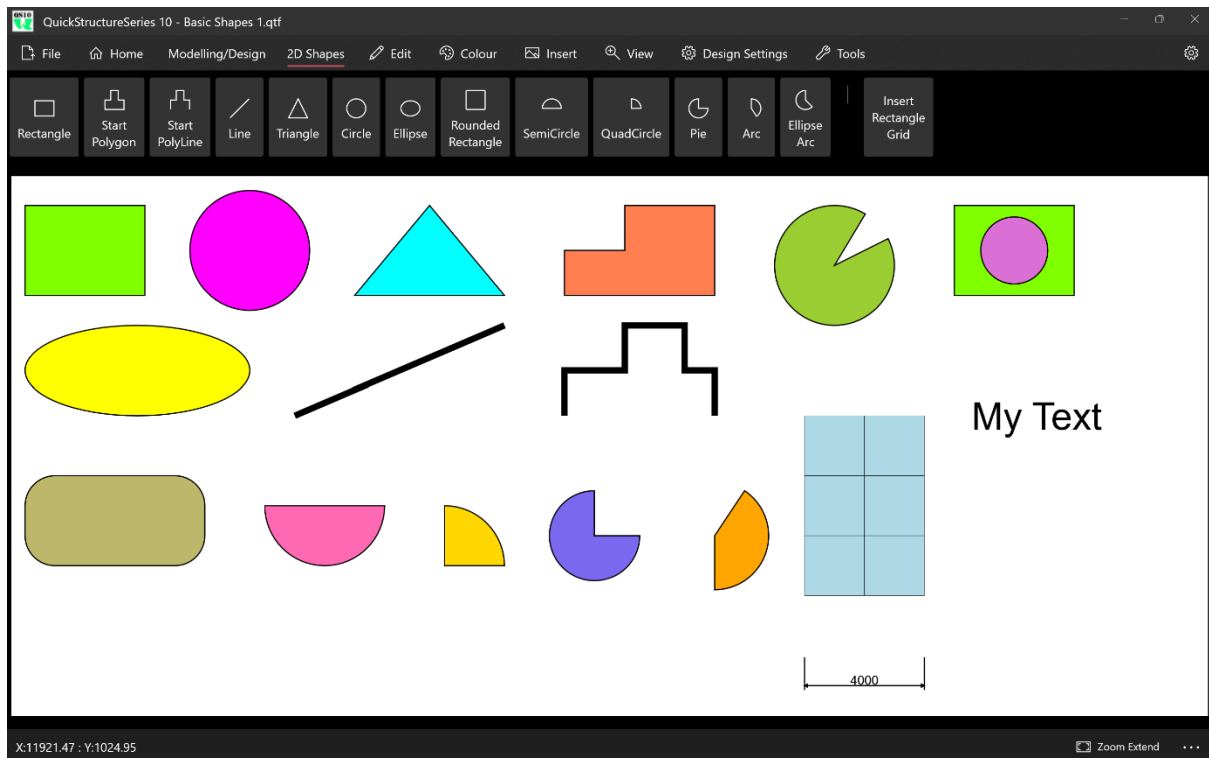


QUICKSTRUCTURE 10

TUTORIAL | PART 8

DRAWING BASIC SHAPES



Creating Basic Shapes

QS10 comes with simple basic graphics tools you can use to create vector graphics.

The tools are easy to use. The graphics tools might not be as complex as AutoCAD, but they get the job done.

Most of the drawings we have seen and done so far in this user guide from part 1 to part 7 are done with this basic tools. They are simple and complex at the same time. They are used to generate all the detailed drawings and calculate sheets.

The aim of QS10 basic graphics is to be simple and straightforward to use. Is a bridge between Microsoft Paint and AutoCAD. Is as simple as paint and also a little technical like AutoCAD.

In this user guide I will be showing you have you can use this basic tools. In QS10 most of the structural drawings are auto generated by the QS10 you don't need to do too much drawing. Because of this, you need only to do little modifications to the auto

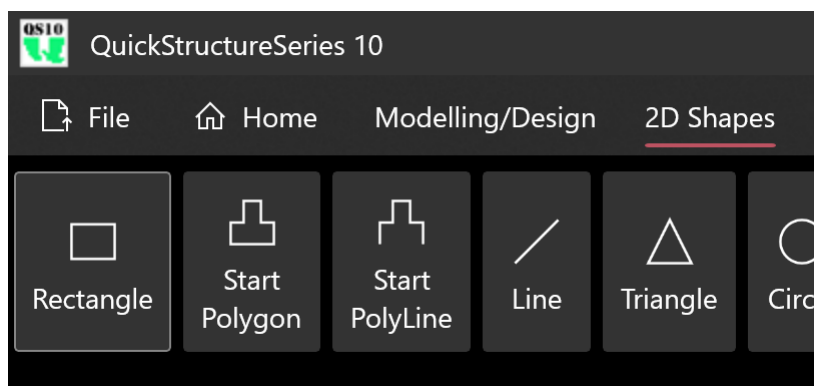
generated drawings. You only need simple tools to do that. We believe that the tools we will discuss will enable you to do so.

Some of the tools like colour, line weight we will discuss as we talk about the basic shapes.

1. Open QuickStructure 10 Software

Note: It will always open with a new project by default. You don't need to create new project.

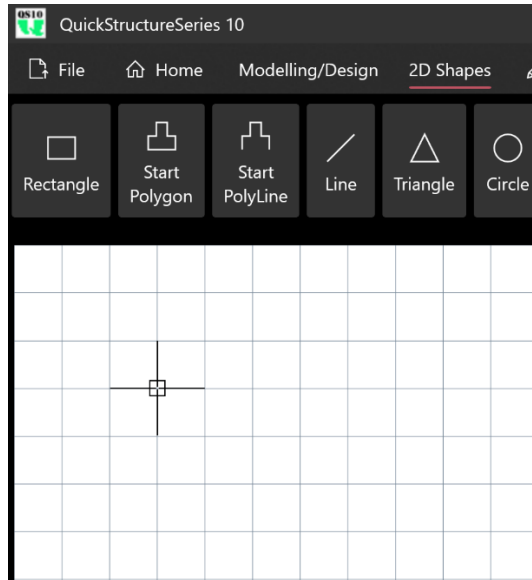
2. Rectangle Tool



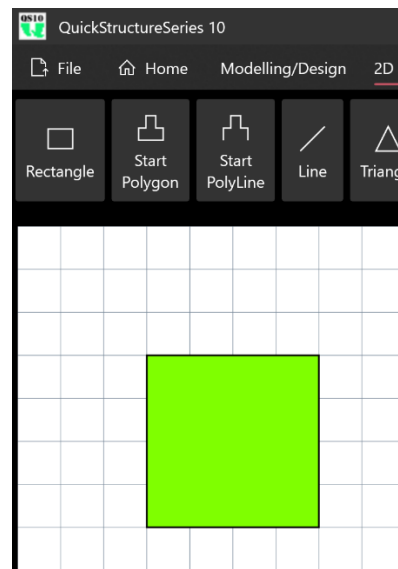
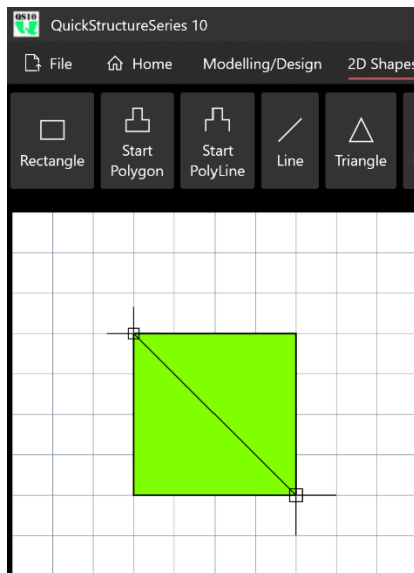
To create a rectangle

- ❖ The rectangle is a Structural Floor Modelling Shape. Very important in QS10.

- Click 2D Shapes tab and click Rectangle button.
- Move the mouse within the drawing window grid and click at a point to start the rectangle.



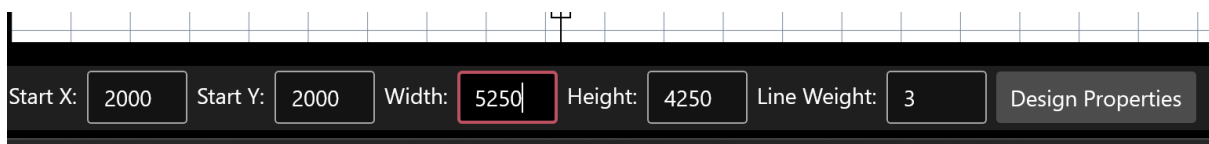
- Move the mouse at a second point and click to drawing the rectangle.



- At the bottom of the QS10 window, you will see properties window. It comes out when you add a new shape or if you select a shape.

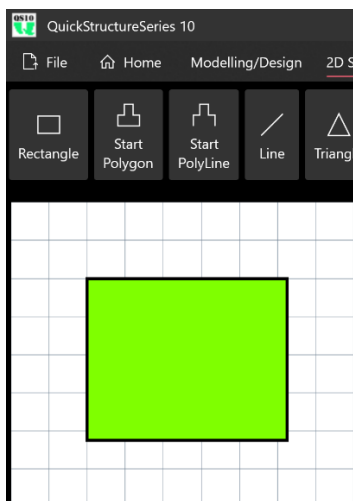


- You can change the properties of the shape right way from this properties window.
- Change the Start X:2000 and press enter key
- Change Start Y:2000 and press enter key
- Change Width:5250 and press enter key
- Change Height:4250 and press enter key



Notice each time we change a value, we press enter key. This is important because of structural modelling. We want to make sure that the changing you are making is intentional and not a mistake.

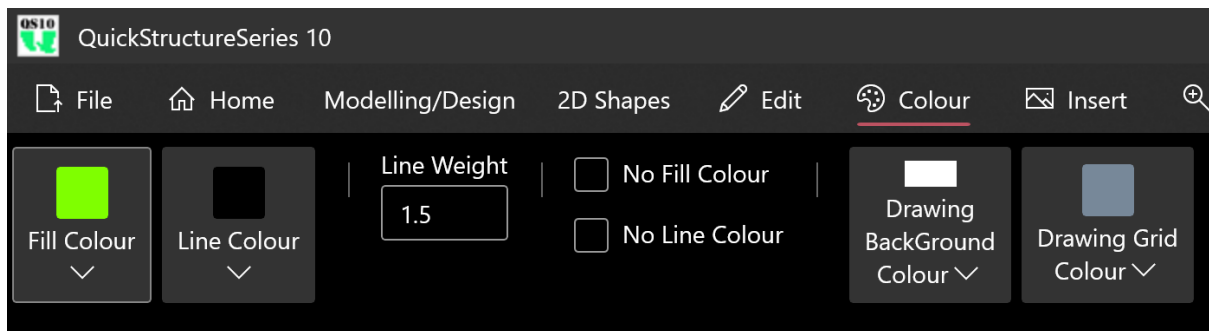
- Change the Line Weight:3 and press enter key



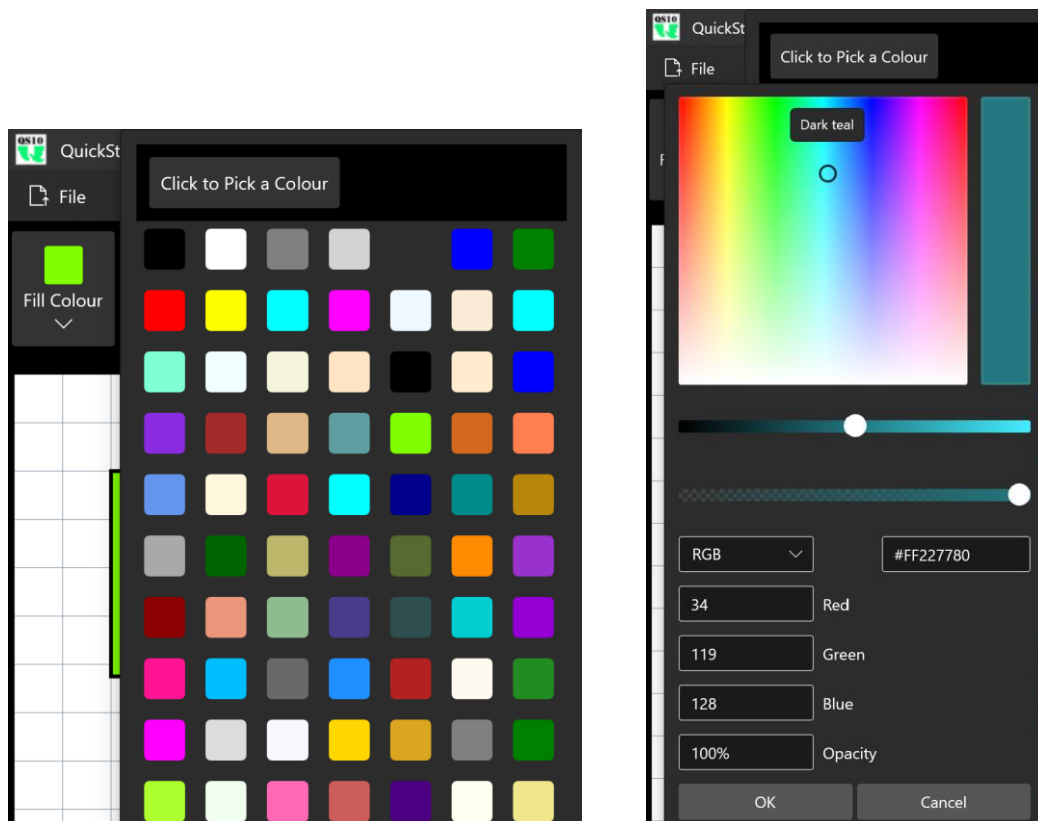
3. Changing Shape Colour

You can change a shape colour before or after drawing it.

- Click Colour Tab

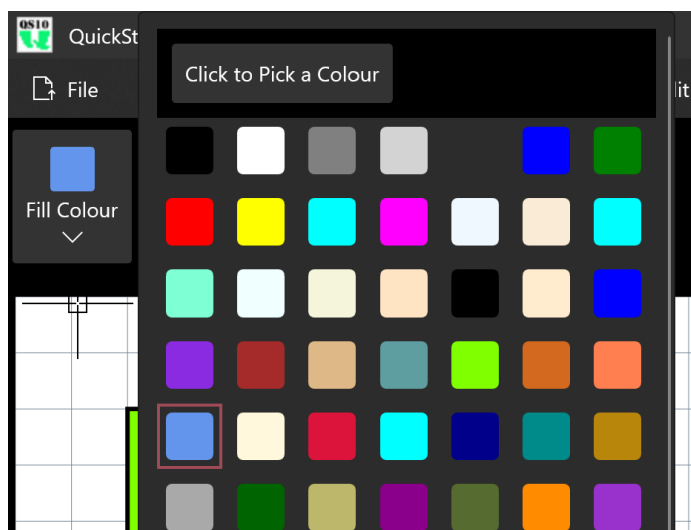


- Click the Fill Colour button and click any colour square to select new colour.



For more colours, you can click to Pick a Colour button. In QS10 we love colours, we want to add a bit of colour fun to serious and difficult structural engineering modelling to make it more fun. But please note structural modelling is serious business!

- Click Fill Colour button and select the Cornflower Blue colour



- Change the Line Weight:3



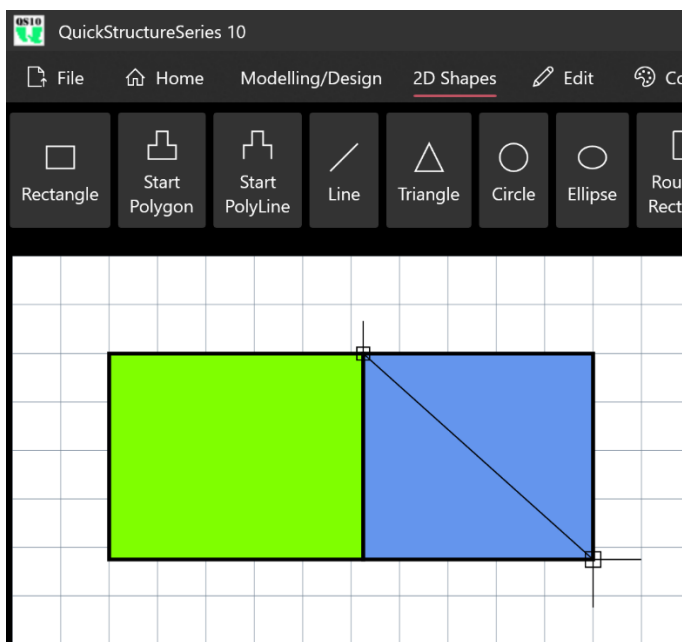
Now we have changed the fill colour and line weight, we will add another rectangle.

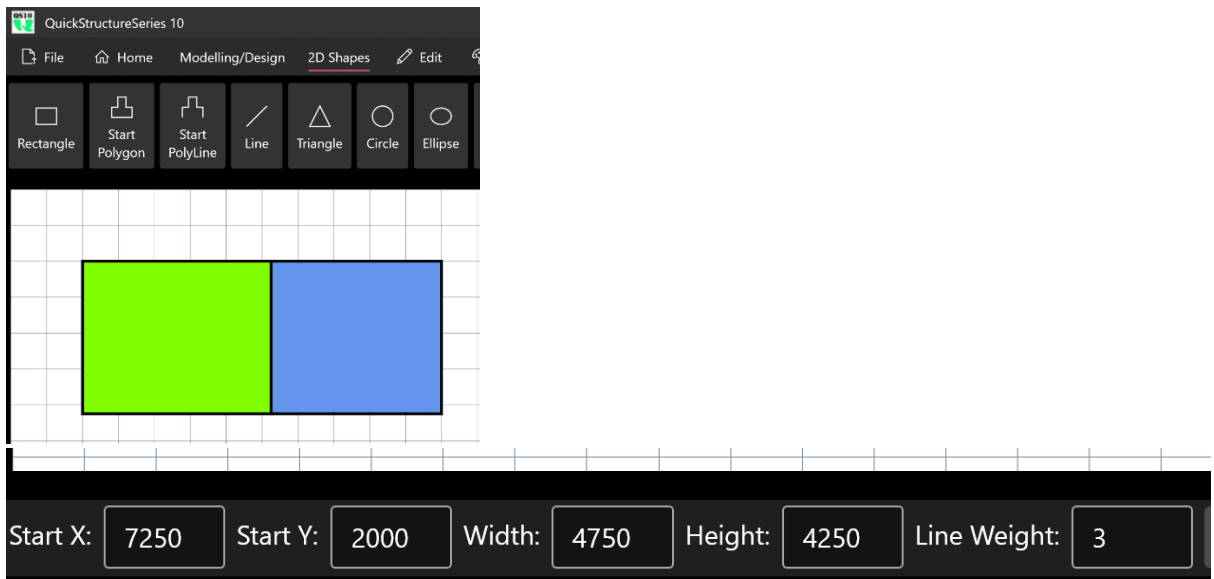
If you want to draw a shape without fill, check the No Fill Colour checkbox.

This new fill colour and line weight becomes the new default. Any other shape will add will be done with this colour.

4. Add a second Rectangle

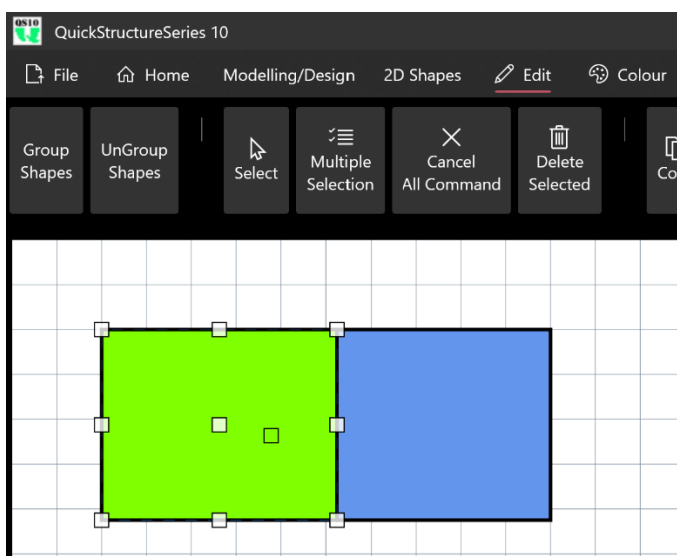
- Click Rectangle and click two points as shown below.



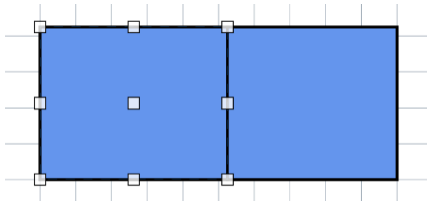


As we did before, you can easily change the width and height of the rectangle. It also takes the new colour and line weight.

5. To change the shape colour of the first rectangle.
 - Click Edit tab, click Select Button and click to select the first rectangle.



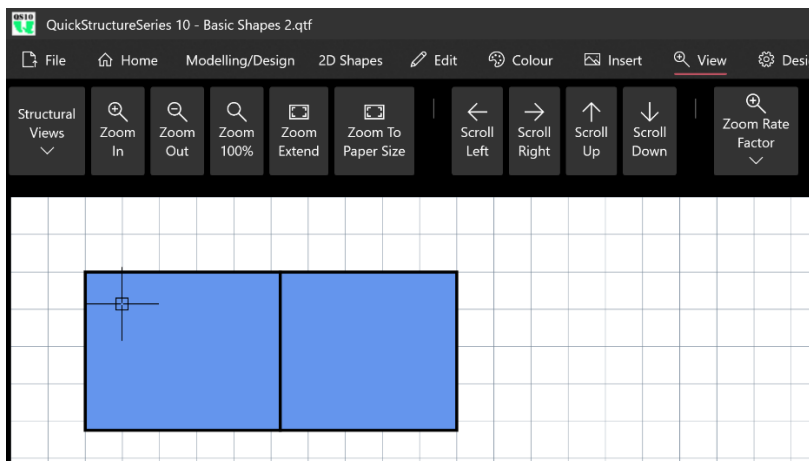
- Click Tools tab and click Change Selected Fill Colour to Current Fill Colour.

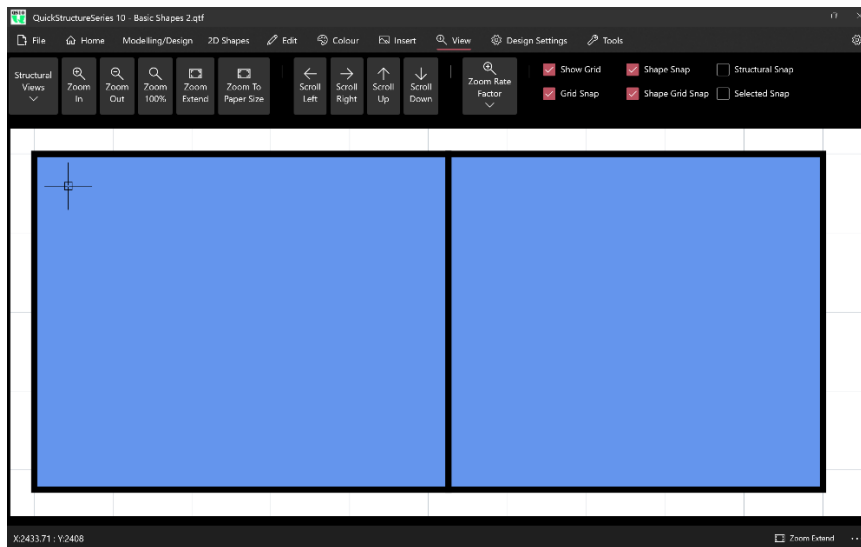


6. Click File tab and click Save Project

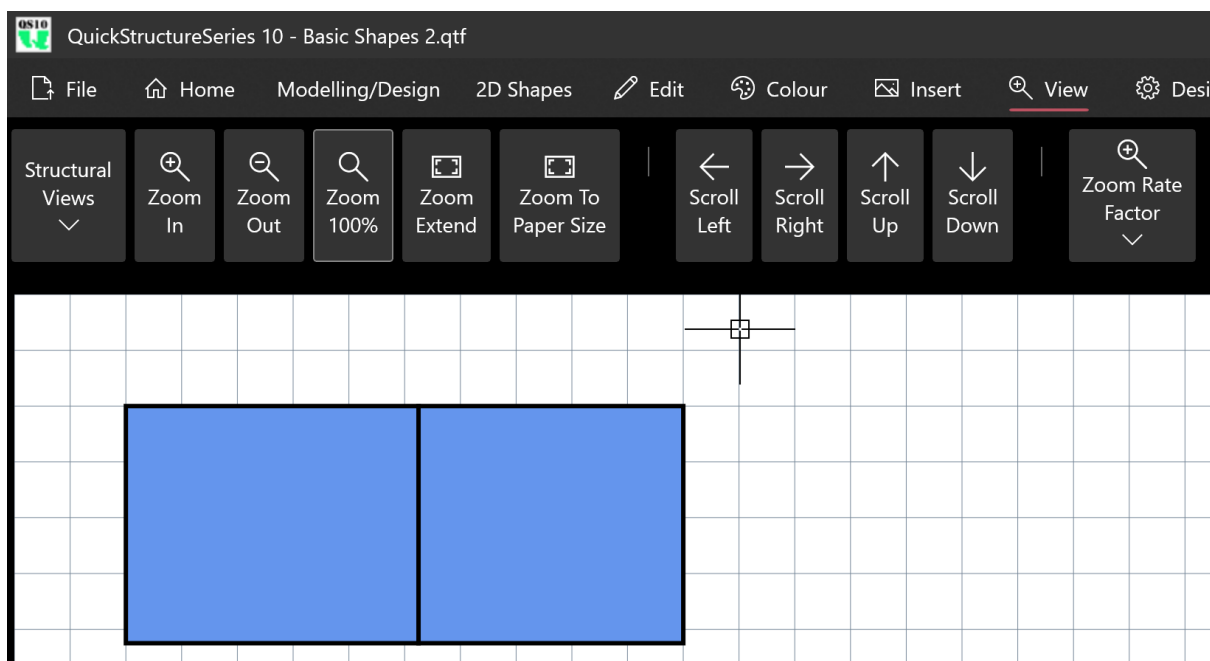
7. To Zoom with Mouse Wheel

- Point anywhere within the shapes and zoom with mouse wheel.





8. To Zoom 100%
 - Click View and click Zoom 100%



9. To Zoom Extend, Zoom In, Zoom Out
 - To Zoom Extend, click Zoom Extend
 - To Zoom In, click Zoom In

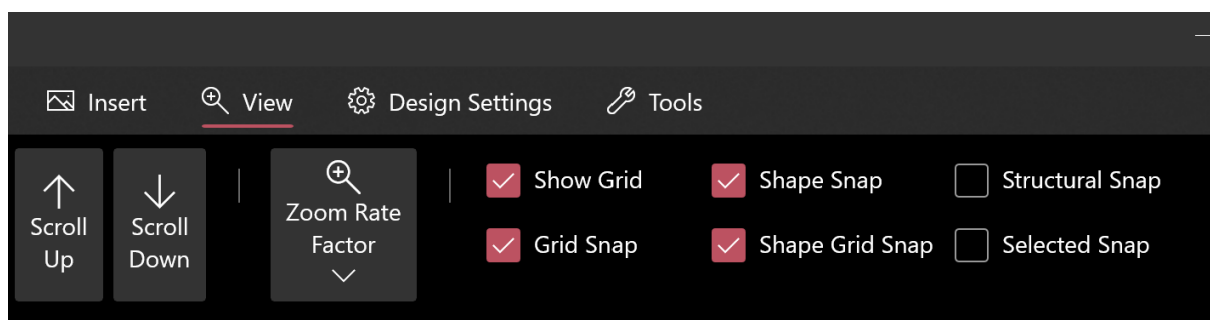
- To Zoom out, click Zoom Out
- To change rate of zoom, click Zoom Rate Factor

10. To Scroll Left, Right, Up or Down.

- Click Scroll Left, Right, Up or Down

You can always use the mouse wheel to Zoom in or out, it is faster.

11. Grid Snap and Shape Snap



- Check Grid Snap to snap at a grid.

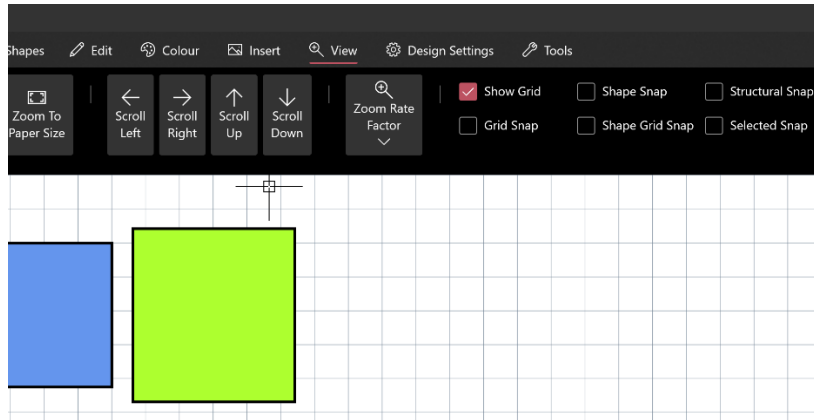
When you click a point within the drawing surface, it will always click at a grid point.

It can also click at the centre of the grid or mid points of the rectangle grid.

- Check Shape Snap to Snap at shapes.

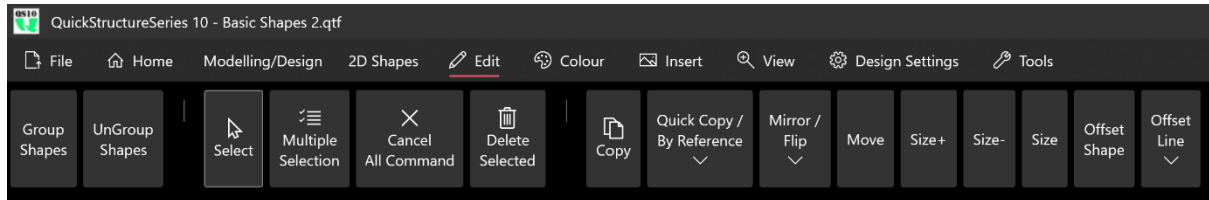
12. For Free Form drawing

- UnCheck Grid Snap and Shape Snap to draw at any point. It will not click exactly at the grid or Shape. It gives you freedom to draw outside the grids



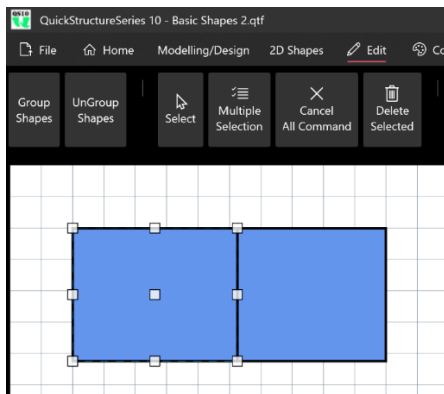
- For structural modelling make sure the Grid Snap and Shape Snap is checked. Structural modelling is not free form drawing. You don't want to have unintended gaps between the slab panels.

To Edit Shape (Select, Copy, Move, Delete etc)

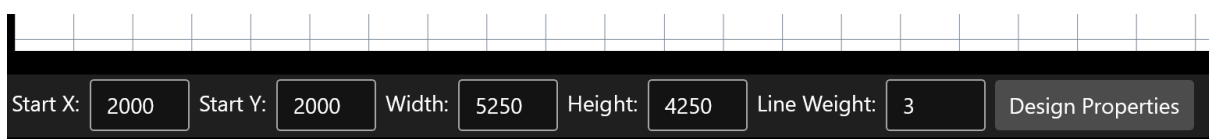


13. To Select the first rectangle

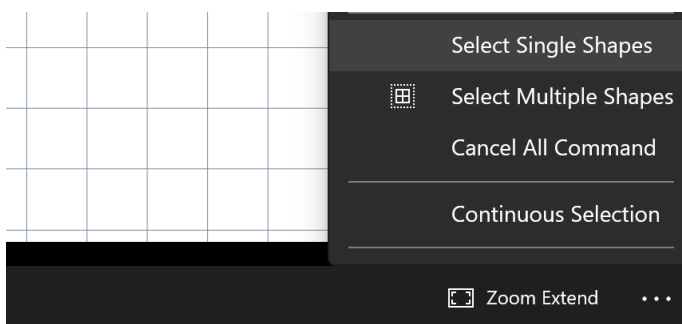
- Click Edit tab, click Select button and then click the first rectangle.



At the bottom of the window is the shape properties.

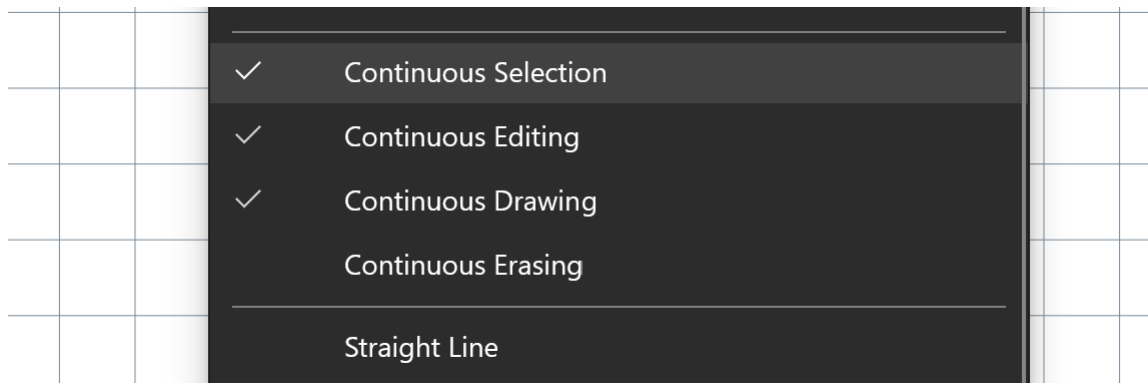


- You can also click the ... at the bottom of the window and click Select



14. To do continuous selection

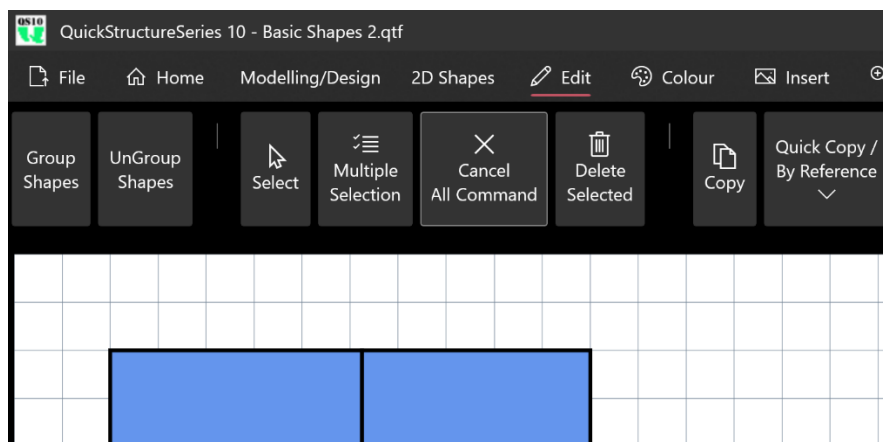
- Edit menu and check Continuous Selection



This will help you select many shapes one by one.

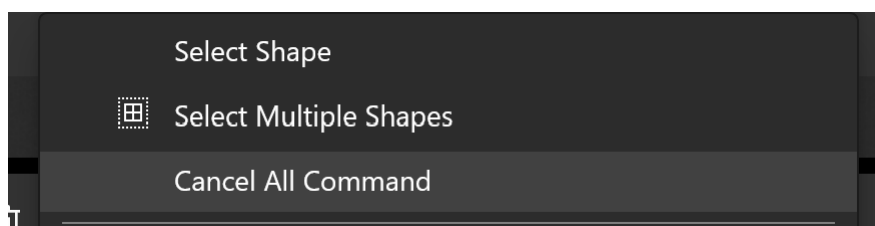
15. To cancel selection or all active command

- Click Edit tab and click Cancel All Command

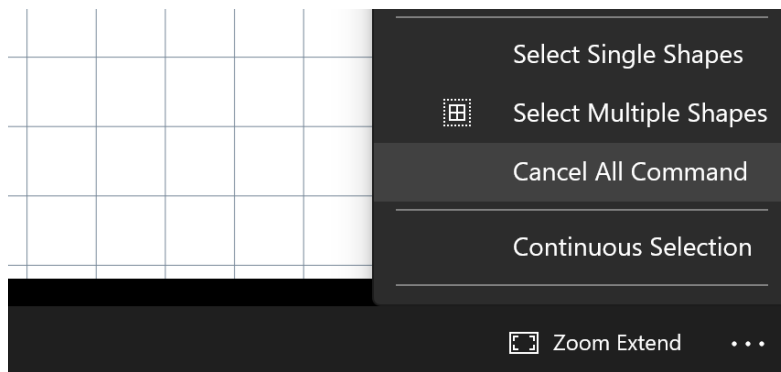


This is a very important button.

- You can also right click and click Cancel All Command

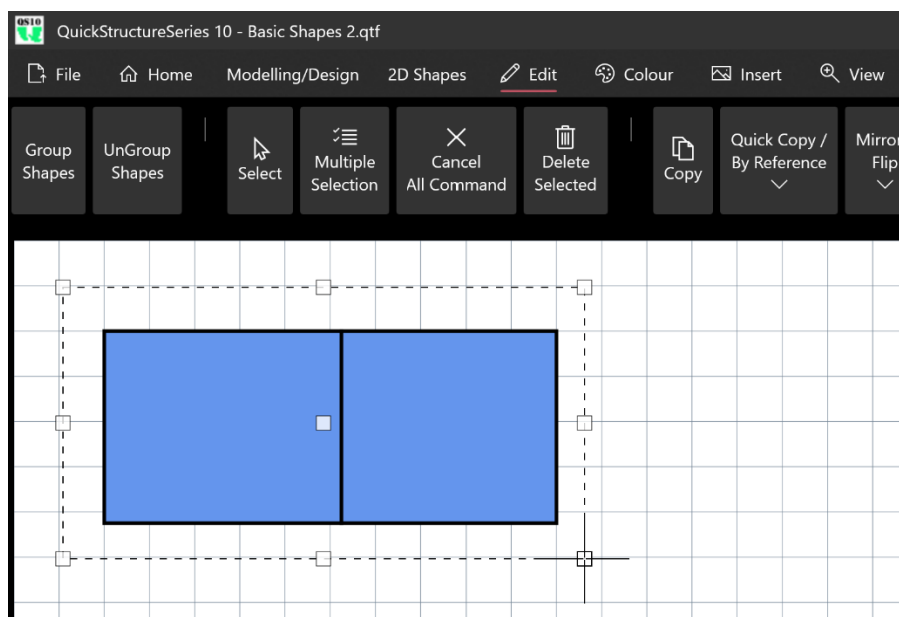


- You can also click the ... at the bottom window and click Cancel All Command

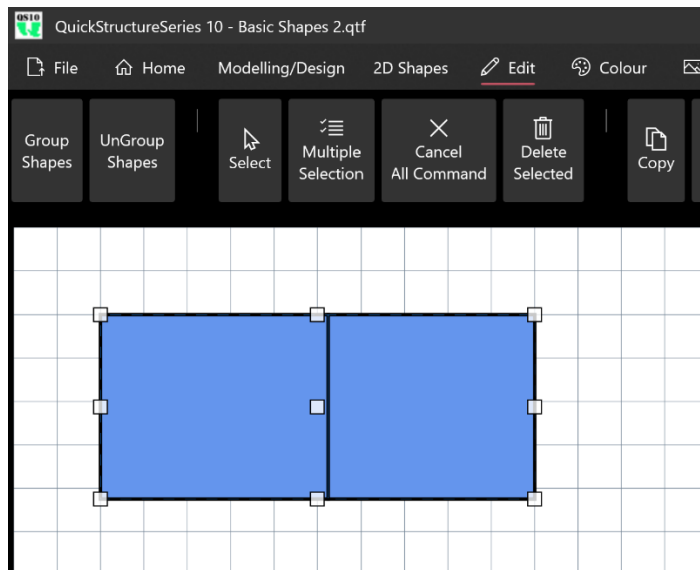


16. Multiple Selection

- Click Edit, click Multiple Selection and click between two points

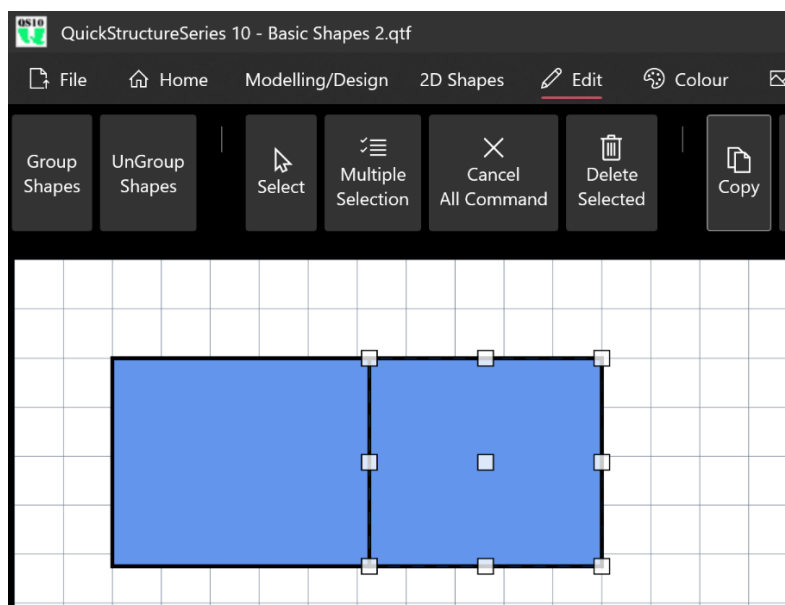


This will help you to select multiple shapes at a time.

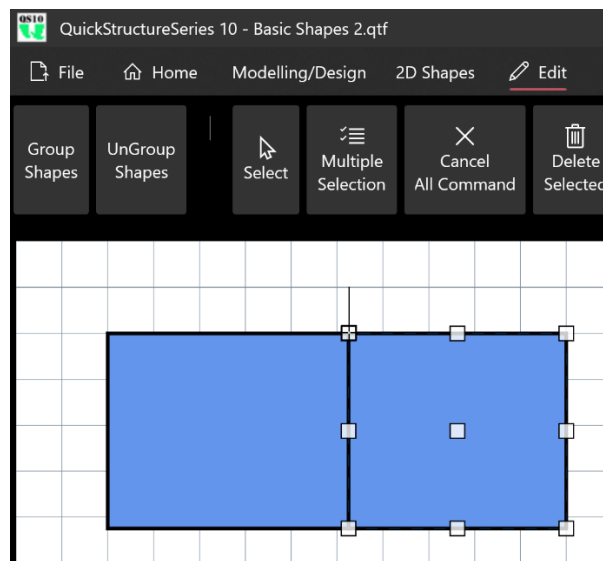


17. Copy Shape

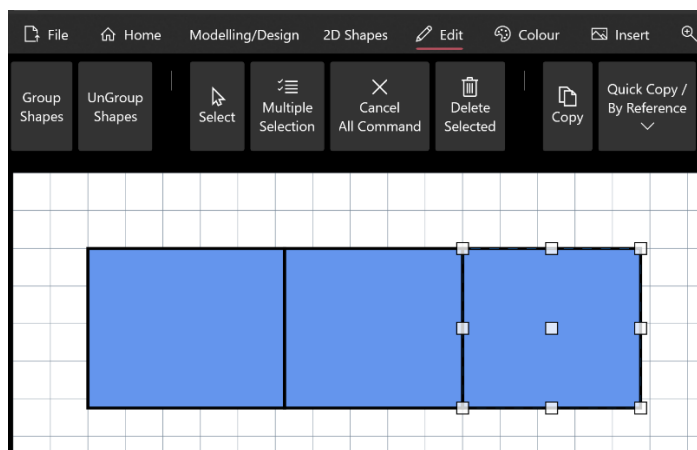
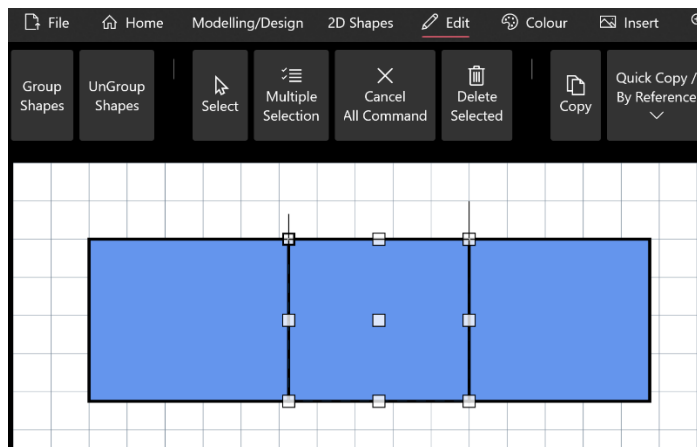
- Select the second rectangle
- Click Edit and click Copy Shape



- Click the top left corner of the selected rectangle.

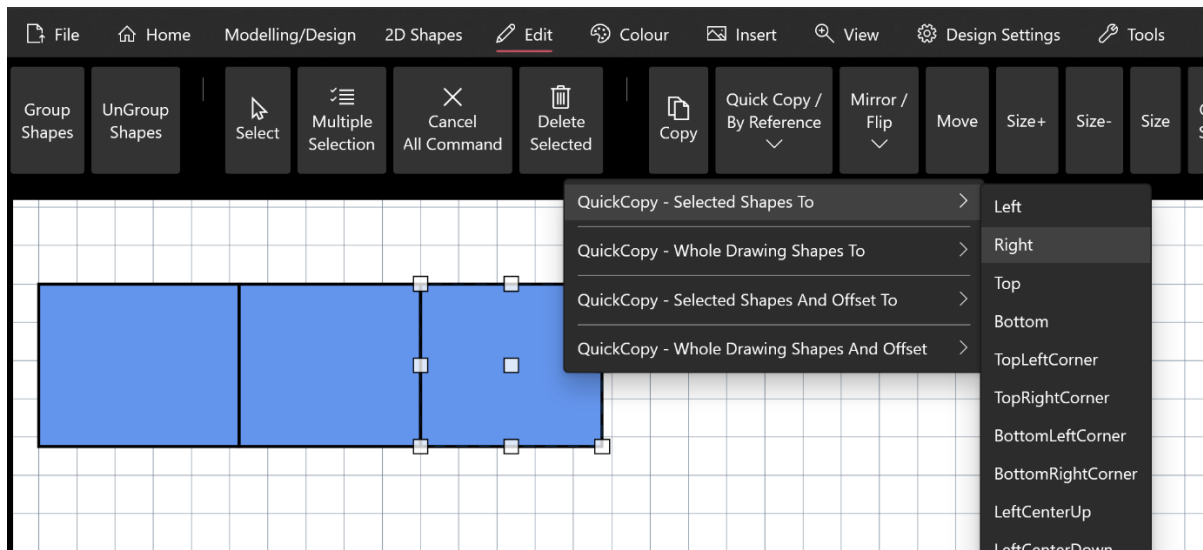


- Move the mouse to a new position and click to drop the rectangle.

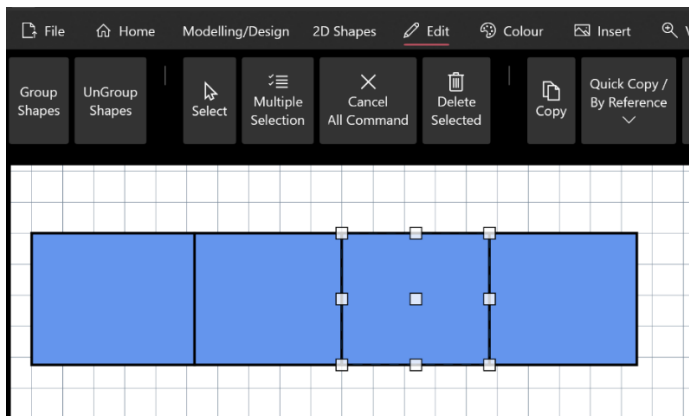


Note: For structural floor modelling we don't recommend this method of copying shapes. Because when you click the second point it might not click at the end of the second rectangle. We will talk about the preferred method next.

18. Quick Copy / By Reference



- Select the third rectangle.
- Click Edit, click Quick Copy / By Reference, click Quick Copy – Selected Shapes To and click Right

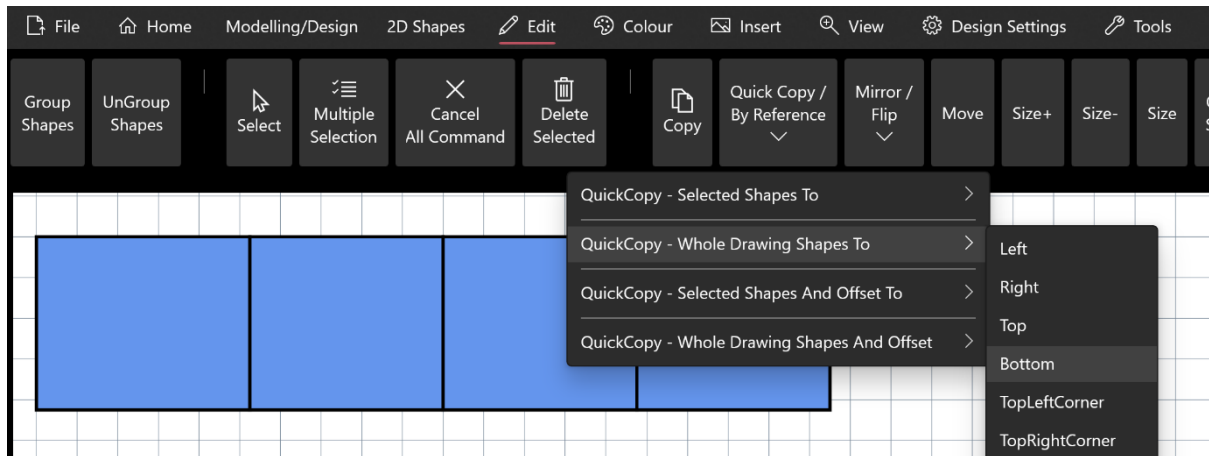


This will quickly copy the rectangle to the right. This is the preferred modelling method. It will ensure that the rectangle is positioned properly at the top right corner of the third rectangle.

You can explore the different Quick Copy options we have in QS10 later.

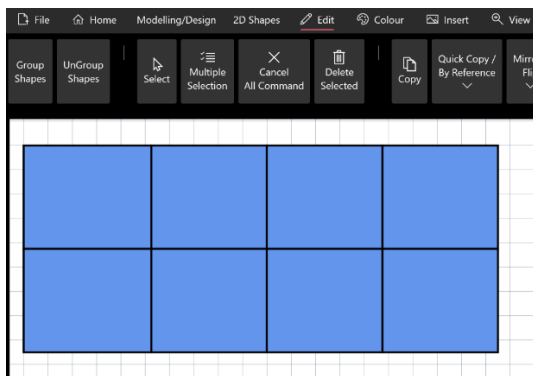
19. Quick Copy / By Reference the whole drawing

You can copy the whole drawing at once.



You don't need to select any shape to do this.

- Click Quick Copy / By Reference, click Quick Copy – Whole Drawing Shapes To and click Bottom.

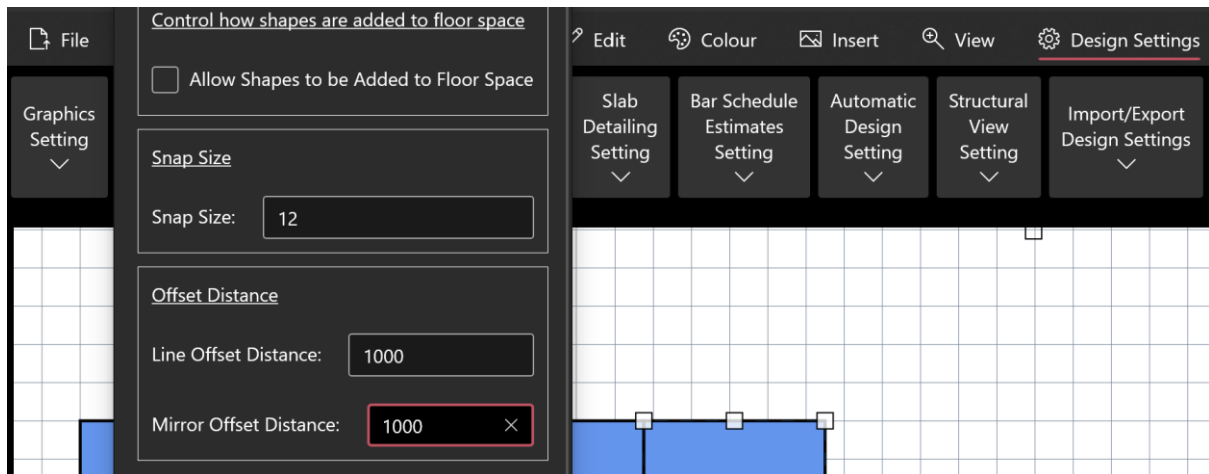


Note: We don't recommend this method for structural modelling except when you are sure the whole drawing is repeated.

It is good to be very careful when modelling structural panels (rectangle).

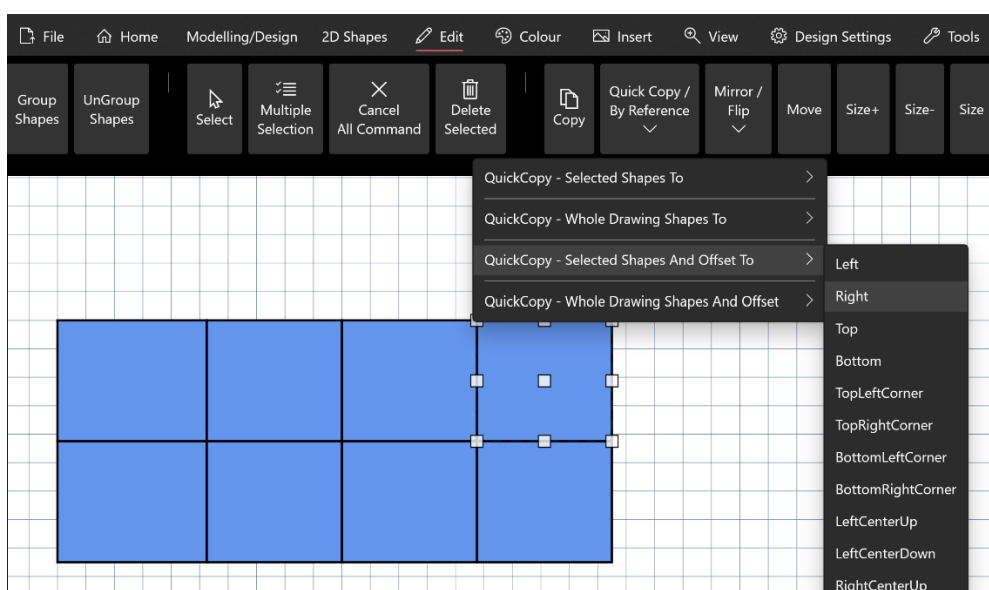
20. Quick Copy Selected and Offset

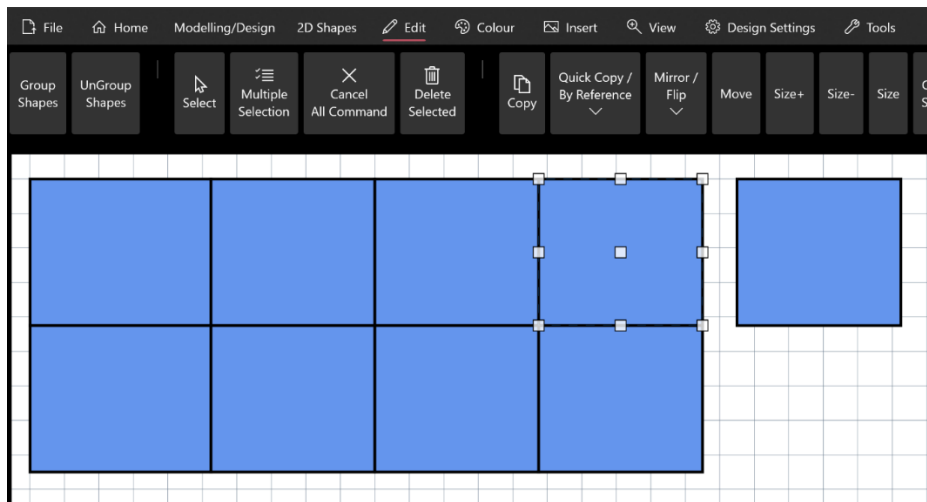
- Set the offset distance. Click Design Settings tab, click Graphics Setting and change Mirror Offset Distance:1000



You need to do this before you Quick Copy and Offset.

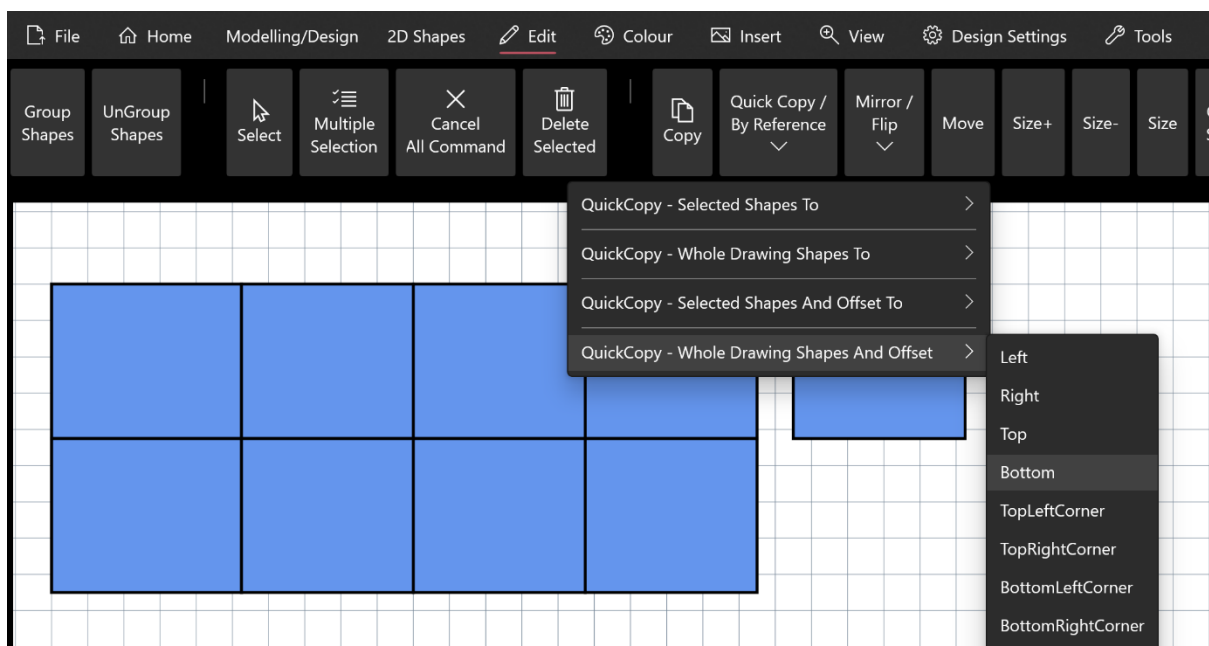
- Click Edit tab, click Quick Copy / By Reference, click Quick Copy – Selected Shapes And Offset To and click Right.

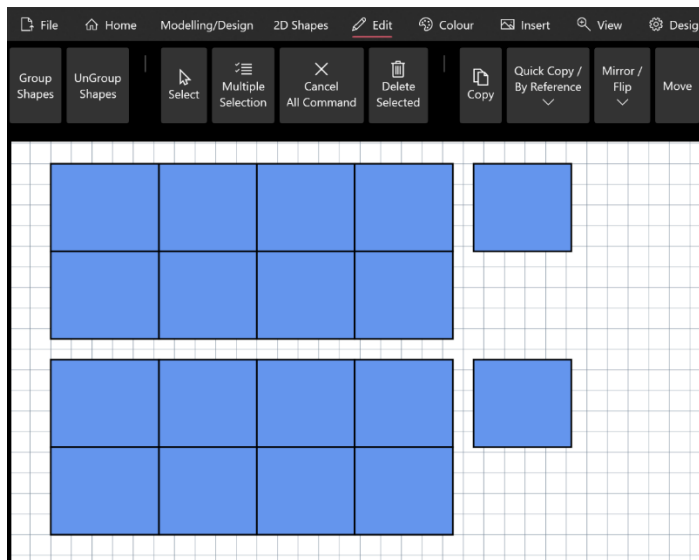




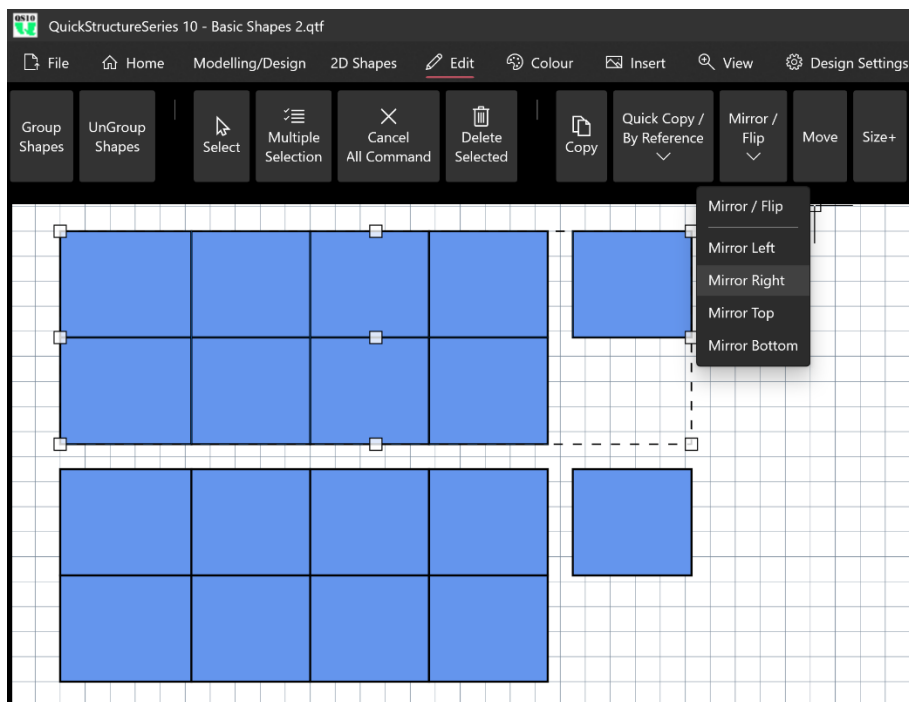
21. Quick Copy and Offset Whole drawing

- Click Edit tab, click Quick Copy / By Reference, click Quick Copy – Whole Drawing Shapes And Offset and click Bottom.

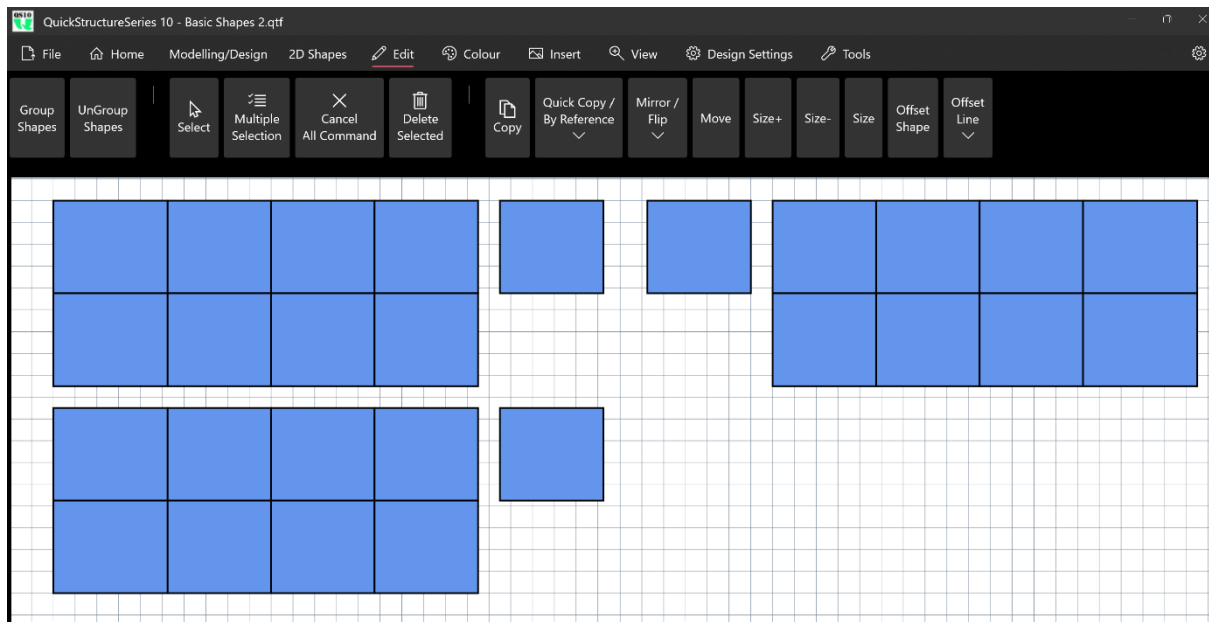




22. Mirror Shape



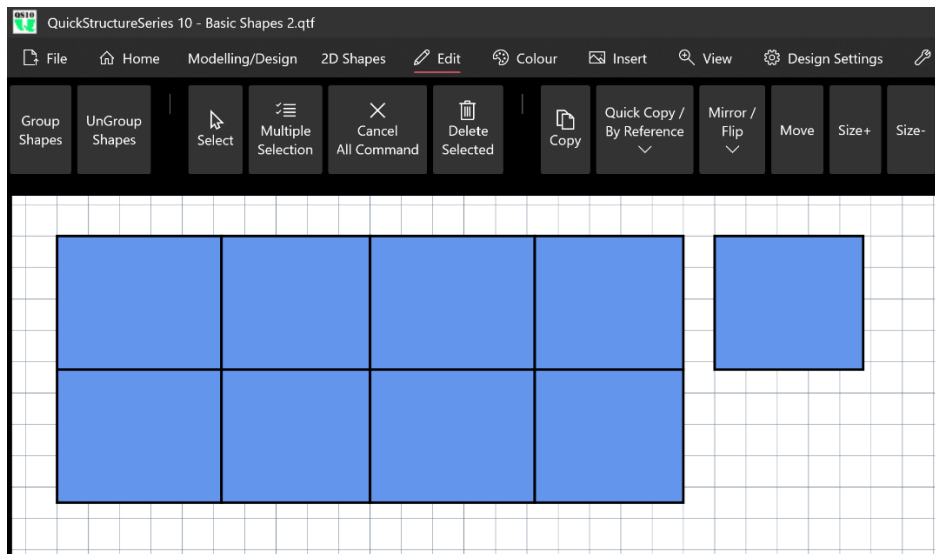
- Select the first part of the drawing as shown above and click Edit, click Mirror / Flip and click Mirror Right



The mirror offset is measured 1000 away from the selected shapes and repeated 1000 before the new set of rectangles. So, it will produce a total distance of 2000. Note this is unlike the QuickCopy and Offset we did in item 20 and 21 of this manual that produced 1000 offset distance.

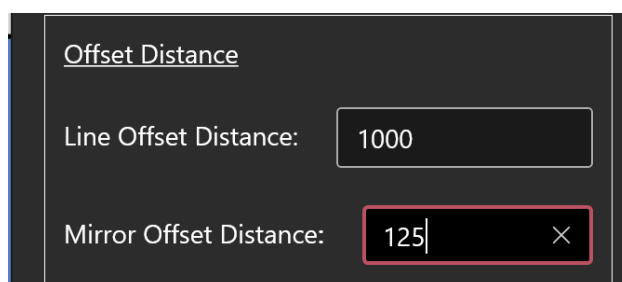
Mirror will also mirror the offset distance. So if you want a total offset distance of 1000, set the Mirror Offset Distance to 500.

23. Mirror Rectangles including Expansion Joint



Our aim is to mirror the above drawing and include an expansion joint.

- Set Mirror Offset Distance:125



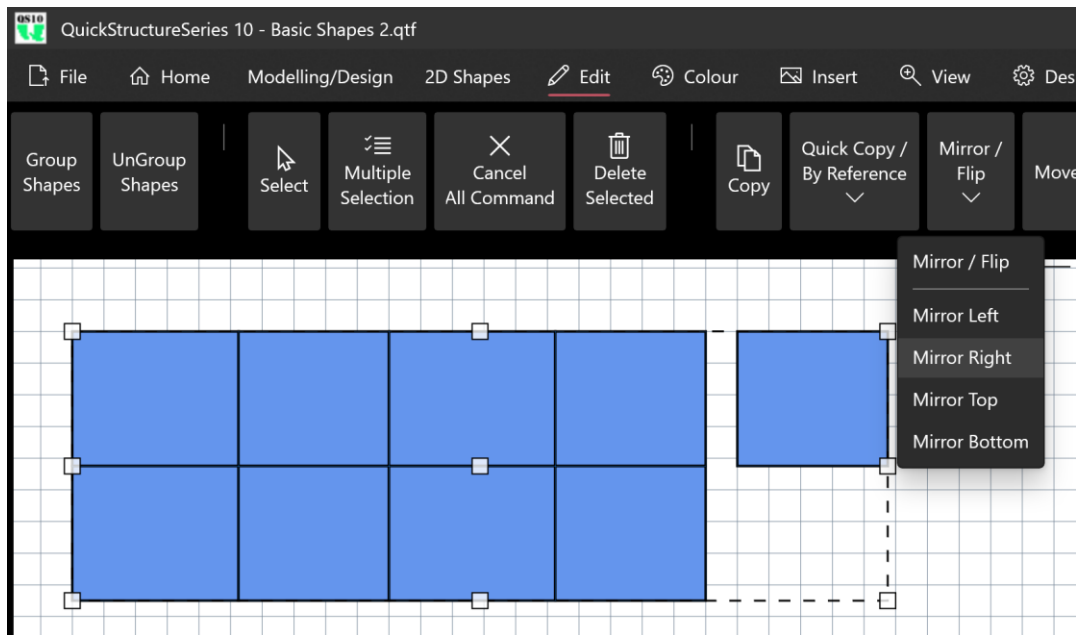
Click Design settings, click Graphics Setting and change the Mirror Offset Distance.

Why set Mirror Offset Distance to 125

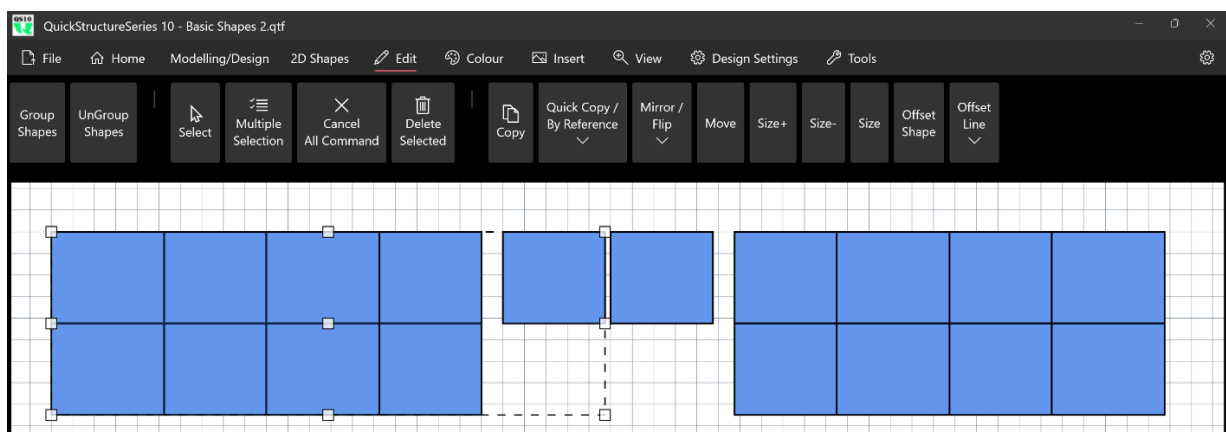
$(\text{Beam Width } 225 + \text{Expansion joint } 25) / 2 = 125$

When we mirror, it will produce a total distance of 250

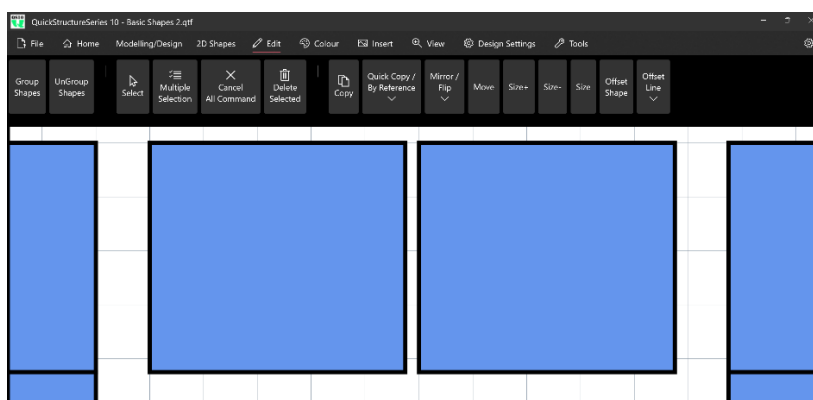
- Click Multiple Selection and select the drawing as shown below.



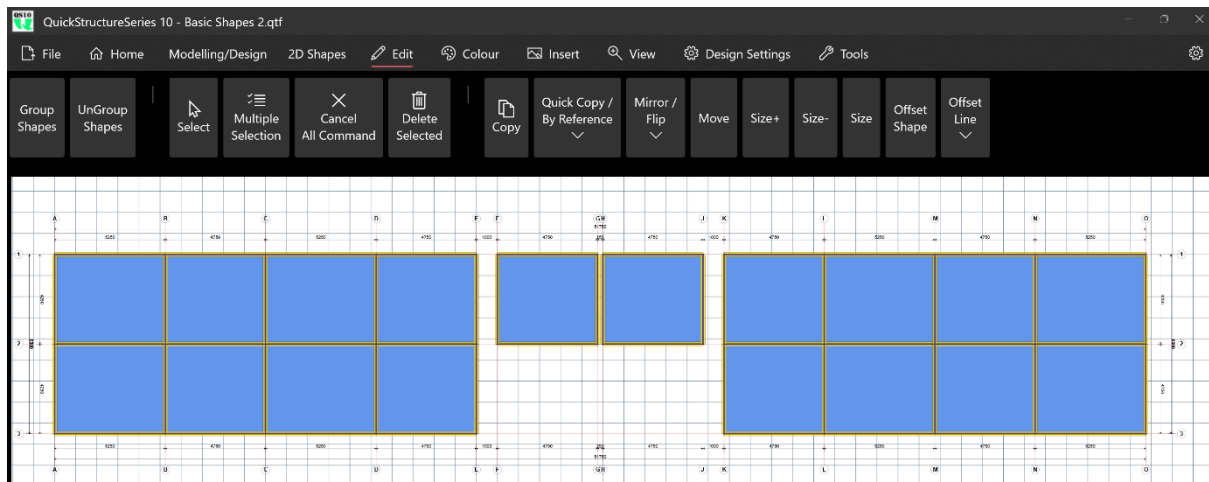
- Click Mirror / Flip and click Mirror Right.



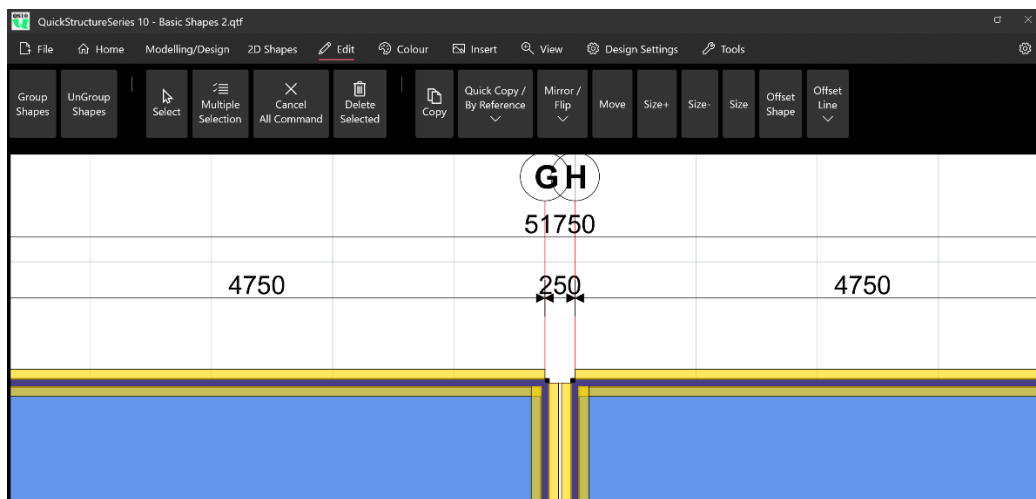
- Click Cancel All Command to deselect



The expansion joint is created as show above.



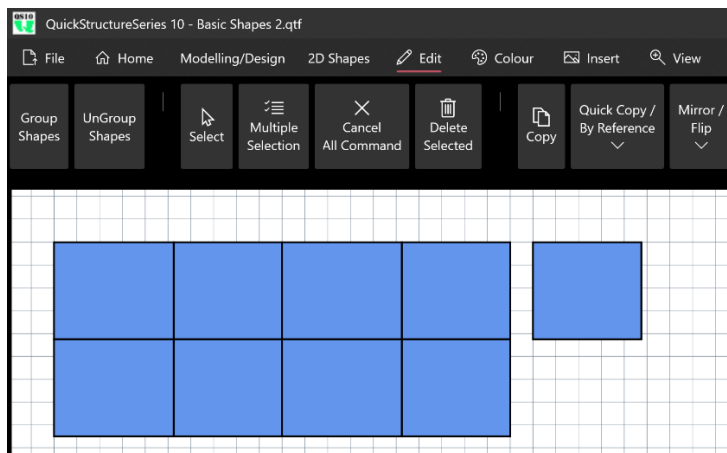
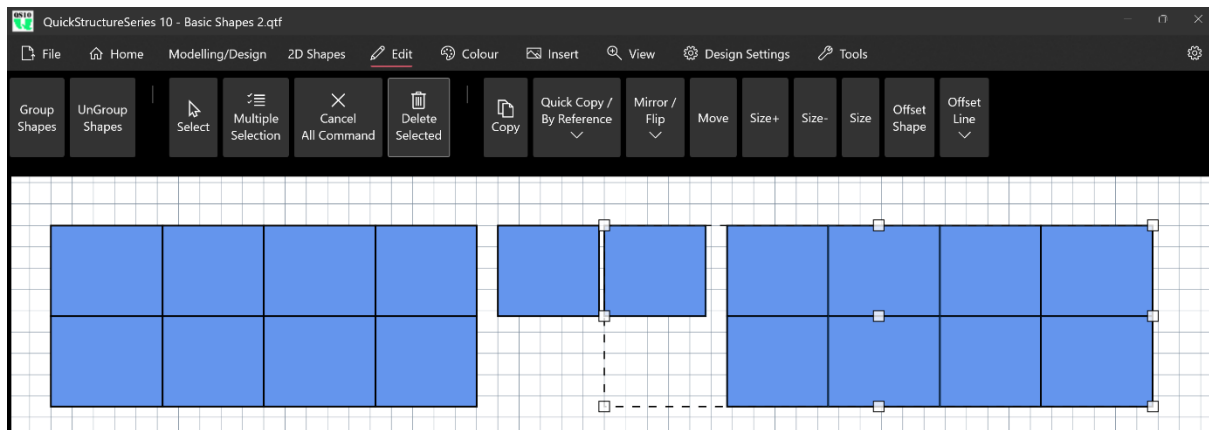
If you add a floor, you will see the expansion joint is observed by the software.



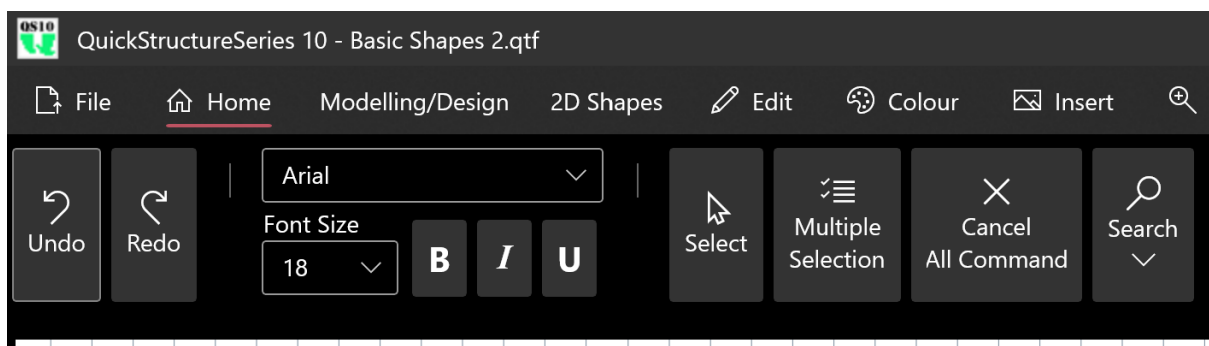
If you measure the little gap between the ends of beams is 25mm.

24. Delete Shape

- To delete a shape, first select it, click Edit and click Delete Selected.

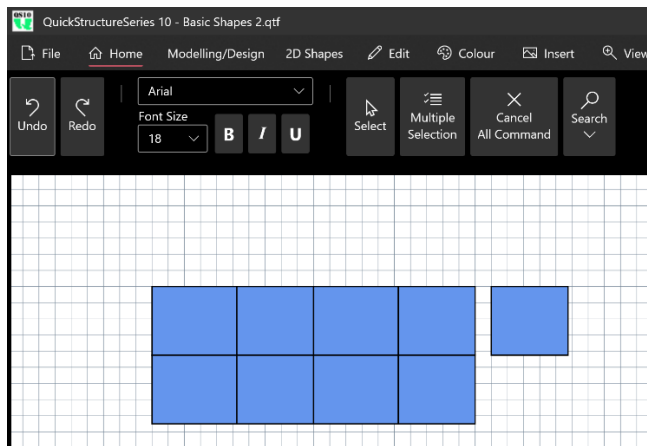


25. UnDo and ReDo

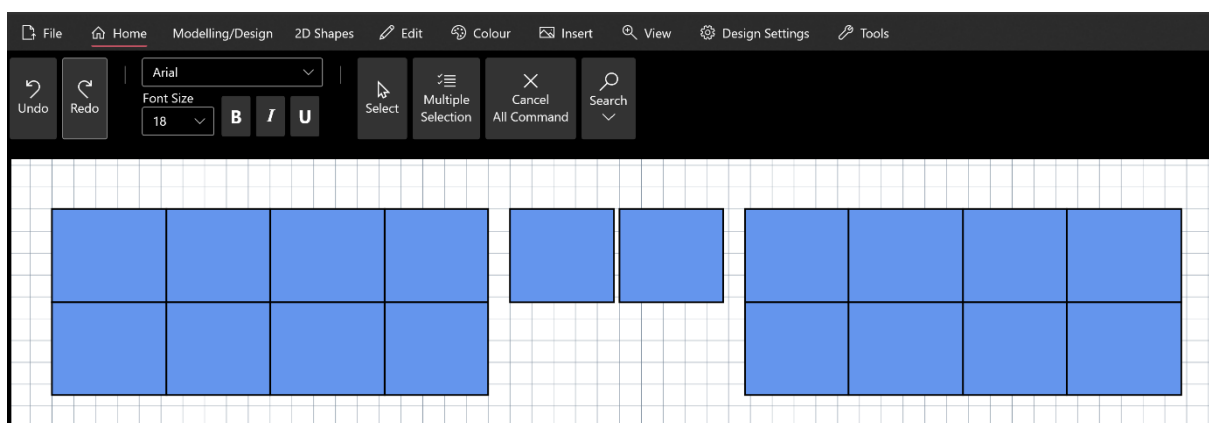


- To UnDo, click Home tab and click UnDo.

You might need to click few times for it the last action to undo.



- To ReDo, click Home and click ReDo.



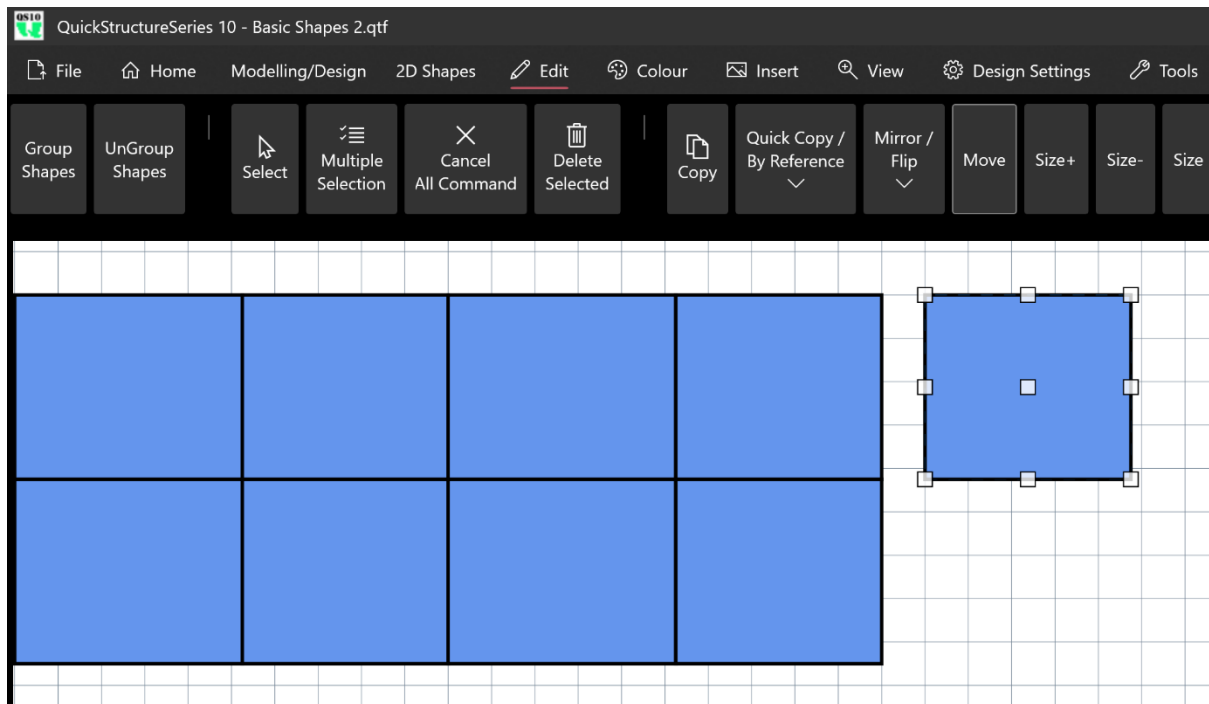
❖ Note on UnDo and ReDo

- With UnDo and ReDo you can get back to where you are before changes.
- Is possible to use the software to start and finish a work without using the undo and redo.
- In the user manual from the examples in part 1-7, we did all the work without UnDo and ReDo.

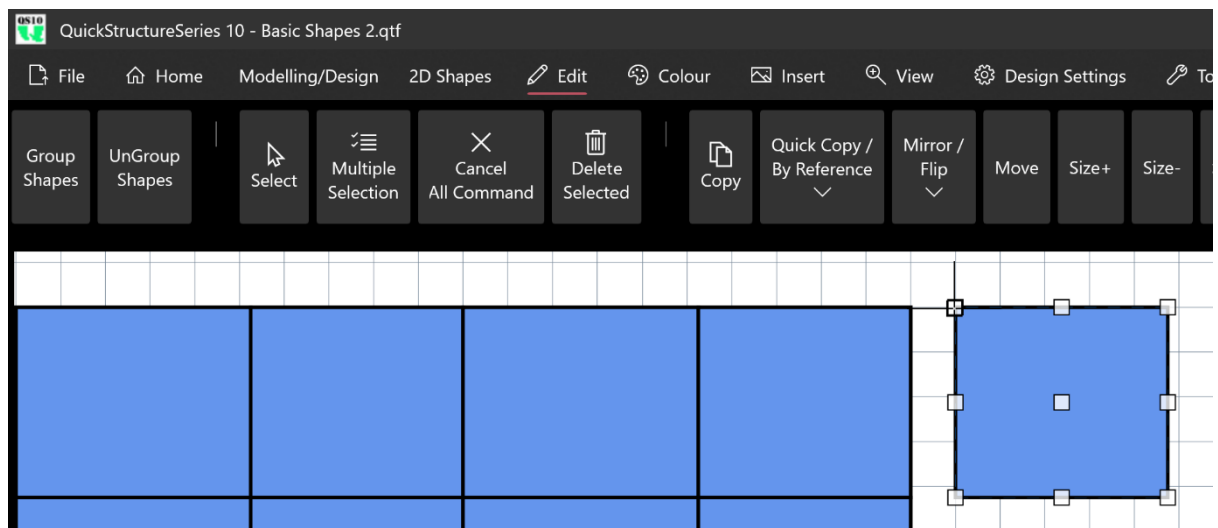
We created the graphics first before creating the structural floors. So, it is advisable to use the UnDo, ReDo during the graphics stage if you really need.

- Once you start adding the structural floor layouts, it is advisable to avoid using the UnDo, Redo. UnDo and ReDo will still work at the structural modelling stage but only use it if you really need to.
- Structural modelling is a serious business, it is not just plain graphics. We want you to take it seriously, that is why we created tools to make sure the panels are well connected.
- We know that our software has made modelling structures very easy, but we still want the structural engineer to keep an eye on the design especially at the structural modelling stage.
- You can easily use delete to delete any shape you don't want.

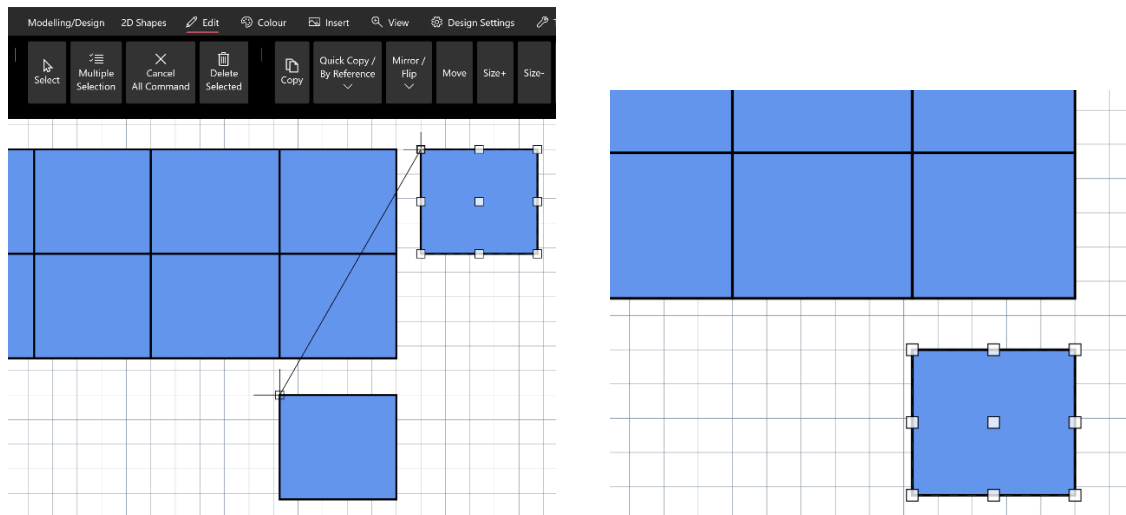
26. Move Shape



- Select the Shape you want to move
- Click Edit and click Move
- Click any point within the shape



- Move the mouse to second point and click to move the shape as shown below. Don't hold down the left mouse button as you move the shape.



Note:

All the editing tools we have seen so far also applies to other shapes.

You can activate quick edit mode in the software, but we will talk about that later.

But when you edit is important to be careful so that you don't mistakenly do what you don't intend to do.

Also use QuickCopy doing structural modelling, by so doing you avoid a lot of modelling mistakes.

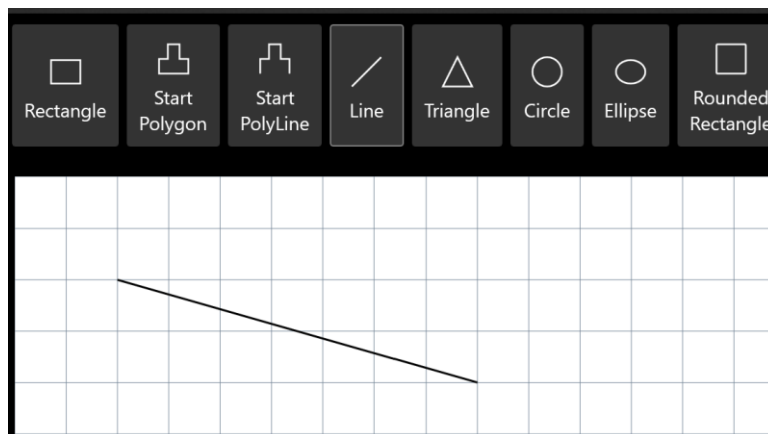
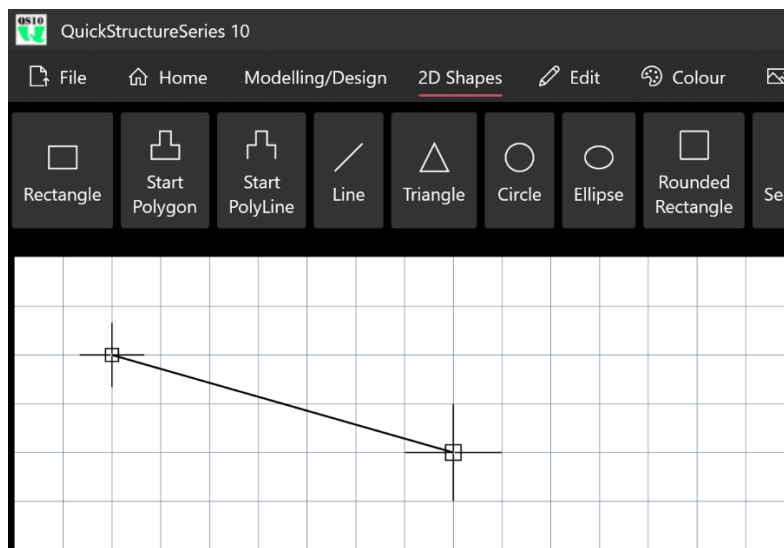
QuickCopy is also faster.

Rectangle is so important in the software, most of the drawings are done with a rectangle, line and text objects.

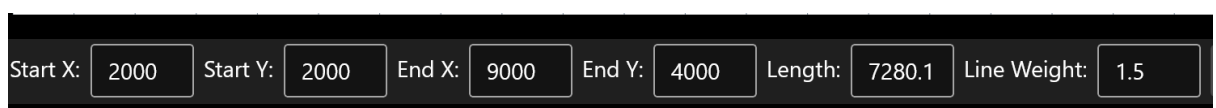
Line Shape

27. Line Shape

- To draw Line, click 2D Shapes, and click Line shape button.
- Click two points to draw a line.

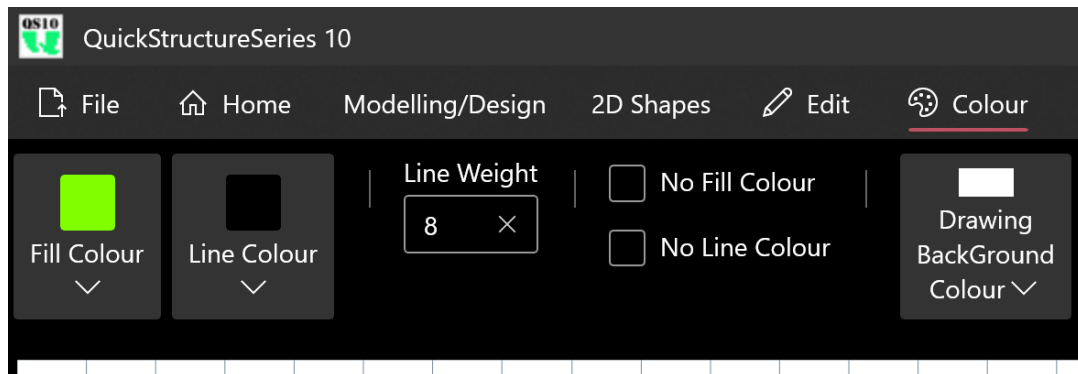


At the bottom of the screen is the line properties. You can change the Line Weight, start x and so on.

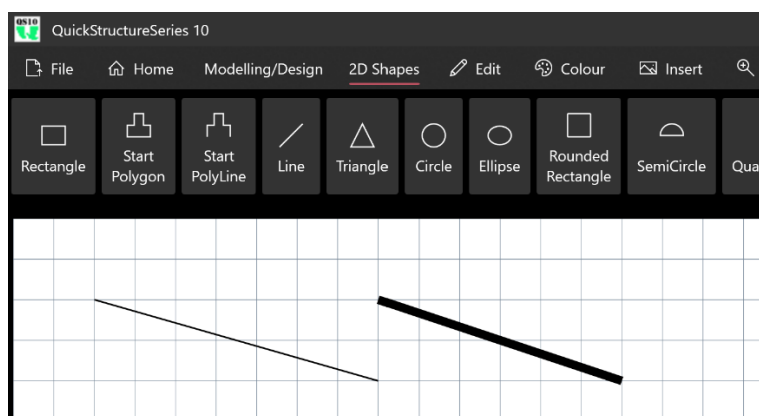


28. To Change Line Weight be you draw line.

- Click Colour tab and change the Line Weight:8



- Click 2D Shapes and click Line shape button.
- Click two points to draw a line.



Note:

- To copy, move line use the copy and move command as we discussed before.
- When you are doing structural modelling and design with the software, you will hardly need to draw a line. Most of the lines will be automatically generated.

- Is good do know how to draw a line, in case you need to edit the detailing.
- Structural beams in the software are automatically created by the software with line shapes. It is not advisable to create structural beams directly by using the line tool. If you do the modelling very well, you will hardly need to create beam or beam span.
- It is advisable to create the panels (rectangles or polygons) and let the software create the beams for you. After you can edit the beams where you need to.
- There are extreme cases where you might need to create a line in the modelling, but you will need to be very careful while doing so. We will discuss this later in the manual.

Editing Line Shape

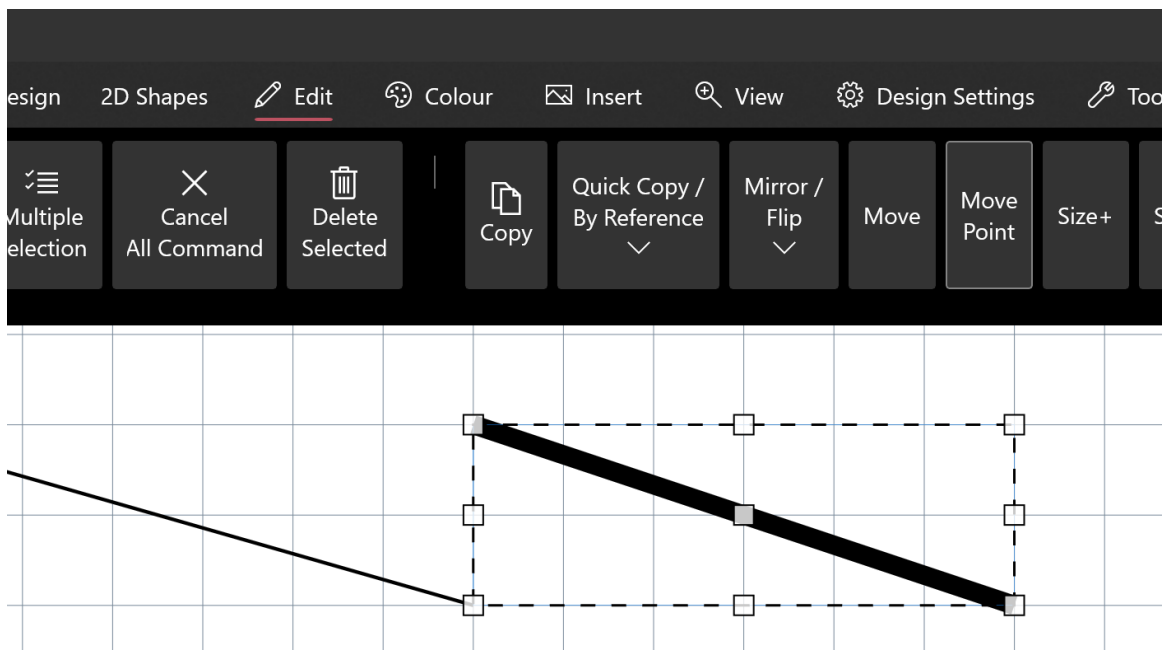
29. To Edit the Start Point and End Point

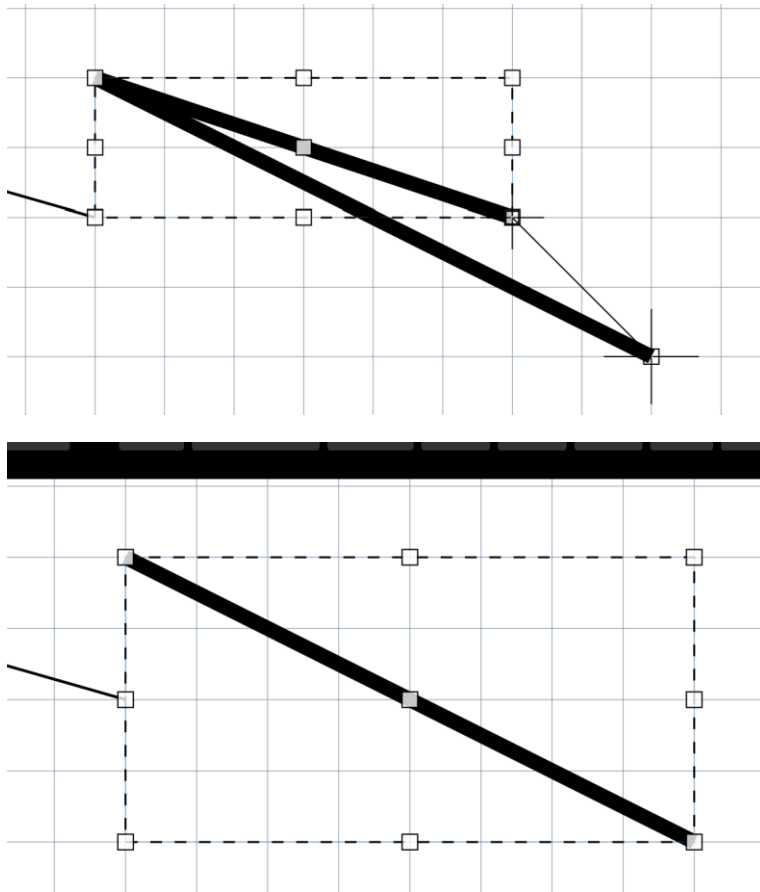
- Select the Line Shape
- Change the Start X, Start Y, End X and End Y from the properties at the bottom of the screen.

Start X:	2000	Start Y:	2000	End X:	9000	End Y:	4000	Length:	7280.1	Line Weight:	1.5
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30. Move Point.

- Select Line shape and click Move Point
- Click the end of the line you want to move and move the mouse and click at a second point.



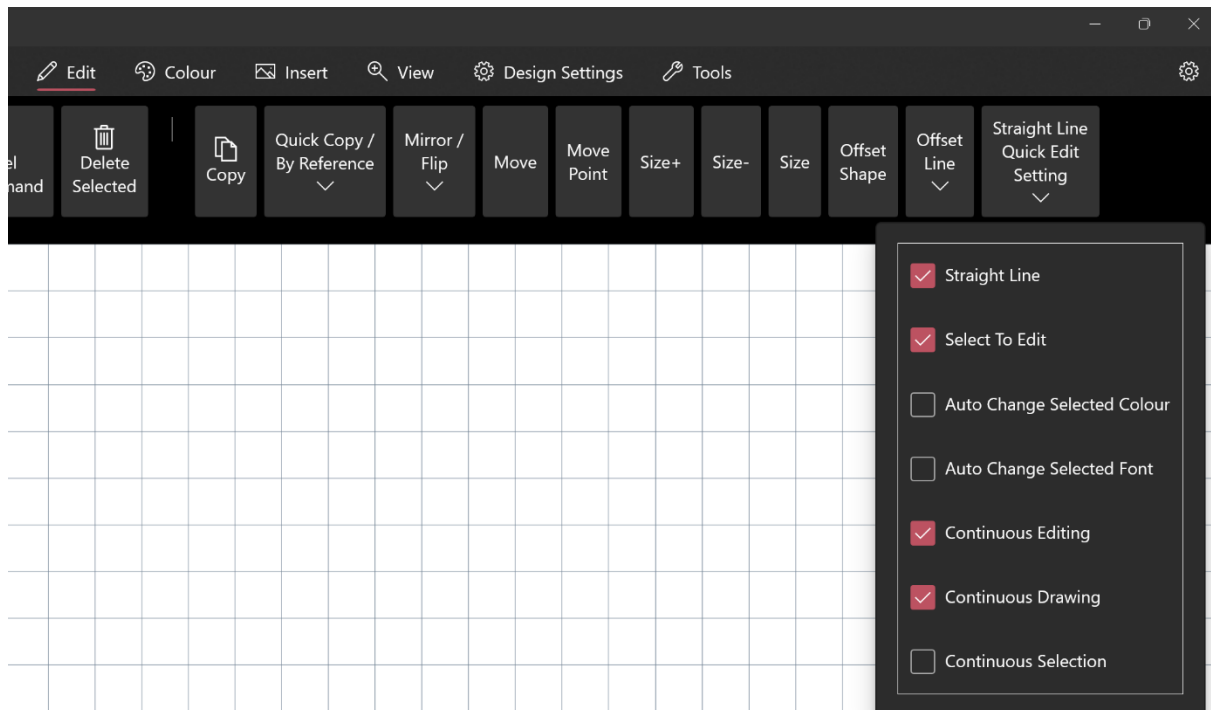


Note:

- Use Move Point button to change the Start Point and End Point by clicking.
- This is not advisable doing structural modelling. If you really need to edit beam span, use the edit beam span methods we discussed in part 1-7 of this manual. But if you still need to edit the Start X, Start Y, End X and End Y, use the bottom properties windows.
- You can use Move Point button for ordinary lines.

31. Draw Straight Line

- Click Edit, click Straight Line / Quick Edit Setting button.
- Check Straight Line checkbox



Once the button is checked, any line you draw will be a straight line.