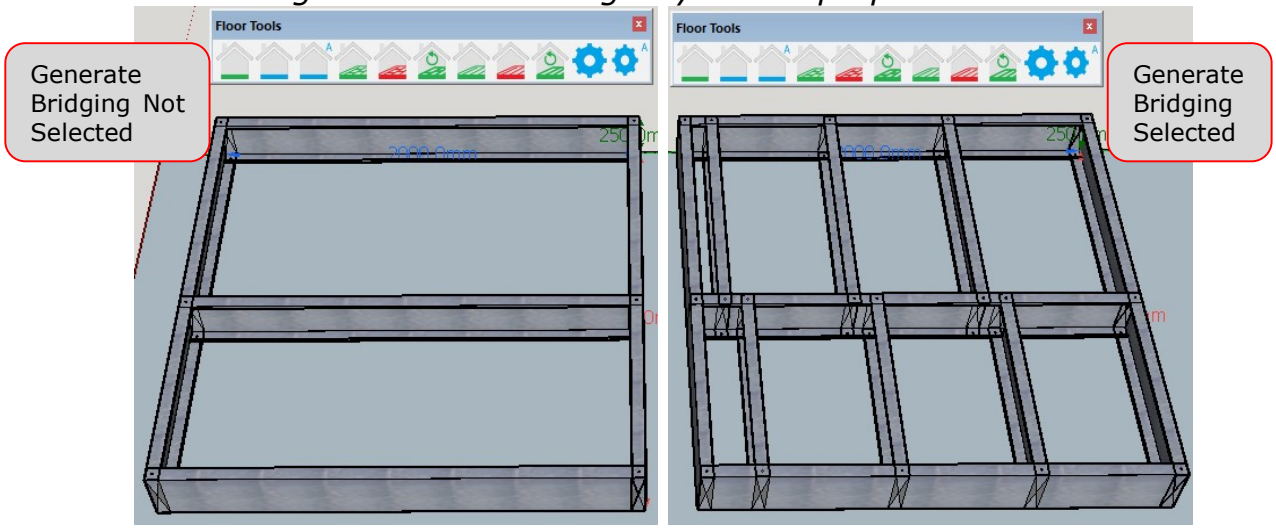


- Recommend Bridging

This tool will automatically insert bridging on your behalf onto the joist.

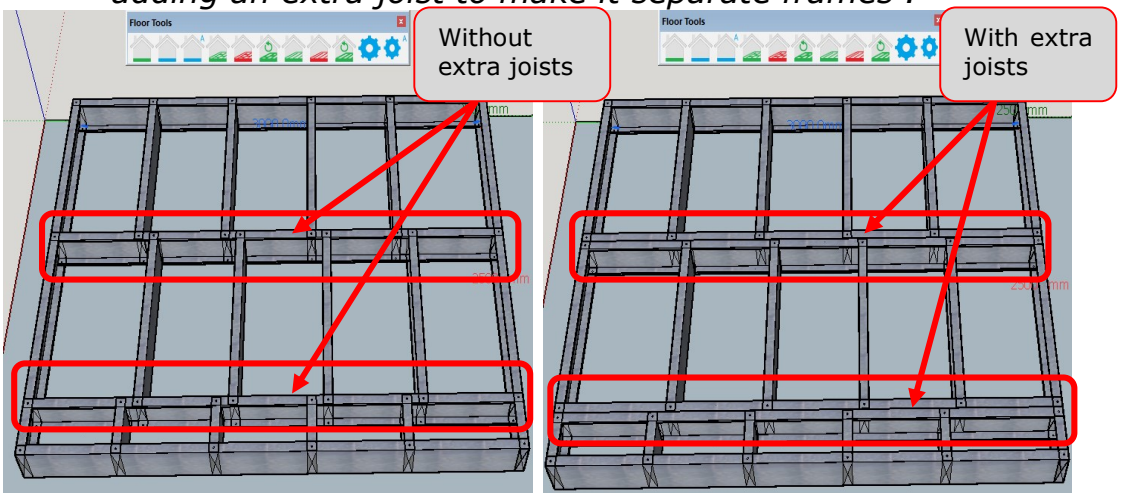
- Generate Bridging

  When selected this tool to be "True", it means that while drawing the C-Joist Frame, the bridging will automatically be generated according to your set properties.



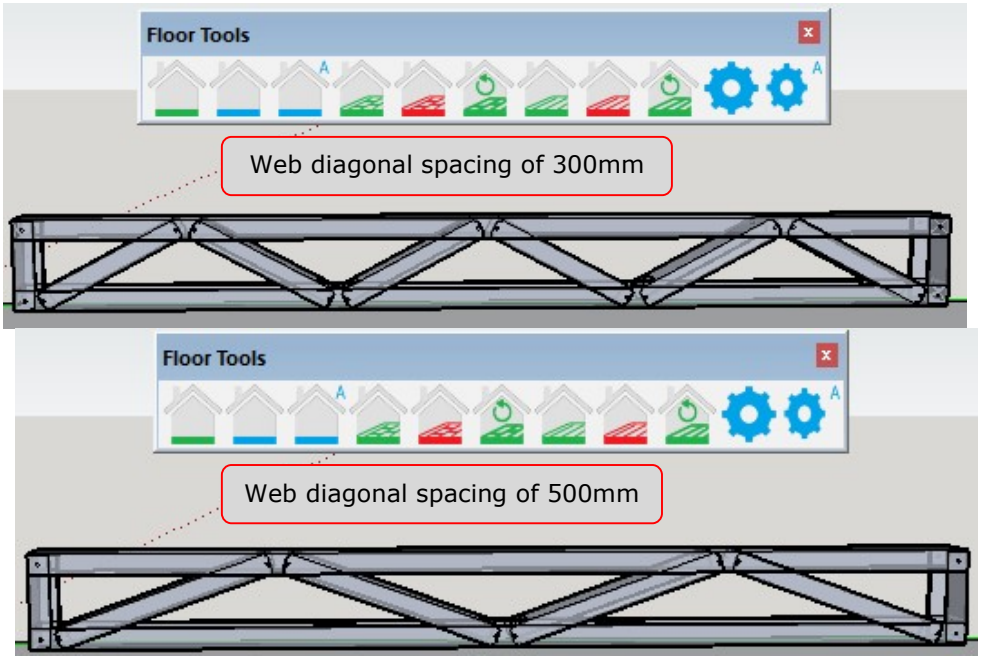
- Back to Back (C-Joist)

  C-Joists can be placed as separate frames back to back and this tool designs it so that you are able to do so by adding an extra joist to make it separate frames .



- Web Diagonal Spacing (Lattice)

  Allows you to change the space between the web diagonals on the different styles of lattice beams.



- Bridge Staggering Space

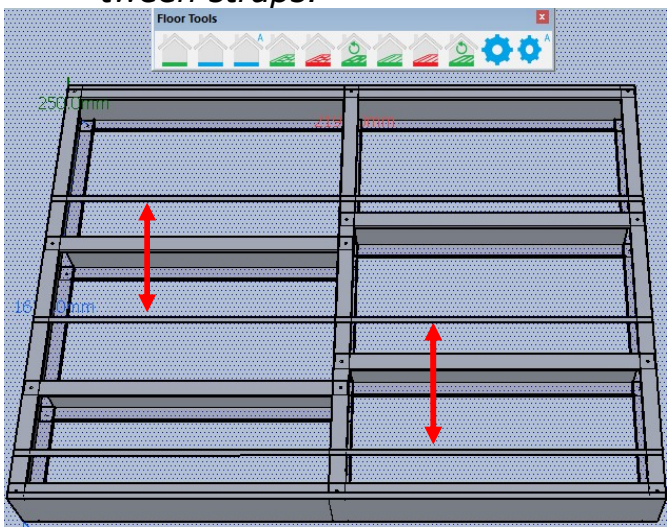
  Allows you have your bridging staggered at a certain distance from each other.

- Bridge Spacing

  This allows you to select the spacing between your bridging that will be automatically inserted on the C joists.

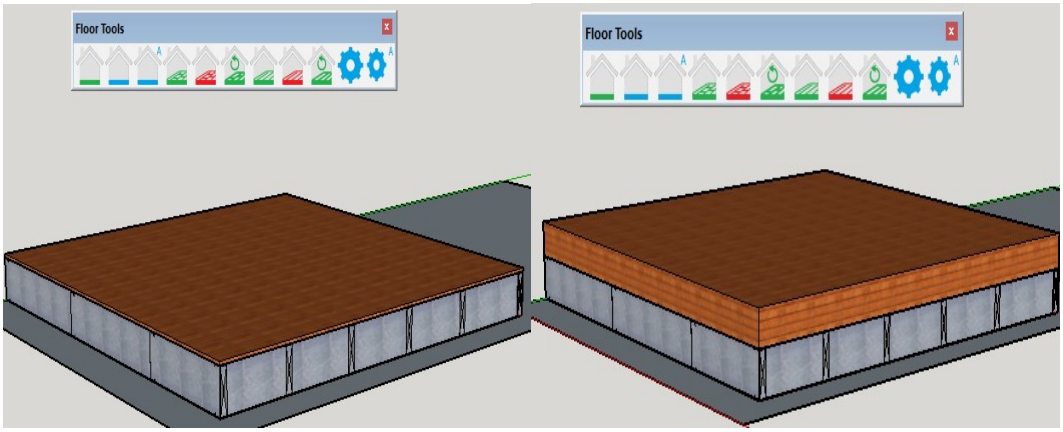
- Restraint Strap Spacing

  When the restraint straps are activated on the advanced settings, you have the option to change the spacing between straps.



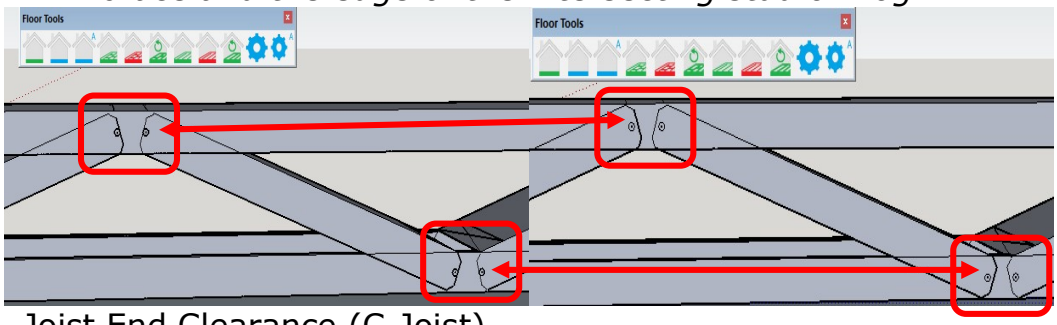
- Floor Sheathing Thickness

  As per diagram below, the thickness of the floor can be specified to the thickness of the actual floor.



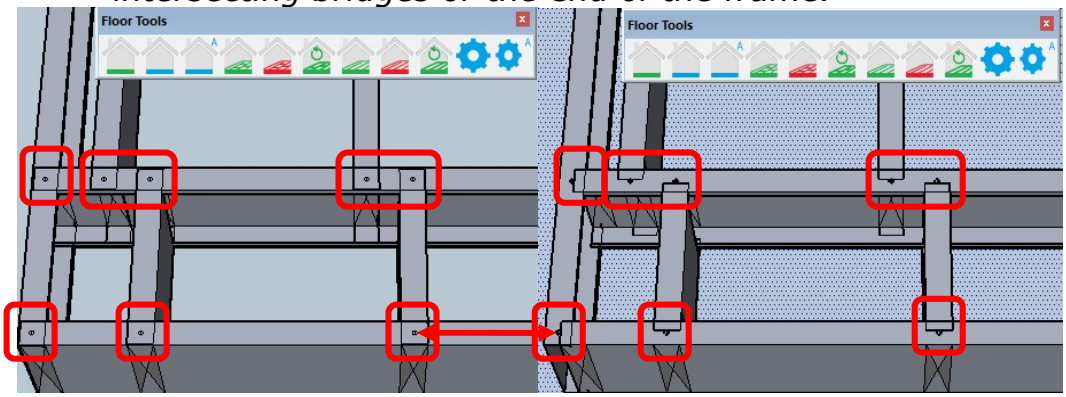
- Clearances
  - Brace Clearance (Lattice)

    Allows you to change the space between the end of the brace and the edge of the intersecting stud or nog.



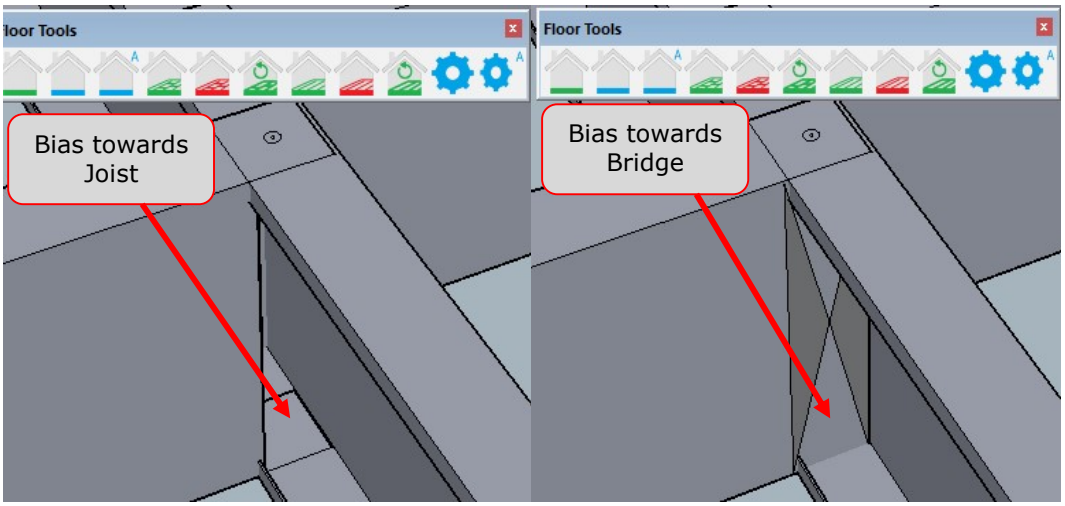
  - Joist End Clearance (C-Joist)

    Allows you to change the space between the joists and the intersecting bridges or the end of the frame.



- Tooling Options
  - Lip Cut and Notch Bias

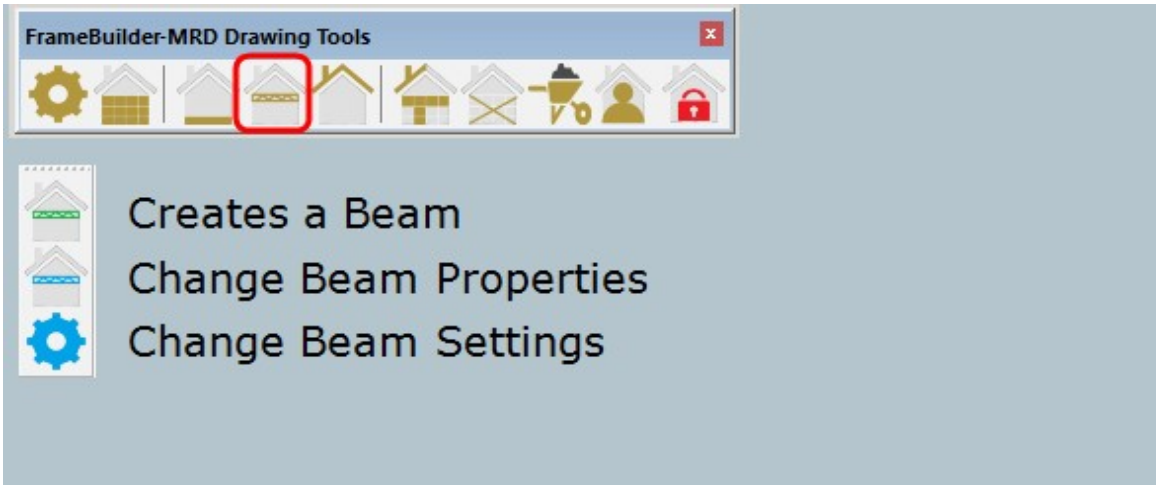
    Allows you choose whether the tooling should be bias towards the joist or towards the bridge.


loor Tools
Bias towards Joist
Floor Tools
Bias towards Bridge

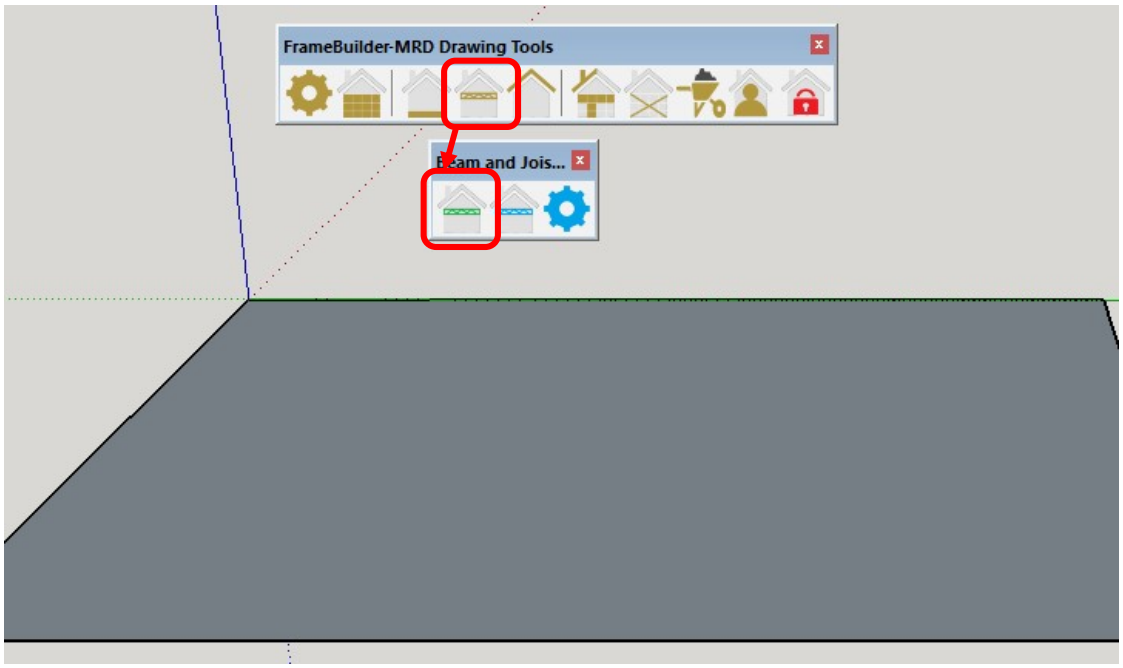
7. BEAM AND JOISTS MODULE

In this section you will learn how to create a Beam and Joists, update properties and change settings.

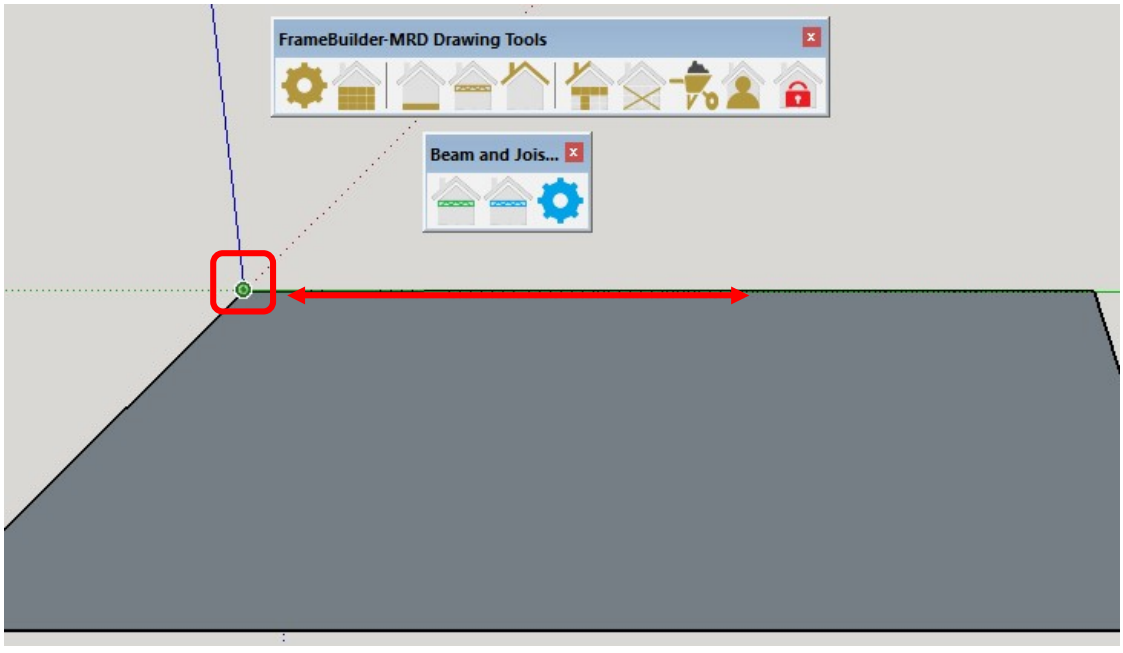
7.1 ICONS



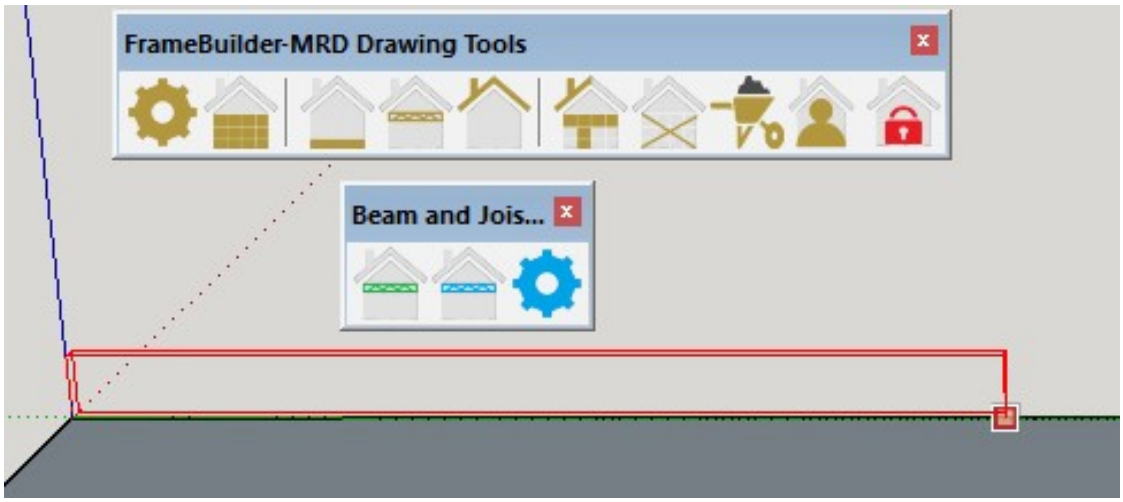
7.2 How to Create a Beam



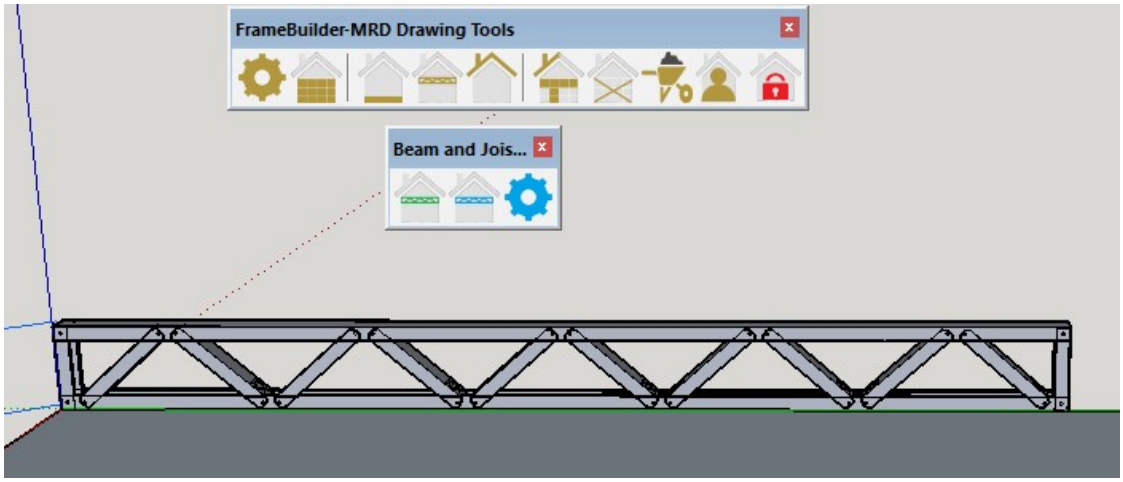
Click on the Beam and Joist Tools icon on the main menu and then on the "Creates a Beam" icon on the Beam and Joist Tools menu bar. The Beam Properties window will then open up. Ensure that all the settings on the properties menu are correct and click OK to continue to draw your Beam.



Start by clicking in the corner of the axis for the start of the beam.



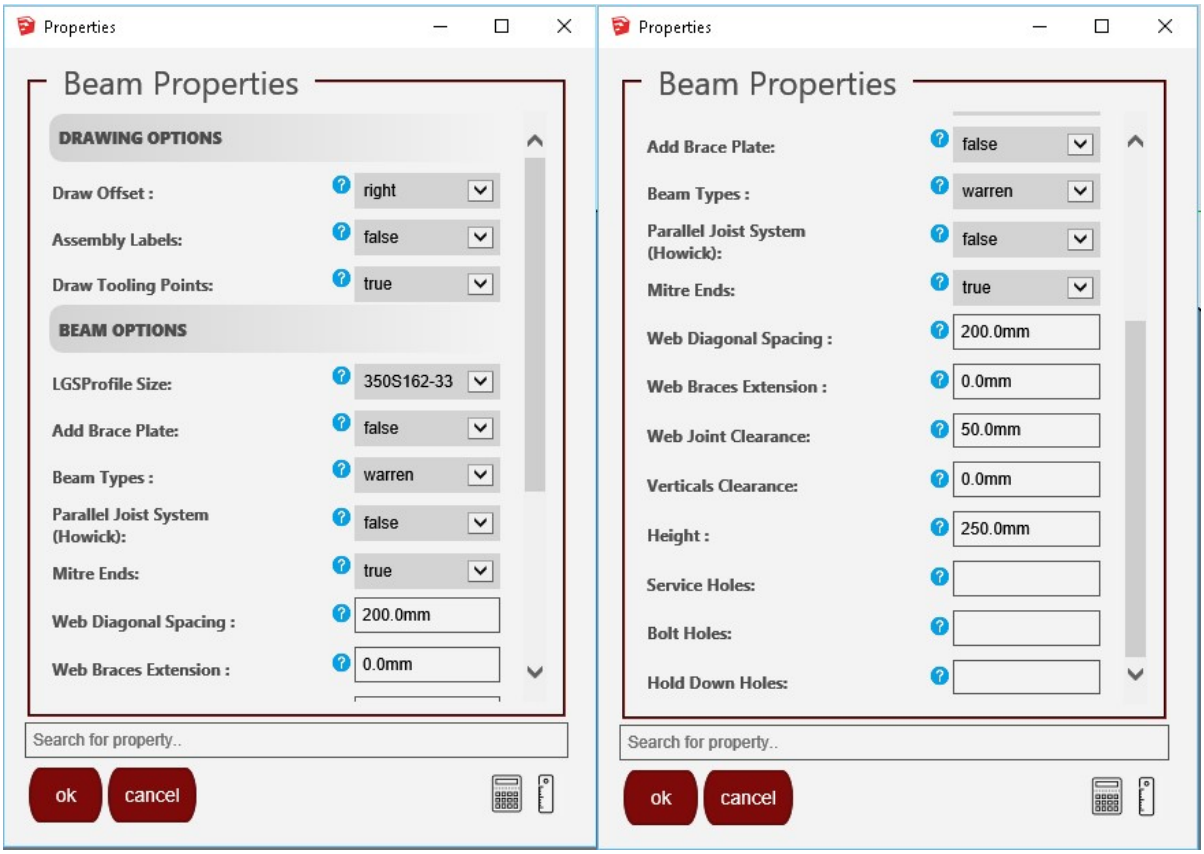
Next drag the mouse to the distance that you want your beam to be and you will notice an outline of the beam being traced to show you how long your beam will be. Once you have the desired size release your mouse and click one last time and your beam will be shown as per below.



7.3 CHANGE BEAM PROPERTIES

On the Beam and Joist Tools bar is the "Change Beam Properties" icon for drawing Beams and Joists.

Click on the Change Beam Properties Icon to open up the Beam Properties and set all your standard properties for Beams.



- Drawing Options
  - Draw Offset

    The draw offset allows you to select whether your walls will offset either to the left, the centre or the right of the wall.
  - Assembly Labels

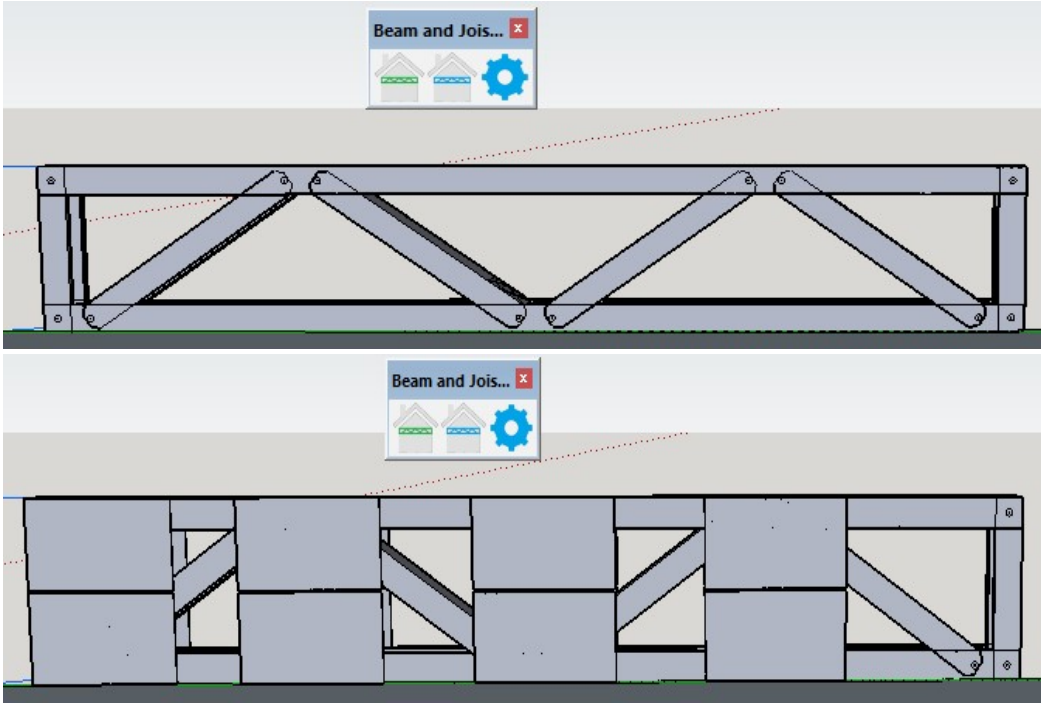
    Enable or Disable labels to be printed on the individual profiles within the floor frame
  - Draw Tooling Points

    Enable or Disable rendering of dimples, lip cuts notches etc
- Beam Options
  - LGSProfile Size

This is the profile of the steel to used in the manufacture of the floor system you are designing.

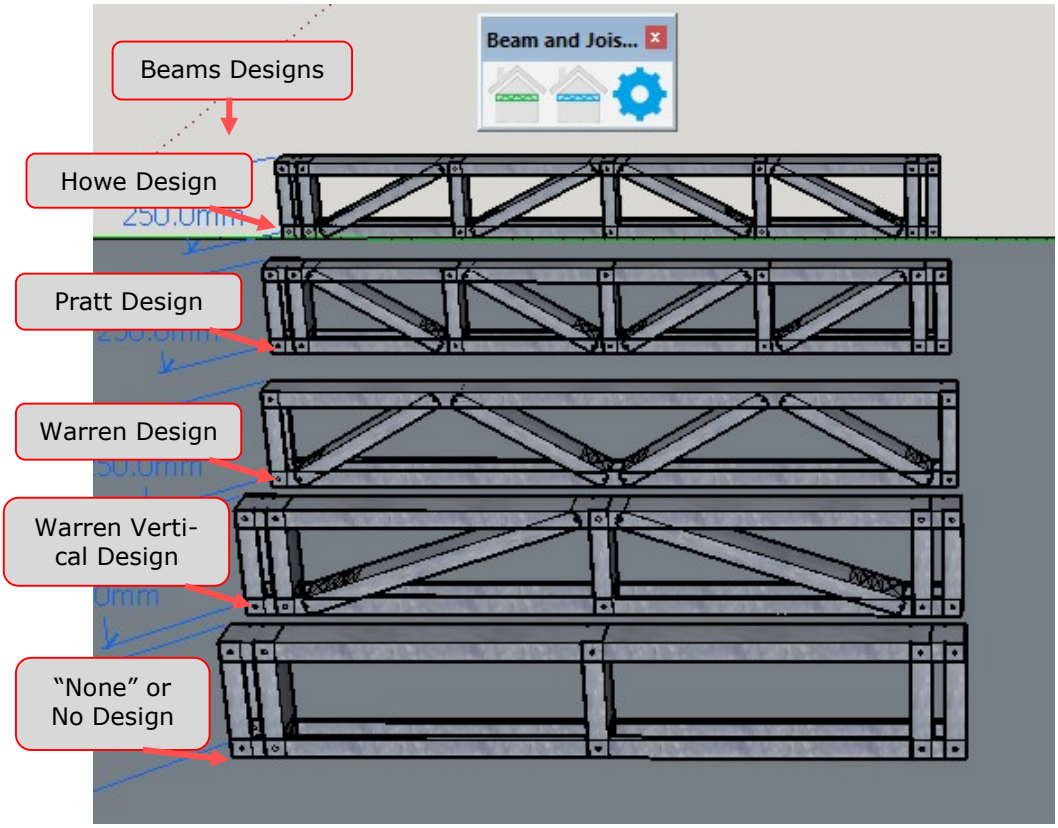
- Add Brace Plate

  Allows you to add a brace plate onto the beam to give it more strength and sturdiness.



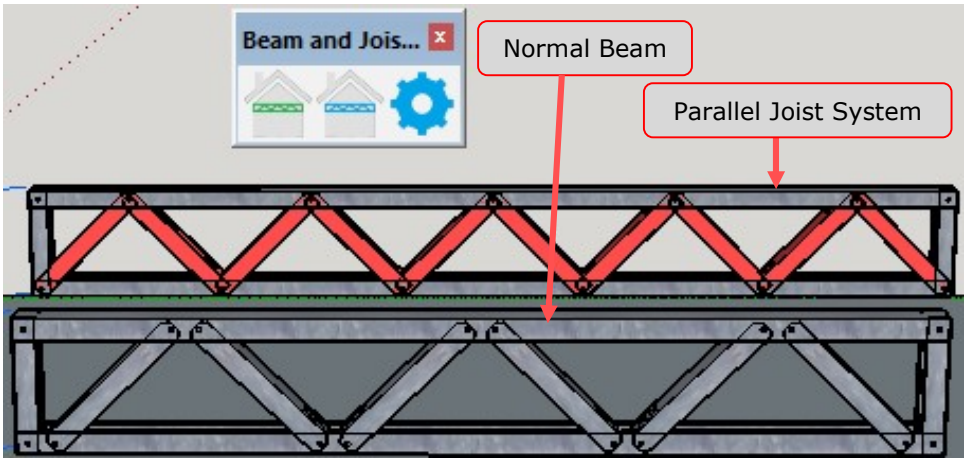
- Beam Types

  Lattice Beams have 5 different design styles being, Howe, Pratt, Warren, Warren Verticle and "None" or No style.



- Parallel Joist System

  On selecting this function to be active, it will ensure that the diagonals on the beam or joists have no spaces between them. (all clearances should be set to "0mm" when using this function)

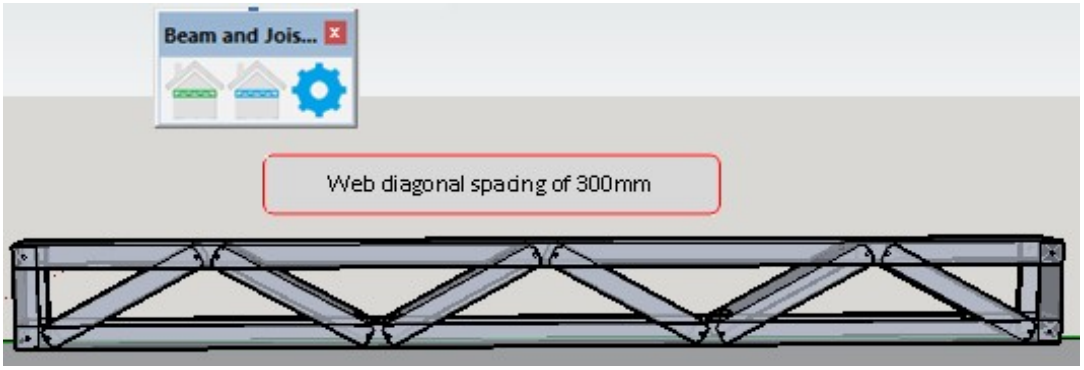


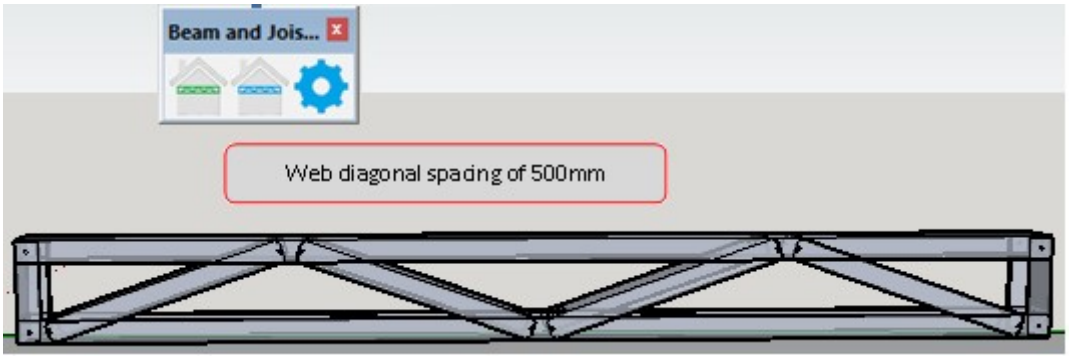
- Mitre Ends

  Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.

- Web Diagonal Spacing

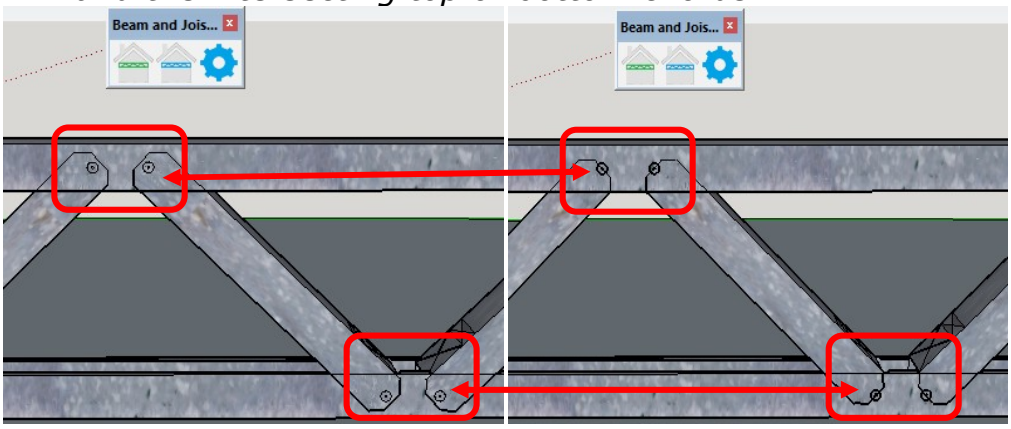
  Allows you to change the space between the web diagonals on the different styles of lattice beams.





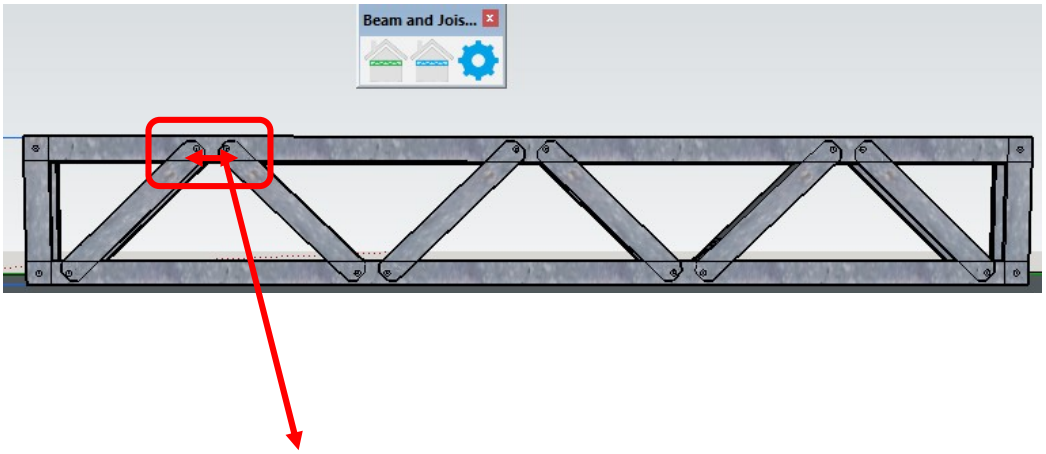
- Brace Chord Clearance

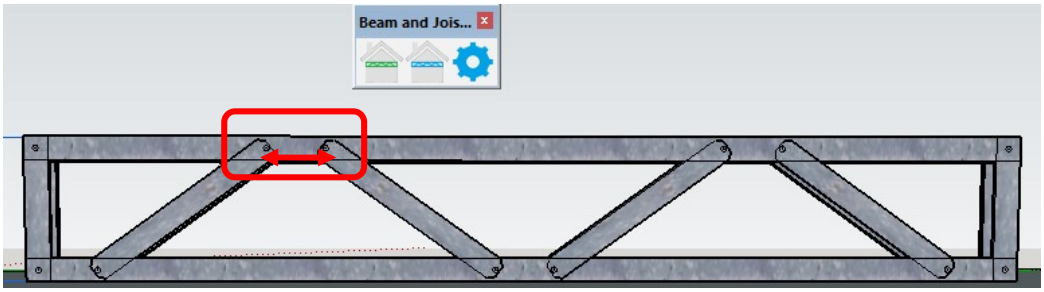
  Allows you to change the space between the web diagonals and the intersecting top or bottom chords.



- Web Joint Clearance

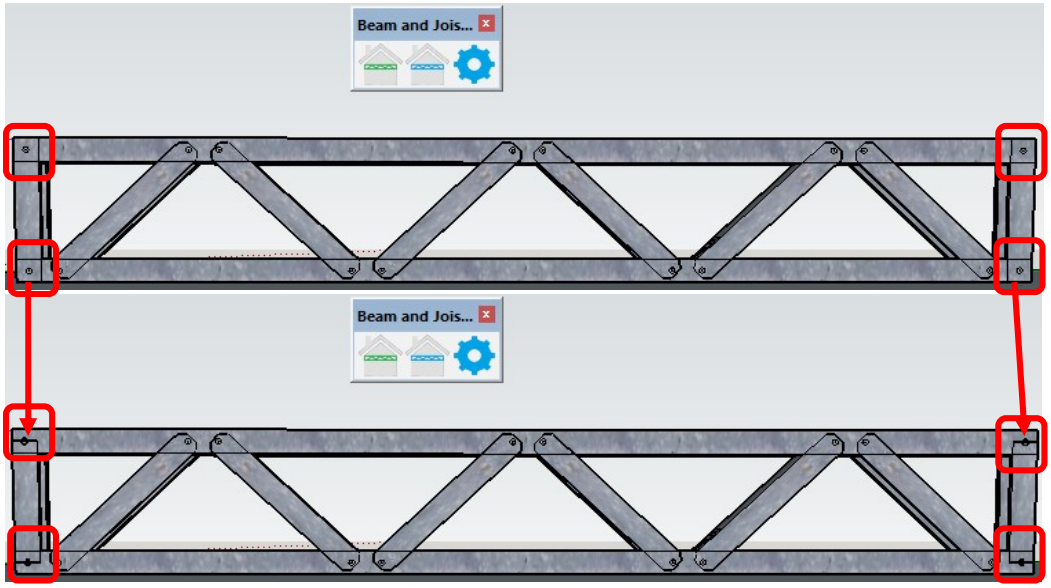
  This is the distance between the web diagonals.





- Verticals Clearance

  Allows you to change the space between the verticals on both ends with the top and bottom chords.

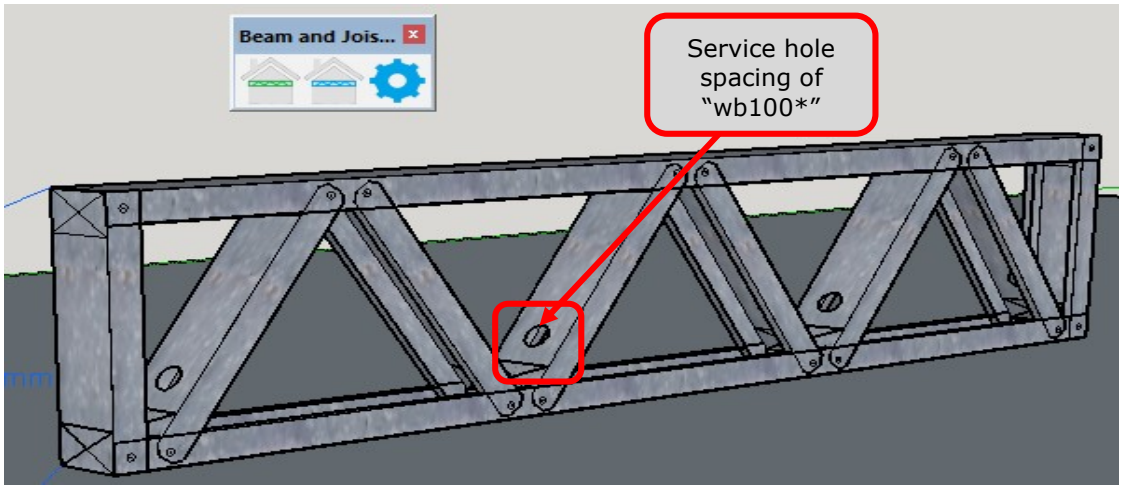


- Height

  Allows you to change the height of the beams.

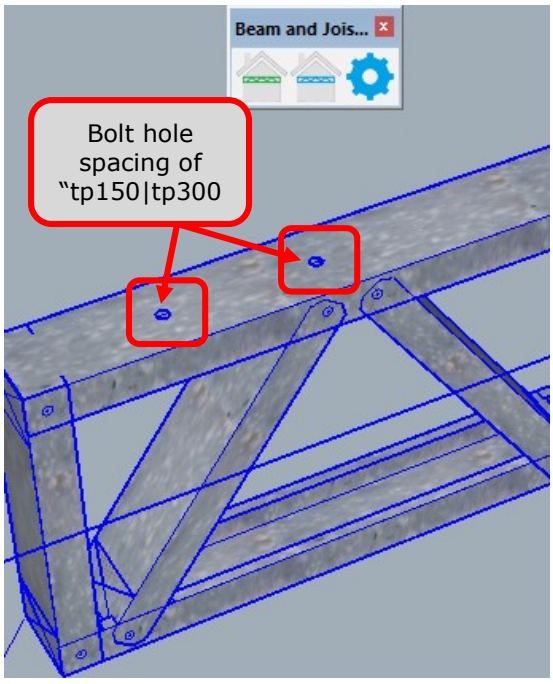
- Service Holes:

  The point at which you want the service holes to be cut by the machine. Insert the place to insert the service by typing "wb"followed by the spacing required. A ""after the spacing will repeat the spacing throughout the beam.*
  (you can find the name of the member you need the service hole to be inserted into by clicking on the member only and Framebuilder window will give the code for the member)



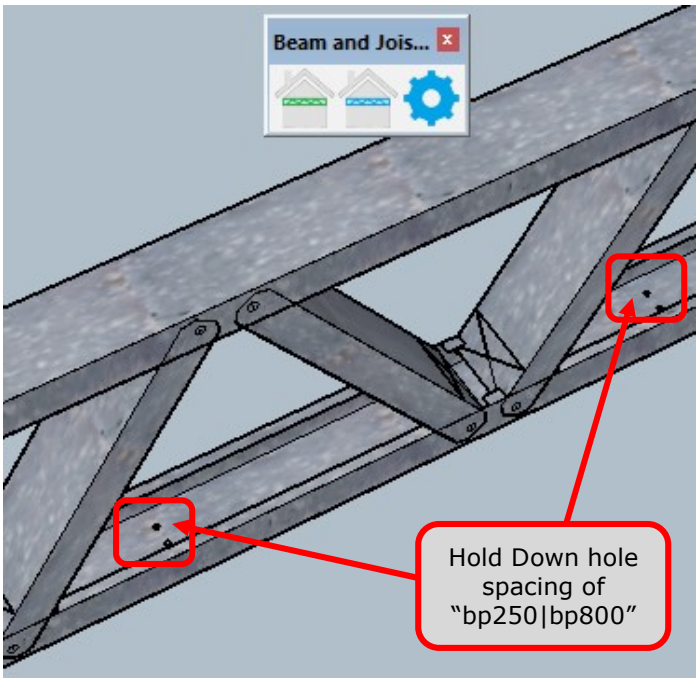
- Bolt Holes:

  The point at which you want bolt holes to be cut by the machine. To insert the bolt hole on the top plate of the beam type "tp" followed by the spacing required. To specify more than one place for your bolt hole, add a "|" (found above the back space on the keyboard). Example:" tp150|tp500"



- Hold Down Holes:

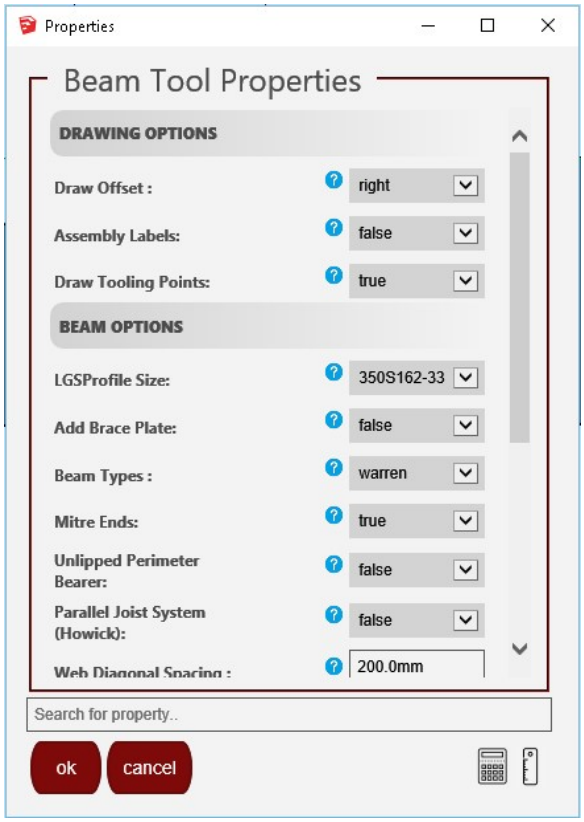
  The point at which you want the service holes to be cut by the machine. Insert the place to insert the service by typing "wb"followed by the spacing required. A ""after the spacing will repeat the spacing throughout the beam.*

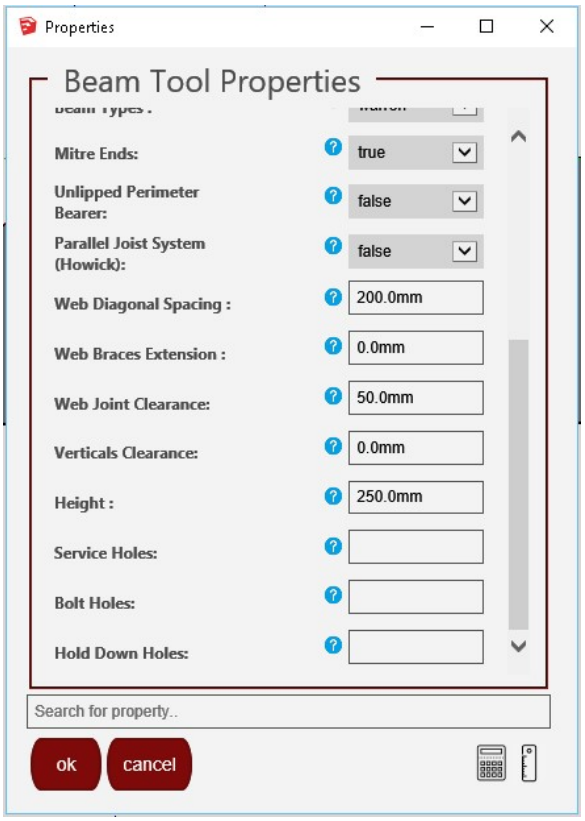

Beam and Jois...
Hold Down hole spacing of "bp250|bp800"

7.4 CHANGE BEAM SETTINGS

On the Beam and Joist Tools bar is the "Change Beam Settings" icon for drawing Beams and Joists.

Click on the Change Beam Settings Icon to open up the Beam Properties and set all your default properties for Beams. These default settings can be set up front and used for all your beams. The settings are the same as listed in 7.3 "Change Beam Properties" above.





- Drawing Options
  - Draw Offset

    The draw offset allows you to select whether your walls will offset either to the left, the centre or the right of the wall.
  - Assembly Labels

    Enable or Disable labels to be printed on the individual profiles within the floor frame
  - Draw Tooling Points

    Enable or Disable rendering of dimples, lip cuts notches etc
- Beam Options
  - LGSProfile Size

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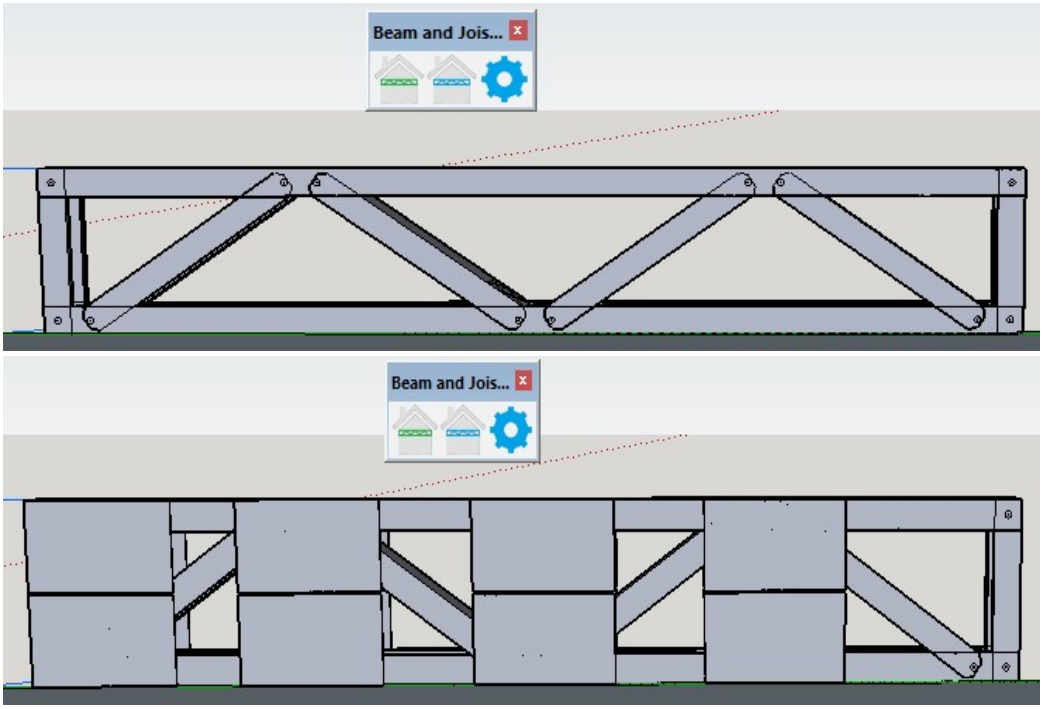
- Add Brace Plate

  Allows you to add a brace plate onto the beam to give it more strength and sturdiness.



- Beam Types

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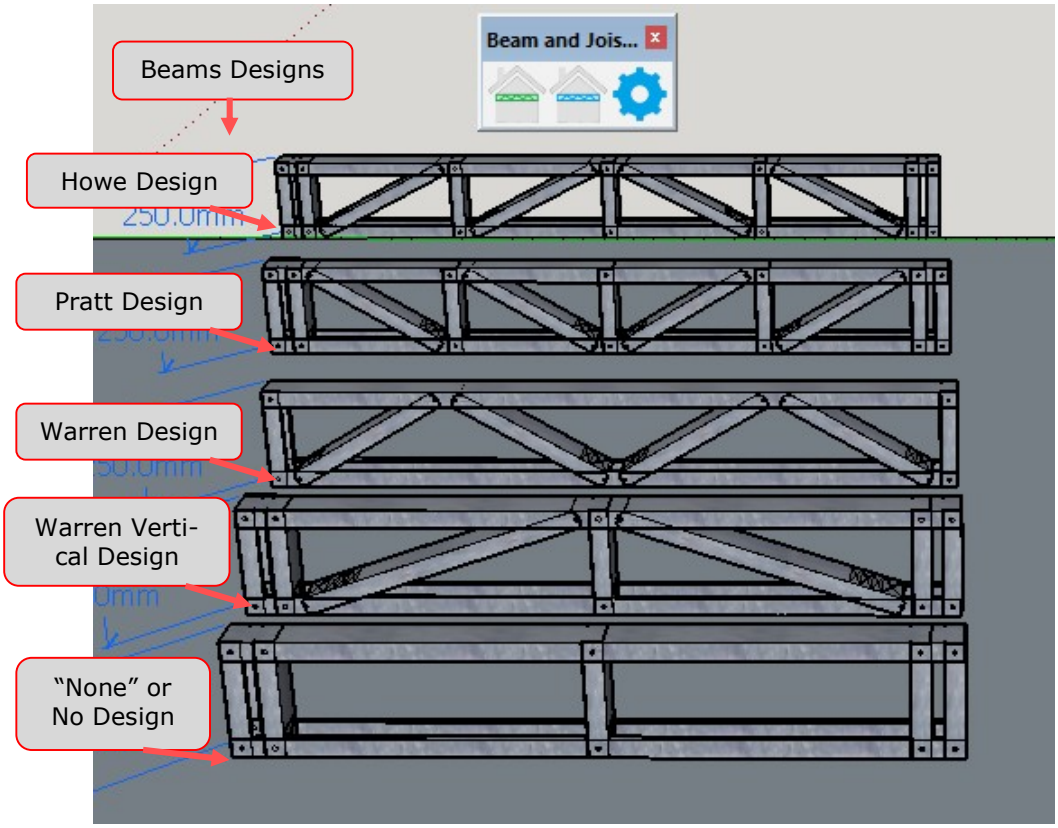
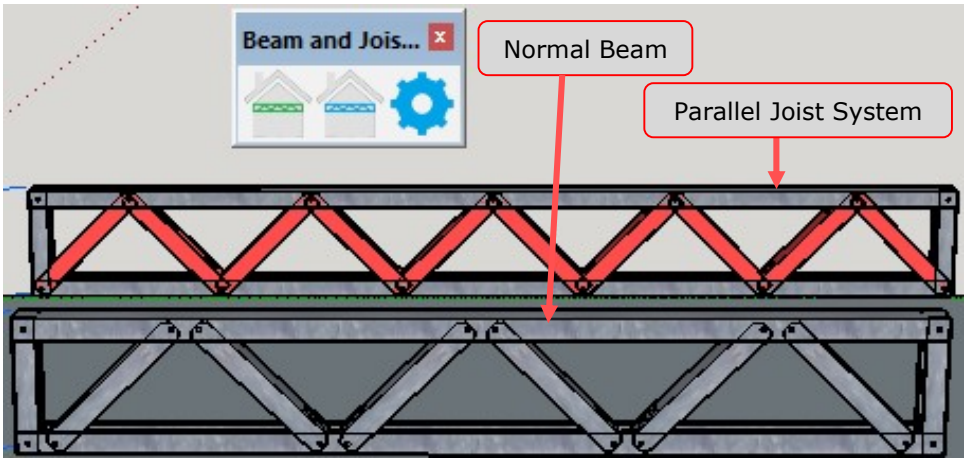


- Mitre Ends

  Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.

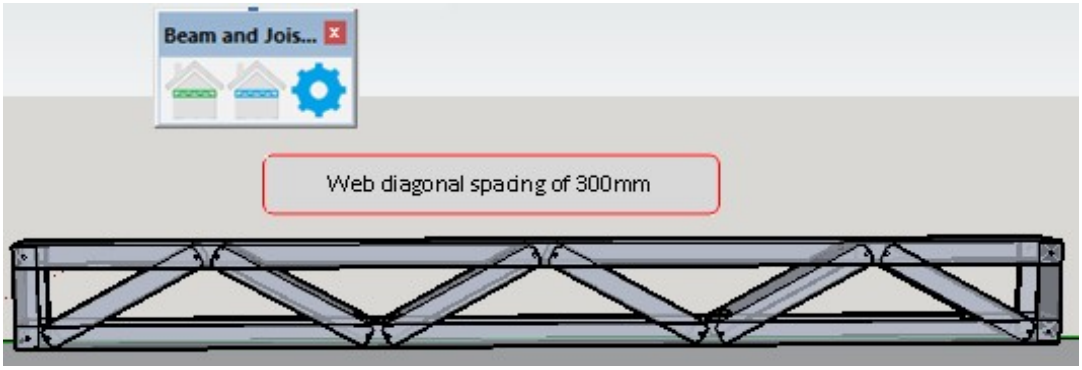
- Parallel Joist System (Howick machines only)

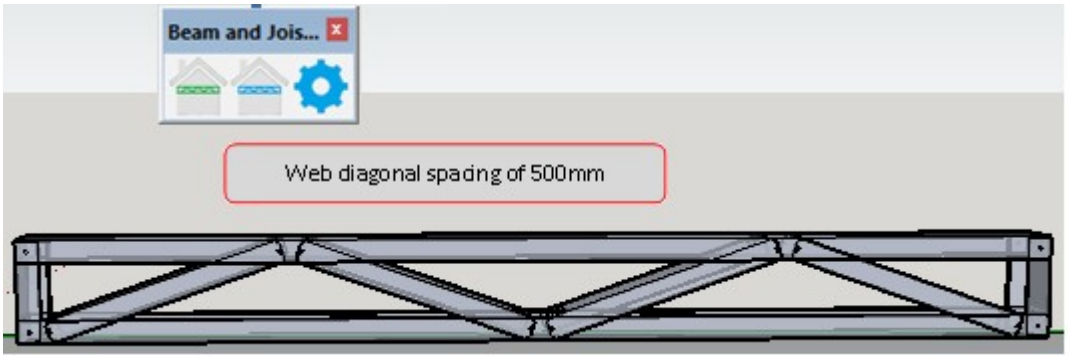
  On selecting this function to be active, it will ensure that the diagonals on the beam or joists have no spaces between them. (all clearances should be set to "0mm" when using this function)



- Web Diagonal Spacing

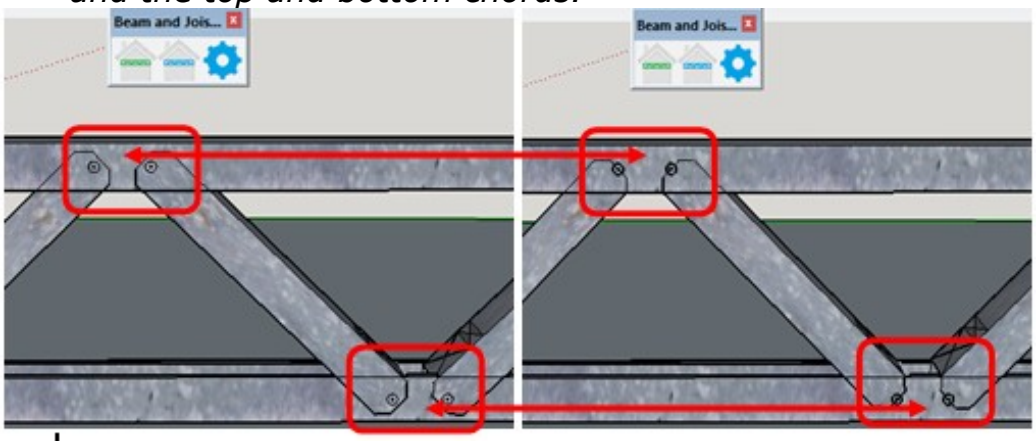
  Allows you to change the space between the web diagonals on the different styles of lattice beams.





- Brace Chord Clearance

  Allows you to change the space between the web diagonals and the top and bottom chords.



- Web Joint Clearance

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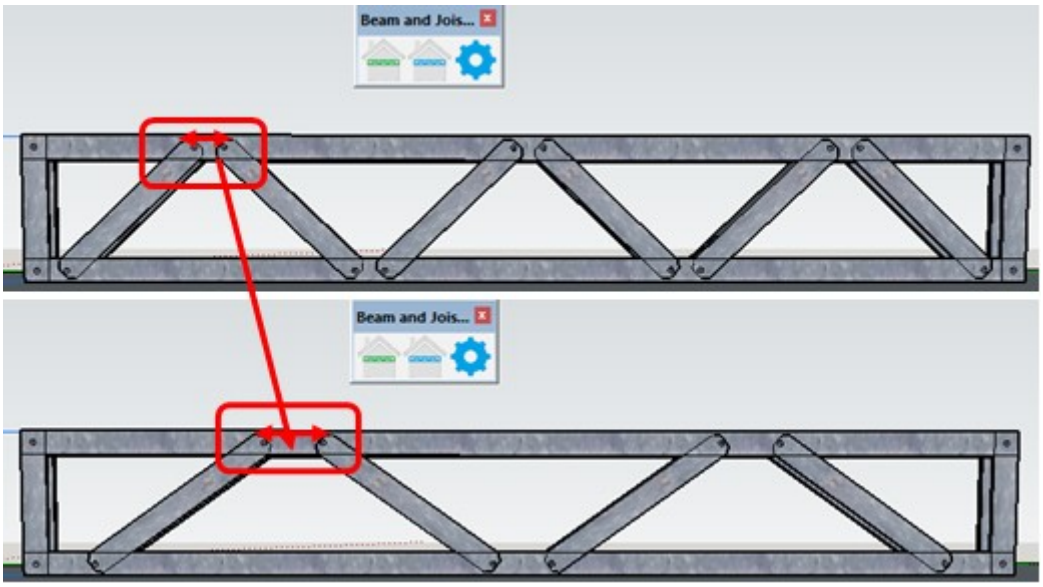
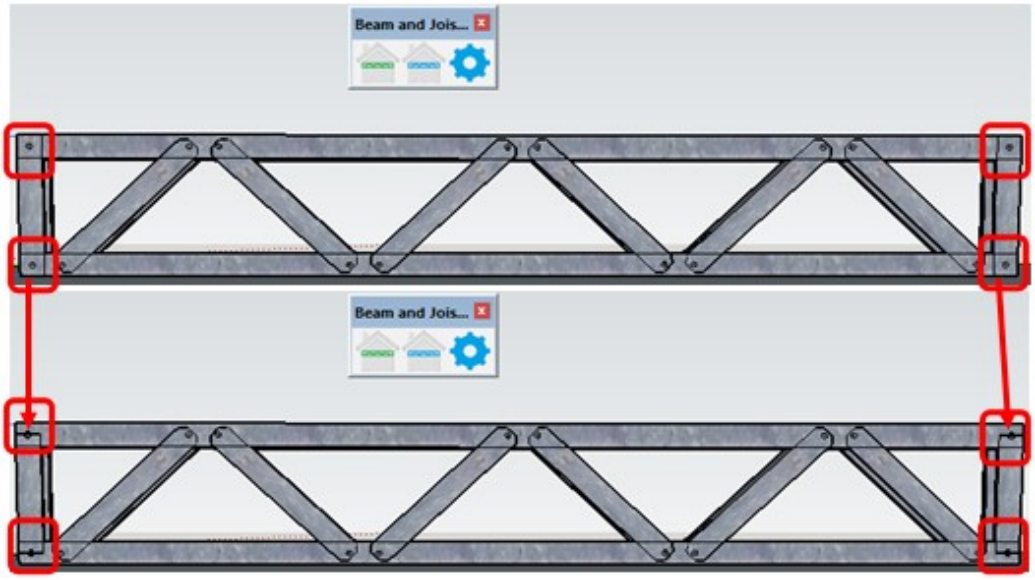


- Verticals Clearance

  Allows you to change the space between the verticals on both ends with the top and bottom chords

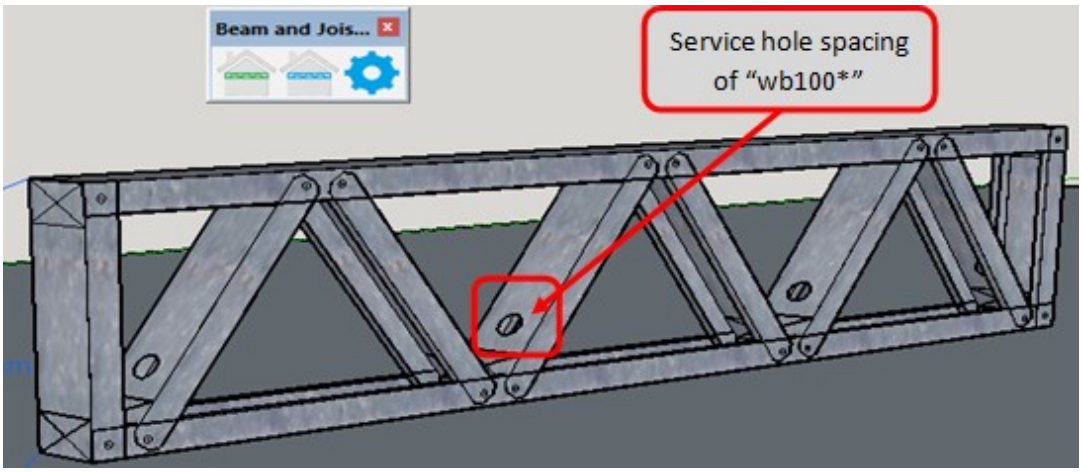


- Height

  Allows you to change the height of the beams.

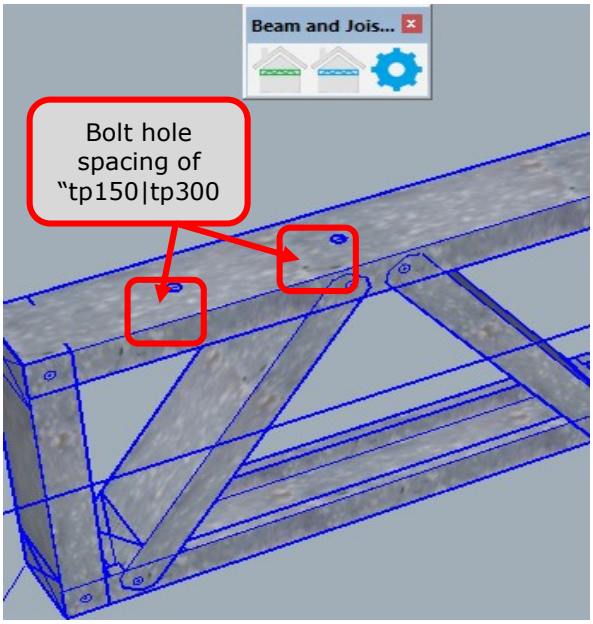
- Service Holes:

  The point at which you want the service holes to be cut by the machine. Insert the place to insert the service by typing "wb"followed by the spacing required. A ""after the spacing will repeat the spacing throughout the beam.*
  (you can find the name of the member you need the service hole to be inserted into by clicking on the member only and Framebuilder window will give the code for the member)



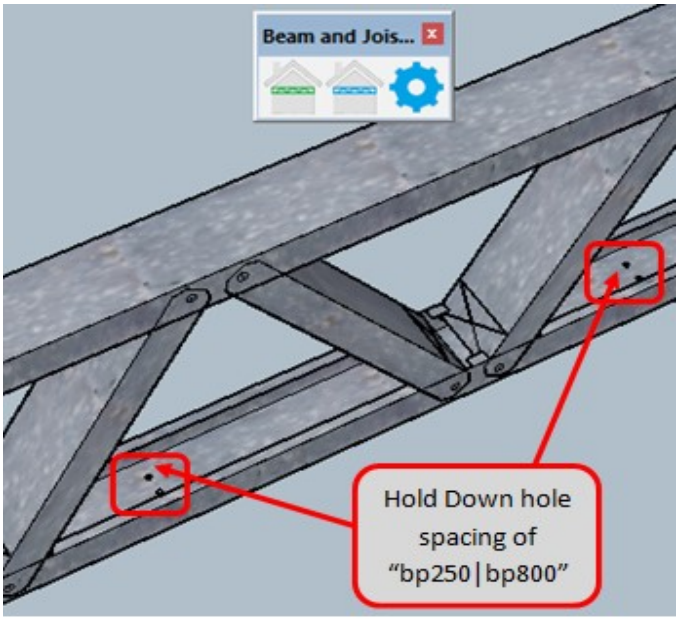
- Bolt Holes:

  The point at which you want bolt holes to be cut by the machine. To insert the bolt hole on the top plate of the beam type "tp" followed by the spacing required. To specify more than one place for your bolt hole, add a "|" (found above the back space on the keyboard). Example:" tp150|tp500"



- Hold Down Holes:

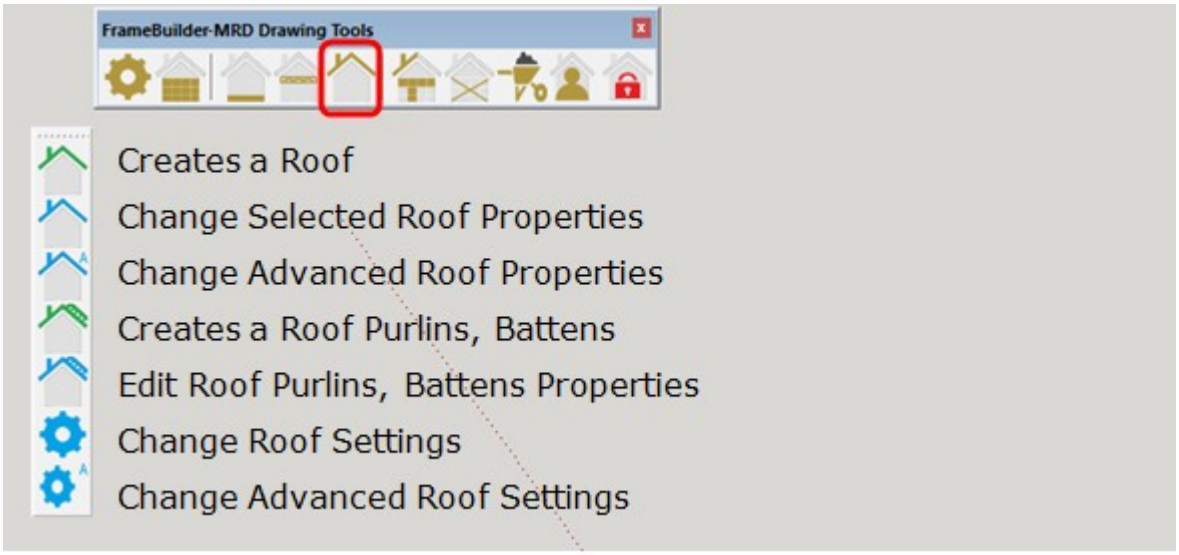
  The point at which you want the service holes to be cut by the machine. Insert the place to insert the service by typing "wb"followed by the spacing required. A ""after the spacing will repeat the spacing throughout the beam.*


Beam and Jois...
Hold Down hole spacing of "bp250|bp800"

8. ROOF MODULE

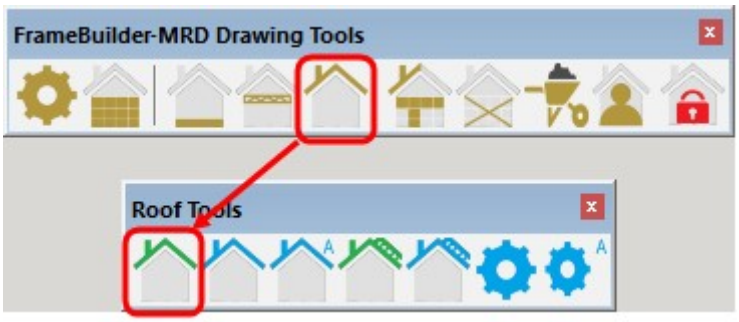
In this section you will learn how to create a Roof with Purlins and battens, update properties and change settings.

8.1 ICONS

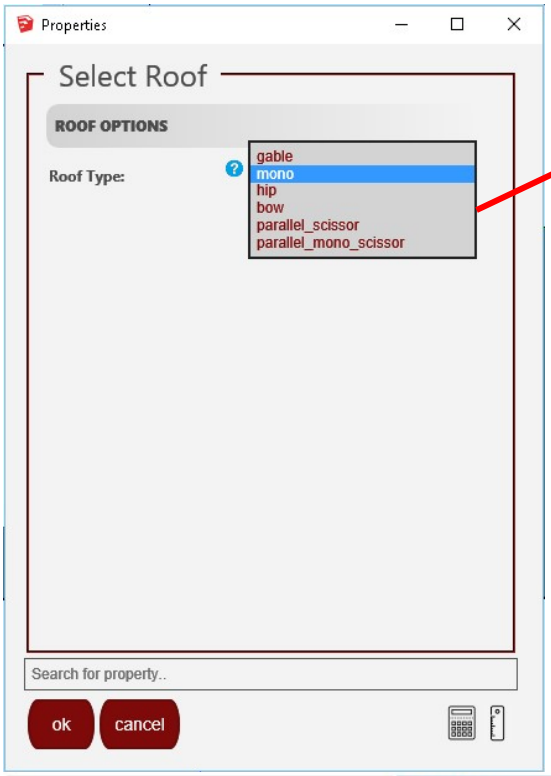


8.2 How to Create a Roof

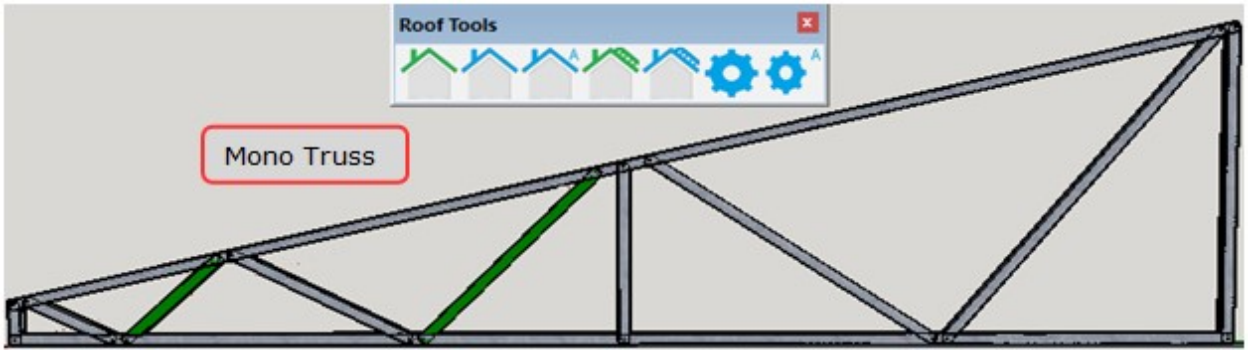
To start drawing your roof you will first click on the Roof tool icon on the FrameBuilder-MRD Tool bar. The Roof Tool Bar will open. Select the **green** "Creates a Roof" icon.

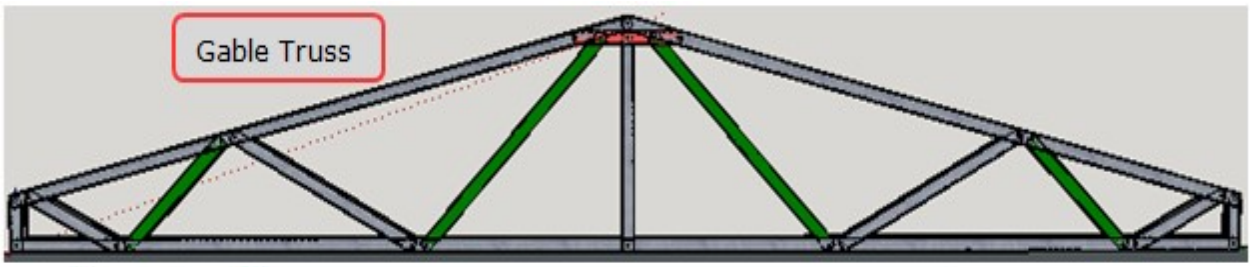


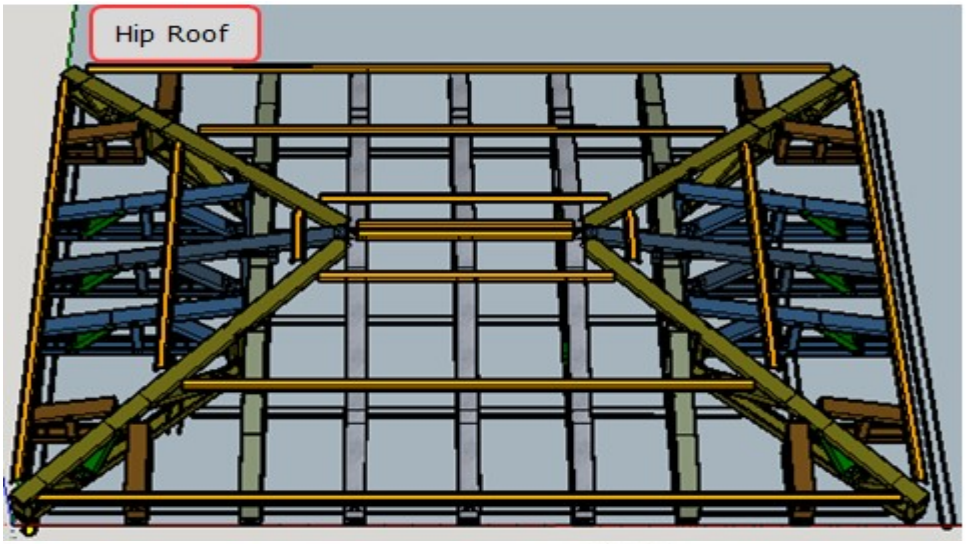
Once you click on the "Creates a Roof" icon, the following Roof Properties window will open for you to select the type of Roof you require to be drawn.

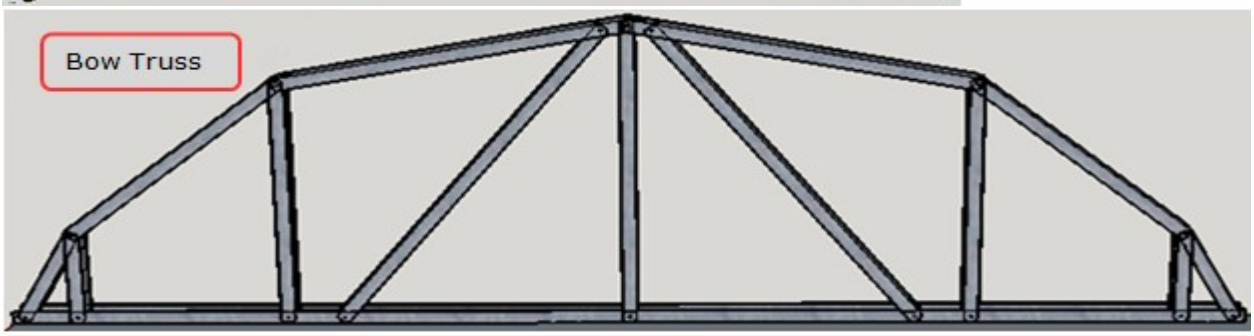


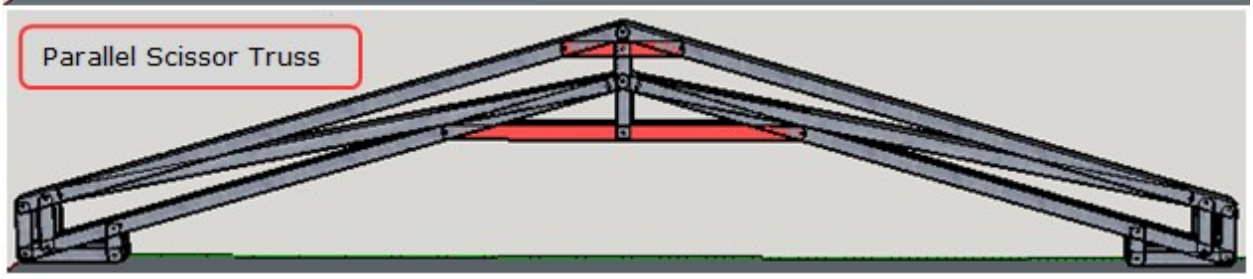
- Gable
- Mono
- Hip
- Bow
- Parallel_Scissor
- Paralllel_Mono_Scissor

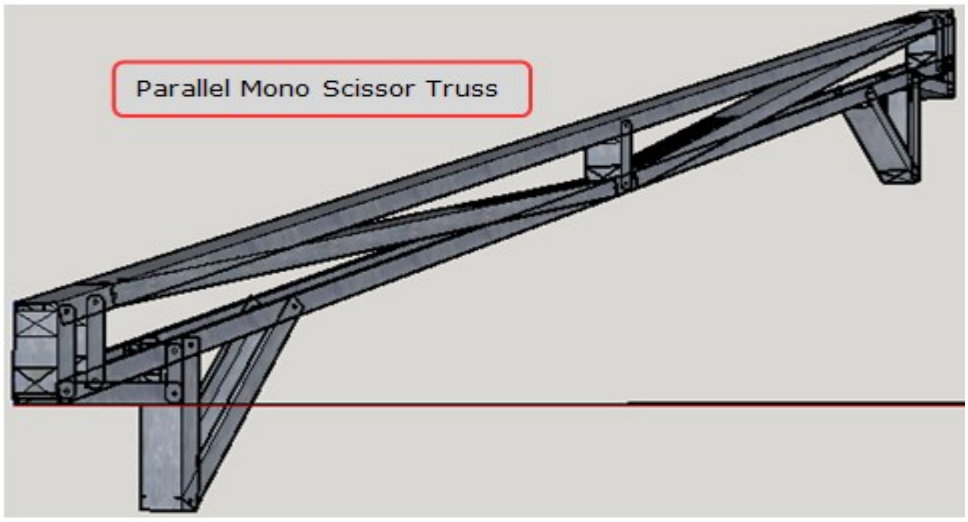



Gable Truss

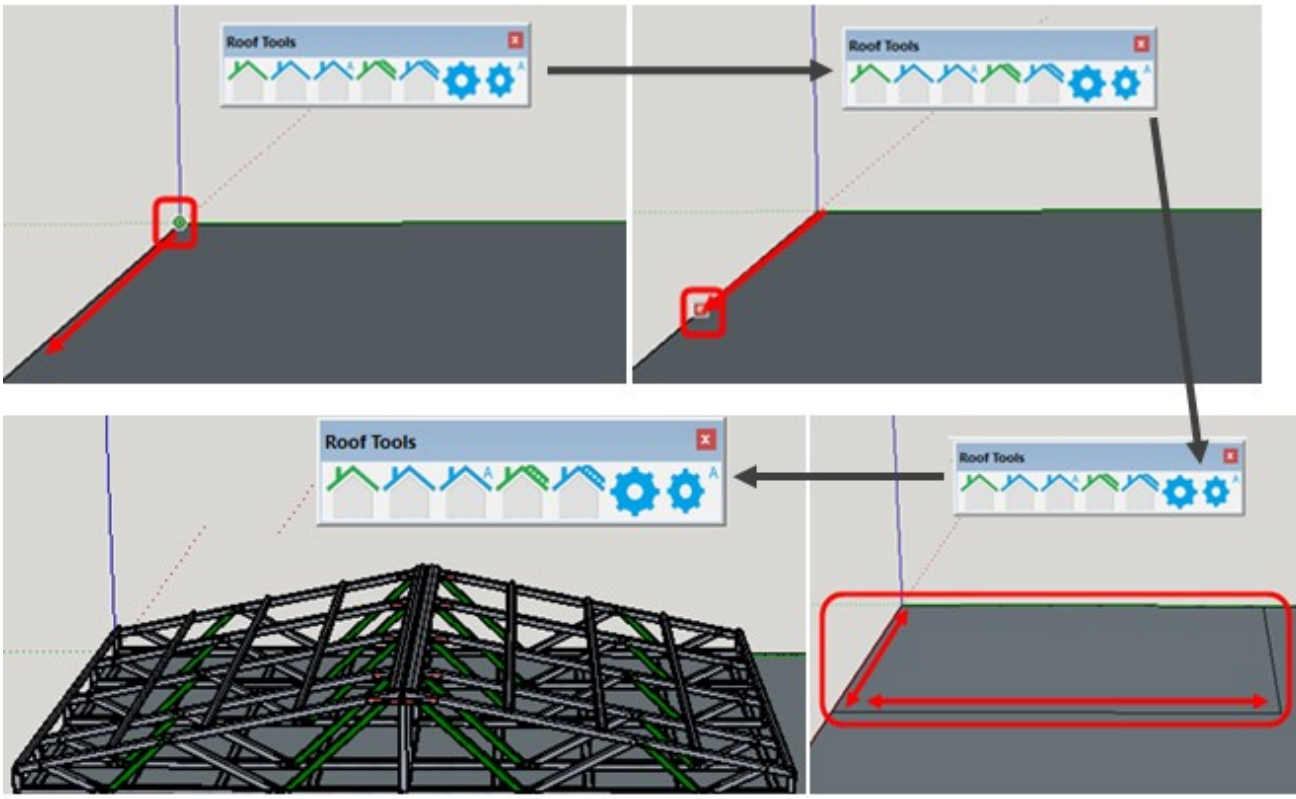

Hip Roof


Bow Truss


Parallel Scissor Truss



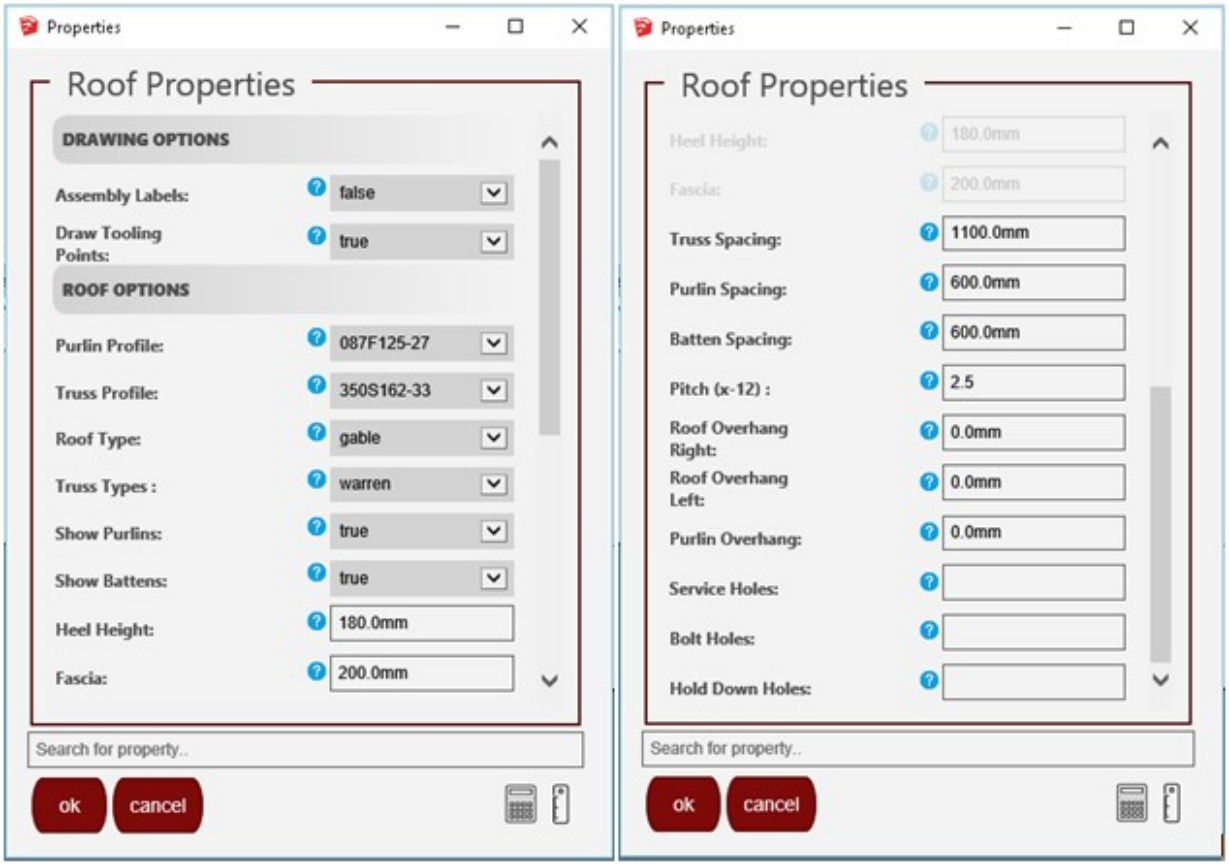
To start drawing your roof start by tracing the outline of the first side your roof. Then move across to trace the second side.



8.3 CHANGE SELECTED ROOF PROPERTIES

To change the properties of your Roof first click on the roof for which you need to change the properties and then click the "Change Selected Roof Properties" icon on the Roof Tools Bar.

The following window will open up with the Roof Properties. Change the properties required then click OK. Your changes will be inserted in the selected roof.



- Drawing Options
  - Assembly Labels
    Enable or Disable labels to be printed on the individual profiles within the roof frame
  - Draw Tooling Points
    Enable or Disable rendering of dimples, lip cuts notches etc
- Roof Options
  - Purlin Profile
    This is the profile of the steel used in the manufacture of the purlins used in your design.

- Truss Profile

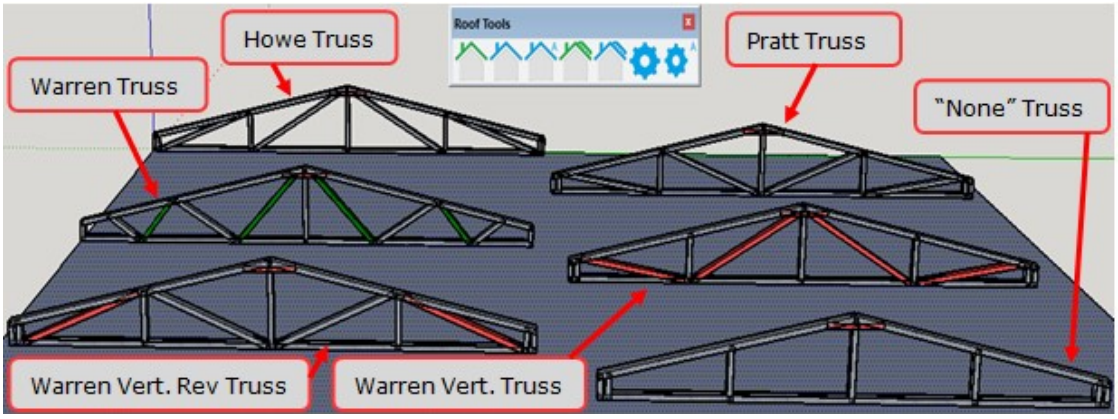
  This is the profile of the steel used in the manufacture of the roof system you are designing.

- Roof Types

  The Roof designs available to draw are: Gable, Mono, Hip, Bow, Parallel Scissor and Parallel Mono Scissor. (See under "8.2 How to create a Roof" for different style diagrams)

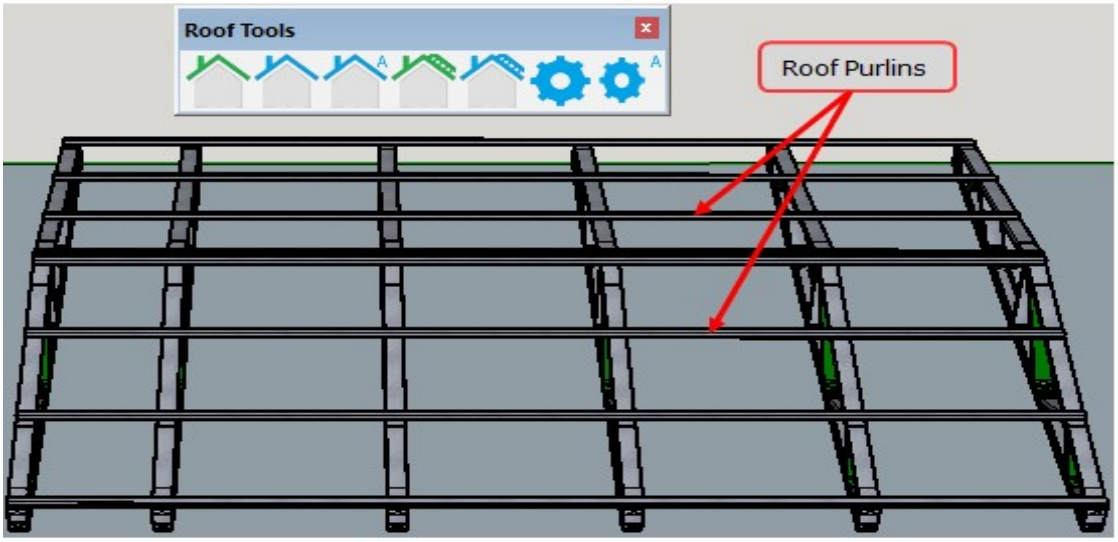
- Truss Types

  Trusses like beams have 6 different design styles being, Howe, Pratt, Warren, Warren Verticle, Warren Verticle Reverse and "None" or No style.



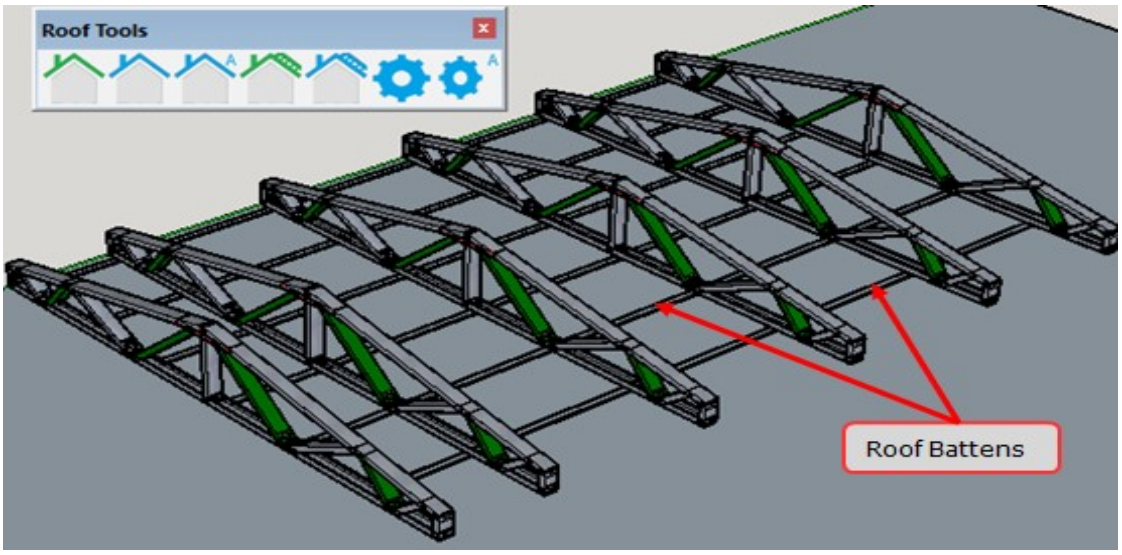
- Show Purlins

  Allows you to show the roof purlins on the roof designed.



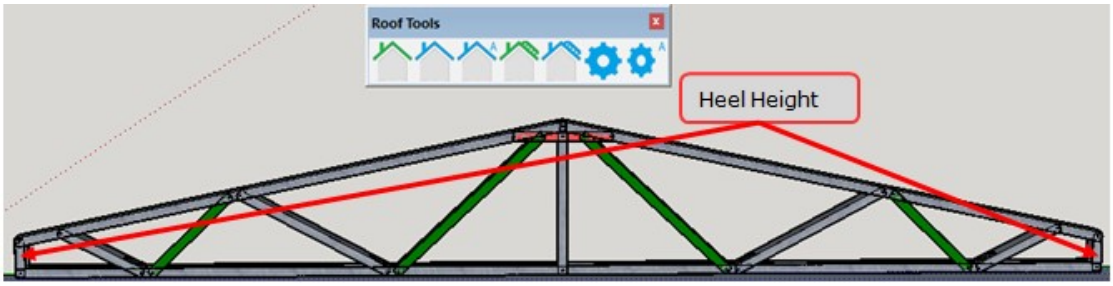
- Show Battens

  Allows you to show the ceiling battens on the roof designed.



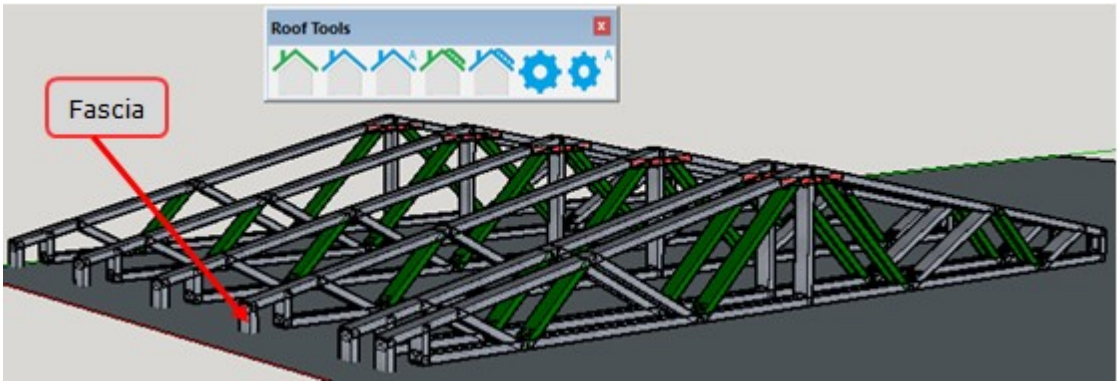
- Heel Height

  This is the height at the ends of the trusses.



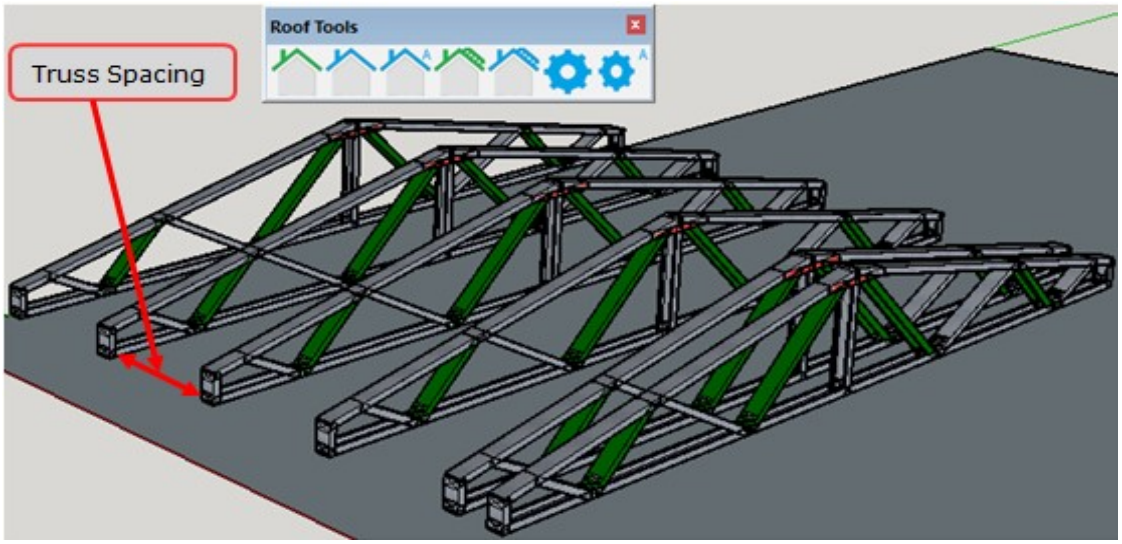
- Fascia

  This is the length of the overhang on either side of the truss.



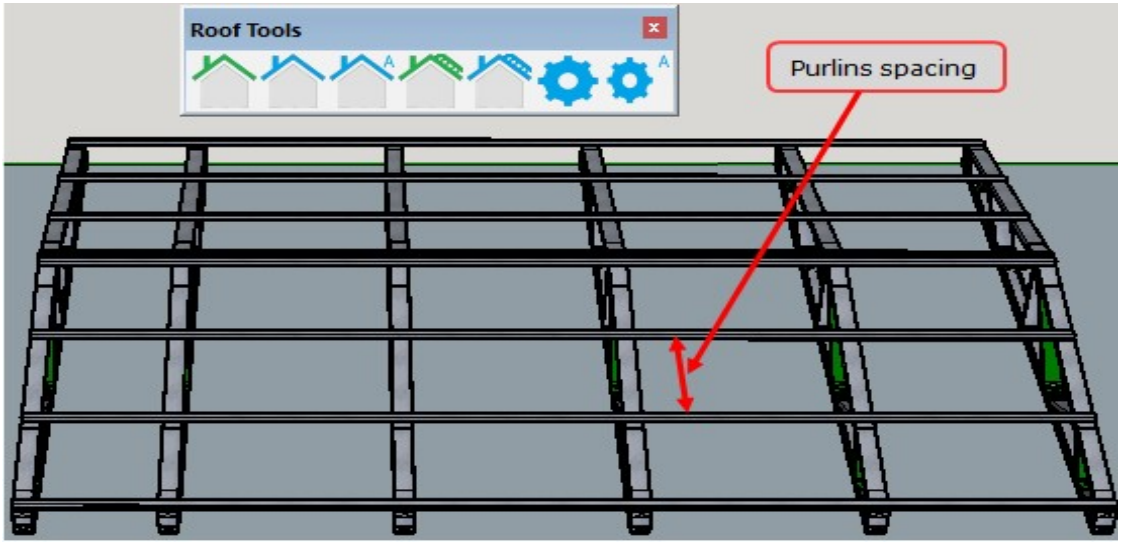
- Truss Spacing

  The spacing between trusses depends mainly the type of material being used to finish the roof. Roof sheeting will nromally have a truss spacing of 1100mm whereas roof tiles will have a spacing of 800mm between the trusses.



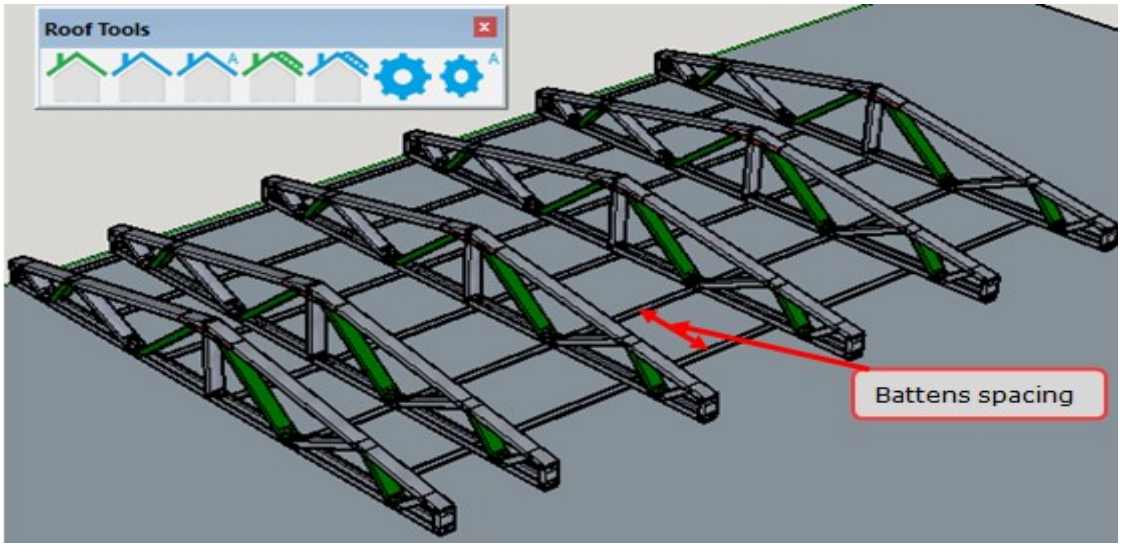
- Purlin Spacing

  The spacing between each purlin. (Default is 600mm)



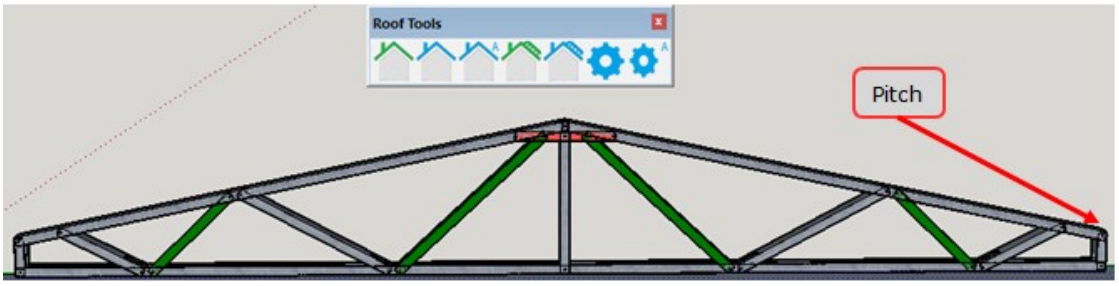
- Batten Spacing

  The spacing between each batten. (Default is 600mm)



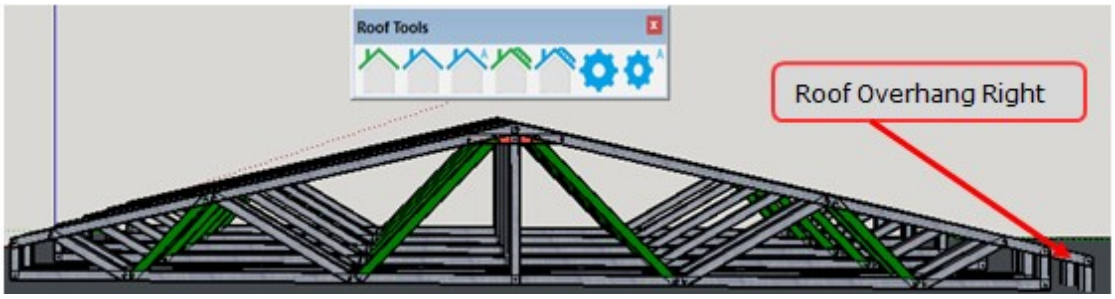
- Pitch

  This is the slope of the roof. It is given as a number between 0 and 12 with 12 being the steepest slope of 45 degrees.



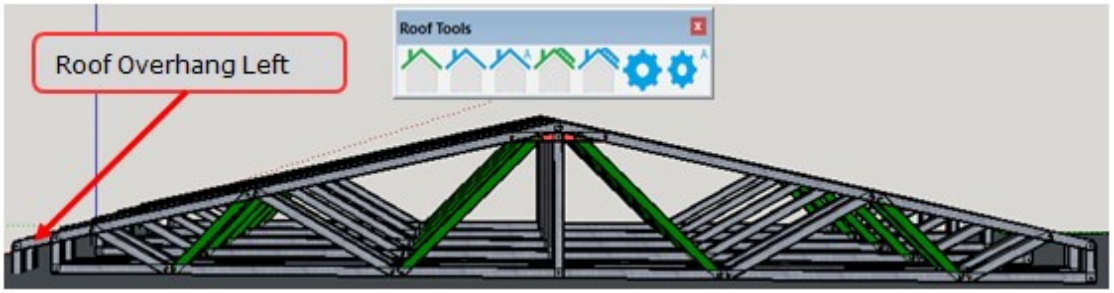
- Roof Overhang Right

  This is the amount that the roof overhangs out of the fame on the right side of the truss.



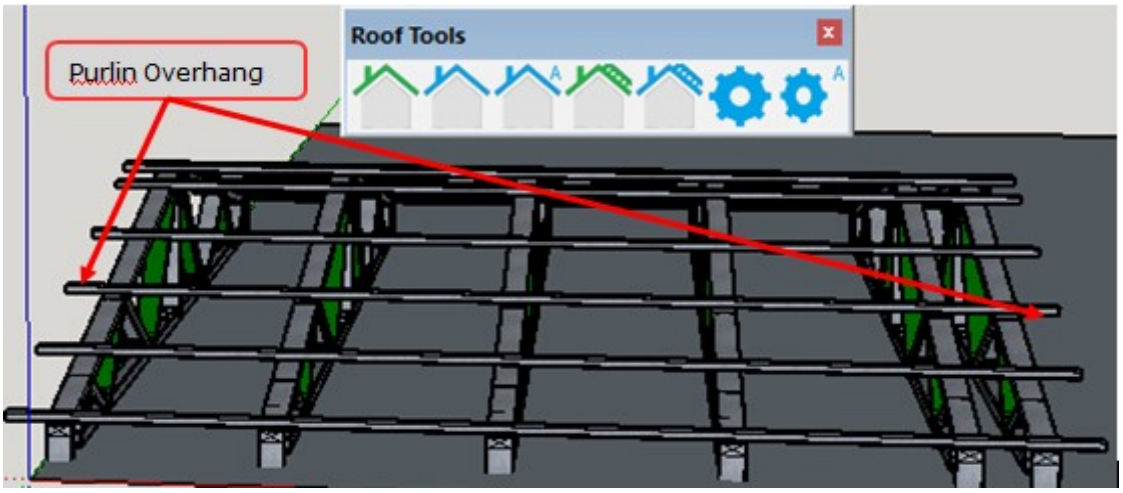
- Roof Overhang Left

  This is the amount that the roof overhangs out of the fame on the left side of the truss.



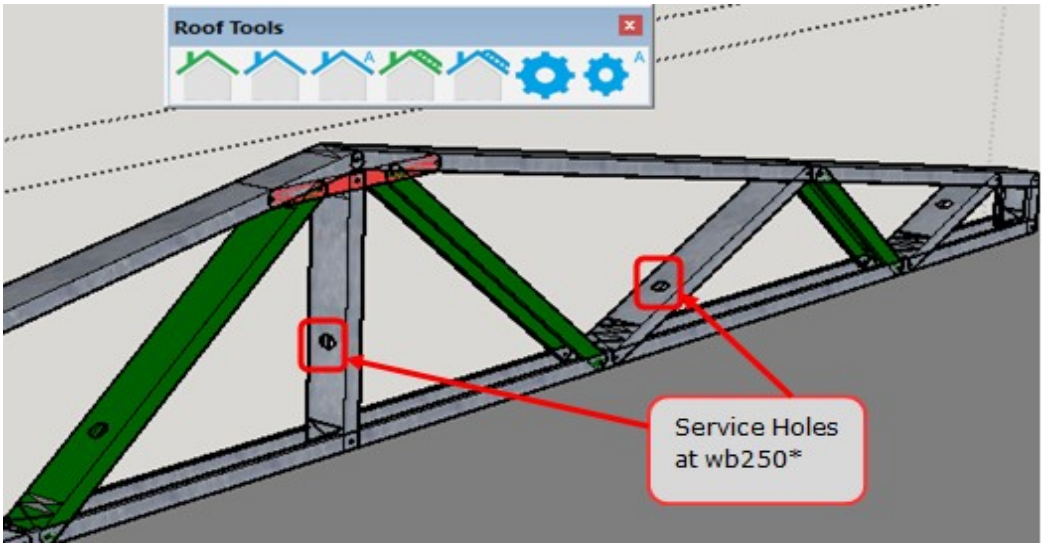
- Purlin Overhang

  This is the amount by which the roof purlin will overhang on either side of the Roof frame.



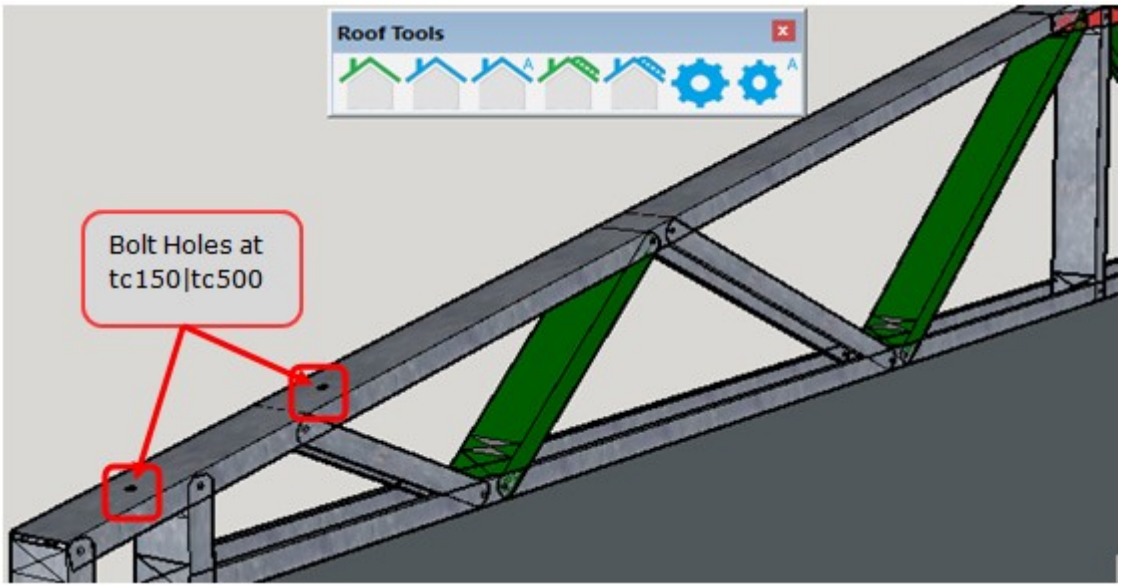
- Service Holes

  The point at which you want the service holes to be cut by the machine. Insert the place to insert the service hole by typing "wb" followed by the spacing required. A ""after the spacing will repeat the spacing throughout the beam.*
  (you can find the name of the member you need the service hole to be inserted into by clicking on the member only and the Framebuilder window will give the code for that member)



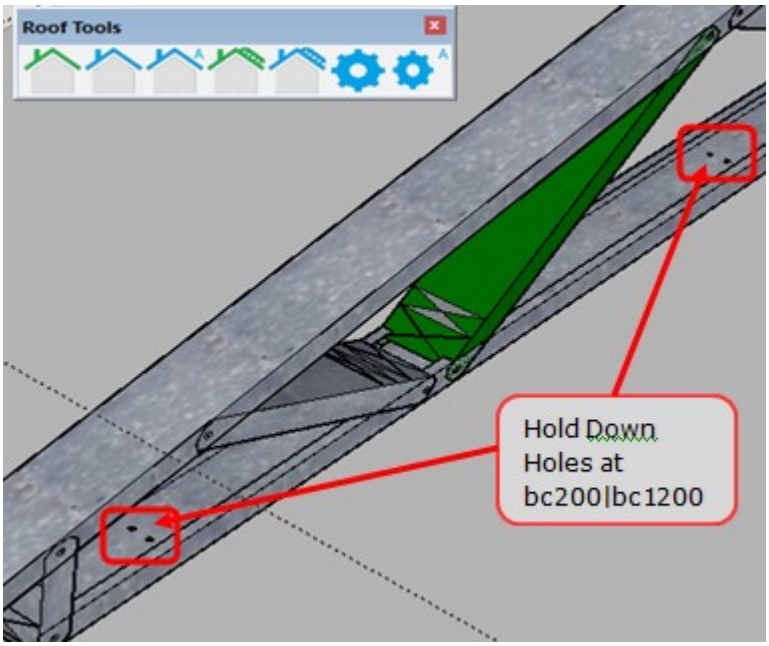
- Bolt Holes

  The point at which you want bolt holes to be cut by the machine. To insert the bolt hole on the top chord of the truss type "tc" followed by the spacing required. To specify more than one place for your bolt hole, add a "|" (found above the back space on the keyboard). Example:" tc150|tc500"



- Hold Down Holes

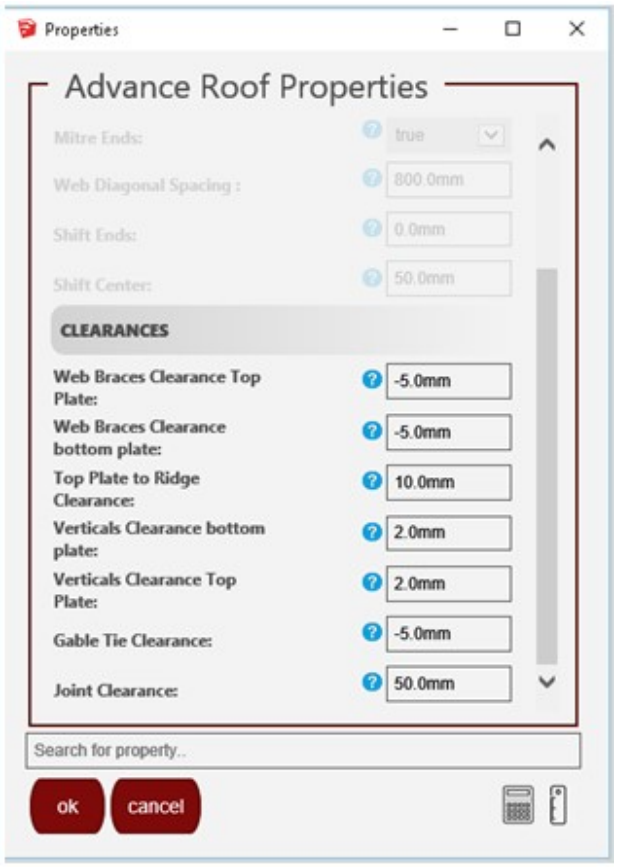
  The point at which you want the hold down holes to be cut by the machine. Insert the place to insert the service by typing "bc"followed by the spacing required. To specify more than one place for your hold down hole, add a "|" (found above the back space on the keyboard). Example:" bc200|bc1200"



8.4 CHANGE ADVANCED ROOF PROPERTIES

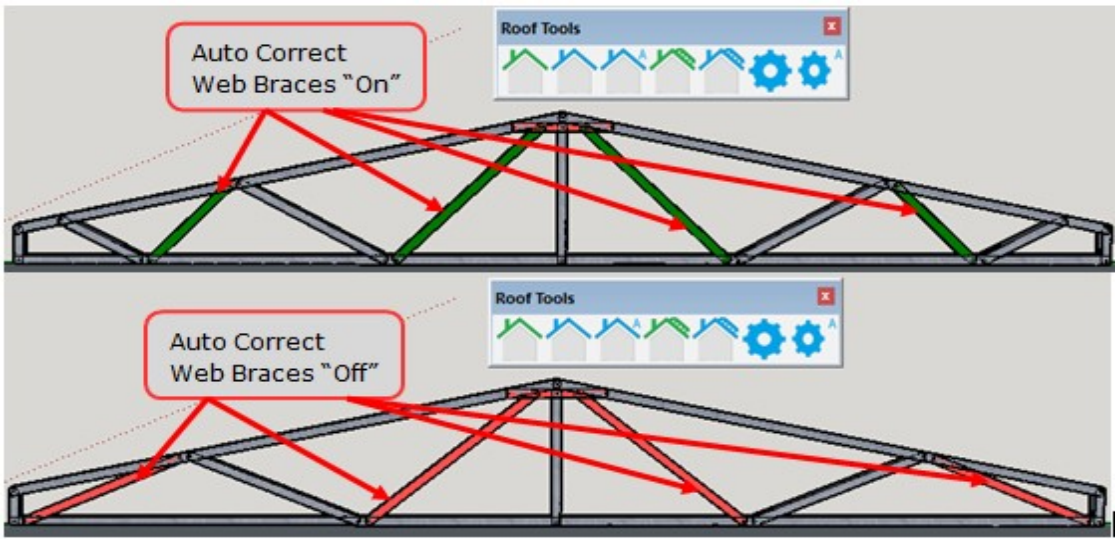
To change the advanced properties of your Roof first click on the roof for which you need to change the advanced properties and then click the "Change Advanced Roof Properties" icon on the Roof Tools Bar.

The following window will open up with the Advanced Roof Properties. Change the properties required then click OK. Your changes will be inserted in the selected roof.



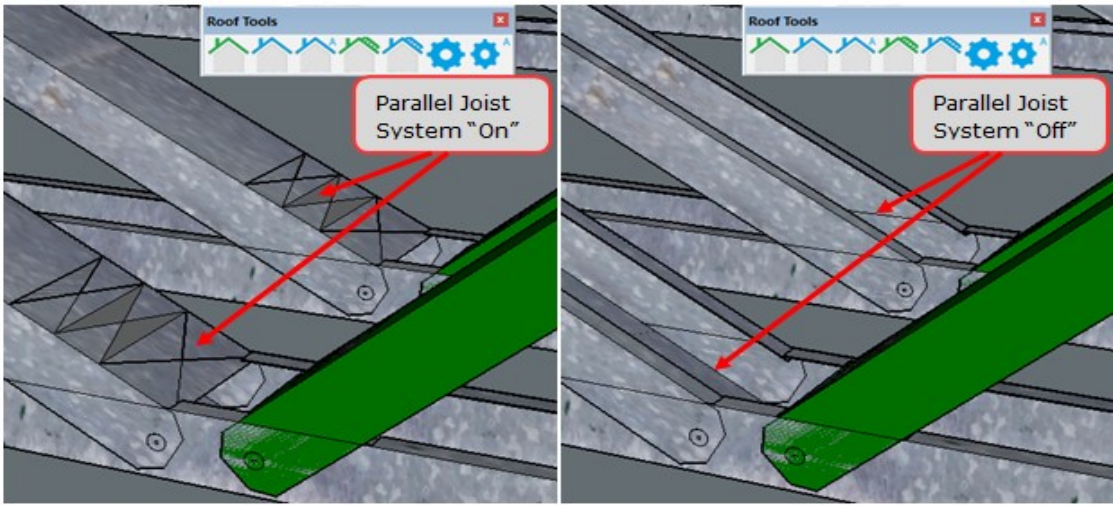
- Roof Options
  - Auto Correct Web Braces (Warren Only)

    If this option is selected the web braces on the warren style roof truss will automatically be corrected to the best position.



- Parallel Joist System (Howick machines only)

  On selecting this function to be active, it will ensure that the diagonals on the roof trusses are joined with lip cuts facing downwards.

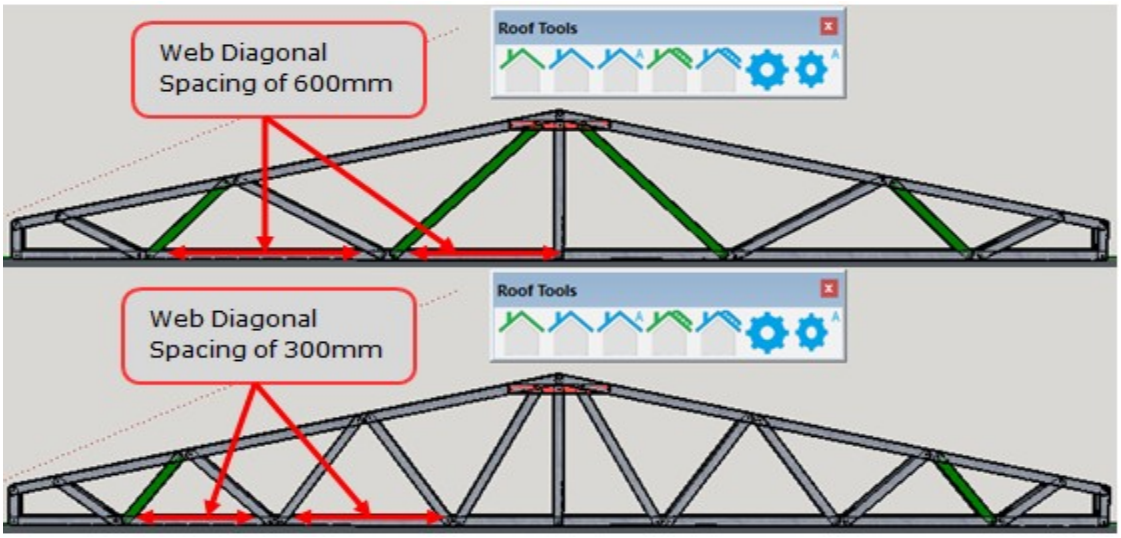


- Mitre Ends

  Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.

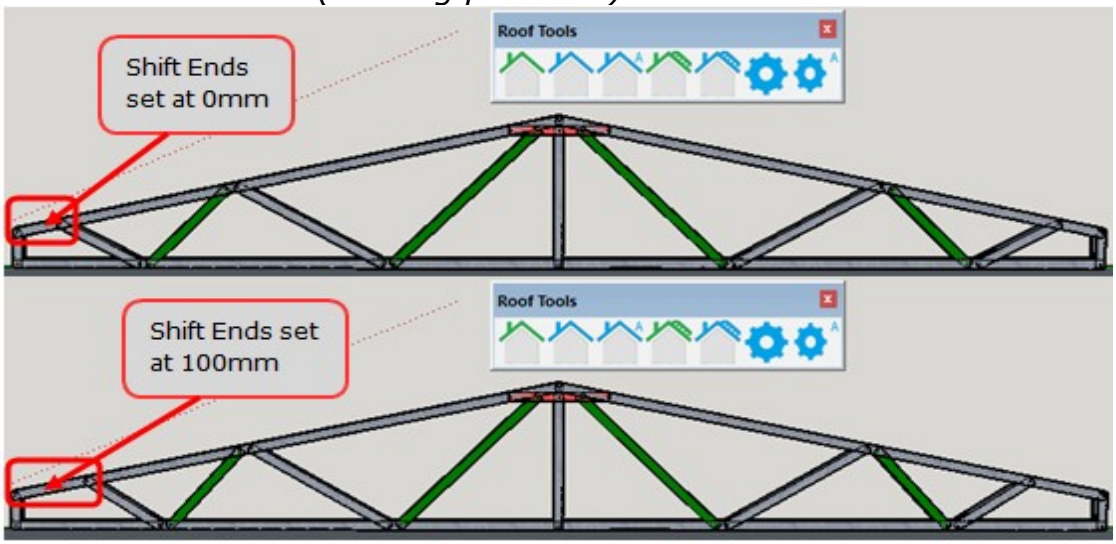
- Web Diagonal Spacing

  Allows you to change the space between the web diagonals on the different styles of trusses.



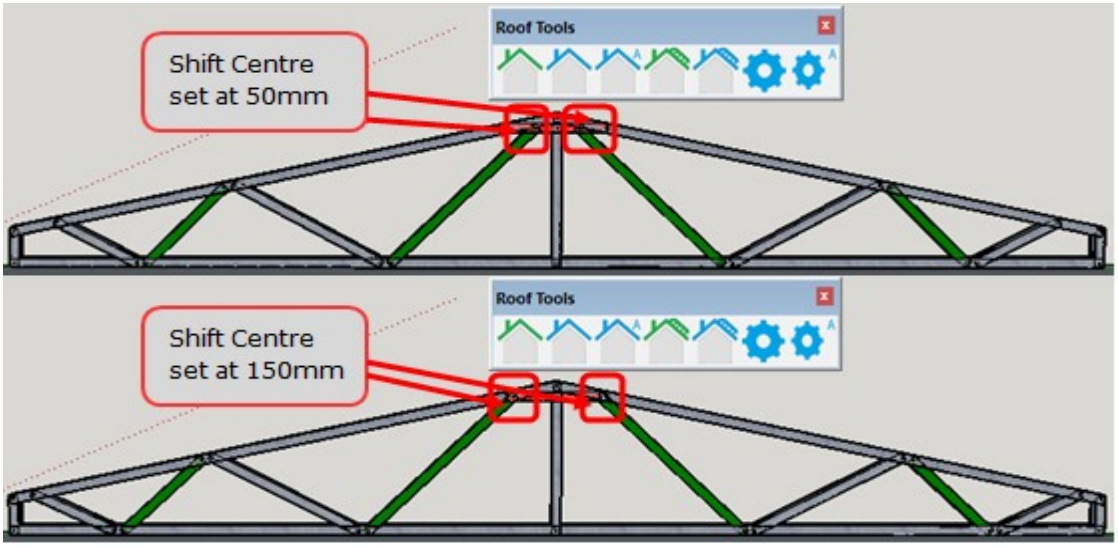
- Shift Ends

  Allows you to change the space between the web diagonals and the end of (starting positions) the roof trusses.



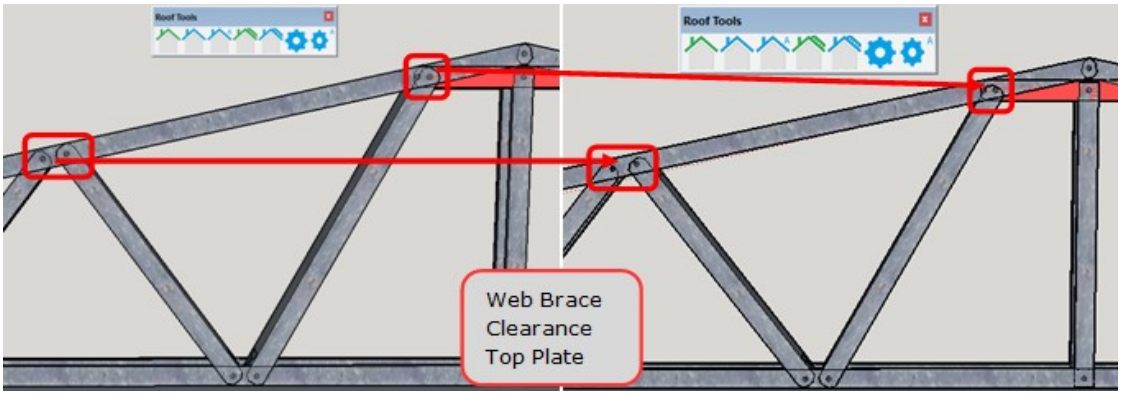
- Shift Centre

  Allows you to change the space between the web diagonals on the different styles of lattice beams.



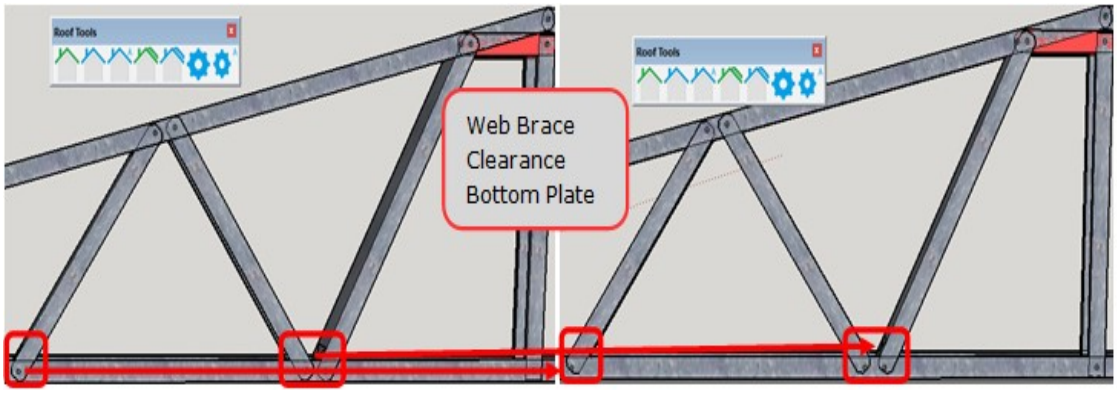
- Clearnaces
  - Web Brace Clearance Top Plate

    This is the space between the web braces and the intersecting top plates of the truss.



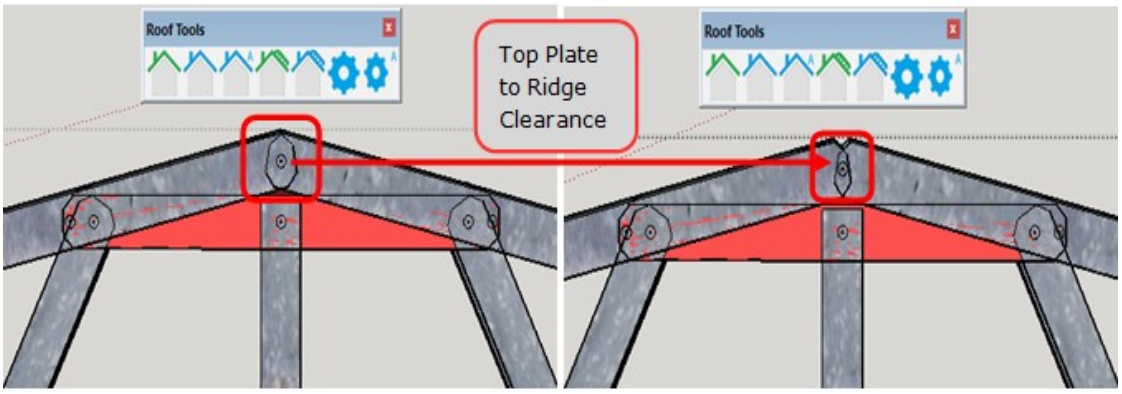
  - Web Brace Clearance Bottom Plate

    This is the space between the web braces and the intersecting bottom plate of the truss.



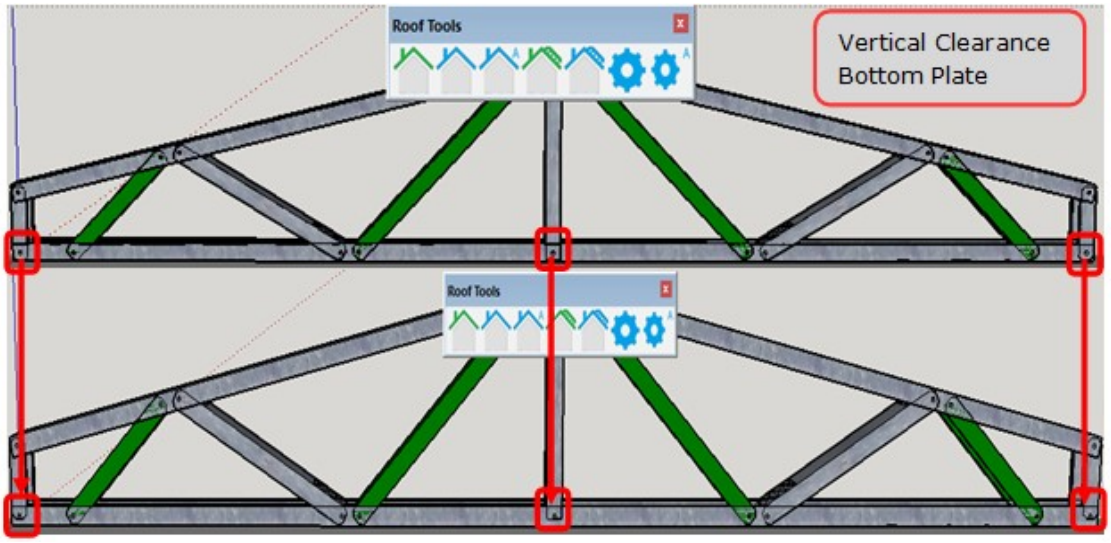
  - Top Plate to Ridge Clearance

    This is the space between the top plates and the ridge on the truss.



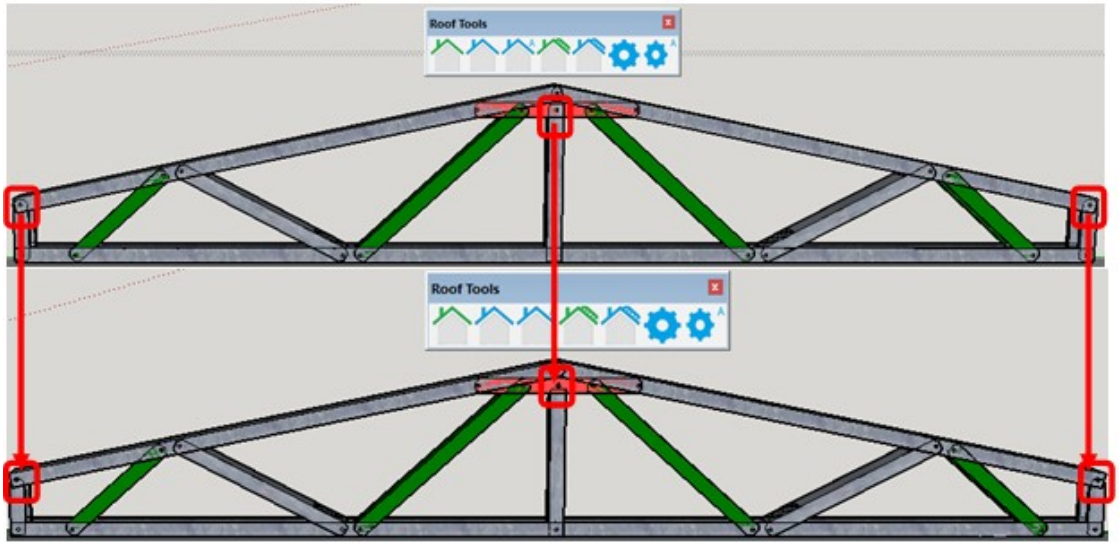
- Vertical Clearance Bottom Plate

  This is the space between the verticals on either side as well as in the centre of the truss and the intersecting bottom plate of the truss.



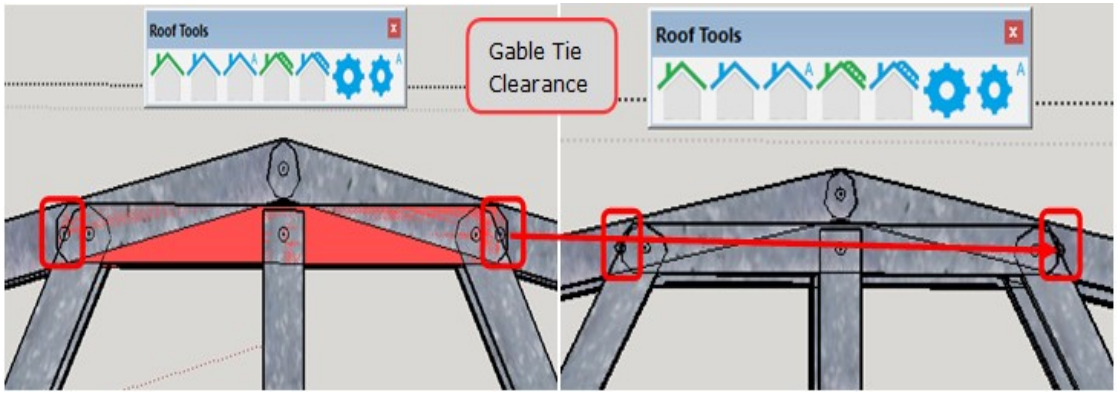
- Vertical Clearance Top Plate

  This is the space between the verticals on either side of the truss and the intersecting top plates of the truss.



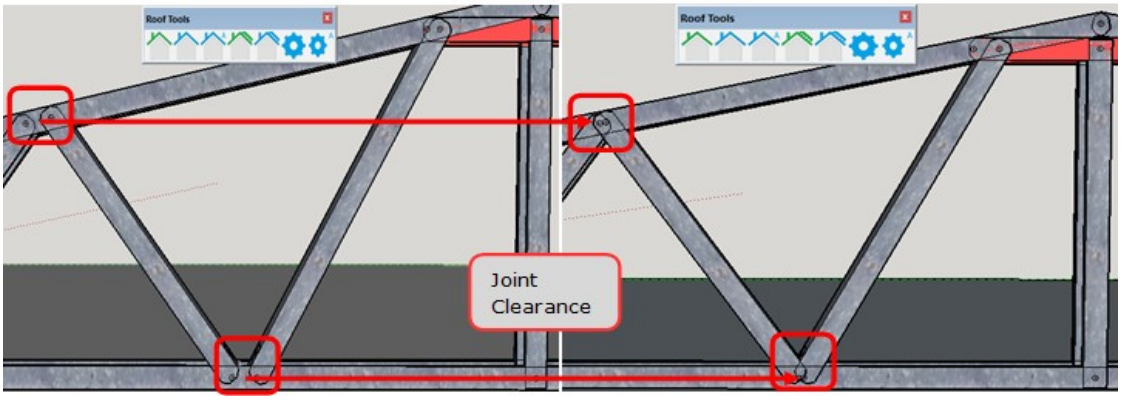
- Gable Tie Clearance

This is the space between the gable ties at the top of the truss.



- Joint Clearance

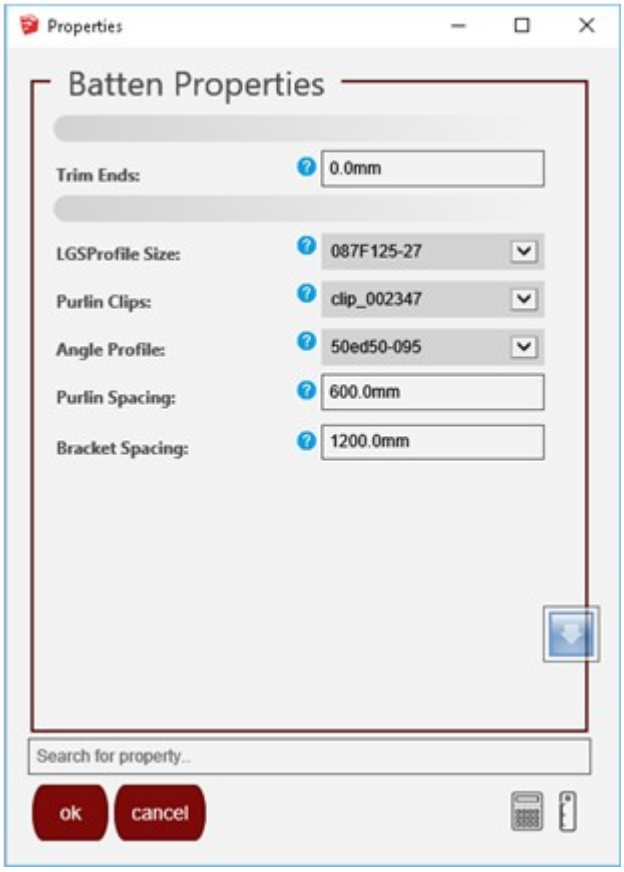
  This is the space between the web intersections on the truss.



8.5 CREATES A ROOF PURLINS, BATTENS

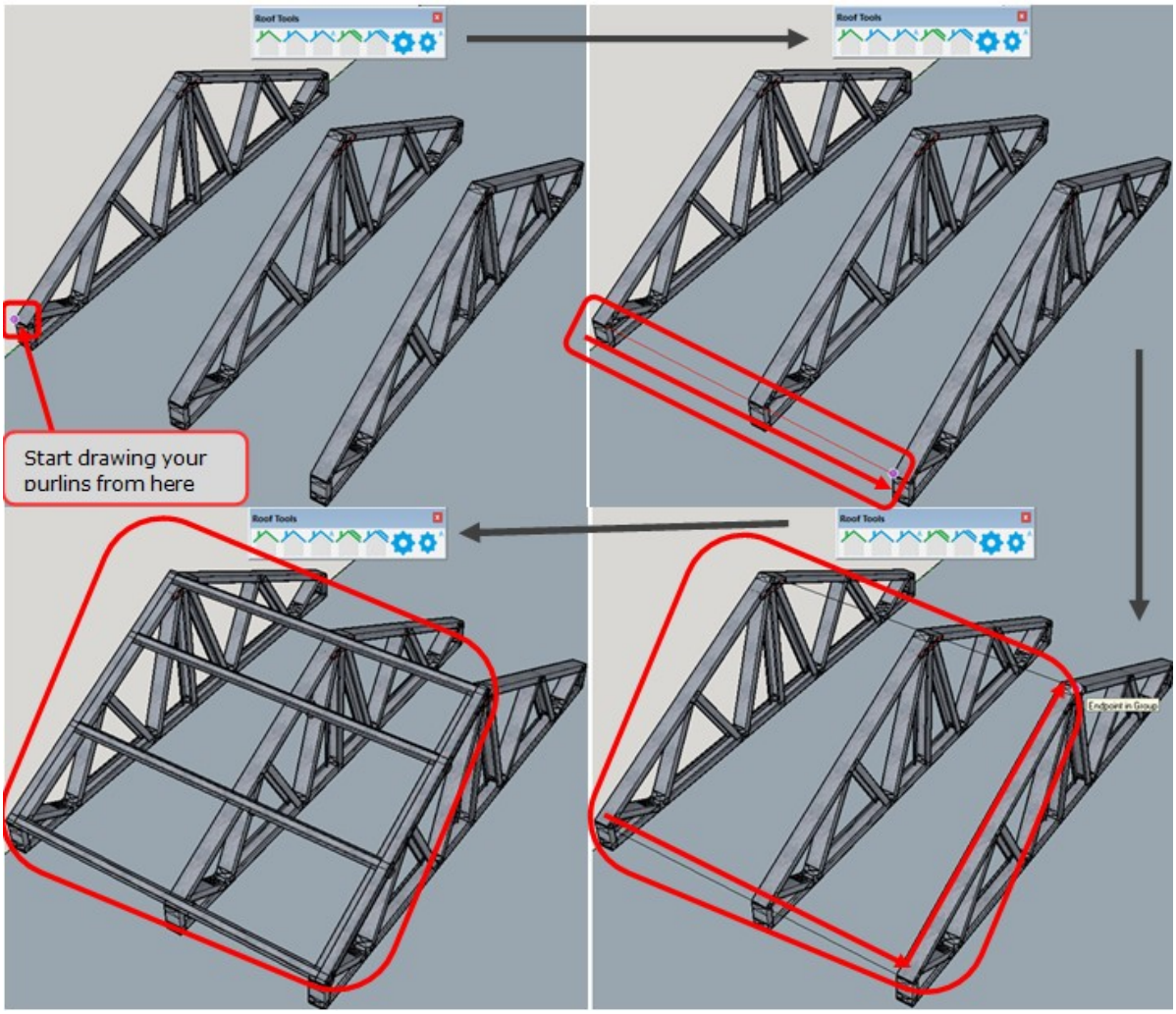
To create roof purlins or battens on an existing roof click on the "Create Roof Purlins, Battens" icon on the Roof Tools Bar.

The following window will open up with the Batten Properties.



Ensure that the properties and size of the purlin or batten you want to design is correct and click ok. You can now trace where you would like your purlins or battens to be placed on your roof.

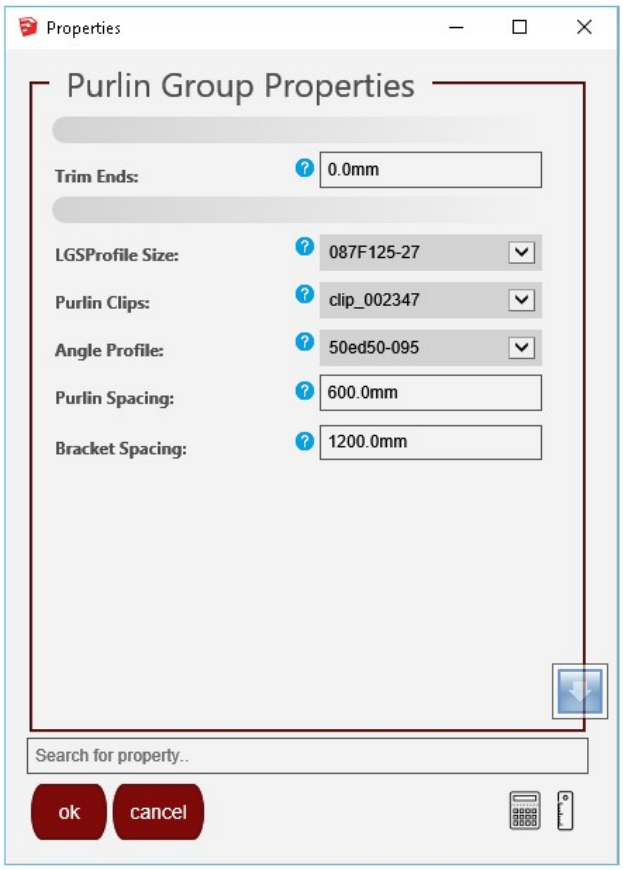
Start at one corner of the roof and move along the one side of the roof to ensure that the purlins will be aligned to the roof trusses. Next trace to the next corner. You will notice that a line first appears while you draw the first side and then a box or square shape appears to show the area in which the purlins will be drawn. Once you finish, click once more and the purlins according to your size and spacing requirements will appear on the roof trusses.


Roof Tools
Start drawing your purlins from here
Endpoint in Group

8.6 EDIT ROOF PURLINS, BATTENS PROPERTIES

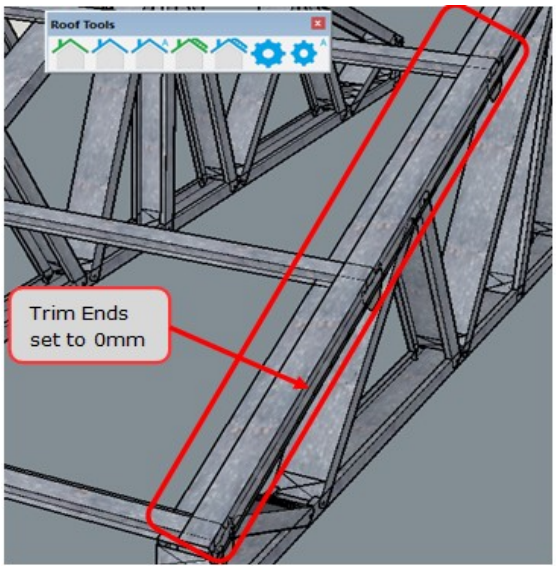
To edit the Roof Purlins and battens first click on the roof for which you need to edit the roof purlins or battens properties and then click the "Edit Roof POurlins, Battens Properties" icon on the Roof Tools Bar.

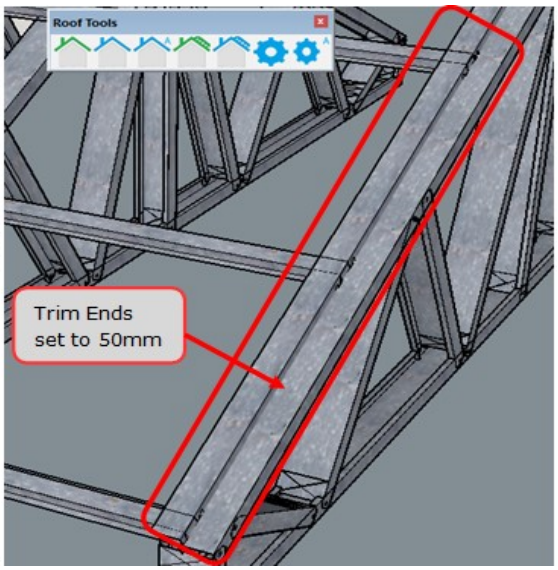
The following window will open up with the Purlin Group Properties. Change the properties required then click OK. Your changes will be inserted onto the selected roof.



- Section 1
  - Trim Ends

    This is the space between the one end of the truss and where the purlin would stop on that end of the truss.

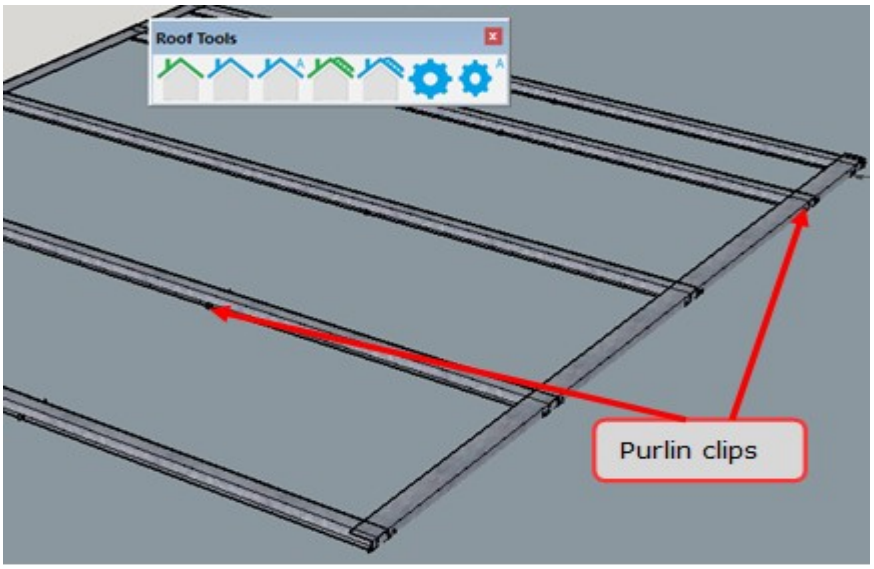




- Section 2
  - LGSProfile Size

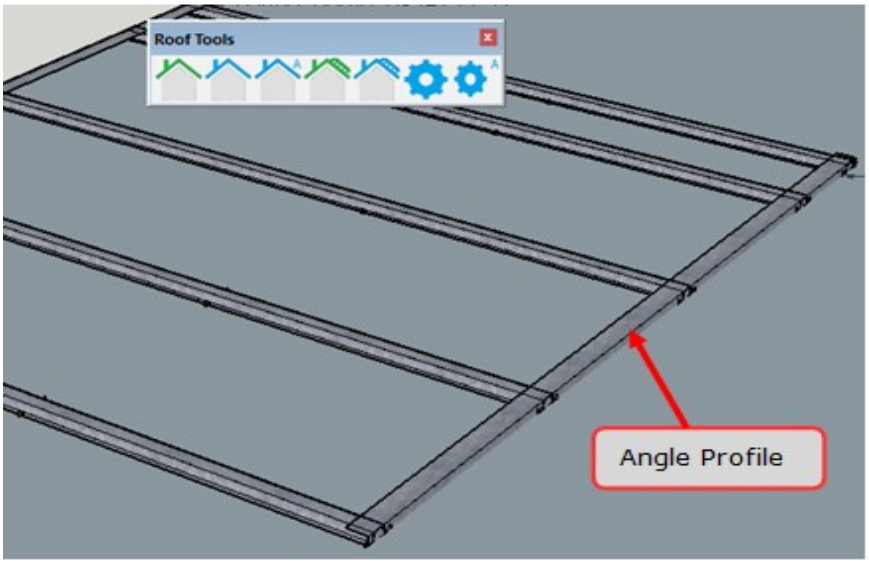
    This is the profile of the steel to used in the manufacture of the floor system you are designing.
  - Purlin Clips

    This is the clips used to attach the purlin to the rafters. There are 3 different types of clips that can be selected. The clips available are clip wbr014, clip 002347 and clip ebr204.



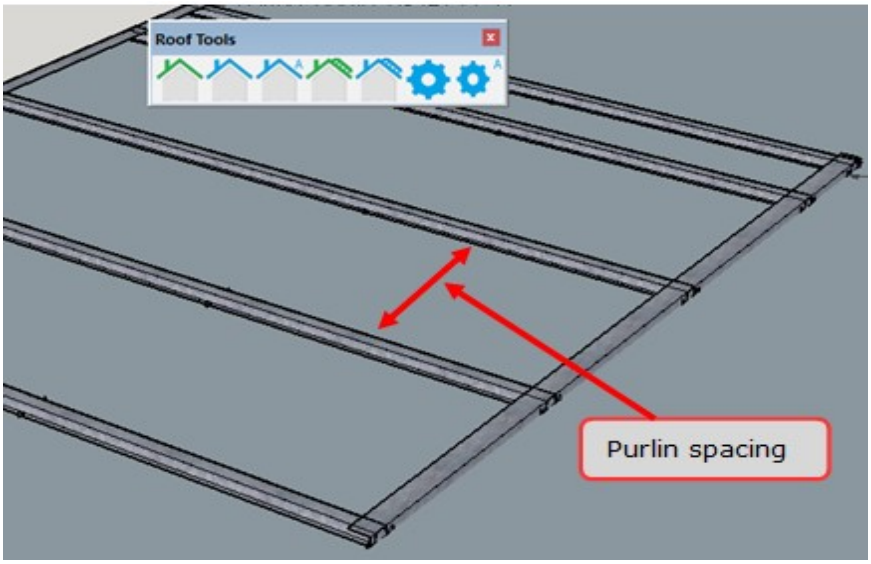
  - Angle Profile

    This is the size of the profile situated on the end of the purlins .



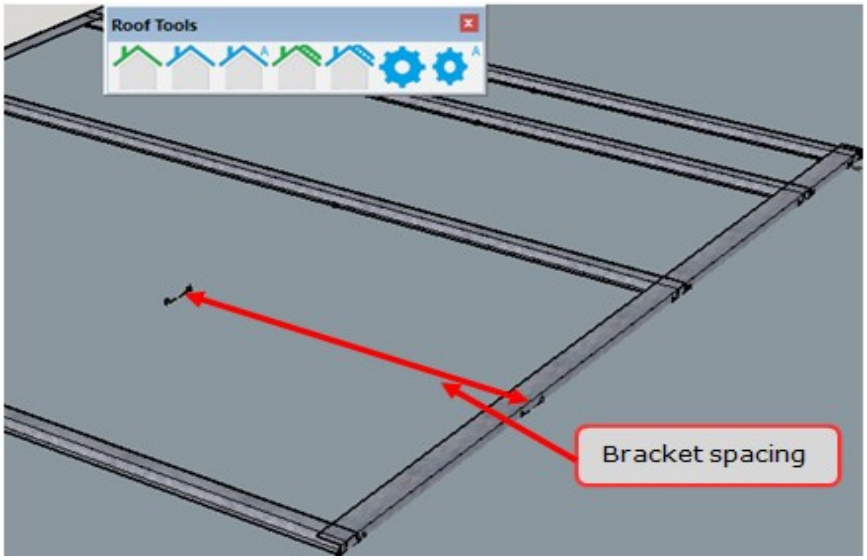
- Purlin Spacing

  This is the spacing between each purlin.



- Bracket spacing

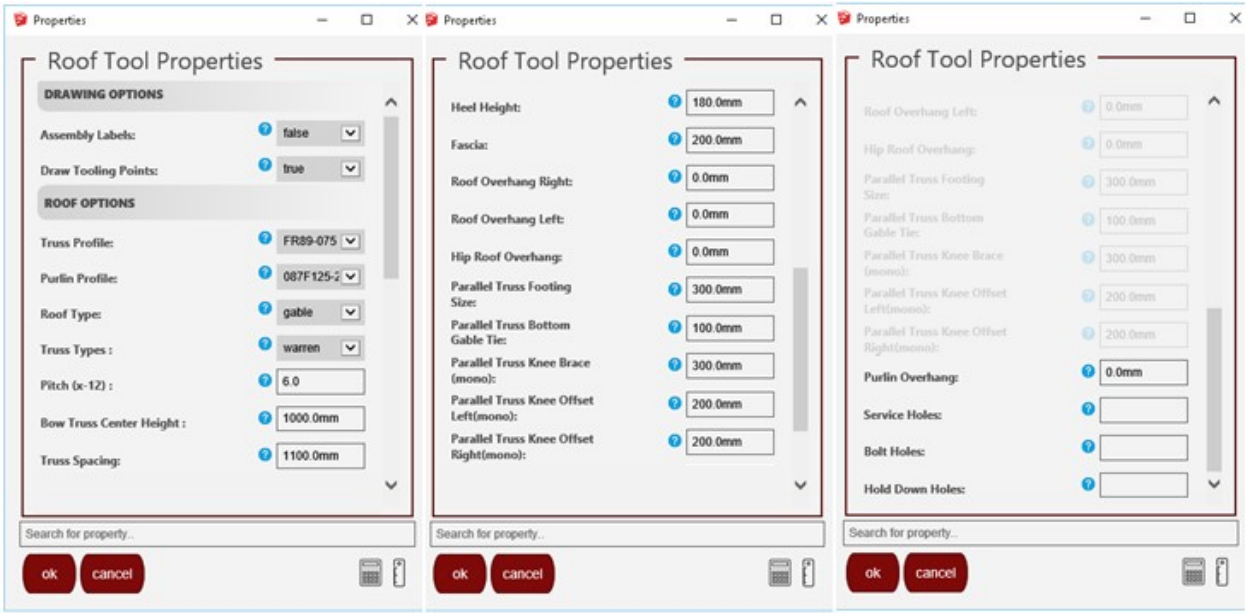
  This is the spacing betwen the brackets used on the purlins.


Roof Tools
Bracket spacing

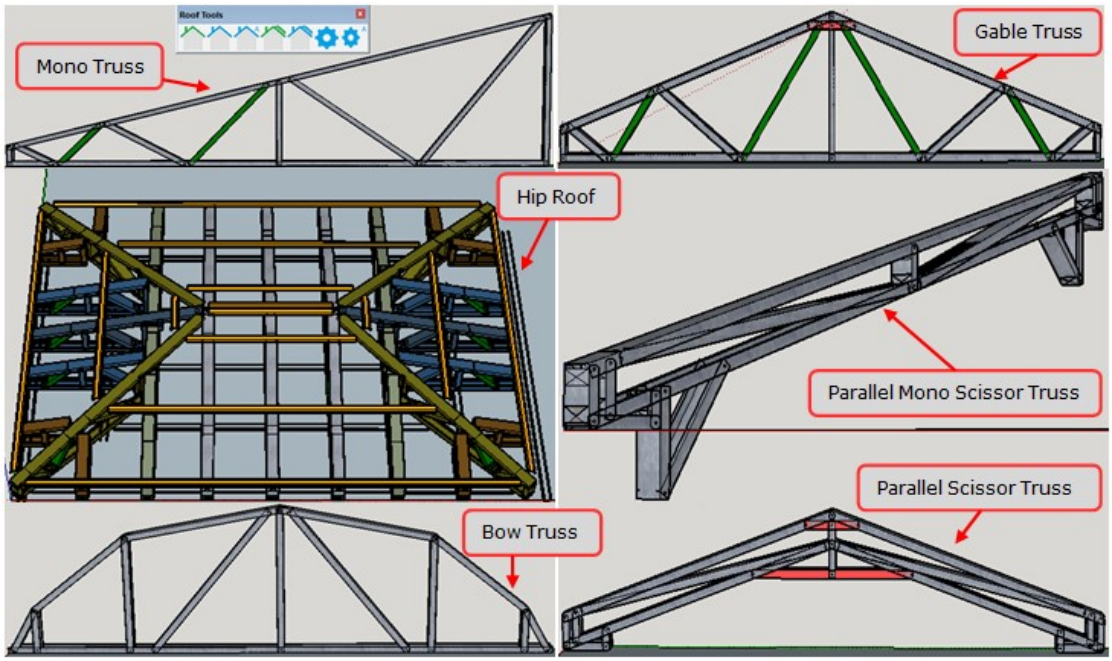
8.7 CHANGE ROOF SETTINGS

To change the Global settings for your roof designs click the "Change Roof Settings" icon towards the end of the Roof Tools Bar.

The following window will open up with the Roof Tool Properties. Change the properties required then click OK. These changes will be saved on your profile for all further Roof drawings.

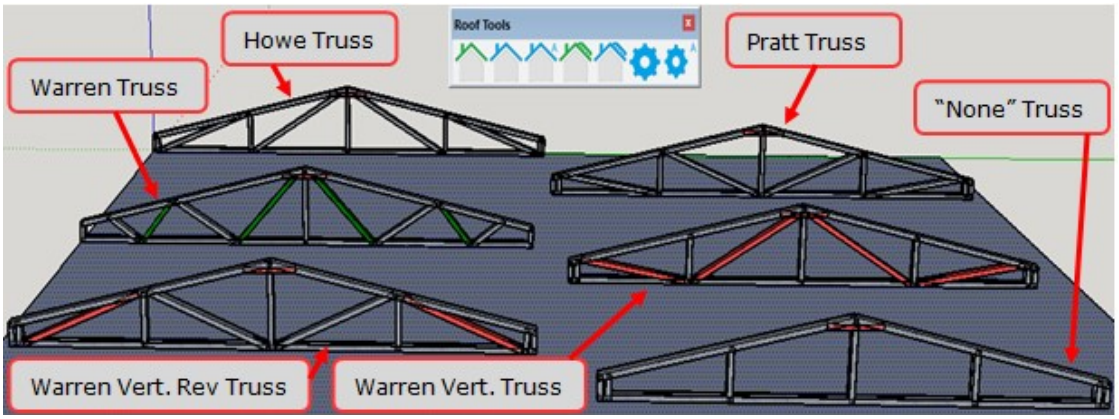


- Drawing Options
  - Assembly Labels
    Enable or Disable labels to be printed on the individual profiles within the roof frame
  - Draw Tooling Points
    Enable or Disable rendering of dimples, lip cuts notches etc
- Roof Options
  - Truss Profile
    This is the profile of the steel used in the manufacture of the roof system you are designing.
  - Purlin Profile
    This is the profile of the steel used in the manufacture of the purlins used in your design.
  - Roof Types
    The Roof designs available to draw are: Gable, Mono, Hip, Bow, Parallel Scissor and Parallel Mono Scissor.



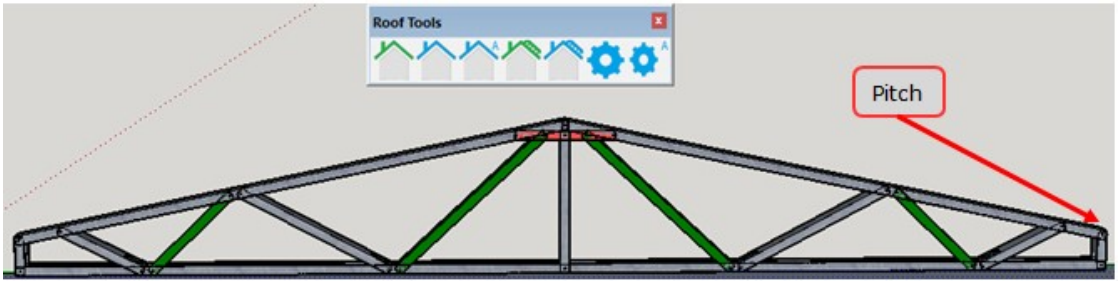
- Truss Types

  Trusses like beams have 6 different design styles being, Howe, Pratt, Warren, Warren Verticle, Warren Verticle Reverse and "None" or No style.



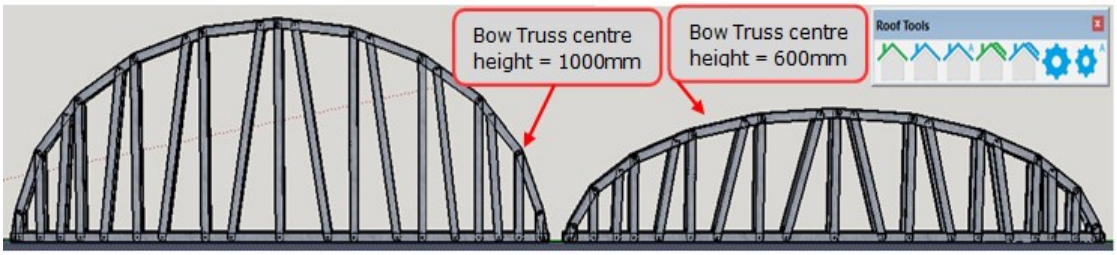
- Pitch

  This is the slope of the roof. It is given as a number between 0 and 12 with 12 being the steepest slope of 45 degrees.



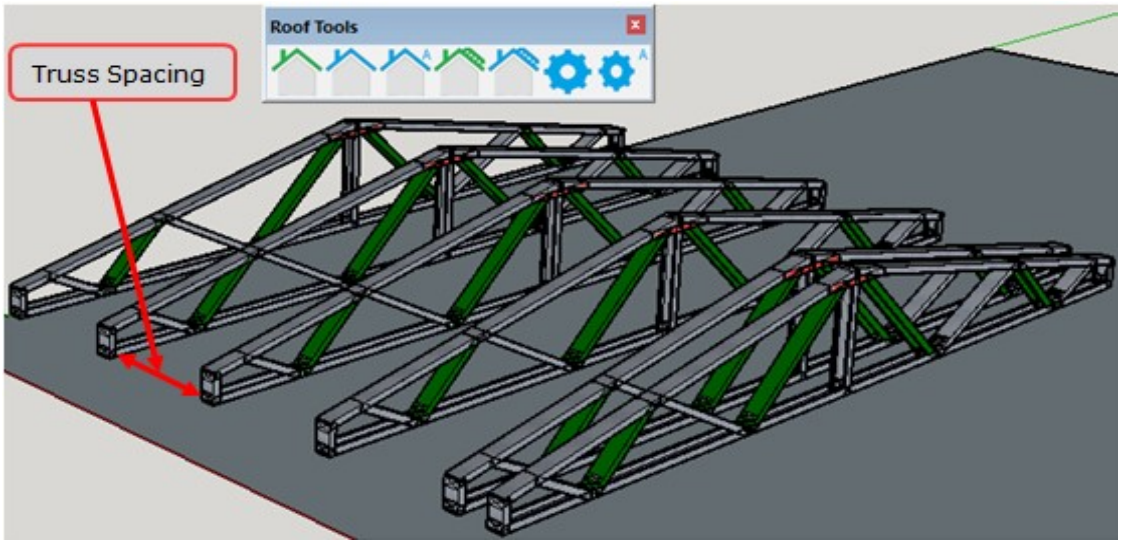
- Bow Truss Centre Height

  This allows you to set the height at the centre of the bow truss.



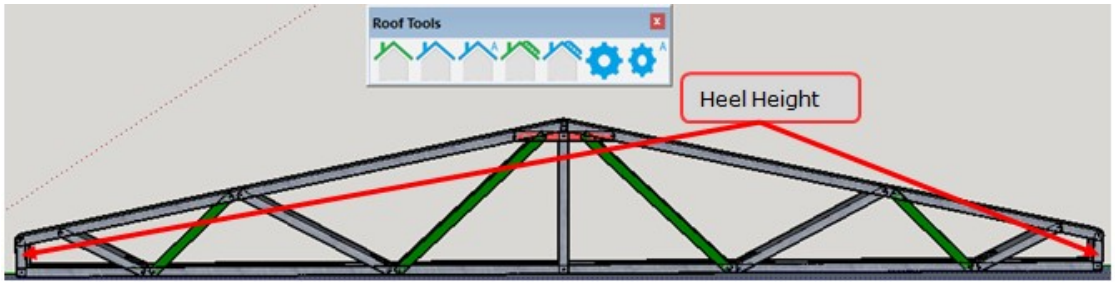
- Truss Spacing

  The spacing between trusses depends mainly the type of material being used to finish the roof. Roof sheeting will nromally have a truss spacing of 1100mm whereas roof tiles will have a spacing of 800mm between the trusses.



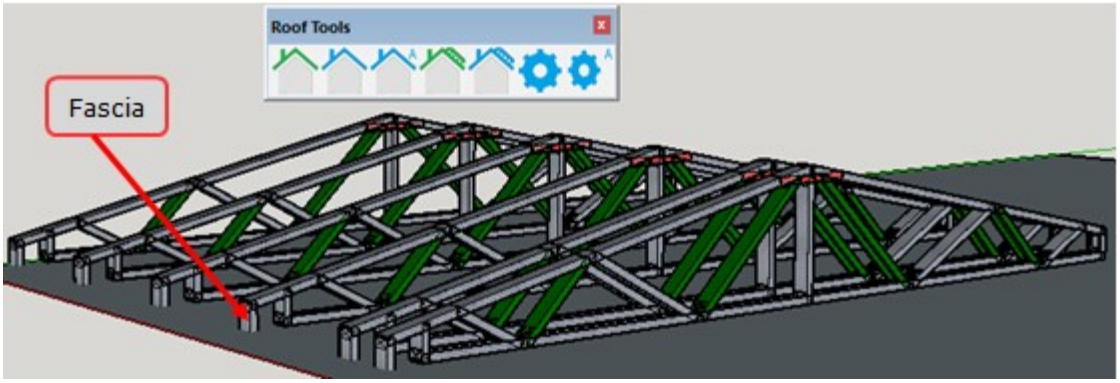
- Heel Height

  This is the height at the ends of the trusses.



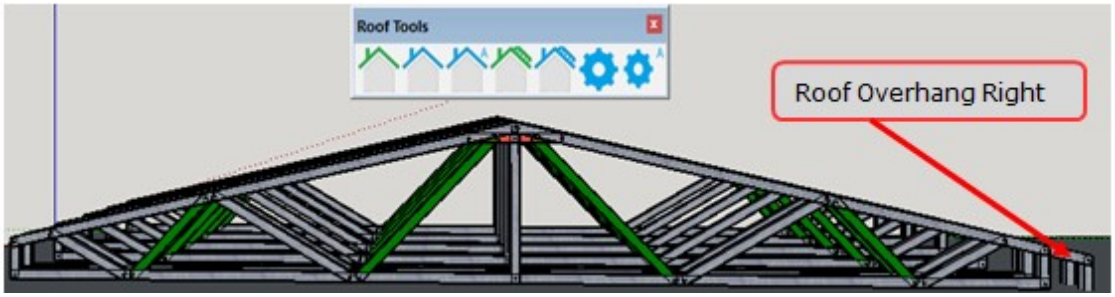
- Fascia

  This is the length of the overhang on either side of the truss.



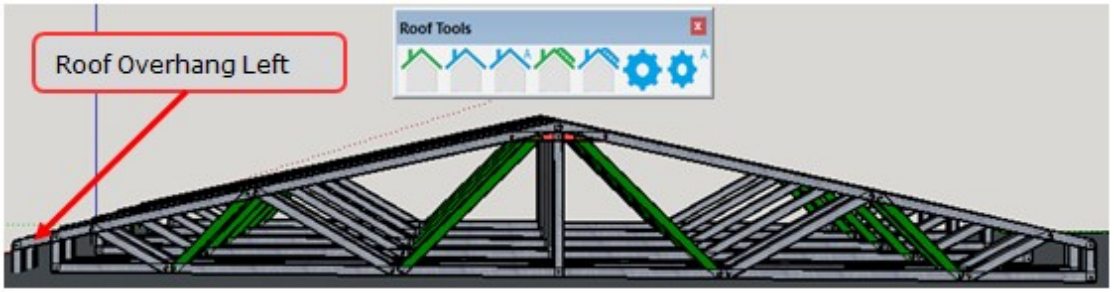
- Roof Overhang Right

  This is the amount that the roof overhangs out of the fame on the right side of the truss.



- Roof Overhang Left

  This is the amount that the roof overhangs out of the fame on the left side of the truss.

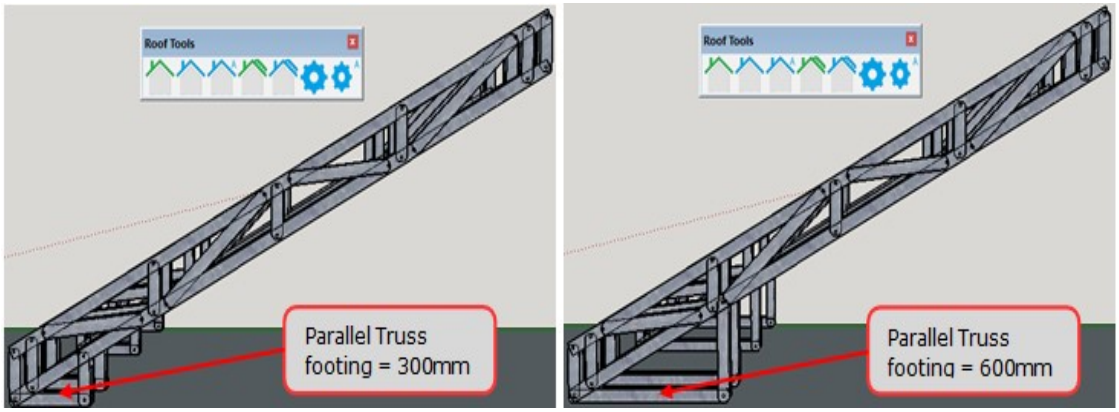


- Hip Roof Overhang

  This is the amount that the Hip roof overhangs out of the fame on all sides of the Hip truss.

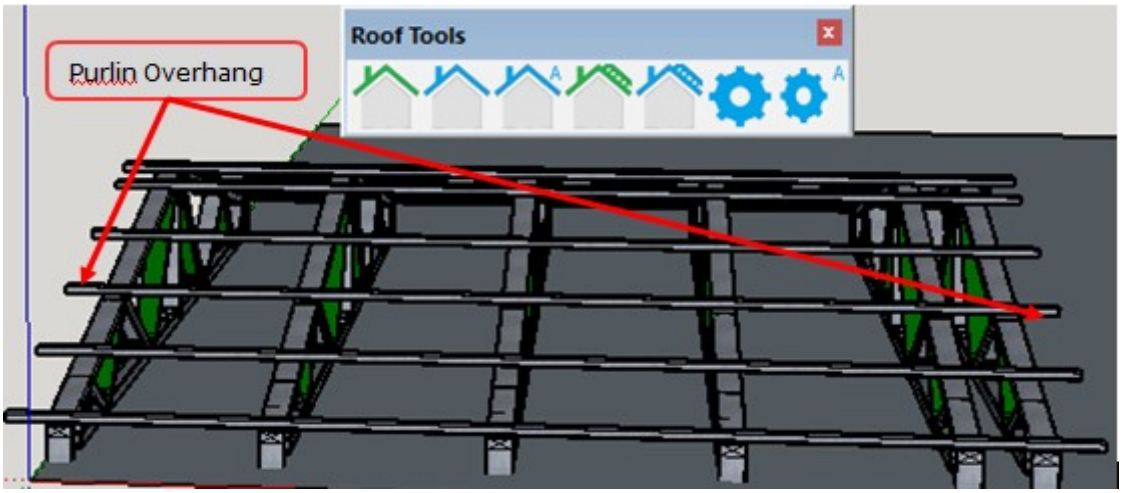
- Parallel Truss Footing size

  This is the amount that the Hip roof overhangs out of the fame on all sides of the Hip truss.



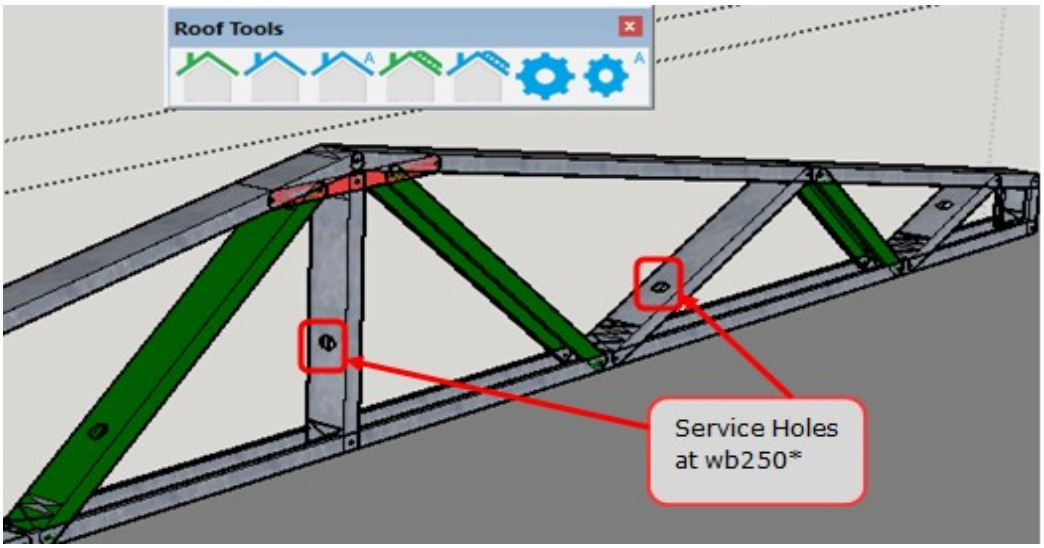
- Purlin Overhang

  This is the amount by which the roof purlin will overhang on either side of the Roof frame.



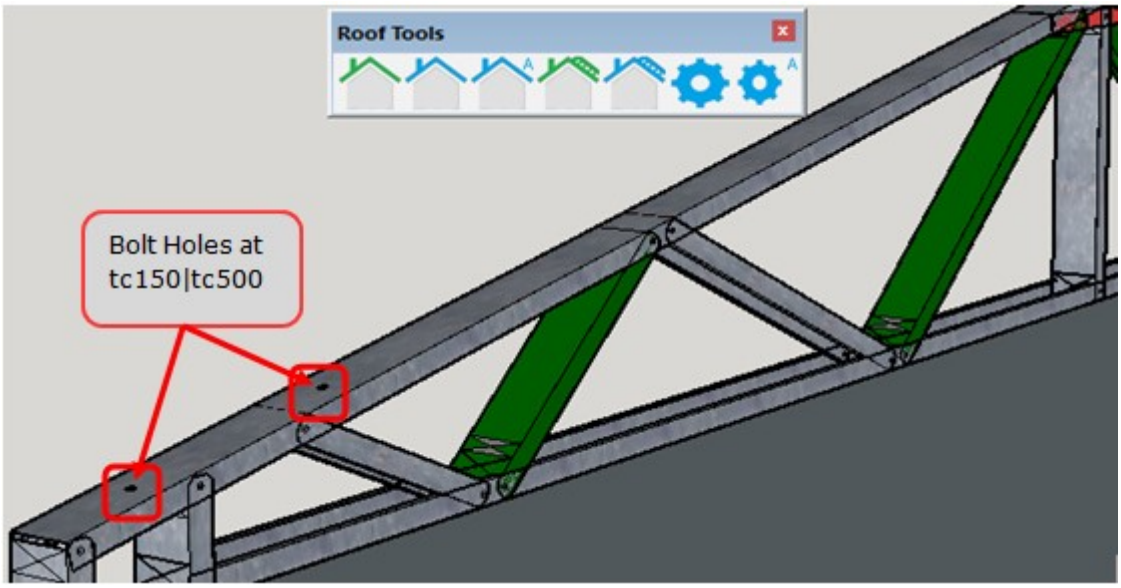
- Service Holes

  The point at which you want the service holes to be cut by the machine. Insert the place to insert the service hole by typing "wb" followed by the spacing required. A ""after the spacing will repeat the spacing throughout the beam.*
  (you can find the name of the member you need the service hole to be inserted into by clicking on the member only and the Framebuilder window will give the code for that member)



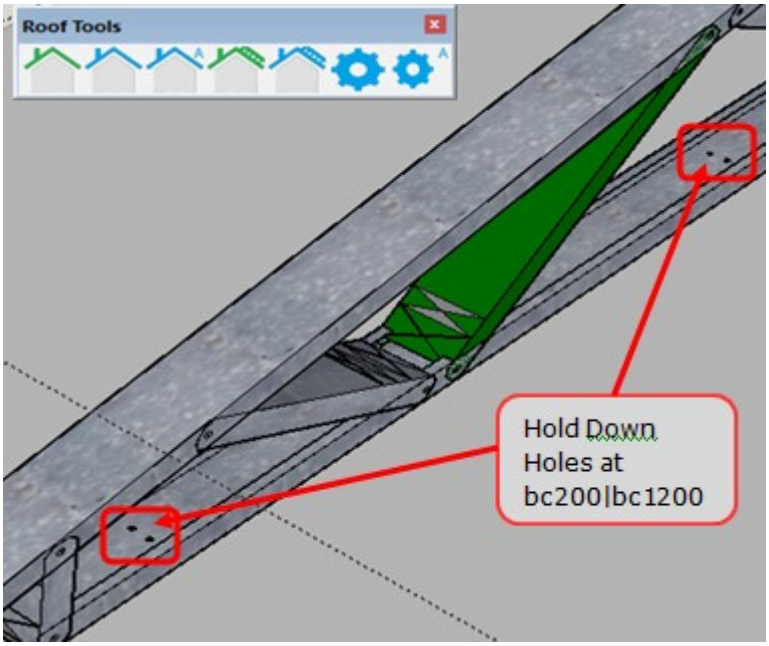
- Bolt Holes

  The point at which you want bolt holes to be cut by the machine. To insert the bolt hole on the top chord of the truss type "tc" followed by the spacing required. To specify more than one place for your bolt hole, add a "|" (found above the back space on the keyboard). Example:" tc150|tc500"



- Hold Down Holes

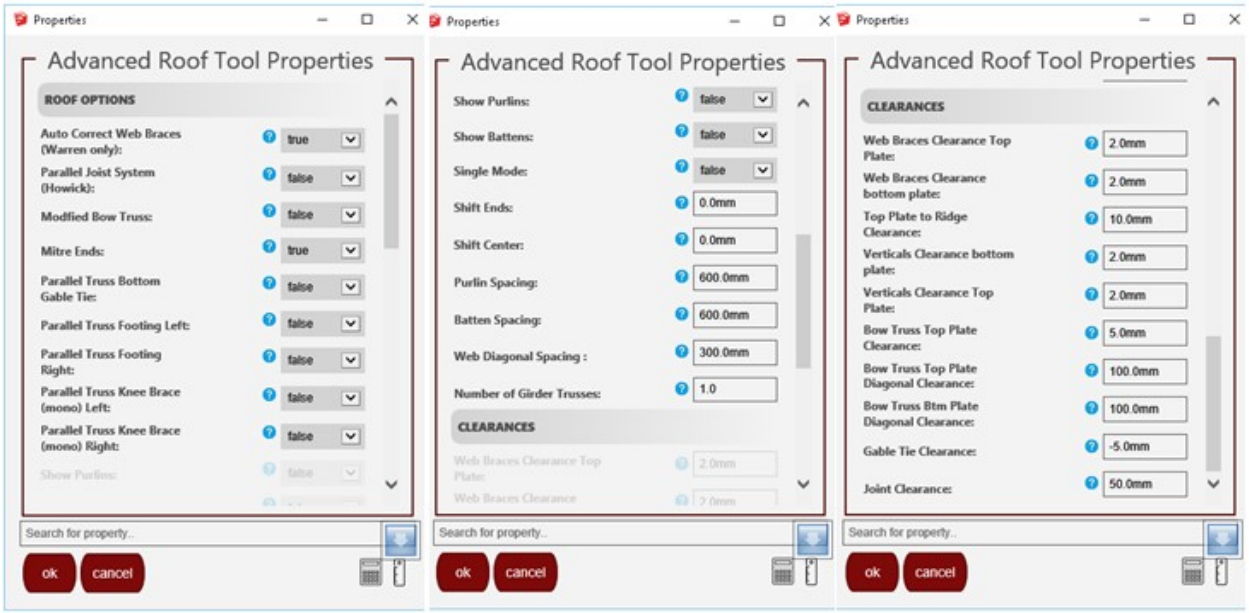
  The point at which you want the hold down holes to be cut by the machine. Insert the place to insert the service by typing "bc"followed by the spacing required. To specify more than one place for your hold down hole, add a "|" (found above the back space on the keyboard). Example:" bc200|bc1200"


Roof Tools
Hold Down
Holes at
bc200|bc1200

8.8 CHANGE ADVANCED ROOF SETTINGS

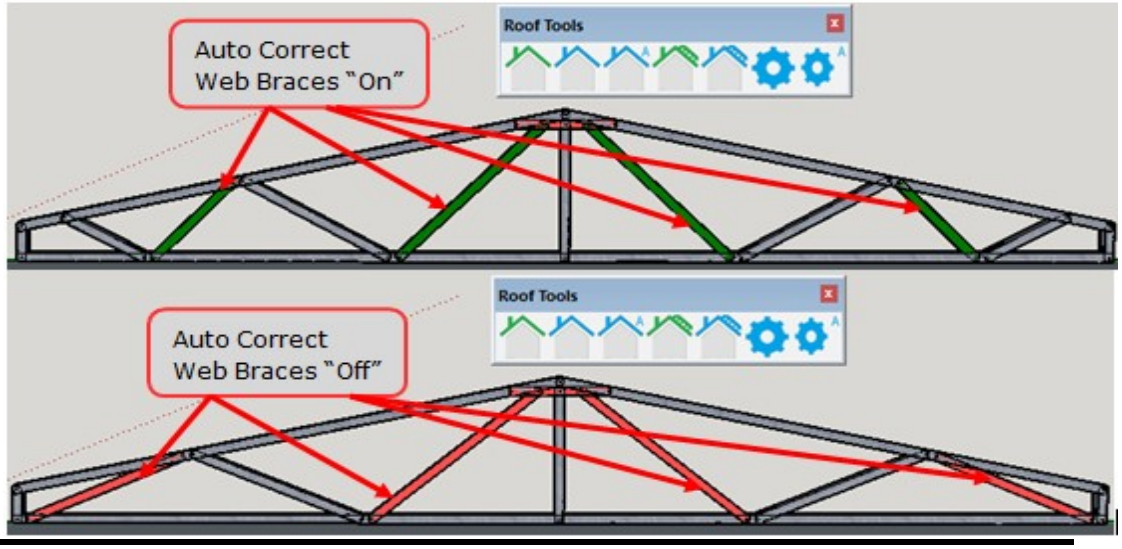
To change the Advanced Global settings for your roof designs click the "Change Advanced Roof Settings" icon at the end of the Roof Tools Bar.

The following window will open up with the Advanced Roof Tool Properties. Change the properties required then click OK. These changes will be saved on your profile for all further Roof drawings.



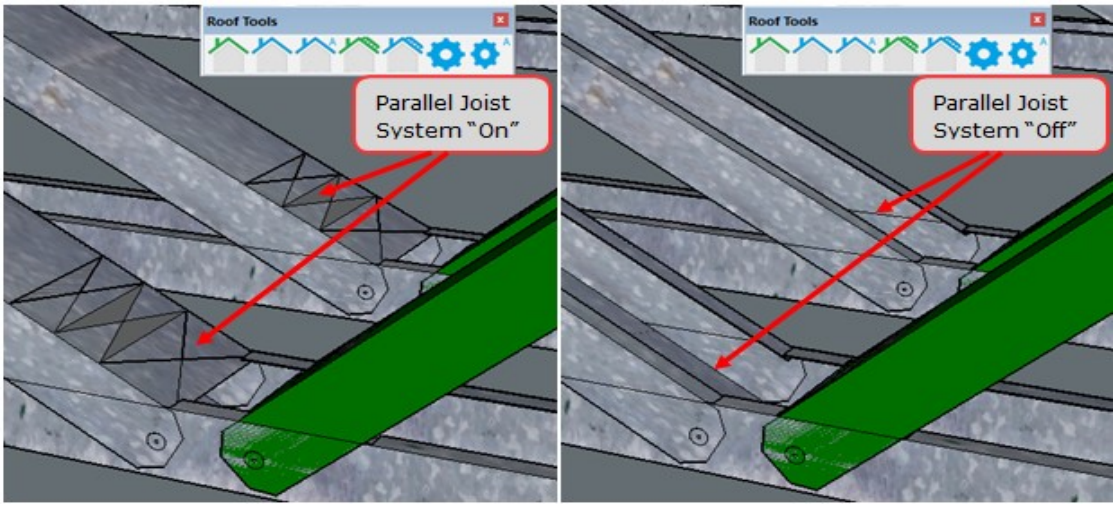
- Roof Options
  - Auto Correct Web Braces (Warren Only)

    If this option is selected the web braces on the warren style roof truss will automatically be corrected to the best position.



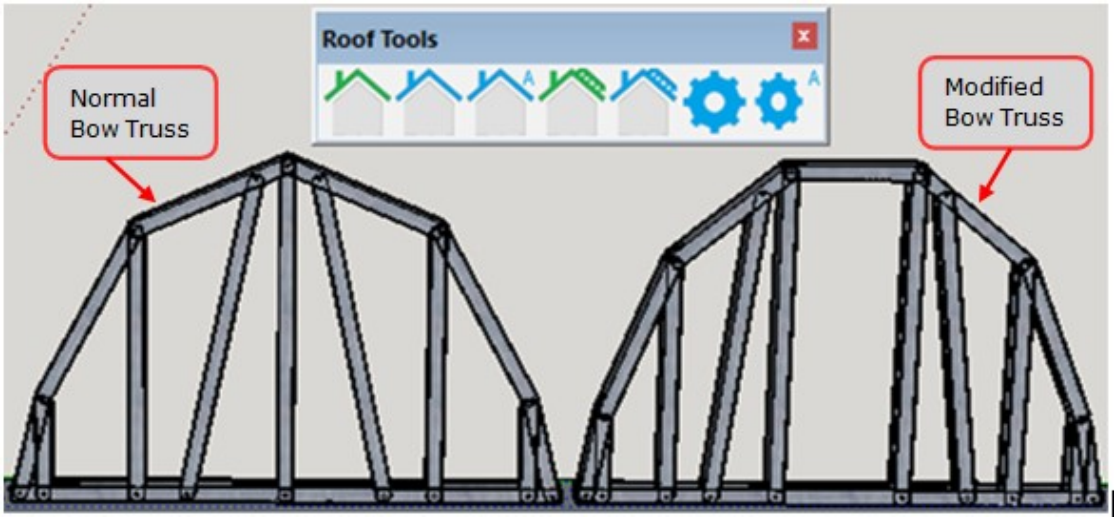
- Parallel Joist System (Howick machines only)

  On selecting this function to be active, it will ensure that the diagonals on the roof trusses are joined with lip cuts facing downwards.



- Bow Truss Centre Height

  This allows you to change the top of the bow Truss from a pointed top to a flat top.

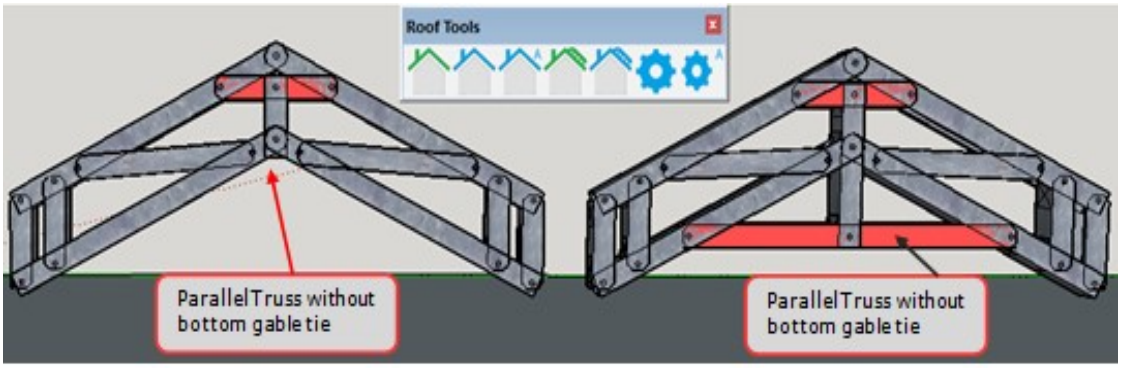


- Mitre Ends

  Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.

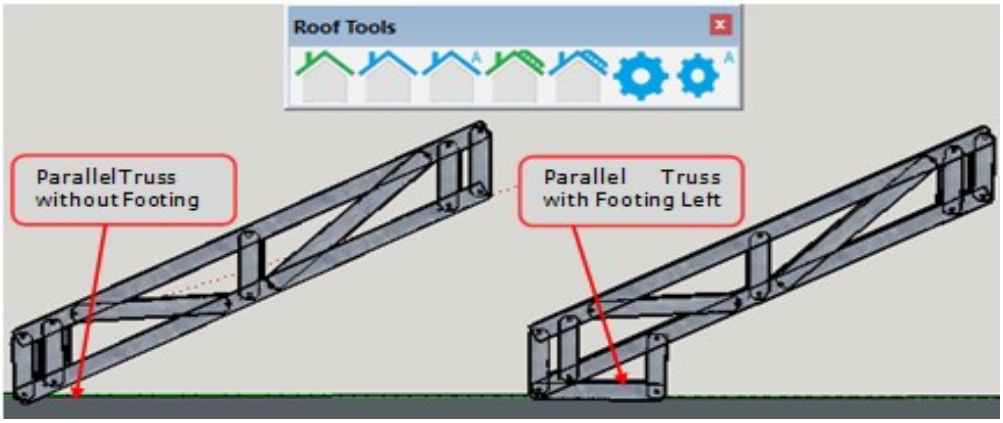
- Parallel Truss Bottom Gable Tie

  You can either have a bottom gable tie on the parallel scissor truss or select this to be switched off by selecting either "True" (On) or "False"(Off).



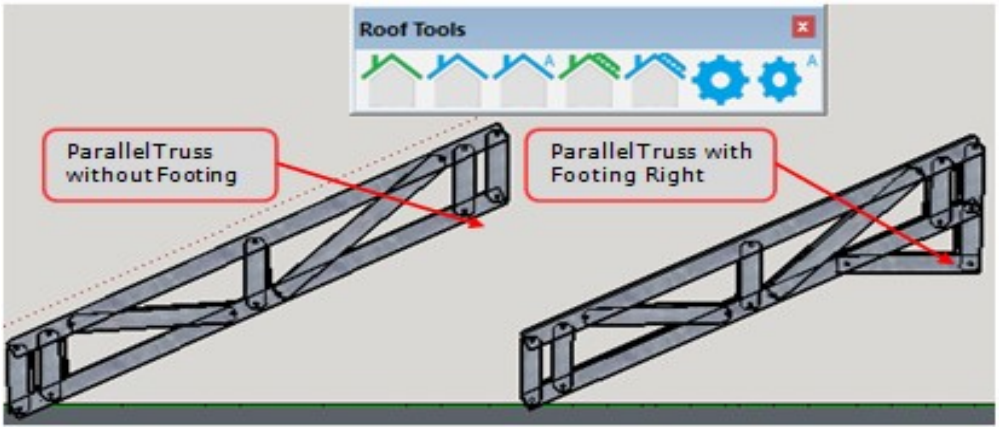
- Parallel Truss Footing Left

  Allows you to insert a footing at the left side of the mono parallel by selecting either "True" (On) or "False"(Off).



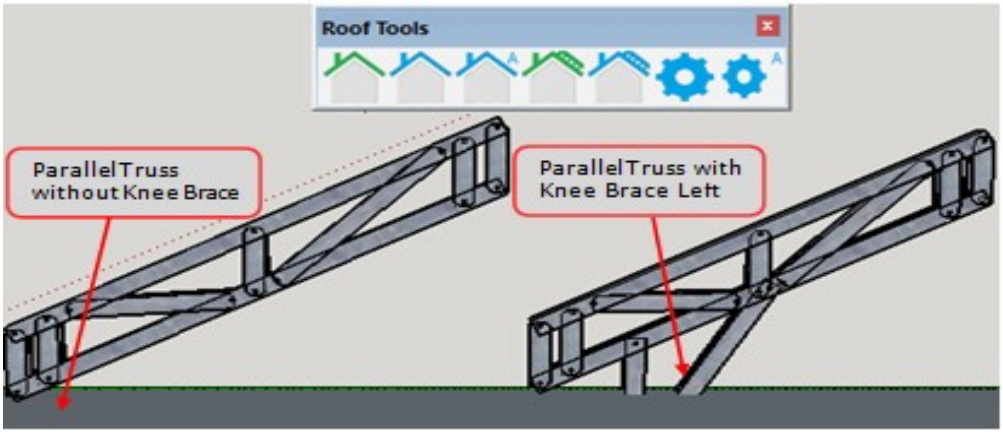
- Parallel Truss Footing Right

  Allows you to insert a footing at the right side of the mono parallel by selecting either "True" (On) or "False"(Off).



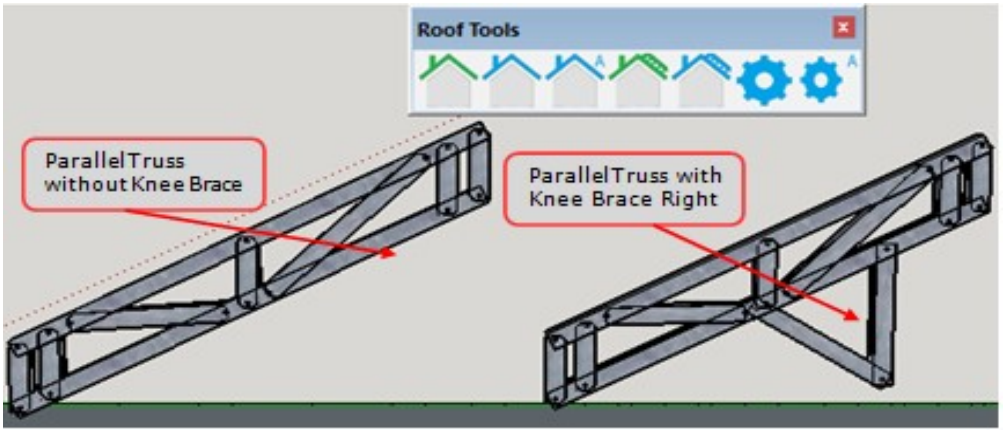
- Parallel Truss Knee Brace (Mono) Left

Allows you to insert a Knee Brace on the left side of the mono parallel by selecting either "True" (On) or "False"(Off).



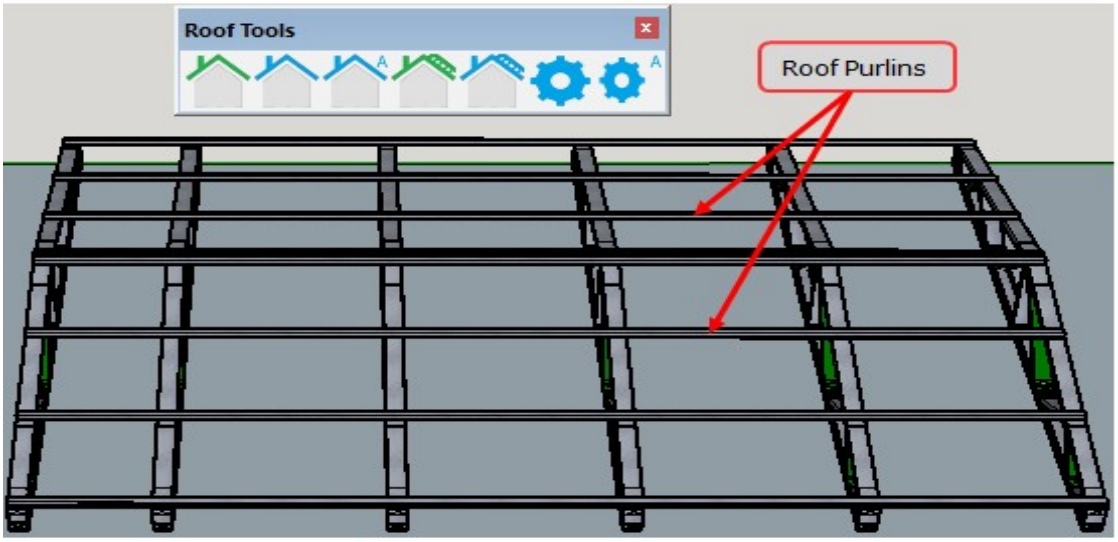
- Parallel Truss Knee Brace (Mono) Right

  Allows you to insert a Knee Brace on the left side of the mono parallel by selecting either "True" (On) or "False"(Off).



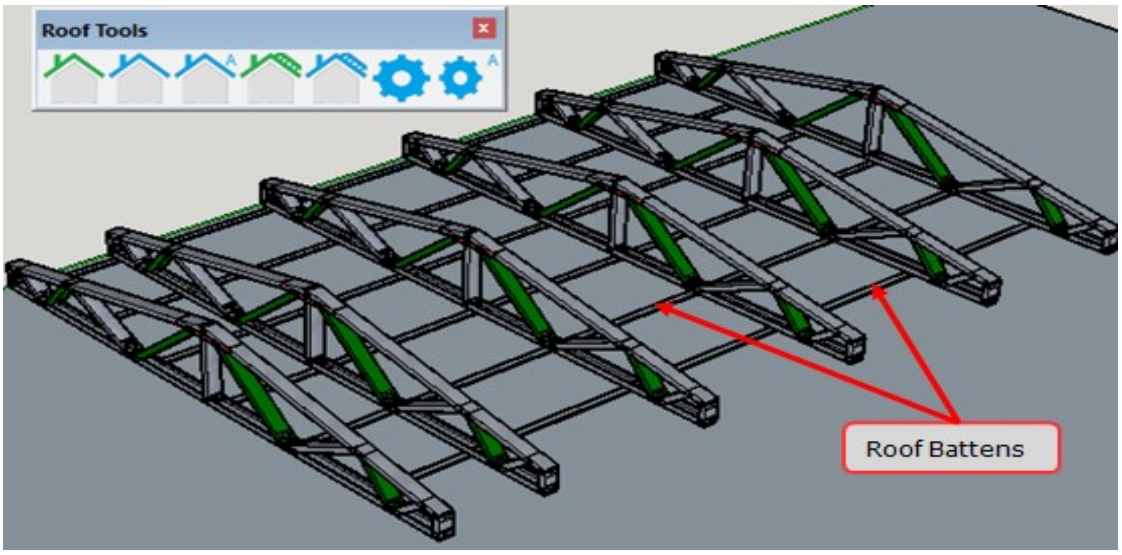
- Show Purlins

  Allows you to show the roof purlins on the roof designed.



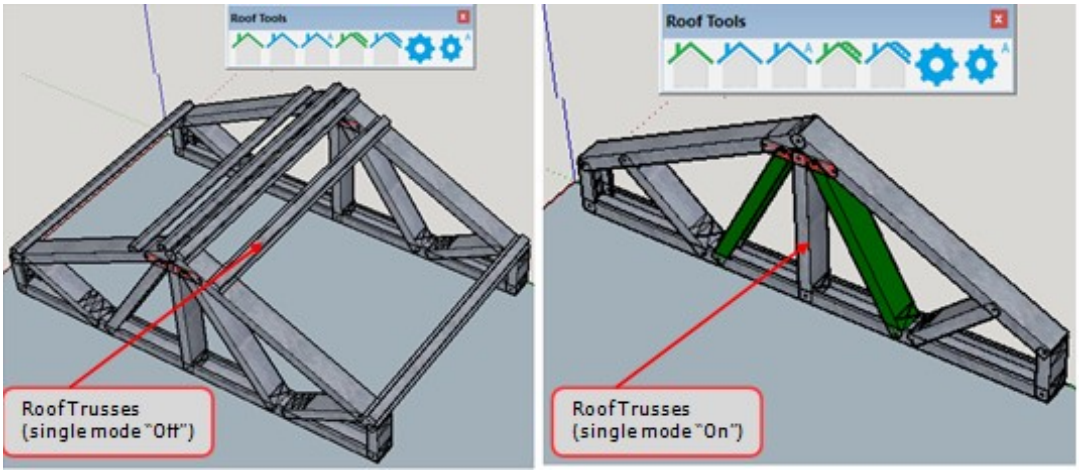
- Show Battens

  Allows you to show the ceiling battens on the roof designed.



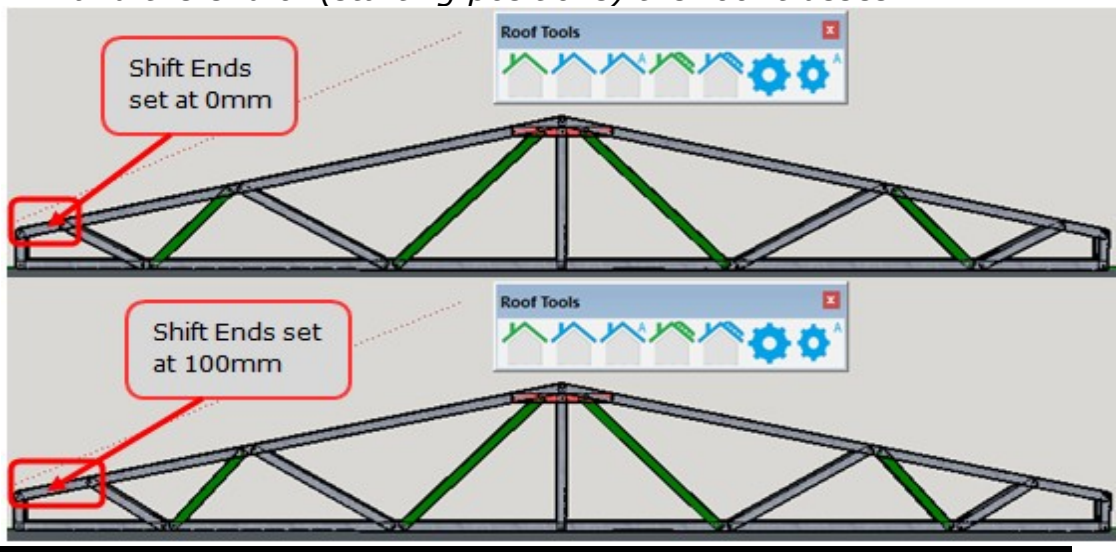
- Single Mode

  Allows you to choose if you want multiple roof trusses to be drawn or just a single truss. You can do this by selecting either "True" (On) or "False"(Off).



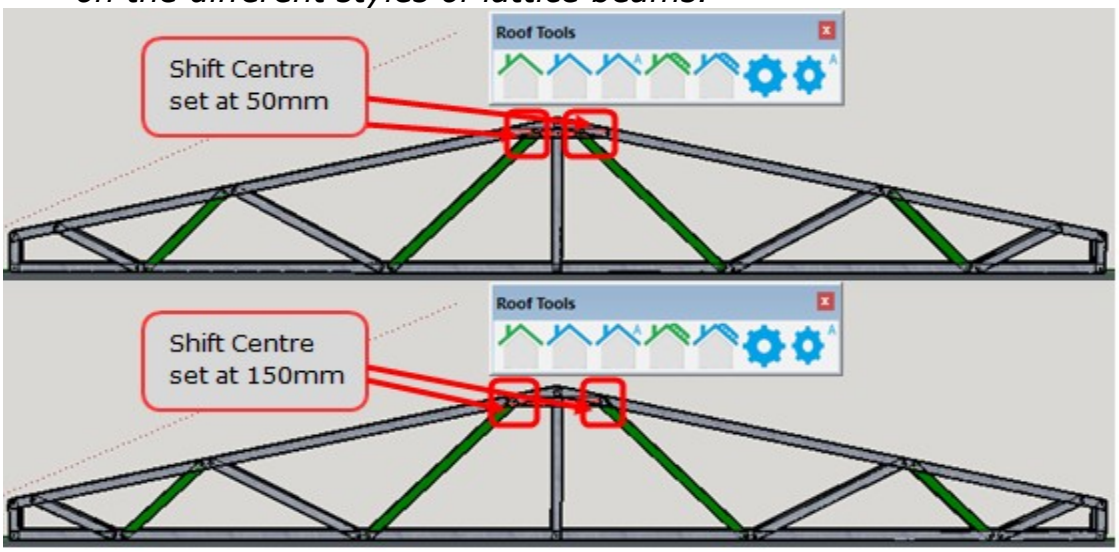
- Shift Ends

  Allows you to change the space between the web diagonals and the end of (starting positions) the roof trusses.



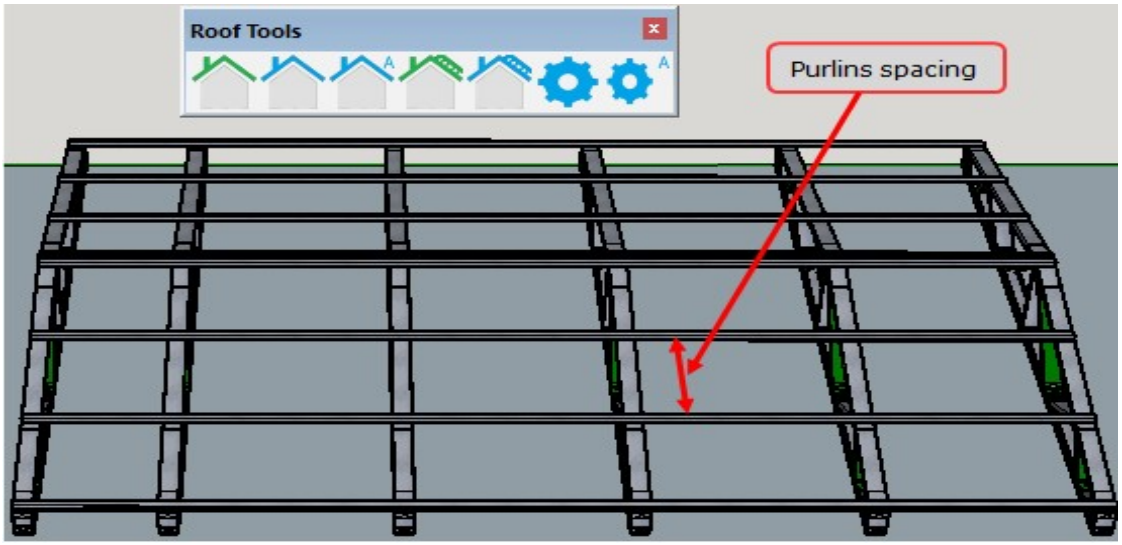
- Shift Centre

  Allows you to change the space between the web diagonals on the different styles of lattice beams.



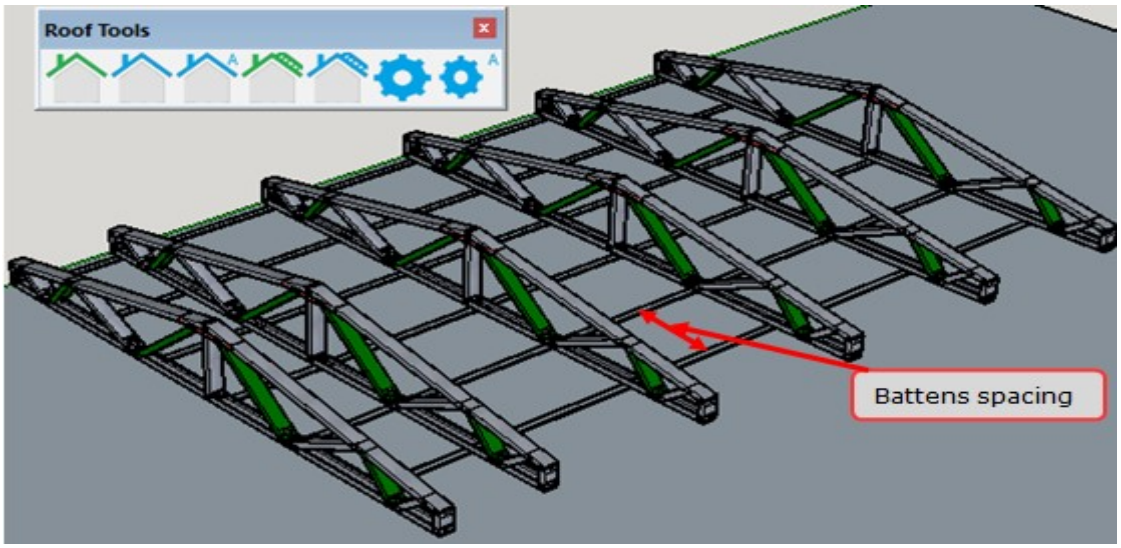
- Purlin Spacing

  The spacing between each purlin. (Default is 600mm)



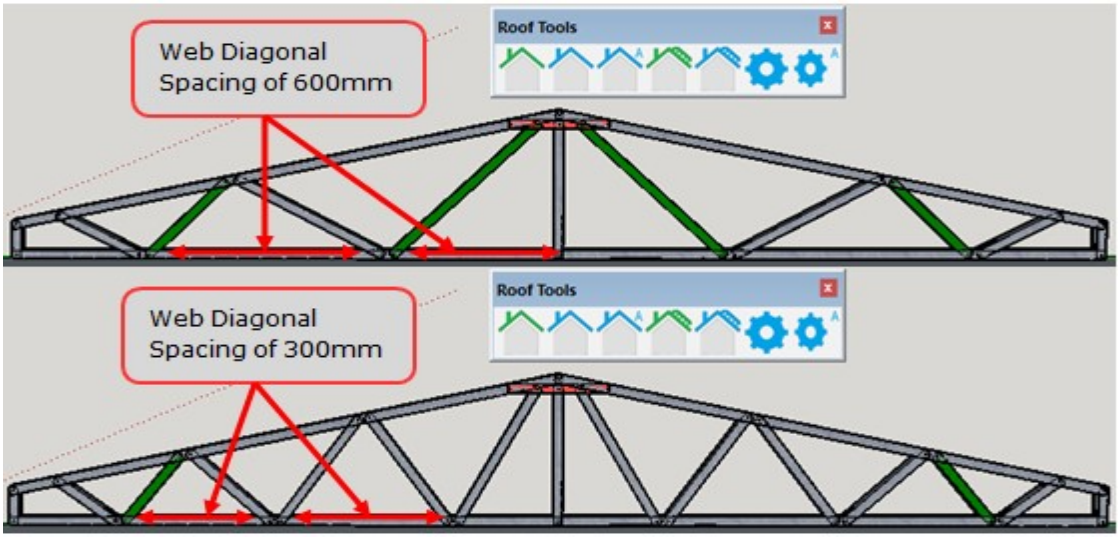
- Batten Spacing

  The spacing between each batten. (Default is 600mm)



- Web Diagonal Spacing

  Allows you to change the space between the web diagonals on the different styles of trusses.

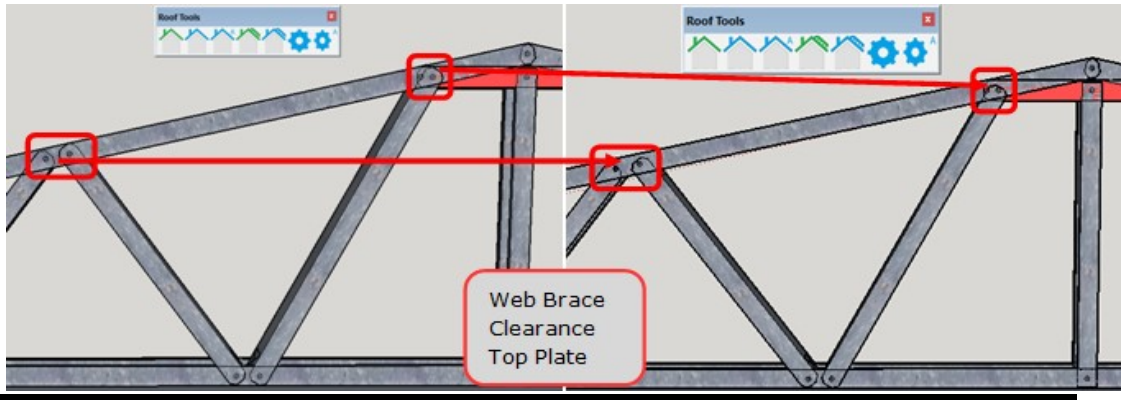


- Number of Gable Trusses

  Allows you to change trusses

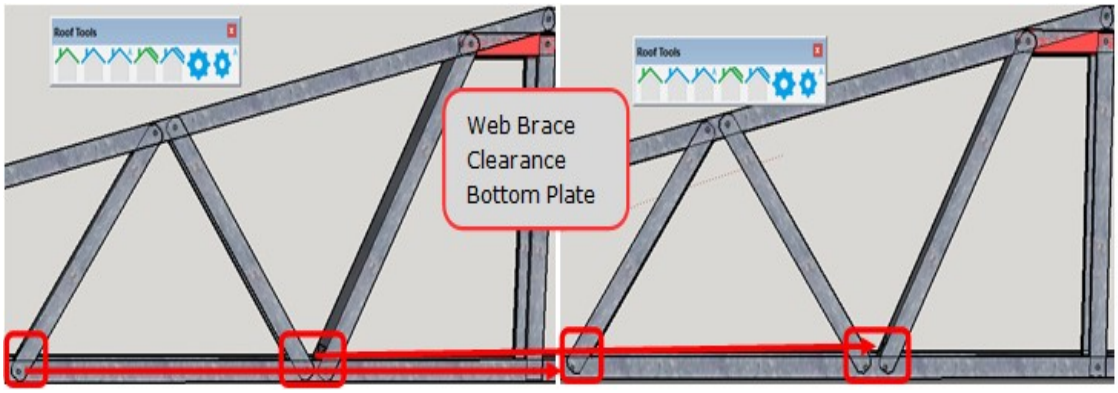
- Clearnaces
  - Web Brace Clearance Top Plate

    This is the space between the web braces and the intersecting top plates of the truss.



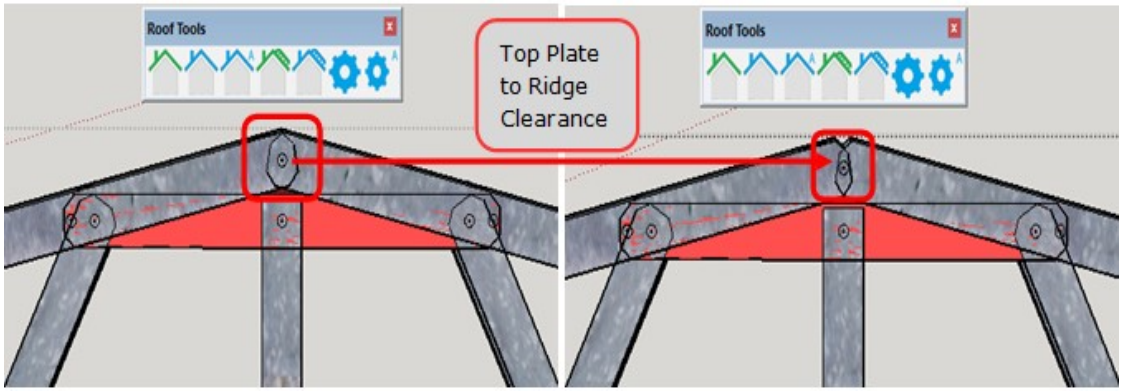
- Web Brace Clearance Bottom Plate

  This is the space between the web braces and the intersecting bottom plate of the truss.



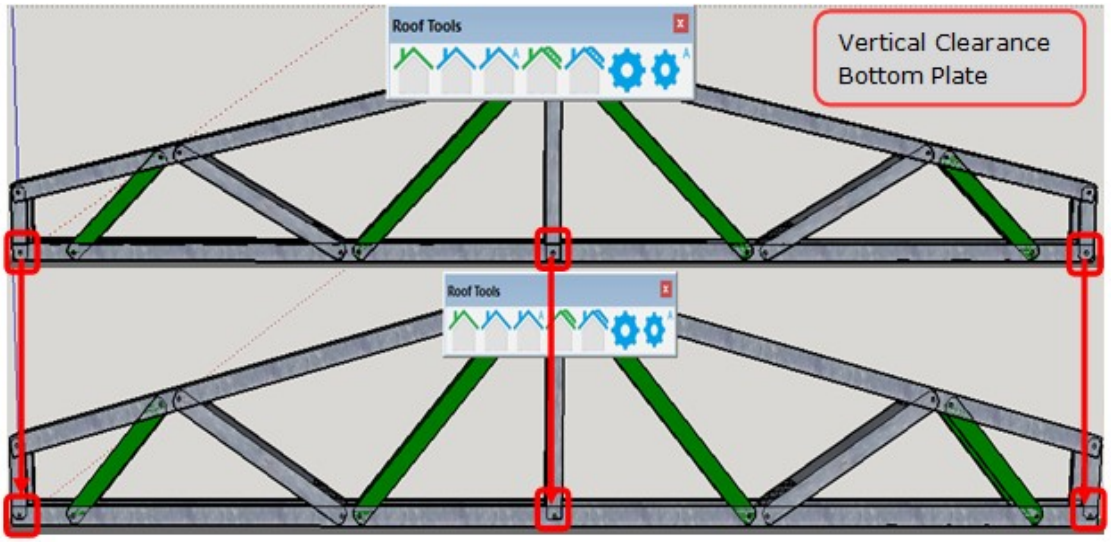
- Top Plate to Ridge Clearance

  This is the space between the top plates and the ridge on the truss.



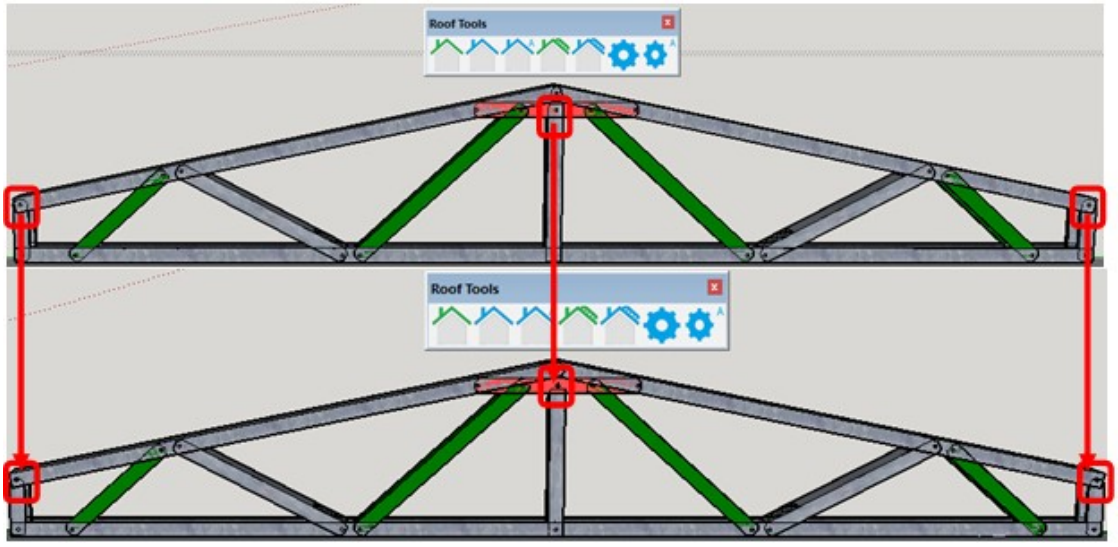
- Verticals Clearance Bottom Plate

  This is the space between the verticals on either side as well as in the centre of the truss and the intersecting bottom plate of the truss.



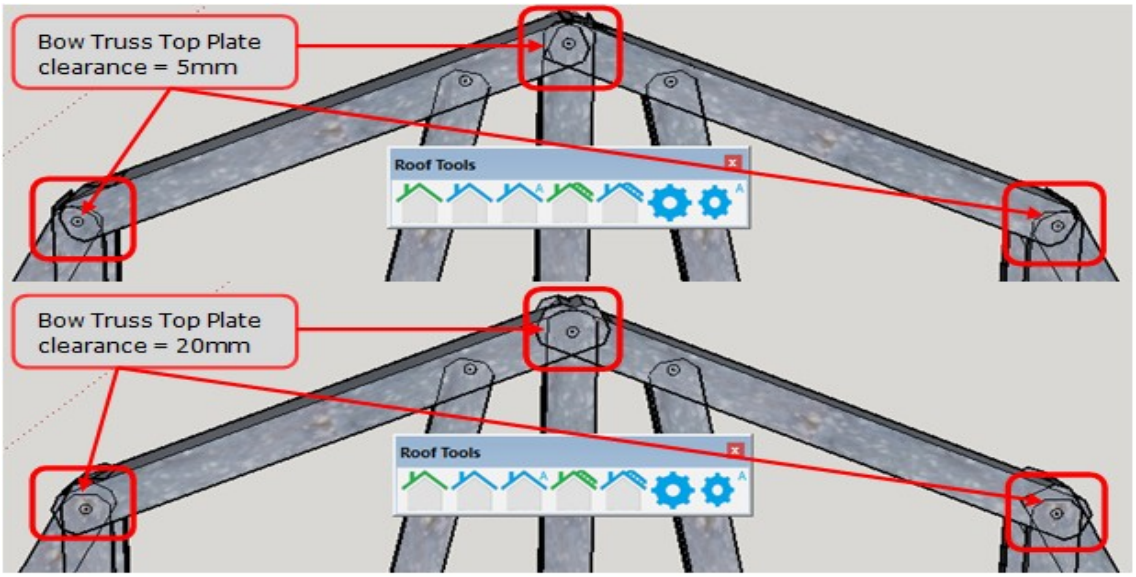
- Verticals Clearance Top Plate

This is the space between the verticals and the intersecting top plates of the truss.



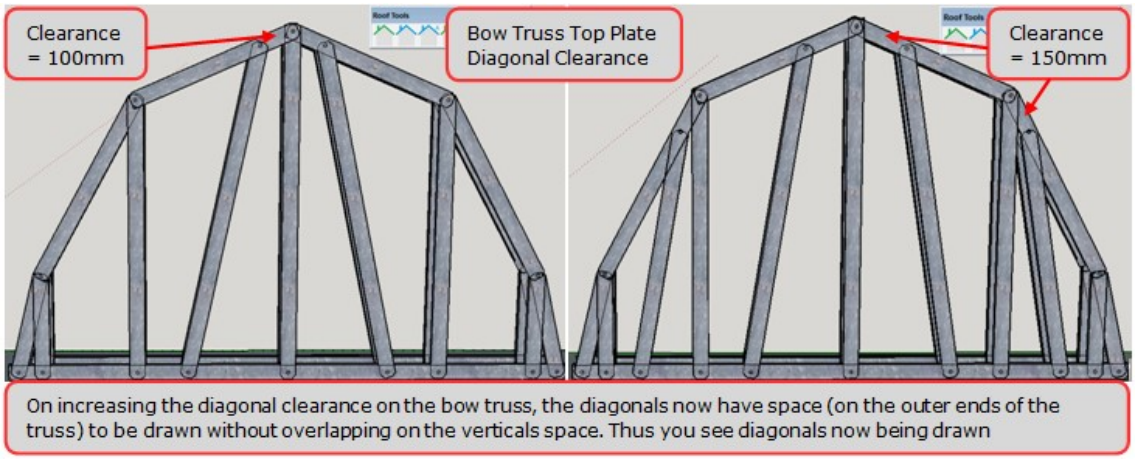
- Bow Truss Top Plate Clearance

  This is the space between the intersecting top plates of the bow truss.



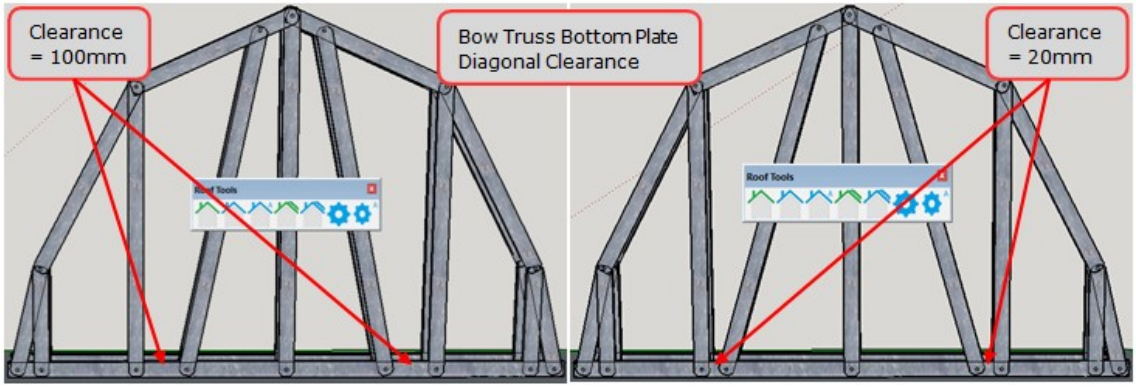
- Bow Truss Top Plate Diagonal Clearance

  This is the space between the top plates and diaginals of the bow truss.



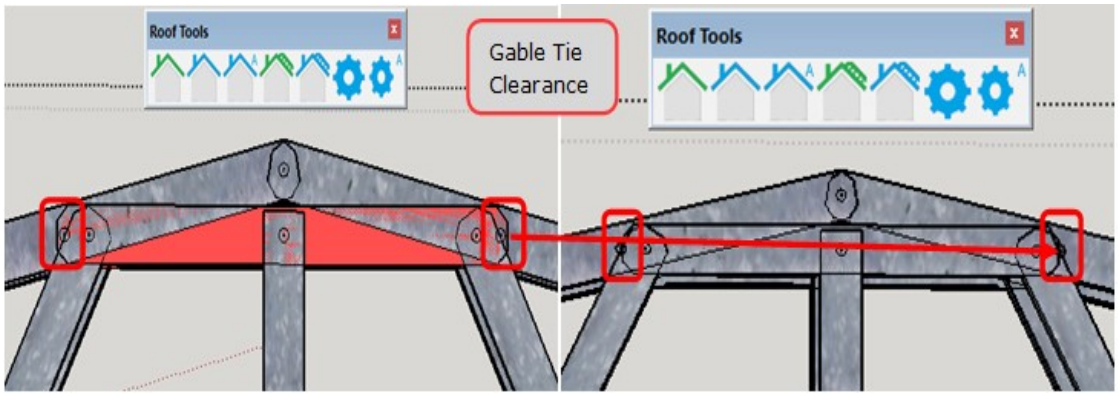
- Bow Truss Bottom Plate Diagonal Clearance

  This is the space between the bottomplate and the diagonals of the bow truss.



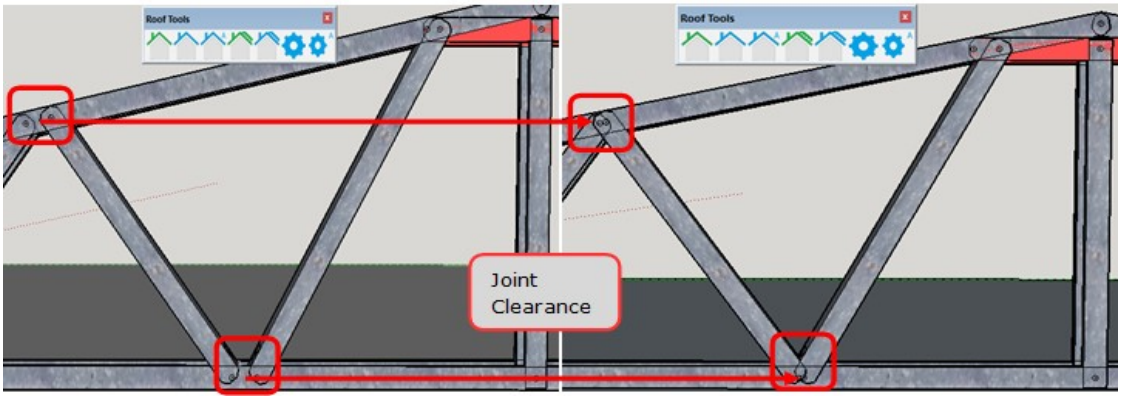
- Gable Tie Clearance

  This is the space between the gable ties at the top of the truss.



- Joint Clearance

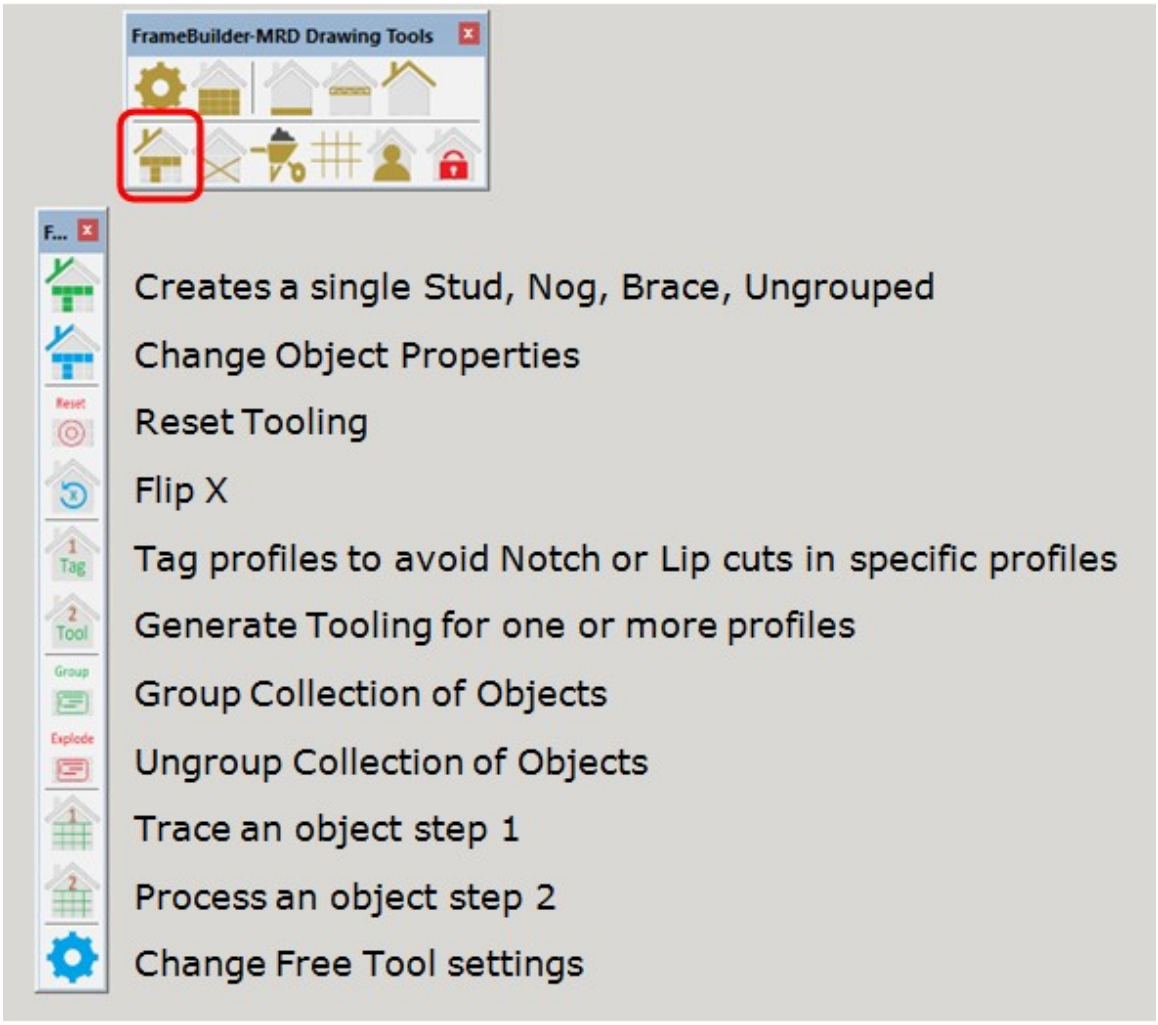
  This is the space between the web intersections on the truss.


Roof Tools
Joint
Clearance
Roof Tools

9. FREE TOOL MODULE

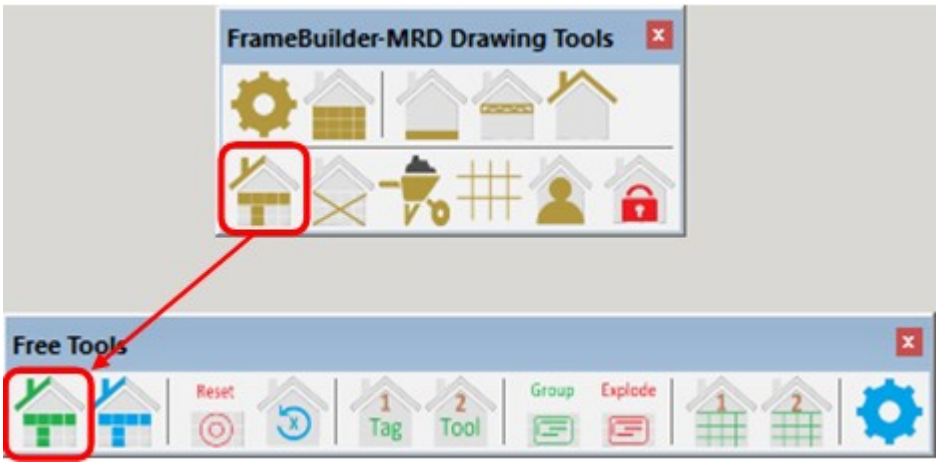
In this section you will learn how to use the free to create any design or drawing that you want and to set the properties and change settings.

9.1 ICONS

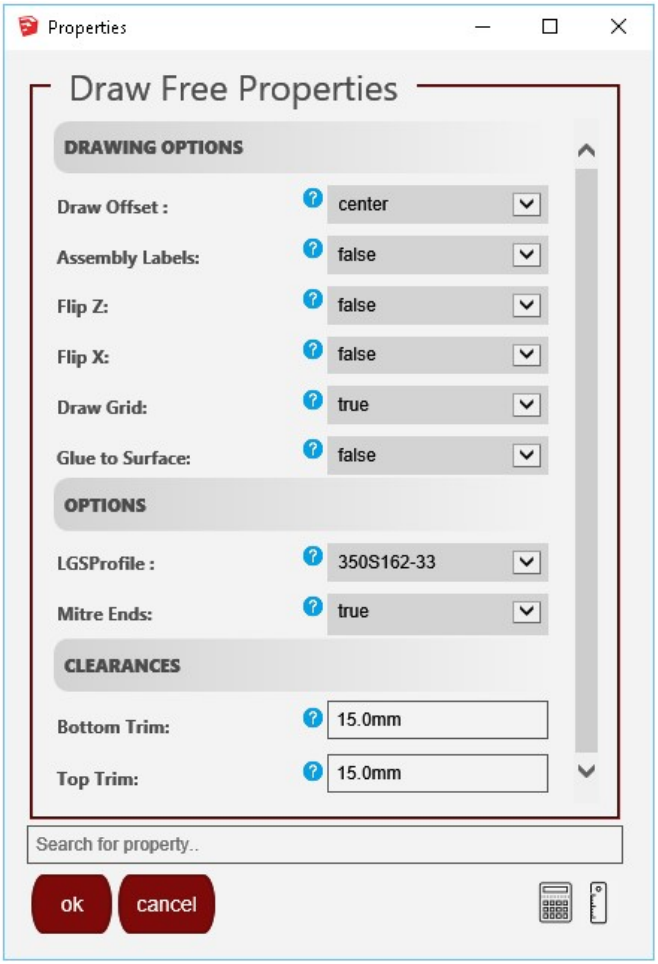


9.2 CREATE A SINGLE STUD, NOG, BRACE, UNGROUPED

To start creating single studs or nogs with your free tool, first click on the Free Tool icon on the FrameBuilder-MRD Tool bar. The Free Tool Bar will open. Select the **green** "Create a single Stud, Nog, Brace, Ungrouped" icon.

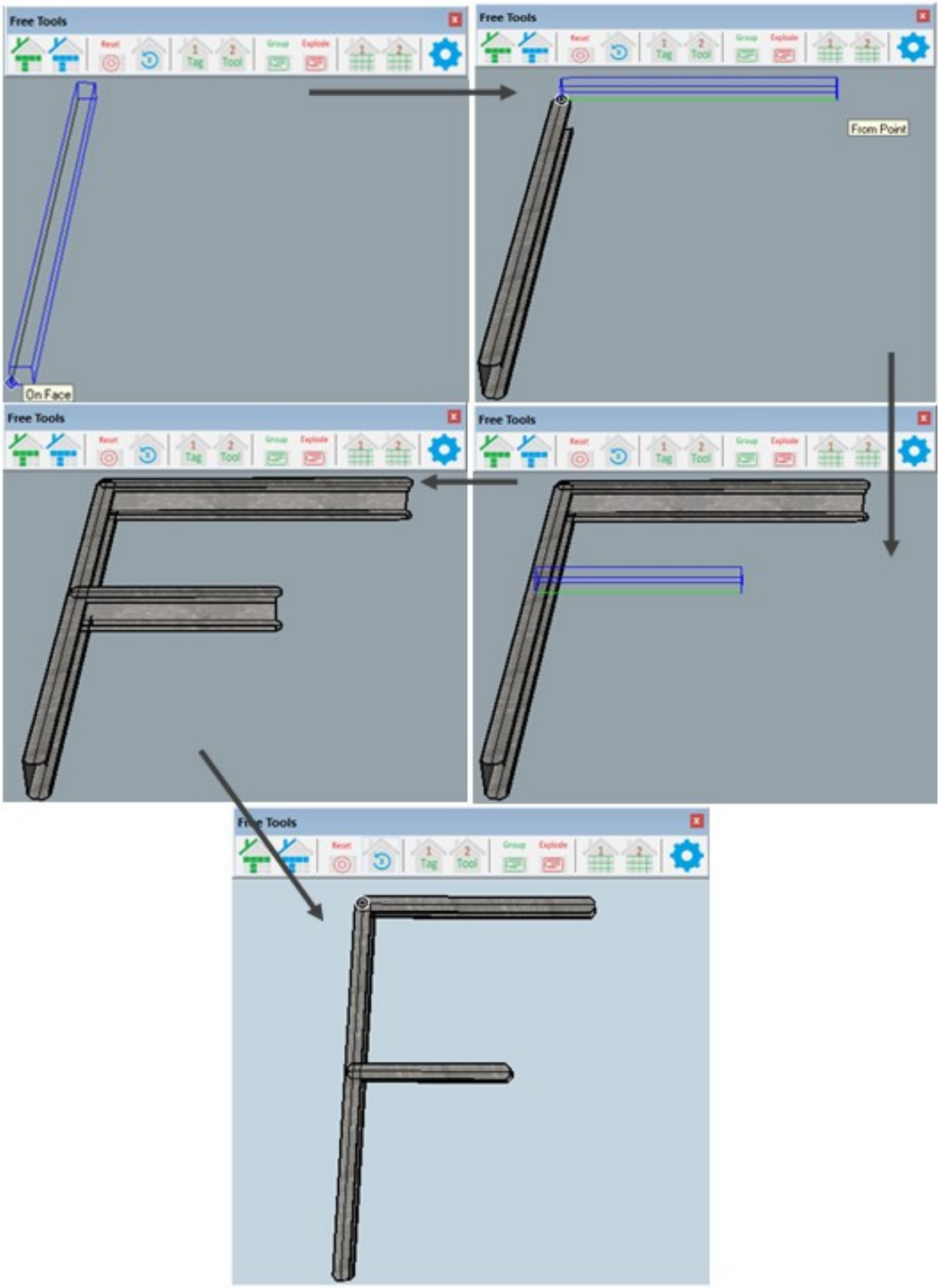


Once you click on the "Create a single Stud, Nog, Brace, Ungrouped" icon, the following Draw Free Properties window will open for you to select the properties you require for the Free Drawing tool.



Ensure that all the settings that you need are correct and click Ok before starting to draw with your free tool.

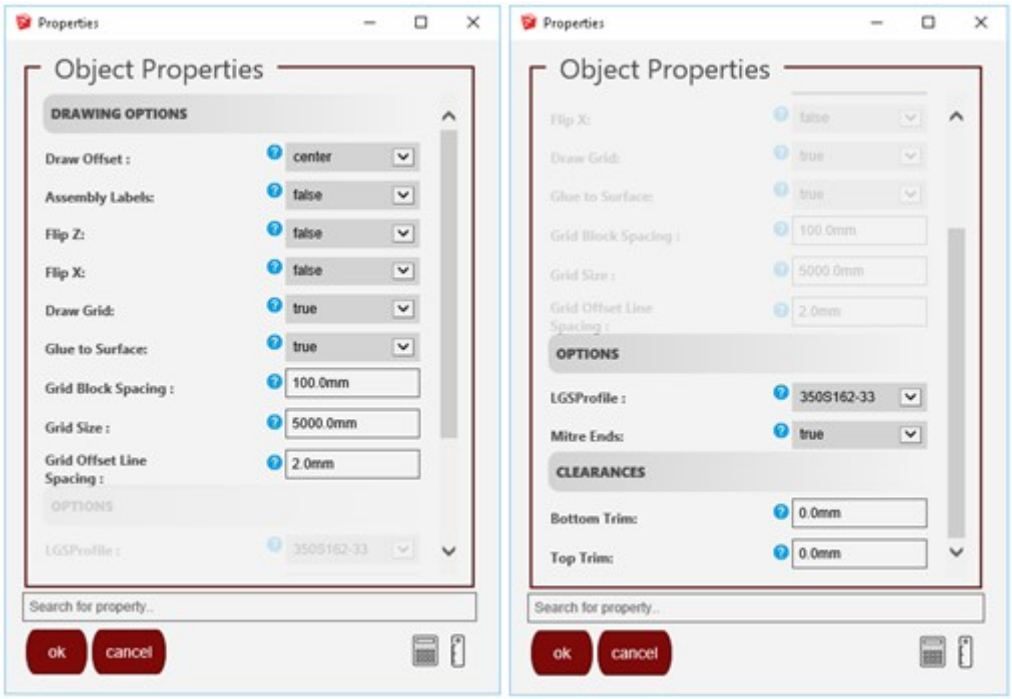
It is best to start by drawing a draw area or activating the "Draw grid" option so that it is easier to get all the objects you are drawing on the same plane.


Free Tools
On Face
Free Tools
From Point
Free Tools
Free Tools
Free Tools

9.3 CHANGE OBJECT PROPERTIES

Once you have drawn your object using your free tool you can change the properties of the object by clicking the **blue** "Change Object Properties" icon on the Free Tool Bar.

Once you click on the "Change Object Properties" icon, the following Object Properties window will open for you to select the properties for drawing your free tool objects.

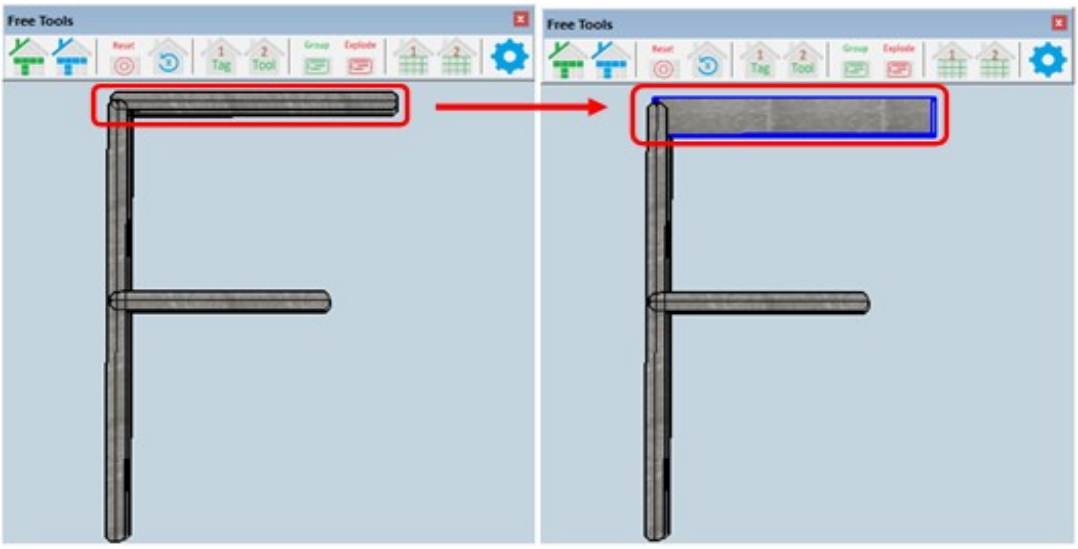


- Drawing Options
  - Draw Offset

    The draw offset allows you to select whether your object will offset either to the left, the centre or the right of the object.
  - Assembly Labels

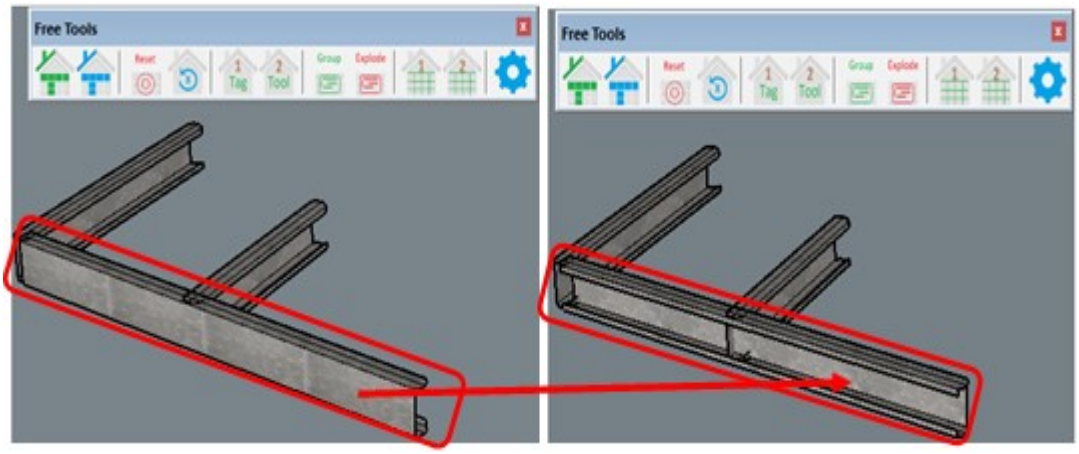
    Enable or Disable labels to be printed on the individual profiles within the object
  - Flip Z

    Allows you to flip your object on the Z axis of the drawing area.



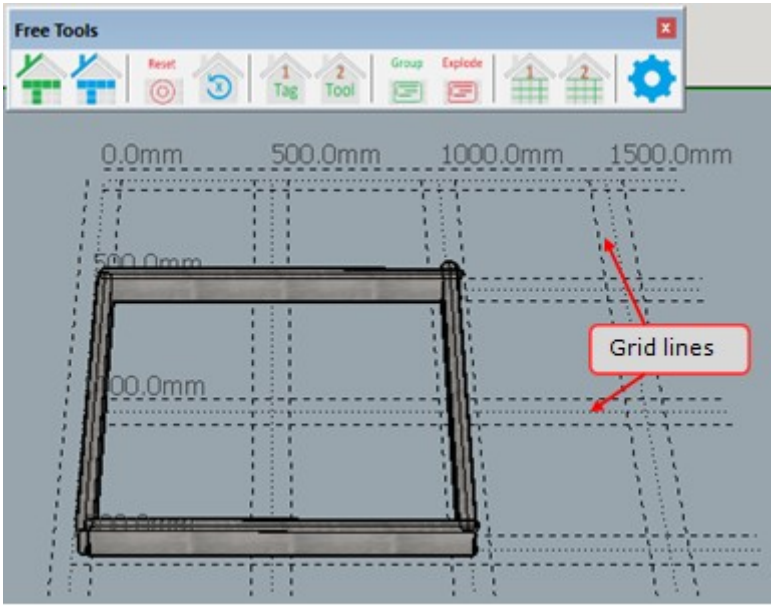
- Flip X

  Allows you to flip your object on the X axis of the drawing area.



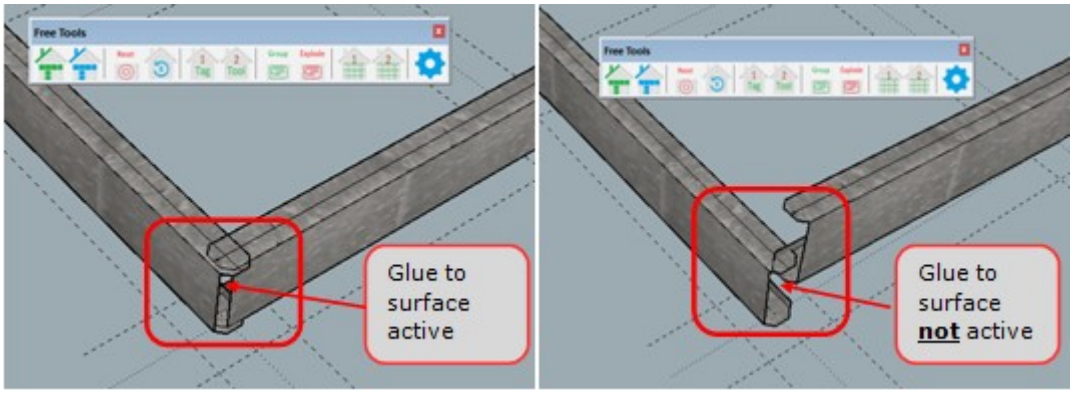
- Draw Grid

  Activates a grid on which you can draw your free tool with accuracy.



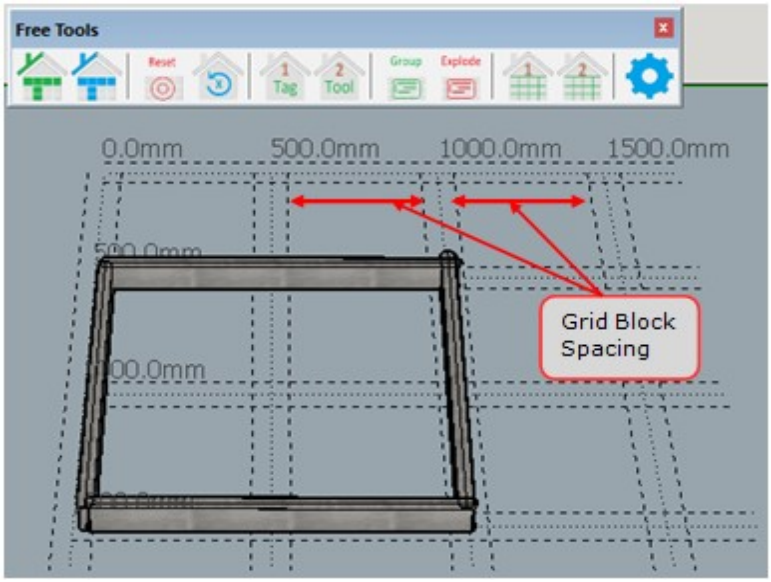
- Glue to Surface

  Allows you to draw or attach two objects to each other with the correct spacing.



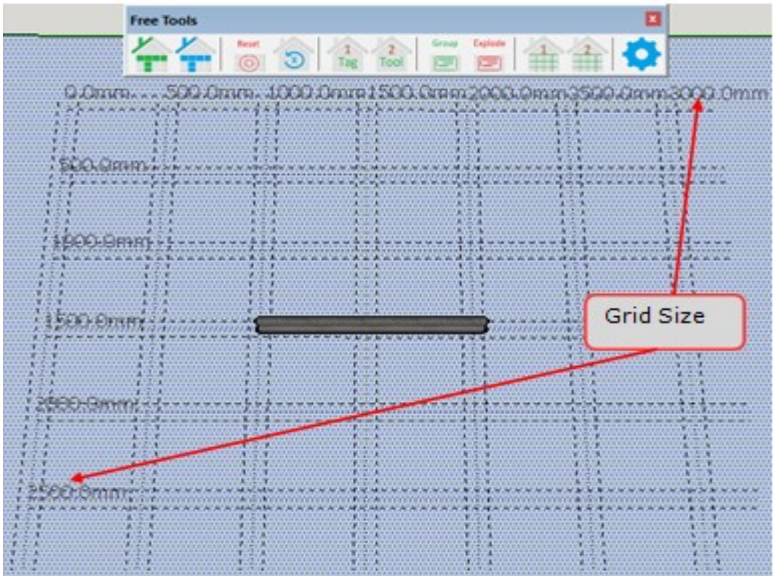
- Grid Block Spacing

  This is the spacing between the blocks on the grid.



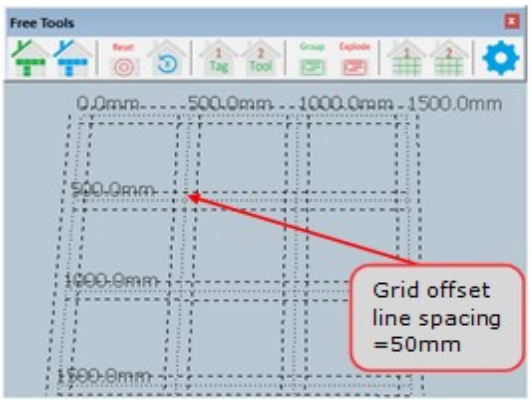
- Grid Size

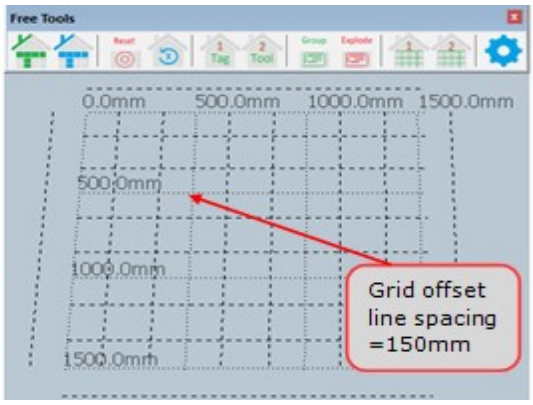
Allows you to change the size or area of the grid block.



- Grid Offset Line Sapcing

  Allows you to flip your object on the X axis of the drawing area.



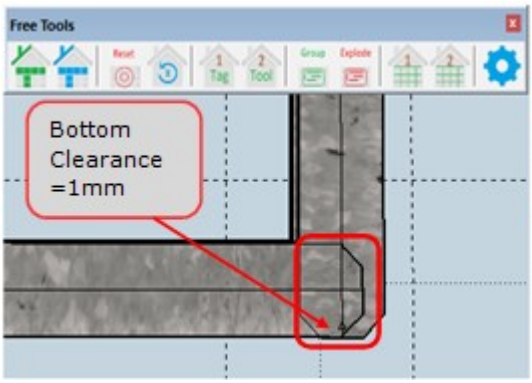


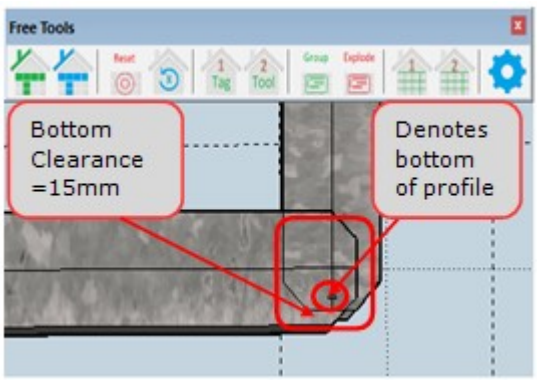
- Options
  - LGSProfile Size

    This is the profile of the steel to used in the manufacture of the floor system you are designing.
  - Mitre Ends

    Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.
- Clearances
  - Bottom Trim

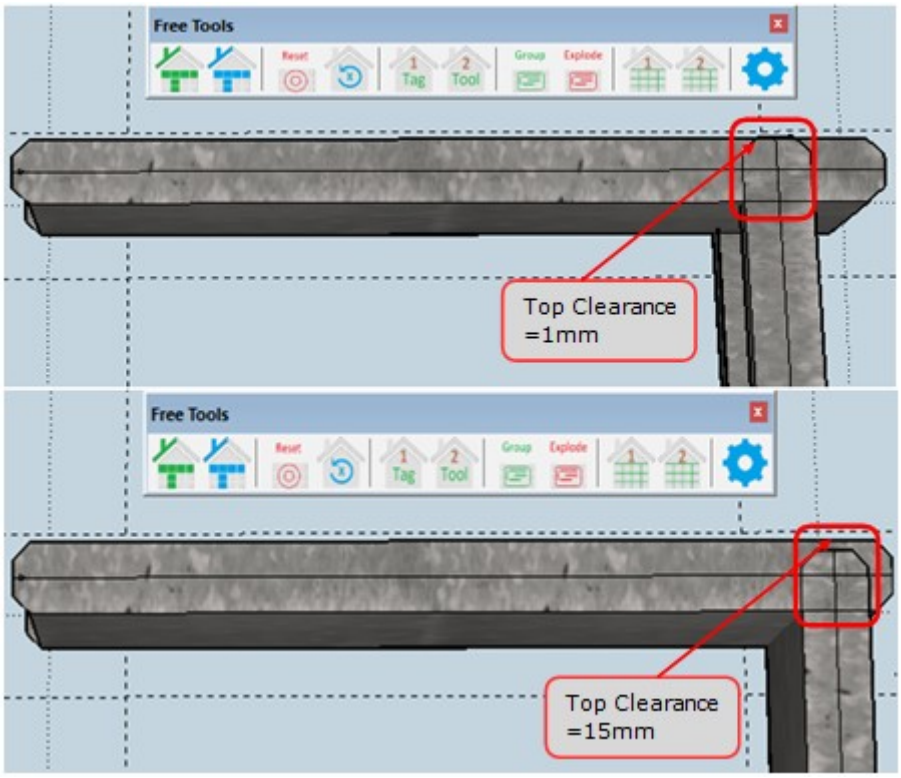
    This allows you to change the space betwen the bottom of the profile and the intersecting profiles to your own amount. (The bottom of the profile is denoted with a "⍙")





- Top Trim

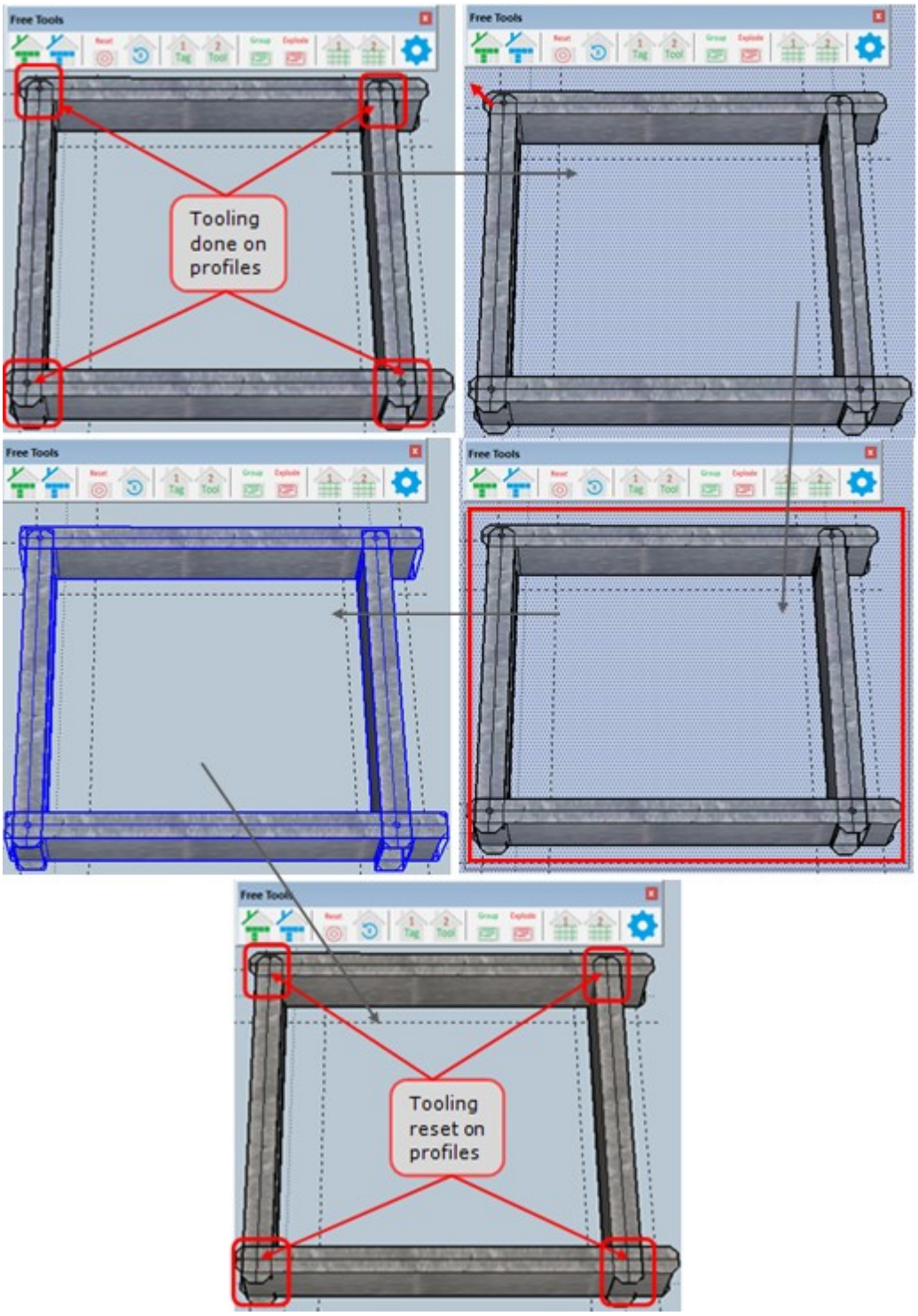
  This allows you to change the space betwen the top of the profile and the intersecting profiles to your own amount.



9.4 RESET TOOLING

Once you have drawn your object using your free tool and also tooled the profiles, using the "Tag" and then the "Tool" icons on the Free tool bar you can reset the tooling should you not be happy with the tooling done by clicking the **blue** "Reset" icon on the Free Tool Bar.

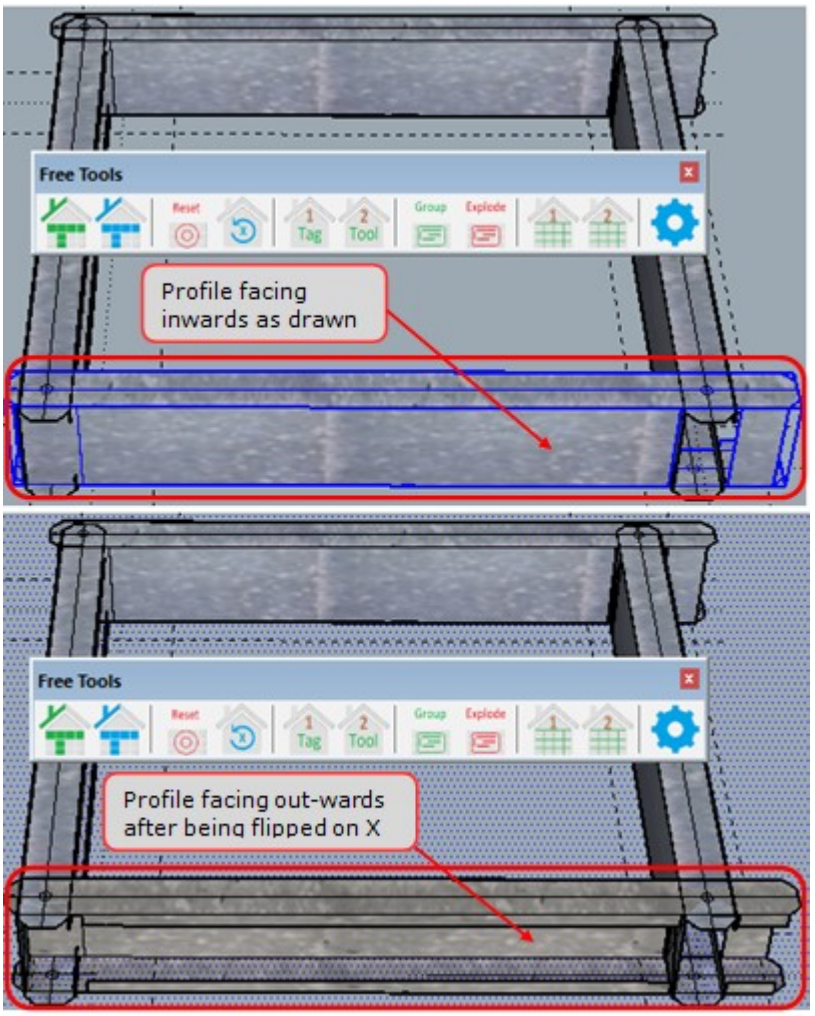
You need to start by selecting all the profiles that you want reset, by highlighting these profiles and then clicking on the "Reset" icon. You start by pointing your mouse on the top left corner, then drag the mouse either down or to the right and cover the profiles you want to highlight. All your profiles should be highlighted in **blue** and then click on the "Reset" icon.


Free Tools
Tooling done on profiles
Free Tools
Free Tools
Free Tools
Tooling reset on profiles

9.5 FLIP X

When designing with the free tool you can change the direction of the profile you are drawing by using the "Flip X" icon on the Free tool Bar thus allowing the profile to be flipped on the x axis.

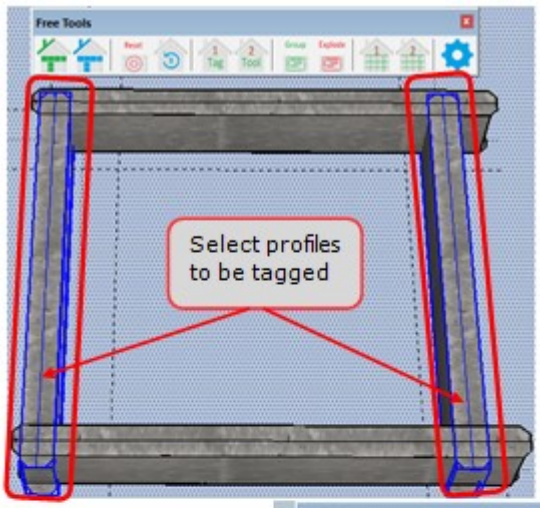
You start off by clicking on the profile to be flipped and then click on the "Flip X" icon. Your profile will now be facing the opposite direction to which you had originally drawn it.

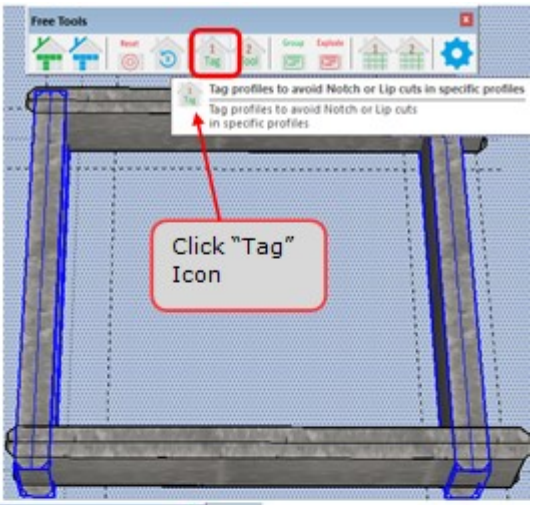


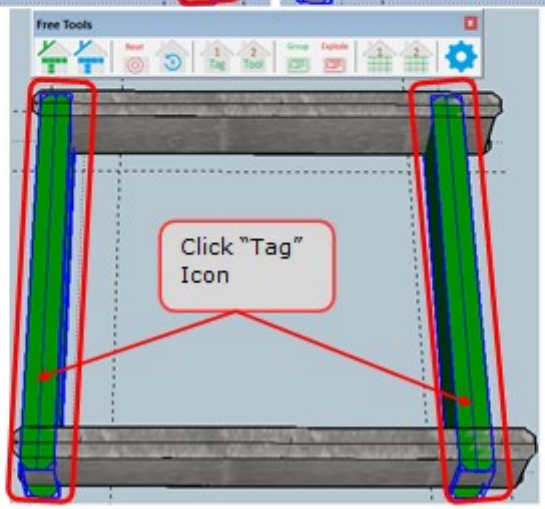
9.6 TAG PROFILES TO AVOID NOTCH OR LIP CUTS

When designing with the free tool you can automatically tool profiles, but in order for you to ensure that load bearing/ critical profiles do not get a lip cut or notch cut out from it, you can first tag these profiles, so the automatic tooling will avoid cutting into these profiles as far as possible.

You can achieve this by selecting the profiles in your object that are the critical profiles and that should not have any cuts in them by holding the "Ctrl" key on the keyboard and then clicking on/ selecting all your critical profiles. Once you have selected them, click the "Tag" icon on the Free Tool Bar. The selected profiles will then be highlighted in **green**.







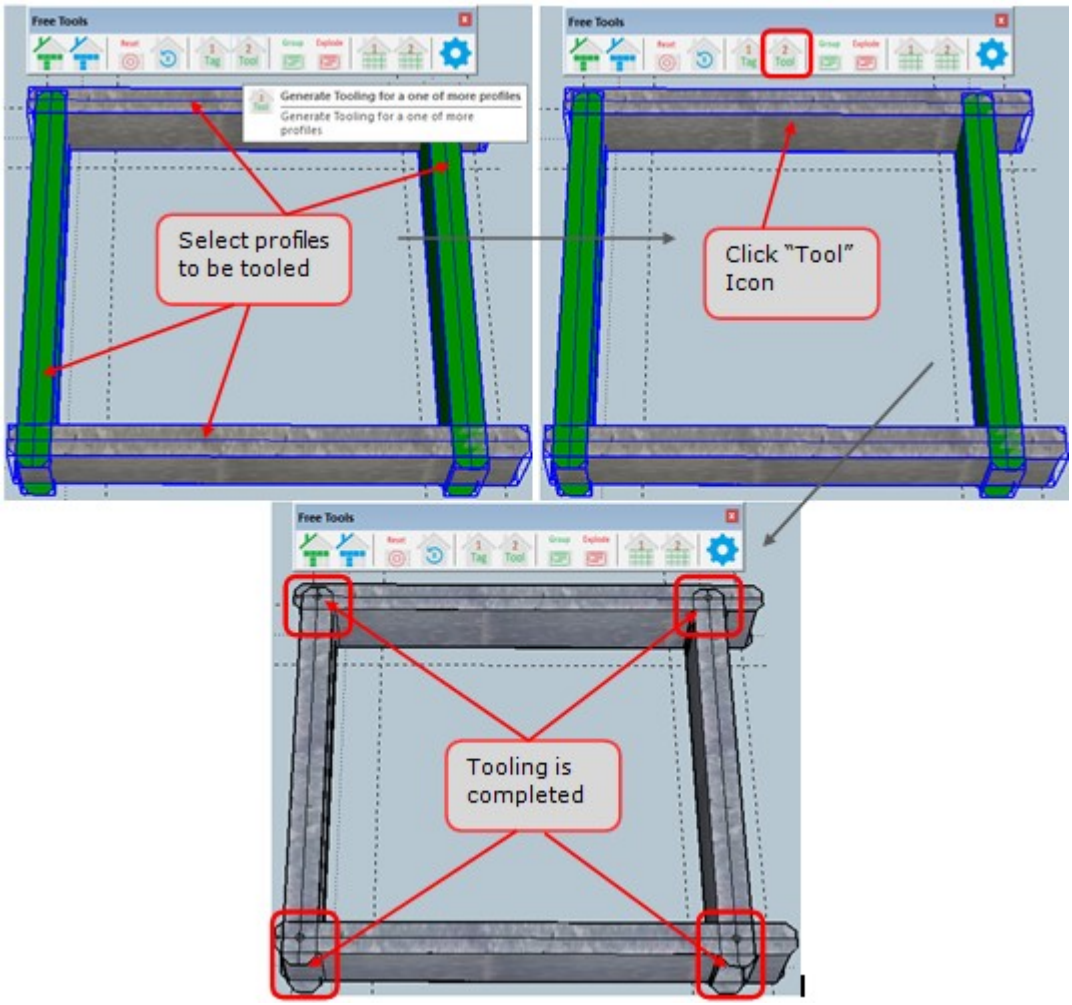
9.7 GENERATE TOOLING FOR ONE OR MORE PROFILES

There are 2 ways to tool the profiles that you have drawn using the Free Tool:

- Tag and tool
- Tool two profiles at a time

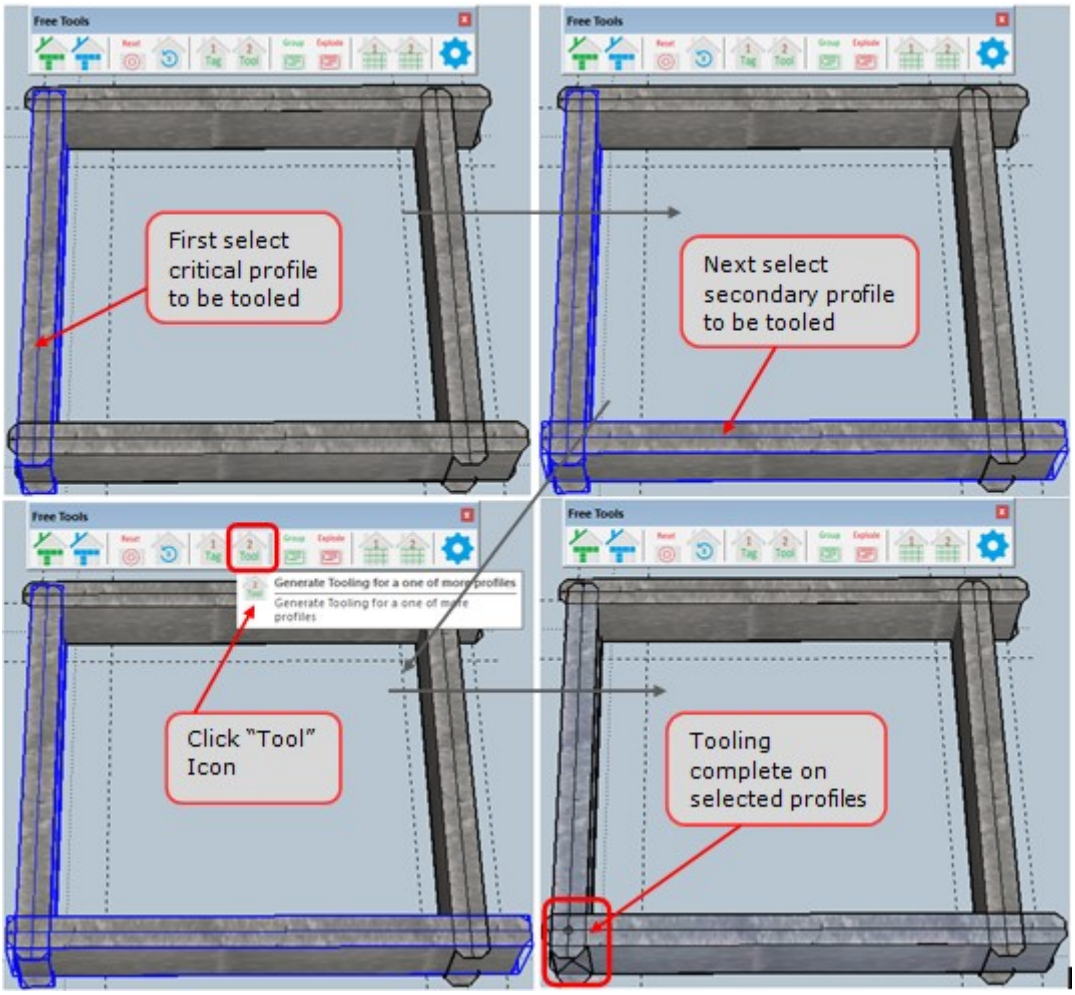
Tooling Option 1:

You can first "Tag" the profiles that you want to avoid notch and lip cut outs by using the method explained in section 9.6 "Tag profiles to avoid Notch or Lip Cuts" and then just select all the profiles to be tooled and click on the "Generate Tooling" icon on the Free Tool Bar.



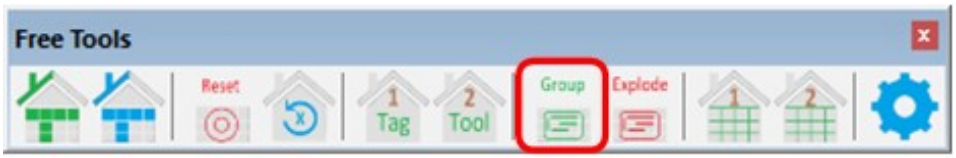
Tooling Option 2:

The other option is to just select 2 profiles at a time and then click on the "Generate Tooling" icon on the Free Tool Bar. Remember to select the critical profile (the one that you don't want the notch and lip cuts to be inserted into) first and then select your secondary profile.

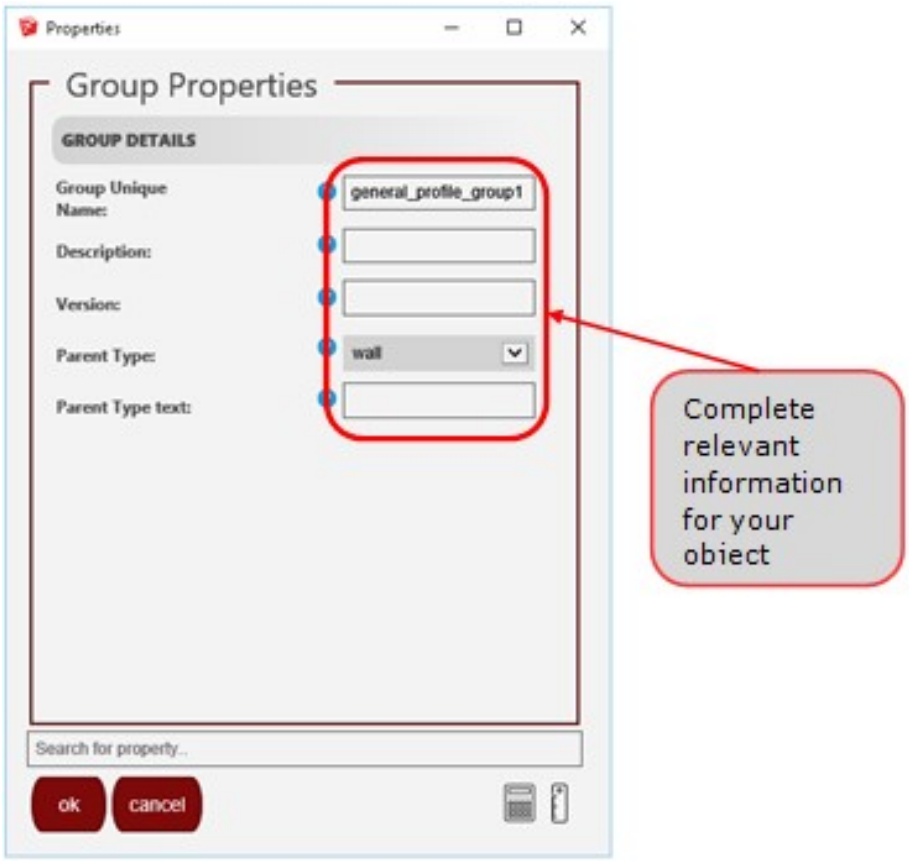


9.8 GROUP COLLECTION OF OBJECTS

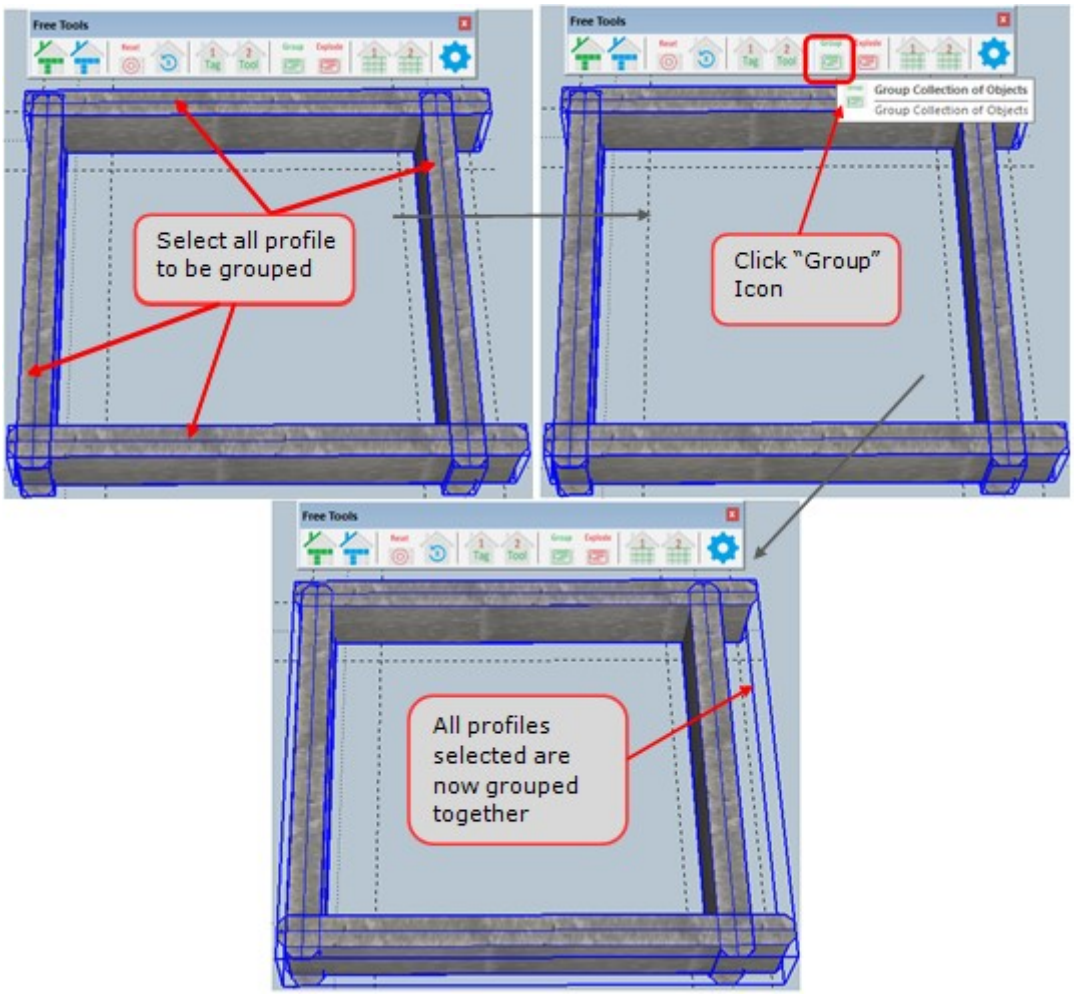
You can group a selection of profiles that you have drawn in order to "Generate Panel Drawings" of them by simply selecting the profiles and then clicking on the "Group Collection of Objects" icon.



Once you click on the "Group Collection of Objects" icon, the following Group Properties window will open for you to name the object that you are grouping:



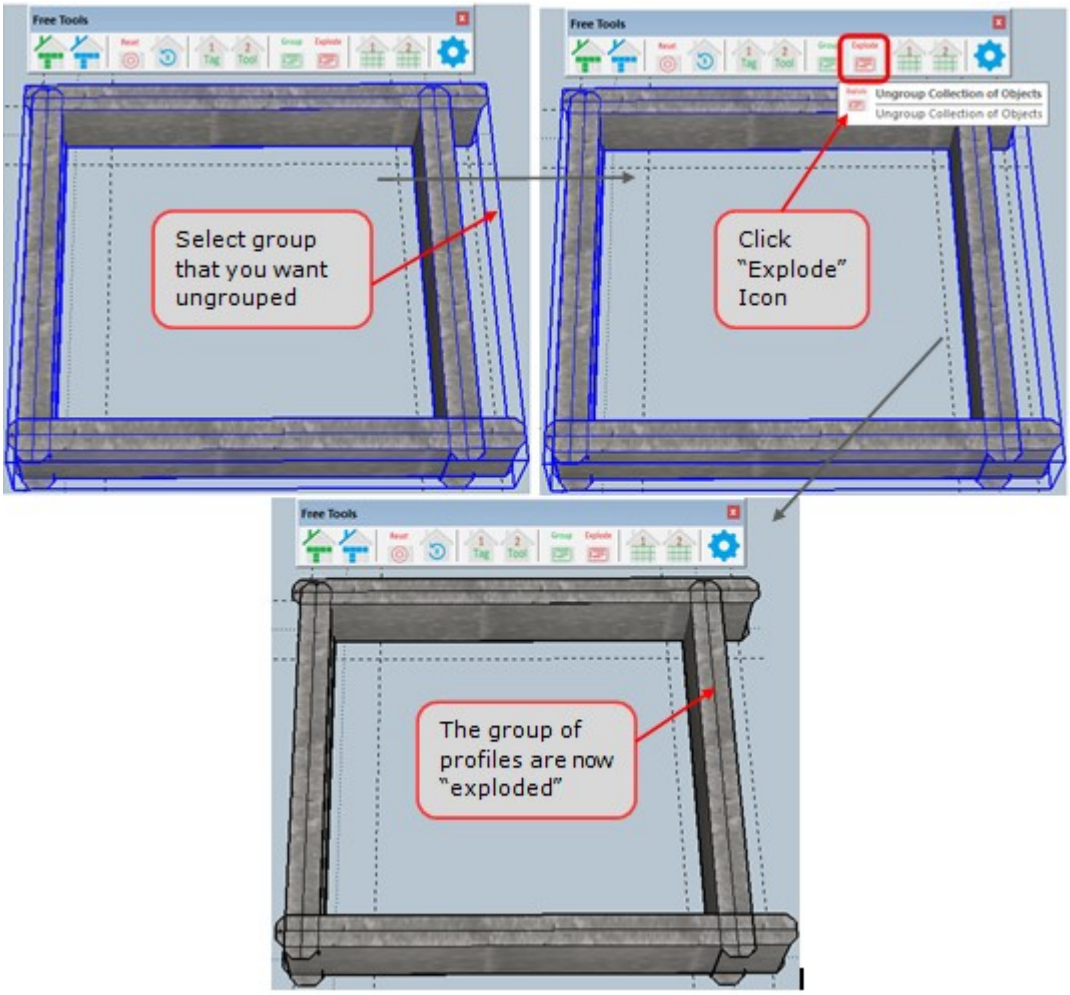
Once you have completed the information for your Group Properties, you simply press Ok and your profiles will be grouped together as one object.


Free Tools
Select all profile to be grouped
Free Tools
Group Collection of Objects
Group Collection of Objects
Click "Group" Icon
Free Tools
All profiles selected are now grouped together

9.9 UNGROUP COLLECTION OF OBJECTS

You can ungroup a group of profiles that you had previously grouped by using the "Explode" icon on the Free Tool Bar.

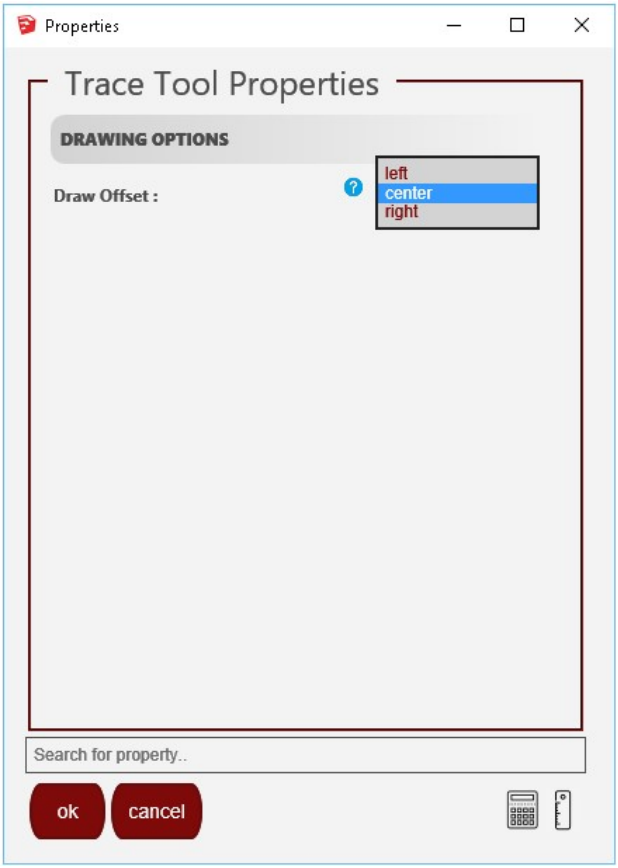
First select the group that you want ungrouped. Then click on the "Explode/Ungroup Collection of Objects" icon and you will now be able to select the individual profiles in the group again, as it will be ungrouped.



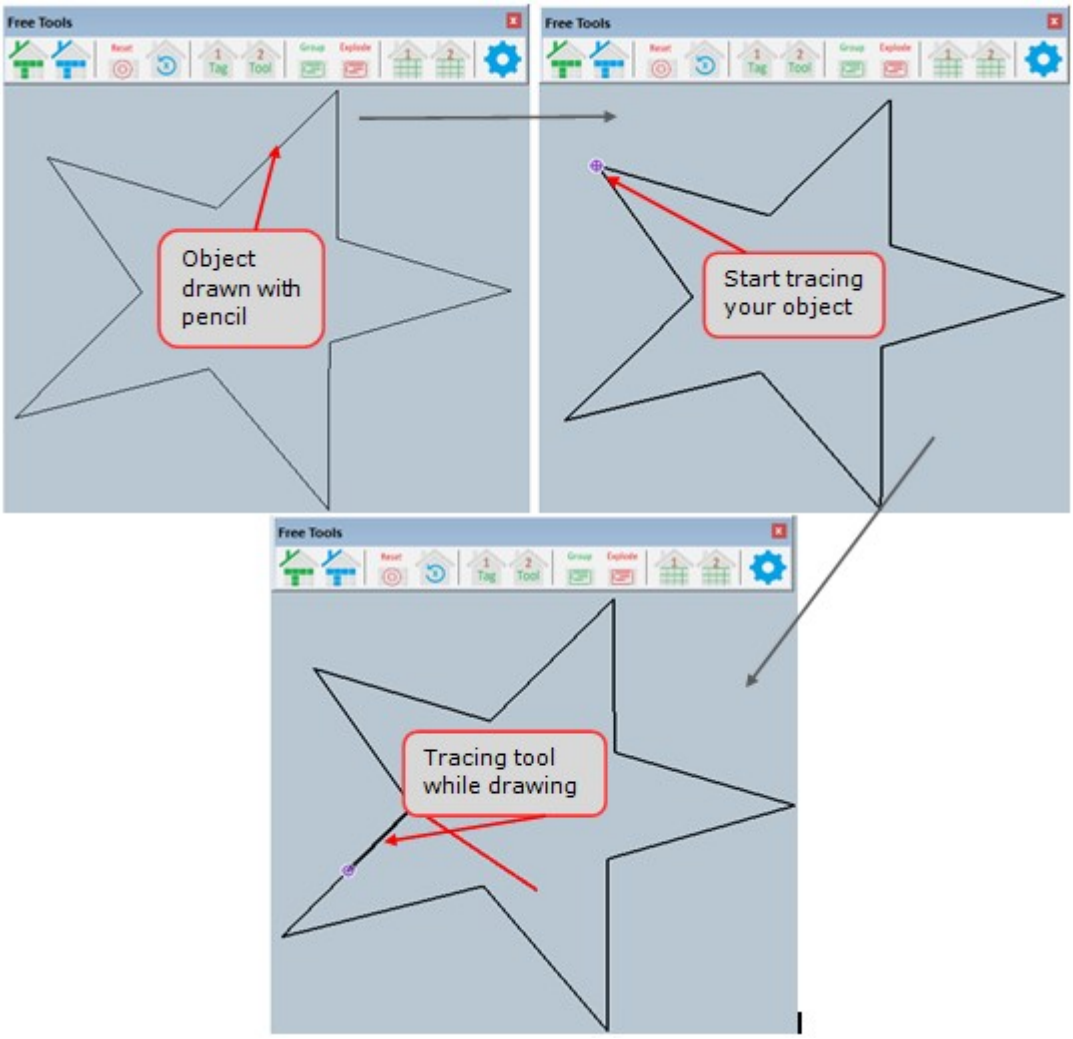
9.10 TRACE AN OBJECT STEP 1

You can trace any shape you want by using the "Trace" icon on the Free Tool Bar.

You can start by either importing a shape or simply by drawing the shape you want with the pencil tool. Once you have the your shape, click on the "Trace an Object Step 1" icon. The following window will first open for you to be able to trace the object drawn.



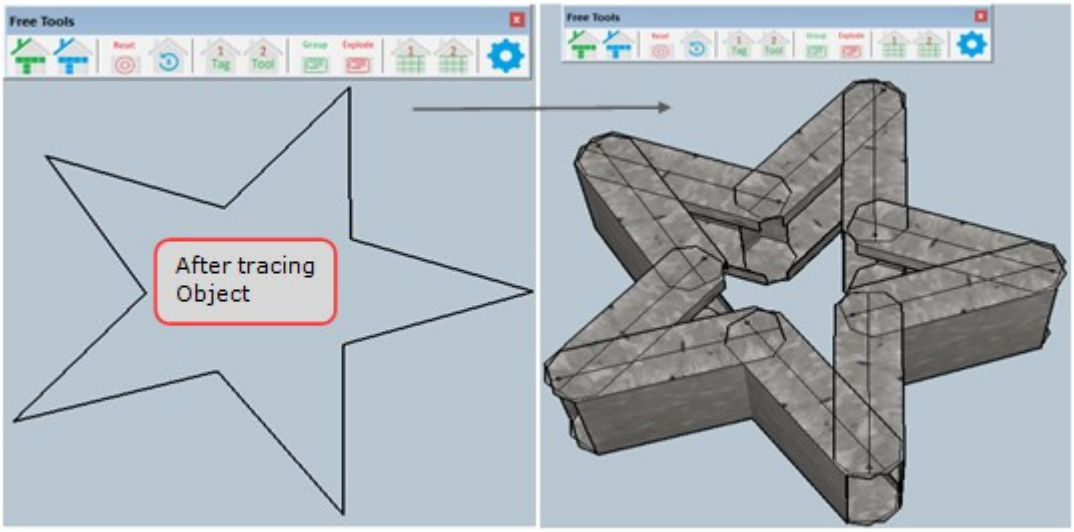
Select your draw offset between centre, left or right and click Ok. You will now be able to trace your drawing.


Free Tools
Object drawn with pencil
Free Tools
Start tracing your object
Free Tools
Tracing tool while drawing

9.11 PROCESS AN OBJECT STEP 2

Once you have completed tracing your object you must click on the "Process an Object Step 2" icon on the Free Tool Bar.

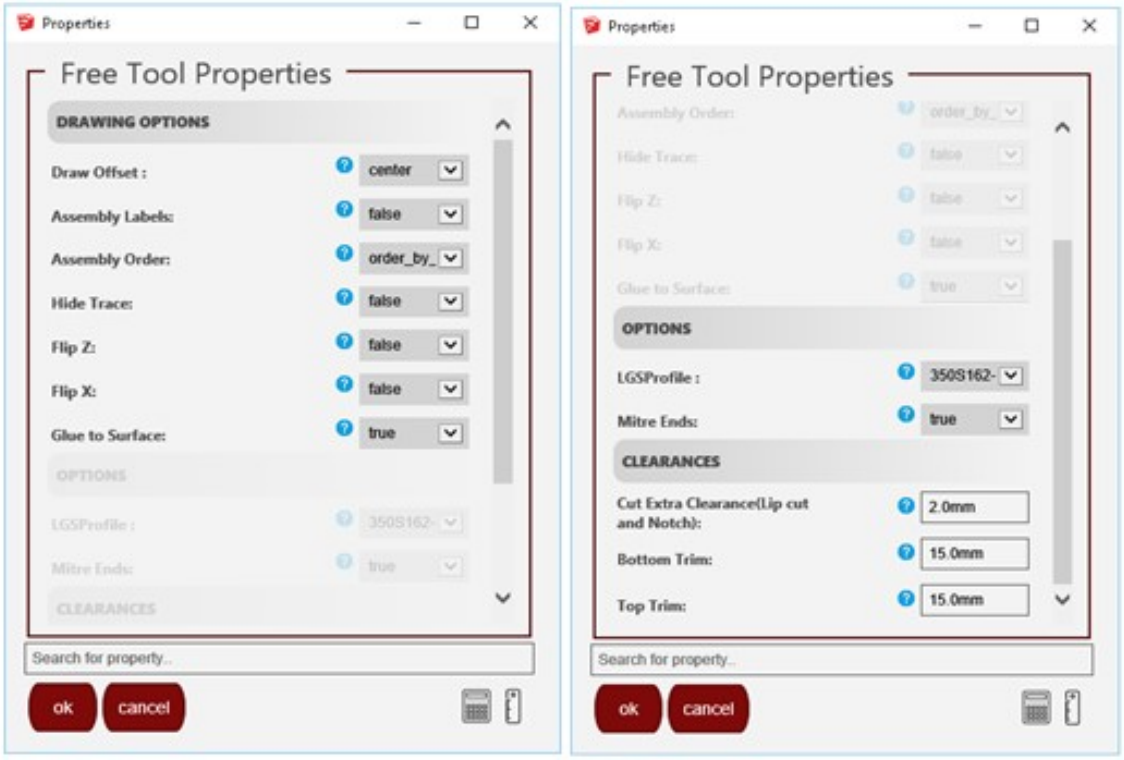
As soon as you click on this icon your object will be created.



9.12 CHANGE FREE TOOL SETTINGS

You can change your default Global settings for the Free Tool by selecting the "Change Free Tool Settings" icon on the Free Tool Bar.

Once you click on the "Change Free Tool Settings" icon, the following Free Tool Properties window will open for you to change the settings that you would prefer. Once you have changed all the necessary settings click ok.

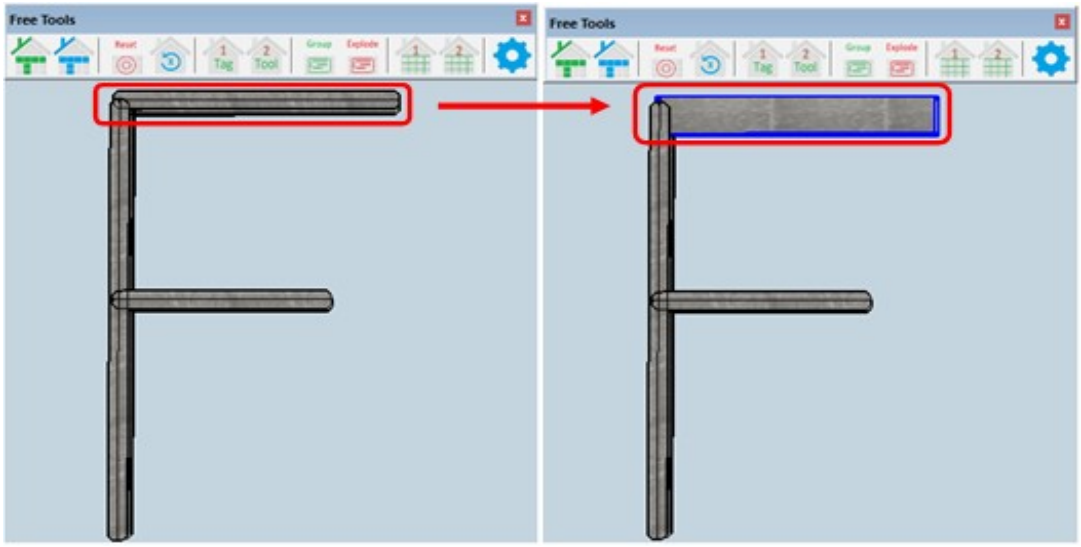


- Drawing Options
  - Draw Offset
    The draw offset allows you to select whether your object will offset either to the left, the centre or the right of the object.
  - Assembly Labels
    Enable or Disable labels to be printed on the individual profiles within the object
  - Assembly Order
    This allows you to select the order that the different profiles will be manufactured. This can either be "Order by Selection" or "System generated"
  - Hide Traces

You can select this option to be "True" (On) or "False" (off) thus allowing the trace lines to showor not after the object has been drawn.

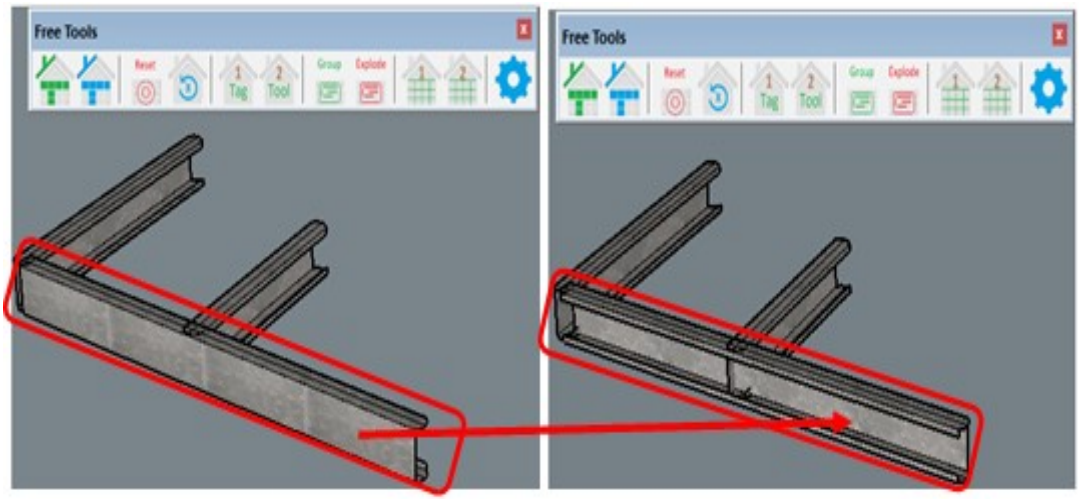
- Flip Z

  Allows you to flip your object on the Z axis of the drawing area.



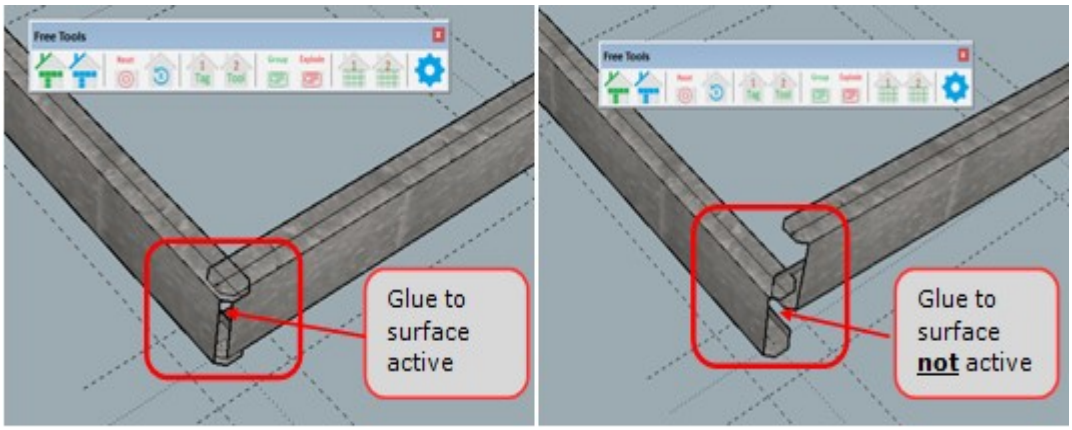
- Flip X

  Allows you to flip your object on the X axis of the drawing area.



- Glue to Surface

  Allows you to draw or attach two objects to each other with the correct spacing.

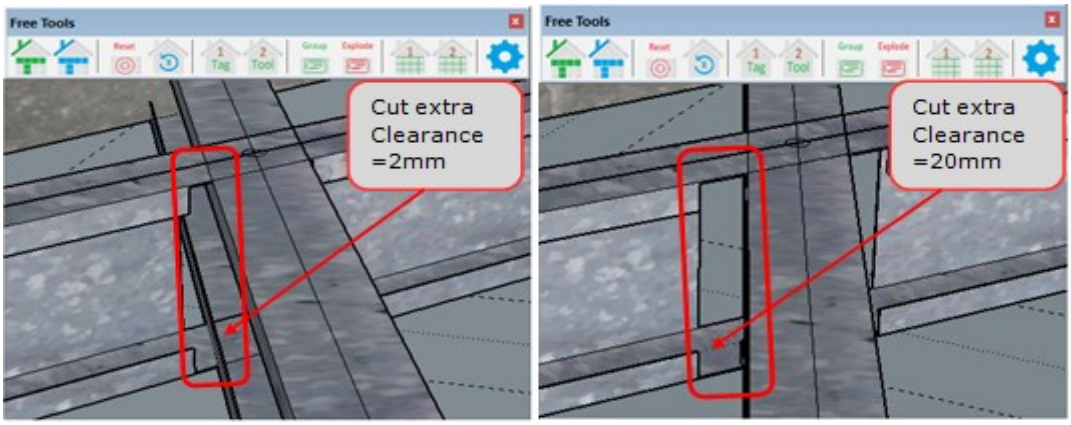


- Options
  - LGSProfile Size

    This is the profile of the steel to used in the manufacture of the floor system you are designing.
  - Mitre Ends

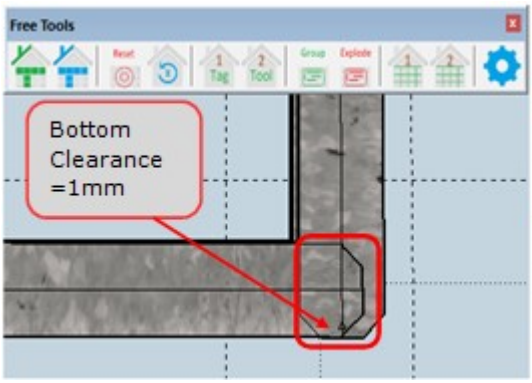
    Also know as chamfer or truss end. This options enables the ends of certain profiles, such as lateral bracing or web diagonals on headers to be trimmed at a 45 degree angle.
- Clearances
  - Cut Extra Clearance (Lip Cut and Notch)

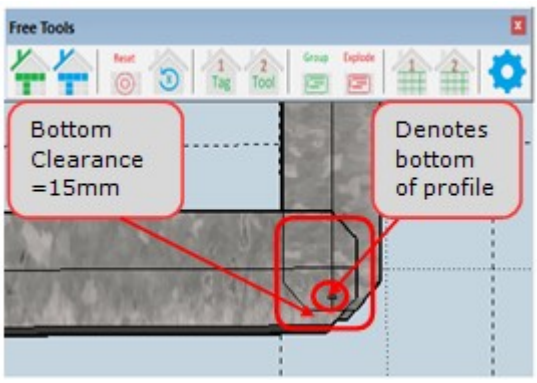
    This allows you to make the cuts for the Lip cuts and the notches larger than the recommended sizes.



  - Bottom Trim

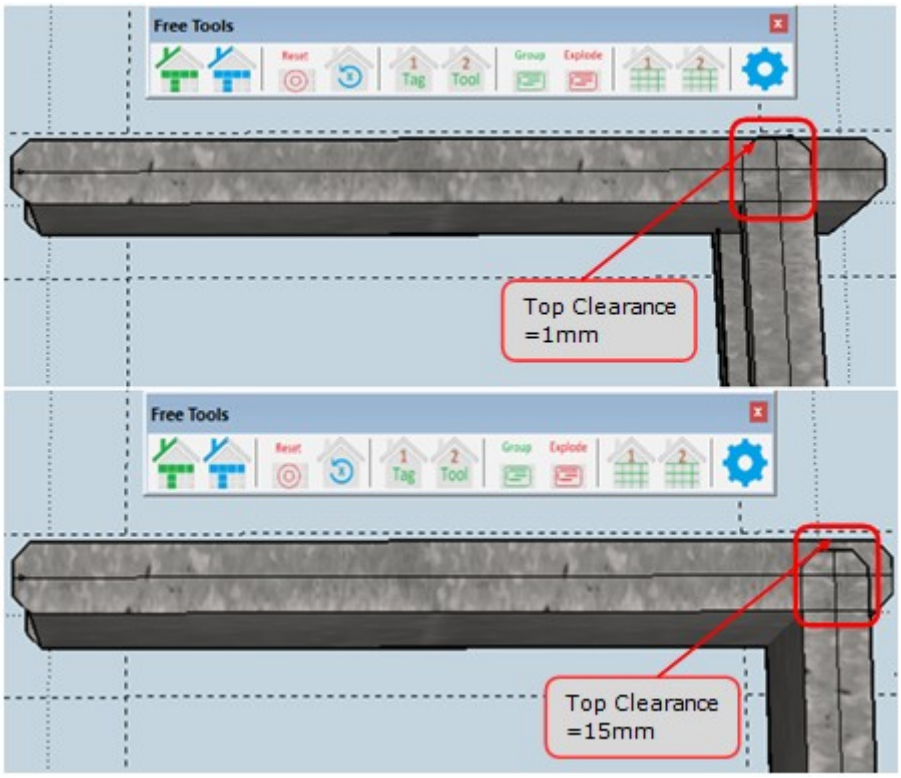
    This allows you to change the space betwen the bottom of the profile and the intersecting profiles to your own amount. (The bottom of the profile is denoted with a "⍙")





- Top Trim

  This allows you to change the space betwen the top of the profile and the intersecting profiles to your own amount.



10. APPENDICES

10.1 FRAMEBUILDER – MRD VERSION

This User Manual is based on FrameBuilder MRD version 3.7.2. Where possible, pictures of the functionality has been included and have been adapted to show the functionality of this version of FrameBuilder MRD.

END OF DOCUMENT