

Simple Drawing setup

Using the Template editor, Layout editor and Drawing Object Level settings

Simple drawing setup.

In the following section, we will be focusing on creating a simple drawing layout.

For this we will create a simple Title Block template and use the Layout Editor to position the template in the required location. This layout will then be used to generate a drawing where we will use the previously created filters and naming conventions to create a style for our drawings which can reflect our drawing office standards.

As you will appreciate, there is a vast amount of information and functionality contained in the drawing system and this is only a small part of that. The processes involved, however, create a foundation to add more automation and control to your drawing presentation. For example, You will be able to explore other settings and add them to the saved setting made here for properties such as Text style, Part Marks, Rebar marks, Reference models etc.

But for now, we will concentrate on this initial foundation setting.

This will be broken down into 3 main sections as it is the largest of the 4 tutorials.

Template. The Template Editor will be used to create a basic Title Block from an existing dwg. This is the simplest method of creating a template. There is an example provided for use but you can follow with your own. Once created we will also map some attributes from Tekla Structures to the Title Block to show how the system populates data from the database.

Layout Editor. Once the template is created a blank GA with no layout will be created and the Layout Editor will be used to add the Title block to the desired location, set the page sizes available and then create the layout to be used in such GA's

Drawing Object Level settings. In the model we will add several objects to the grid. Beams columns of differing material. A GA will be created using the new layout. Once created the required Object - Part drawing properties will be created or existing ones used to create line type, hidden line type and hatching settings required for each object type. These will then be mapped to the objects in the drawing using the Detailed object level settings and the filters created in the earlier lesson to pick them out.

Part One - Templates.

Templates are used within Tekla Structures to pull information stored within the database into usable reports and graphical template layouts such as drawings and Bar Bending schedules.

They can be built to use rules and formulas which can collect, collate, sort and quantify anything you have modelled, any data you have added to the project or drawings, external models and many many more.

In order to create a template, Tekla Structures comes with a program called the Template Editor. We will not go into the finer point of this tool here as we will focus on the required information for building a simple Title Block.

Suffice it to say, there is a wealth of information regarding the Template Editor in TUA and here are a few useful links for your further exploration.

https://teklastructures.support.tekla.com/video-tutorials/en/introduction_to_template_editor

https://teklastructures.support.tekla.com/2020/en/rep_templates

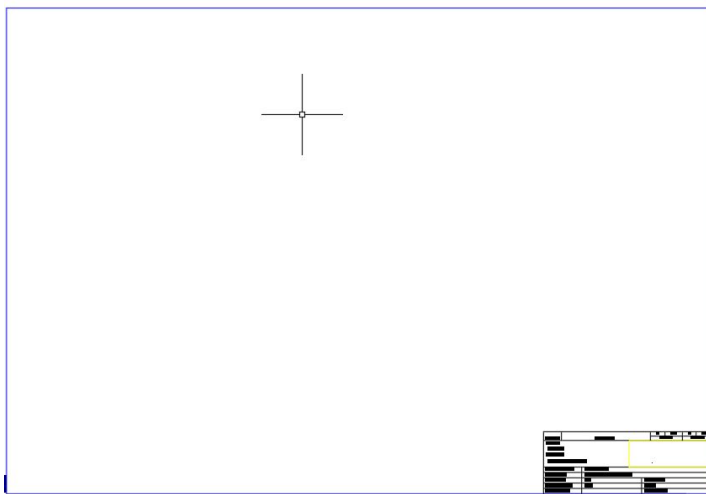
https://teklastructures.support.tekla.com/2020/en/rep_template_editor_user_guide

Creating a template from a drawing.

This is the simplest method for creating a template and will be the one we follow. There is a useful link [here](#) which shows the basic process.

For creating a title block this is the preferred method due to the high likelihood of our users having a previously created dwg template from 2D Cad in a dwg format.

The Template Editor is able to import this and convert the line work to Tekla Structures format and convert any texts. This removes the requirement of drawing the title block again in the Template Editor.



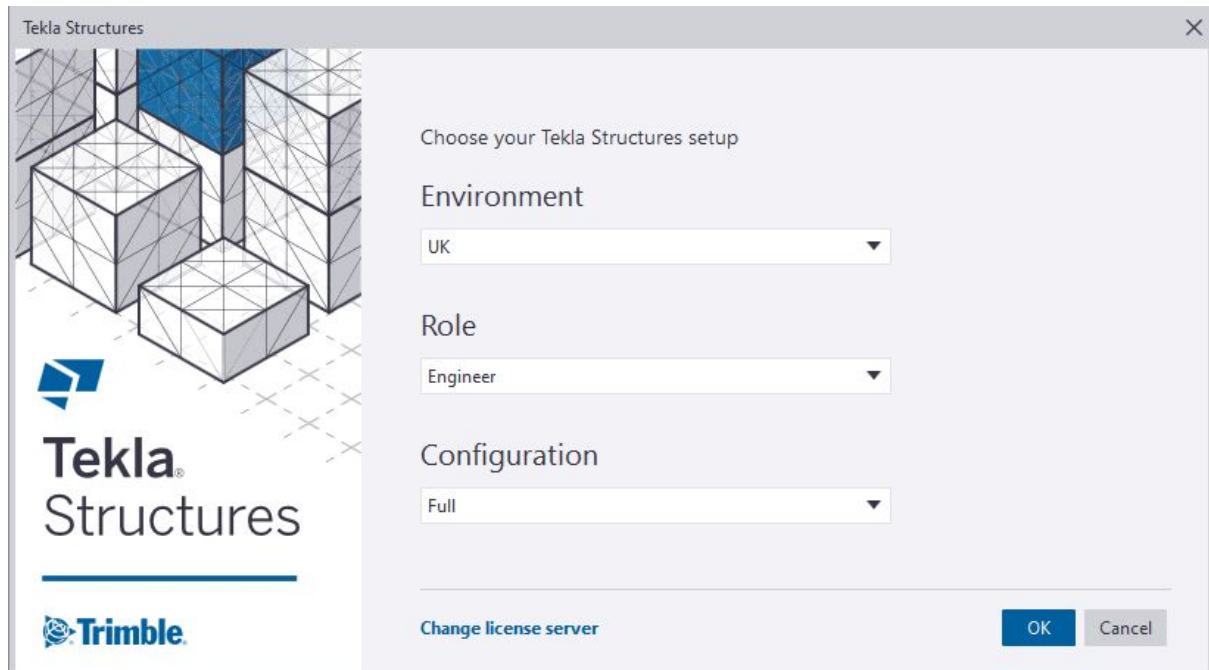
Or if you want to dive straight in then you are able to use one of your own.

Note: DWGs should have their border in the model space.

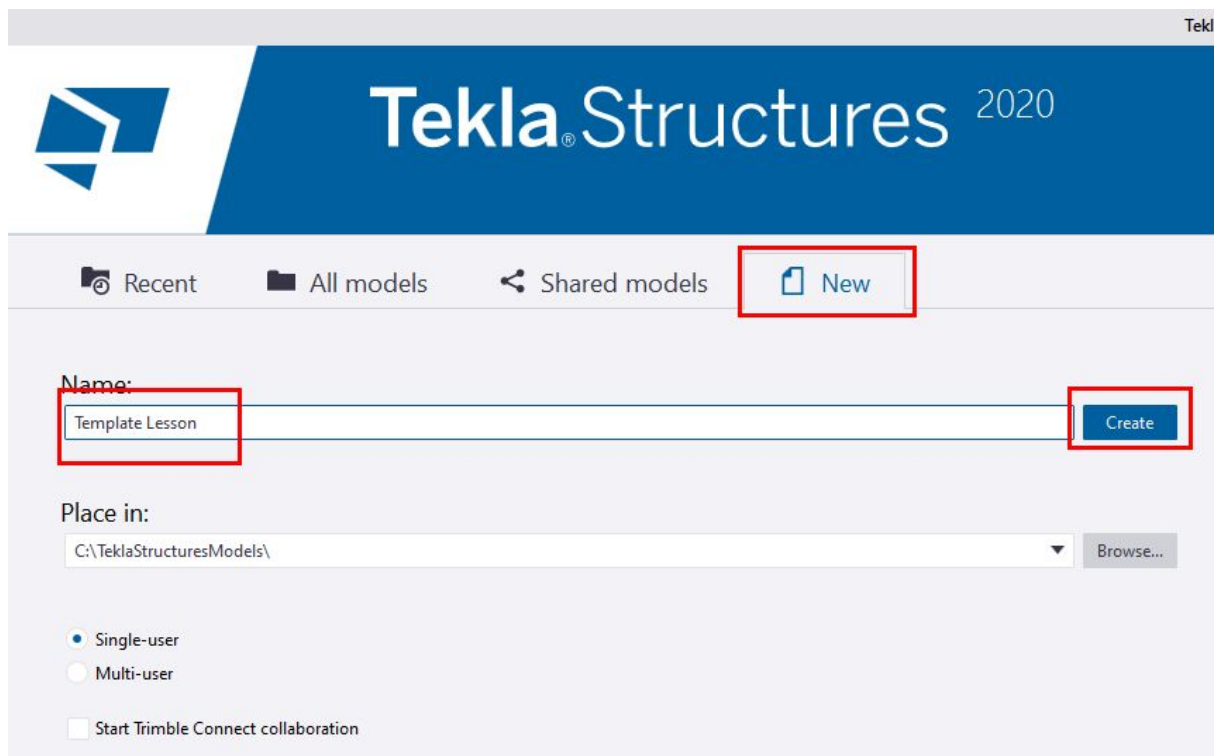
Tutorial.

Step 1.

Open Tekla Structures.

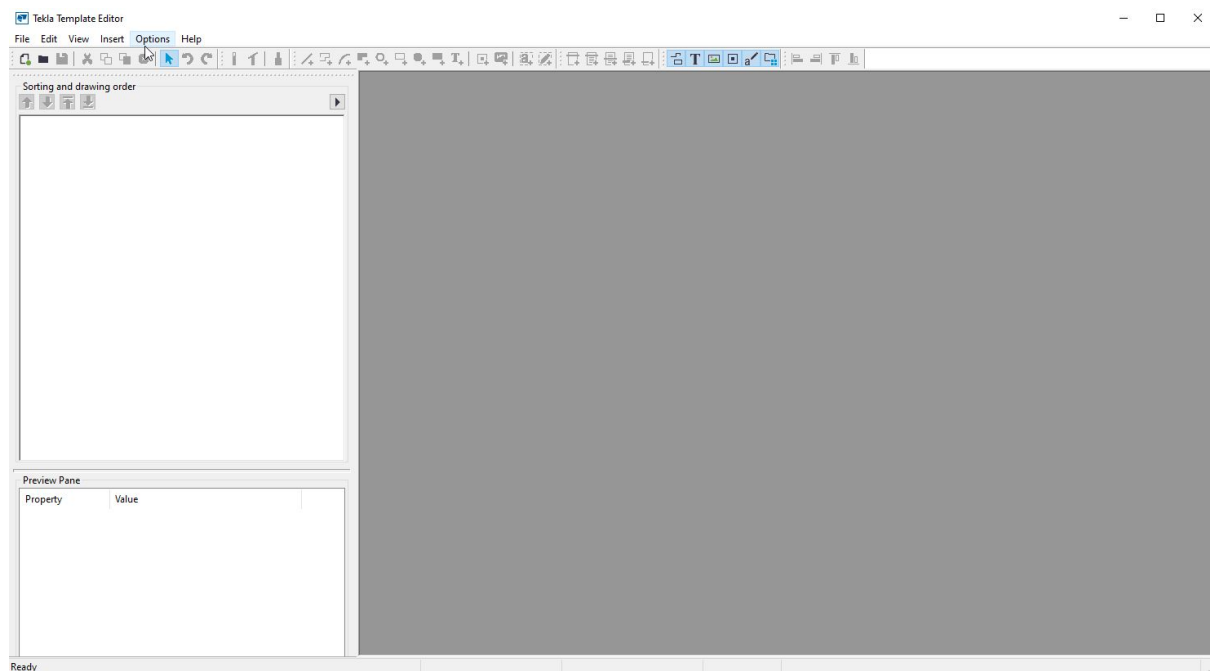
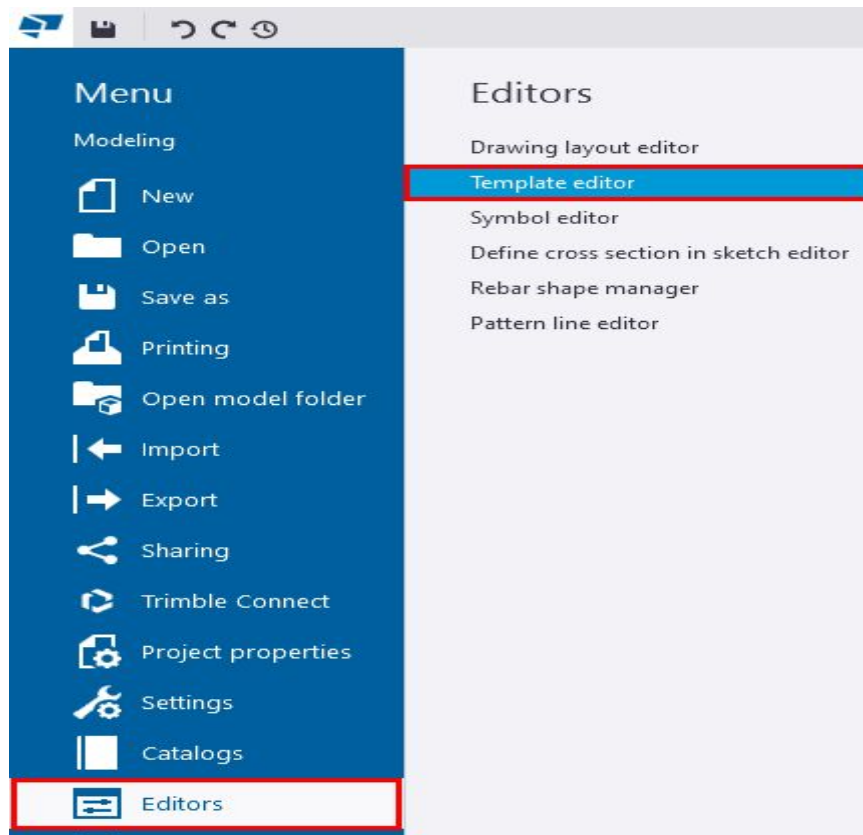


Create a new model - Call it "Template lesson".



In the File menu select - Editors - Template Editor.

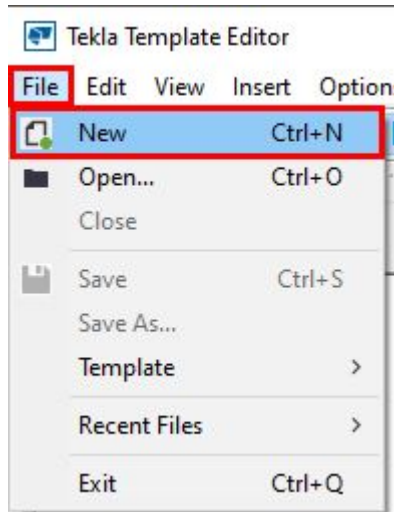
(Opening from here will open your current version of Tekla Structures Template Editor.)



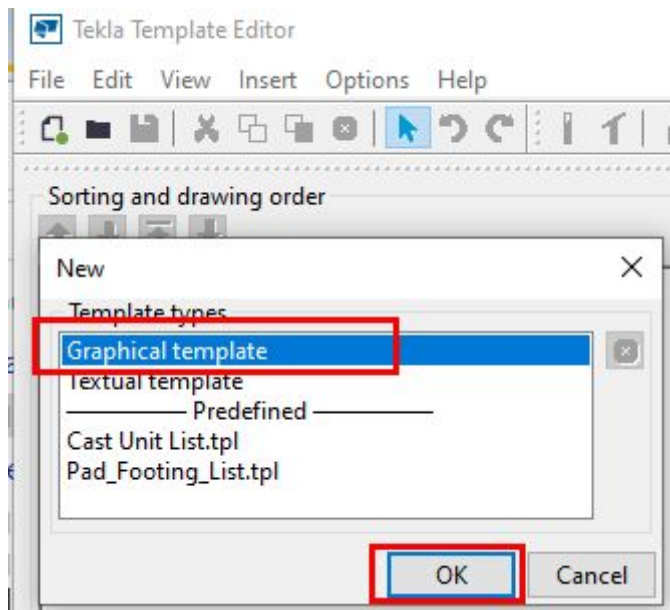
Step 2.

In the Template Editor software create a new Graphical Template.

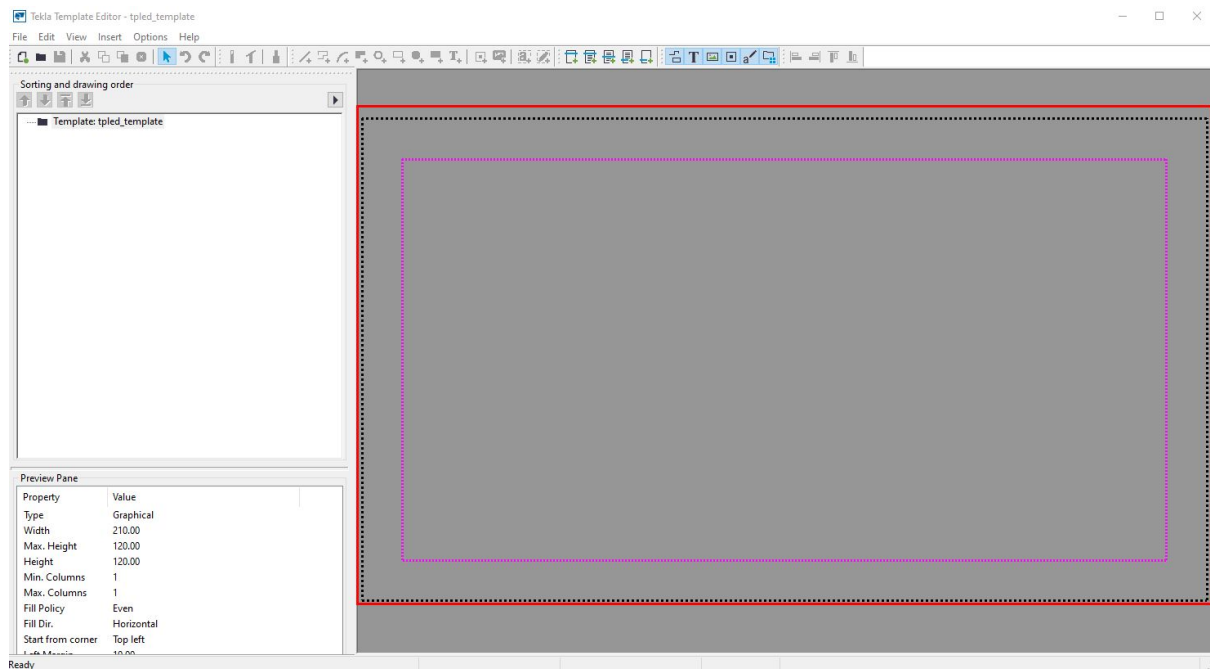
Select - File - New.



Select - Graphical Template.



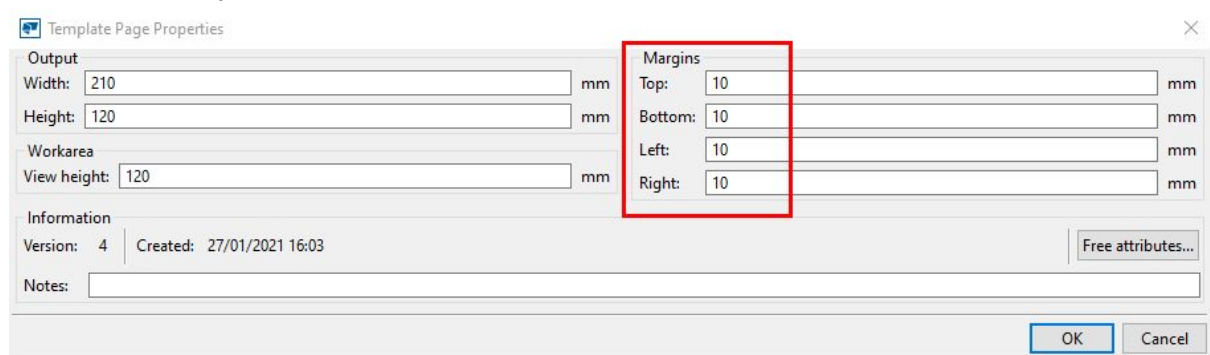
You will see a content area appear in the main window of the Template Editor.



Step 3.

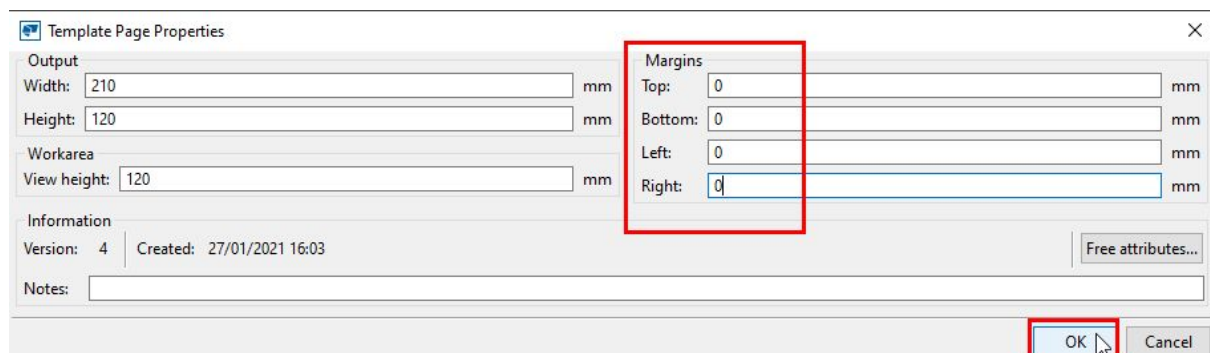
Remove the margins from the template.

The margins are a padding around the template itself which position the content within the defined boundary. We do not want these in the templates so will have to remove them



To do this, double click the background to open the Template Page Properties.

Change the Margins values from 10 to 0 as shown below and click the OK button.



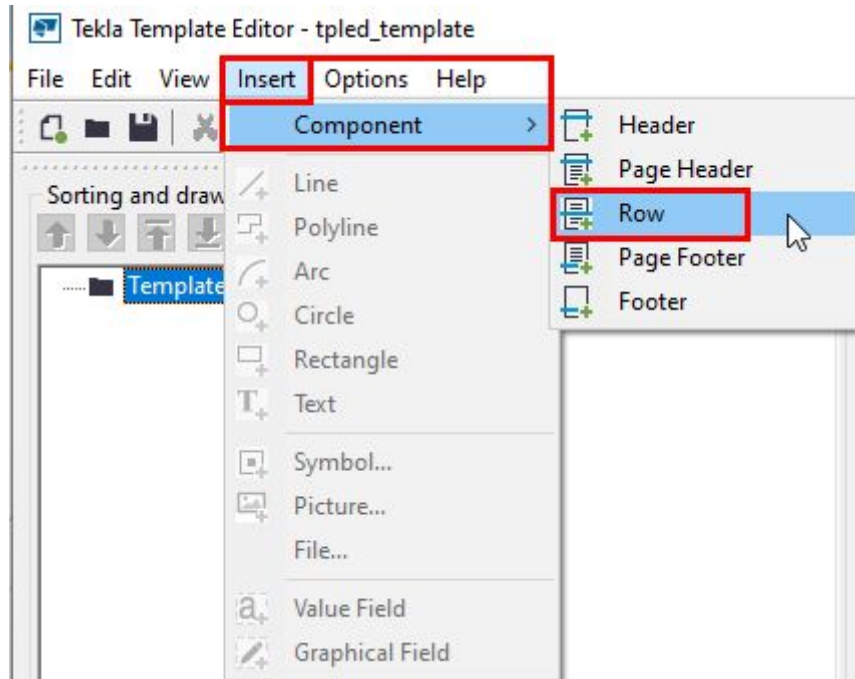
Step 4.

We will now add a content Row to the template.

Rows come in many forms and allow the system to pull data from many different object groups.

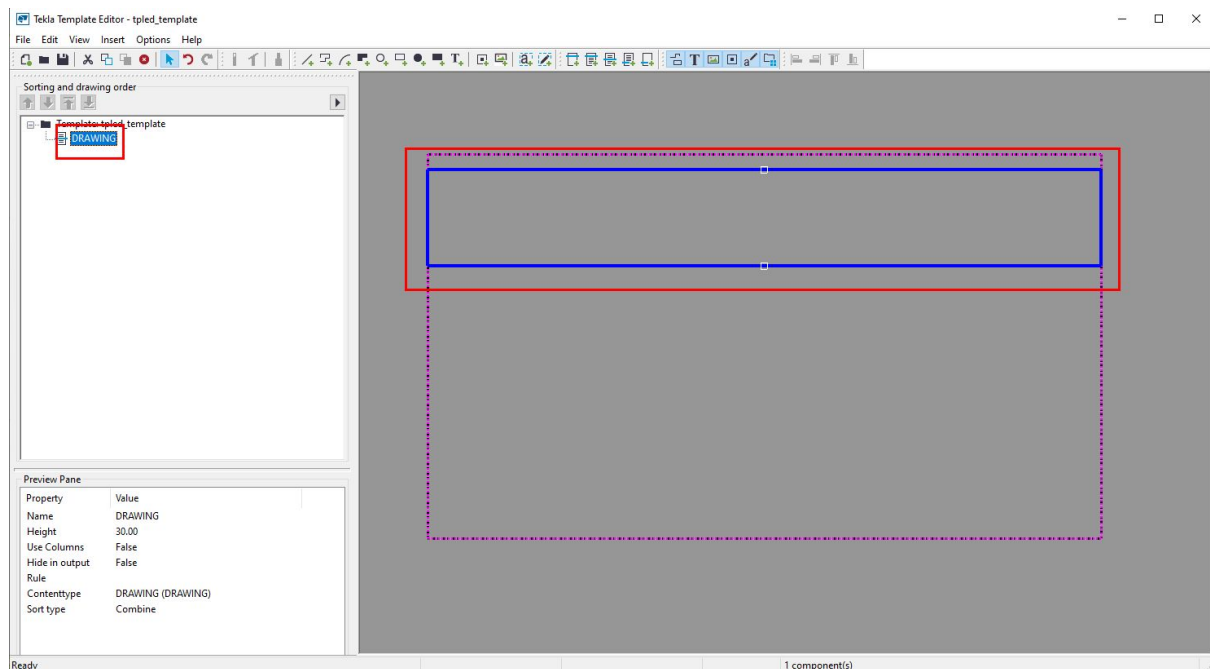
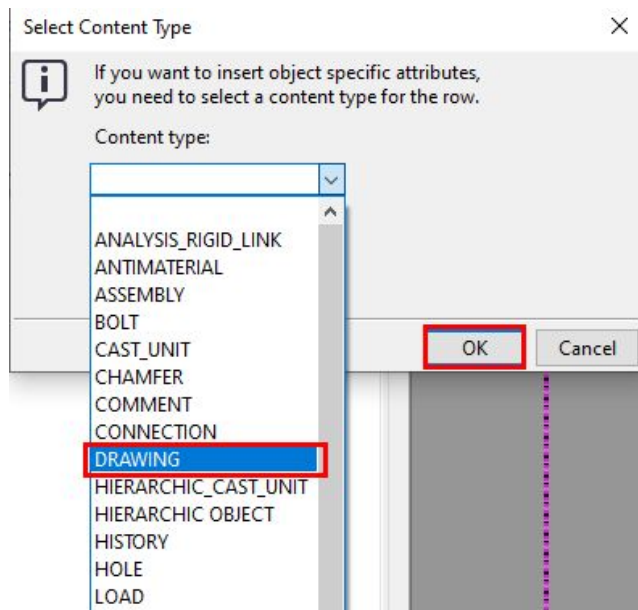
We will create a DRAWING row. This, as the name suggests will pull relevant data from the Drawing.

Select - Insert - Component - Row



A new dialog will open.

Select DRAWING from the dropdown list and click the OK button.



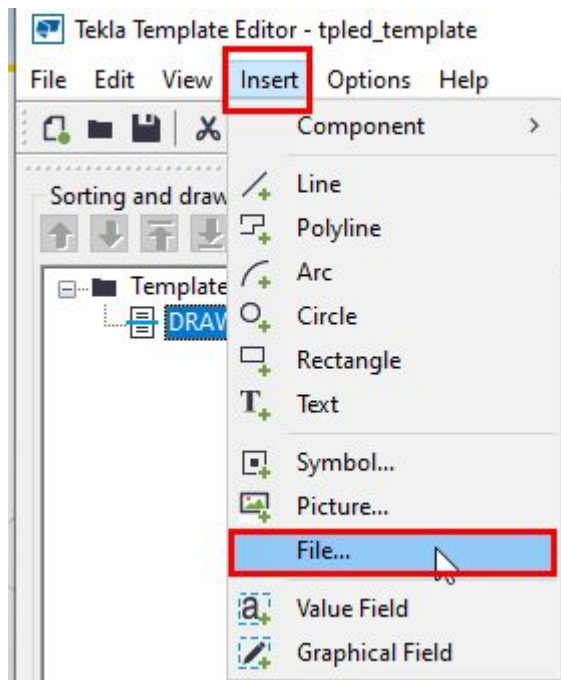
Notice the DRAWING row has been added to the main window but also into the Sorting and drawing order side pane.

Note: You can learn more about the different content type rows, hierarchy and sorting in the links at the beginning of this guide.

Step 5.

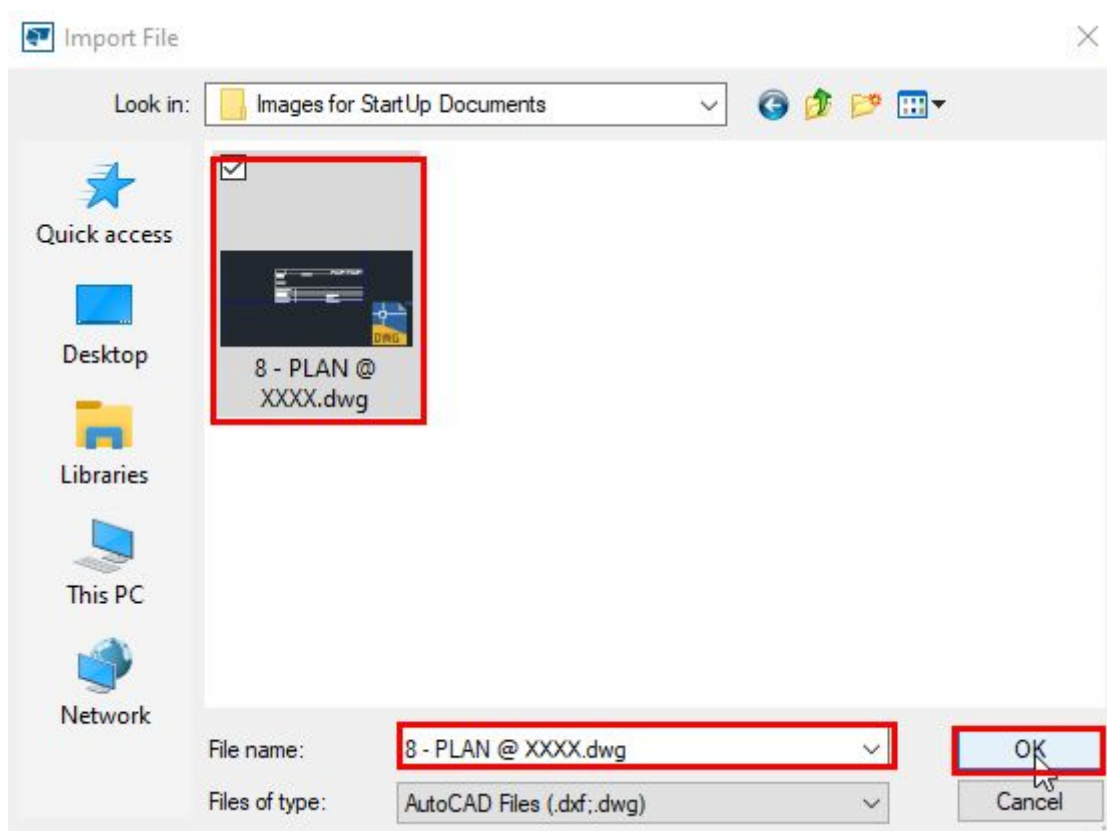
We now need to add the DWG file inside the DRAWING row.

Select - Insert - File

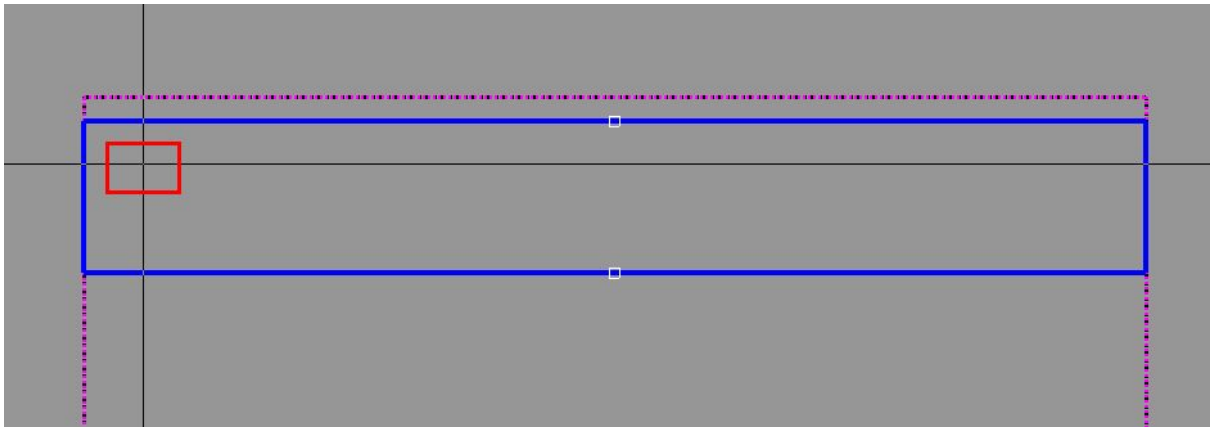


In the Open dialog, browse to your DWG file.
(You can download the one used in this tutorial here - [hyperlink here](#))

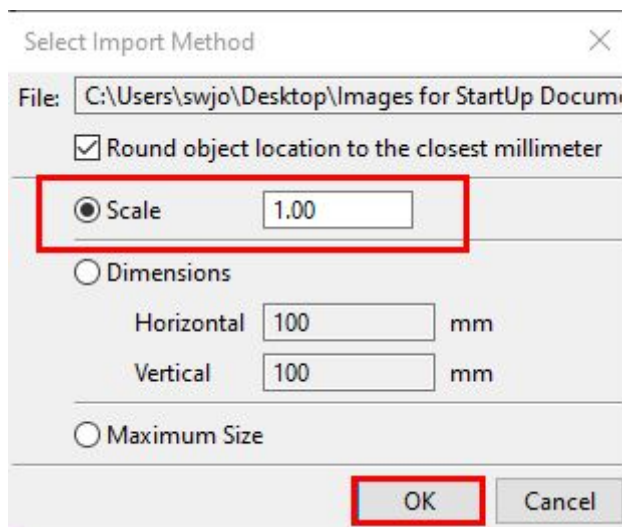
Select the file.
Click OK.



Select a point in the DRAWING row.

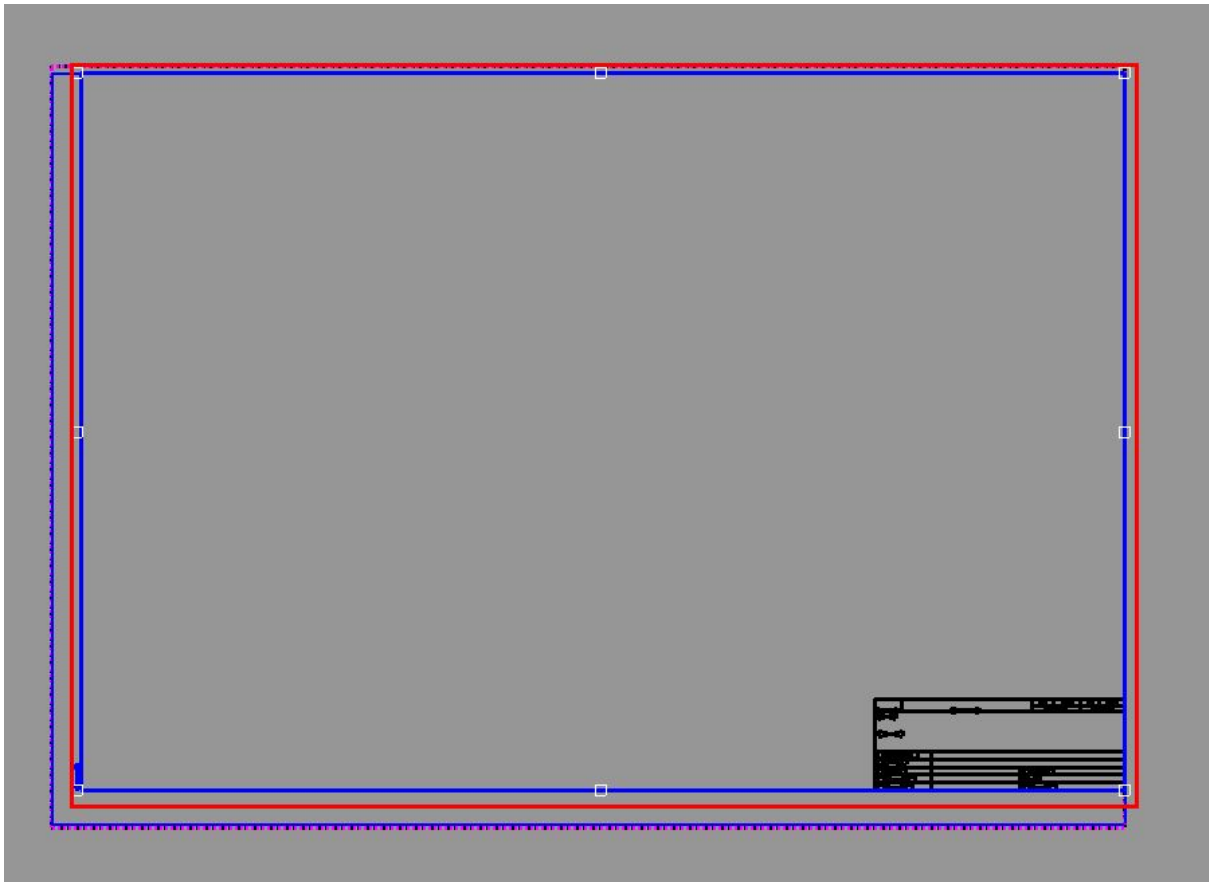


In the next dialog, select the scale 1:1 option and OK.



The DWG will be converted to line work and added into the DRAWING row.

It will look something like this



Step 6.

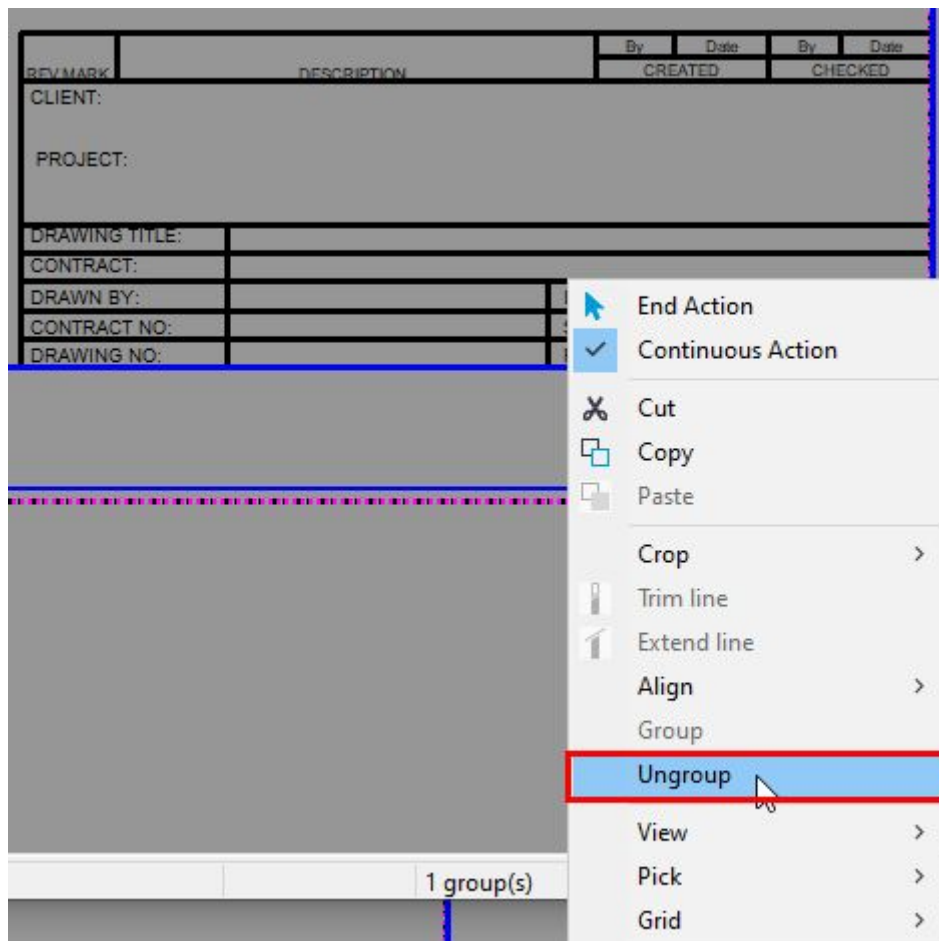
Remove unwanted linework if needed. We are only interested in the Title Block for this tutorial.

REV. MARK	DESCRIPTION	By	Date	By	Date
		CREATED		CHECKED	
CLIENT:					
PROJECT:					
DRAWING TITLE:					
CONTRACT:					
DRAWN BY:		ISSUE DATE			
CONTRACT NO:		SCALE			
DRAWING NO:		REVISION No.			

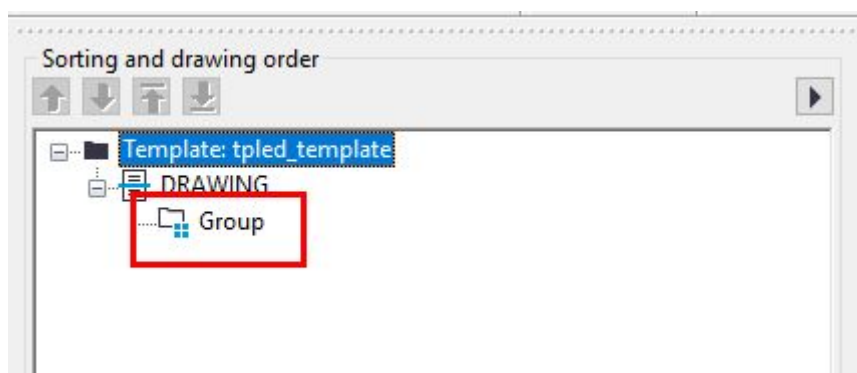
We break down drawing sheets in Tekla Structures into smaller blocks. To do this from an existing dwg we typically remove all other linework and text, leaving the required block. This could, of course, be done prior to inserting into the Template Editor.

Select the inserted file in the DRAWING row.

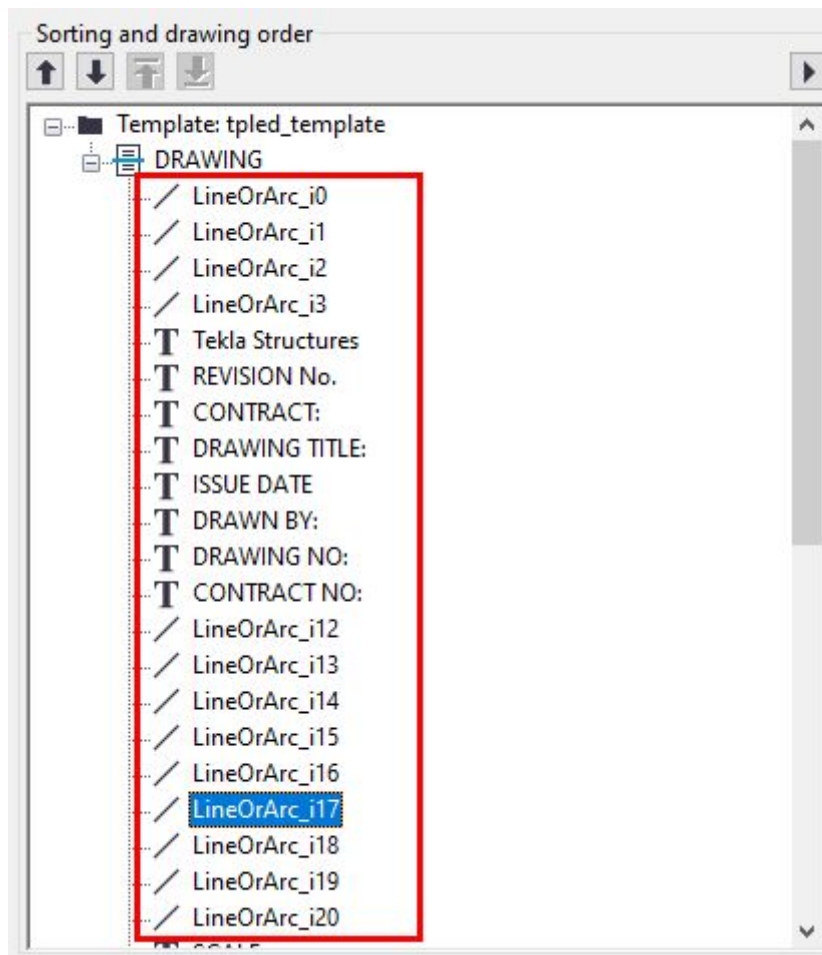
Rightclick - Select - Ungroup.



This will break the inserted block down to lines. You can see this has been done in the side pane. Which will have changed from this:



To this:



Select all lines and texts which you do NOT require and delete them.
You can do this by selecting individual objects or windowing many in the view and pressing the delete key.

In this instance, this will leave us with the title block linework and texts only like below:

A screenshot of a title block template. The template is enclosed in a red rectangular border. Inside, there are several text fields and a table. The fields are: CLIENT, PROJECT, DRAWING TITLE, CONTRACT, DRAWN BY, CONTRACT NO, and DRAWING NO. The table has three columns and three rows. The first row contains 'ISSUE DATE', the second row contains 'SCALE', and the third row contains 'REVISION No.'. A mouse cursor is pointing at the 'ISSUE DATE' field. The template is set against a gray background with a blue border on the right and bottom.

CLIENT:		
PROJECT:		
DRAWING TITLE:		
CONTRACT:		
DRAWN BY:		ISSUE DATE
CONTRACT NO:		SCALE
DRAWING NO:		REVISION No.

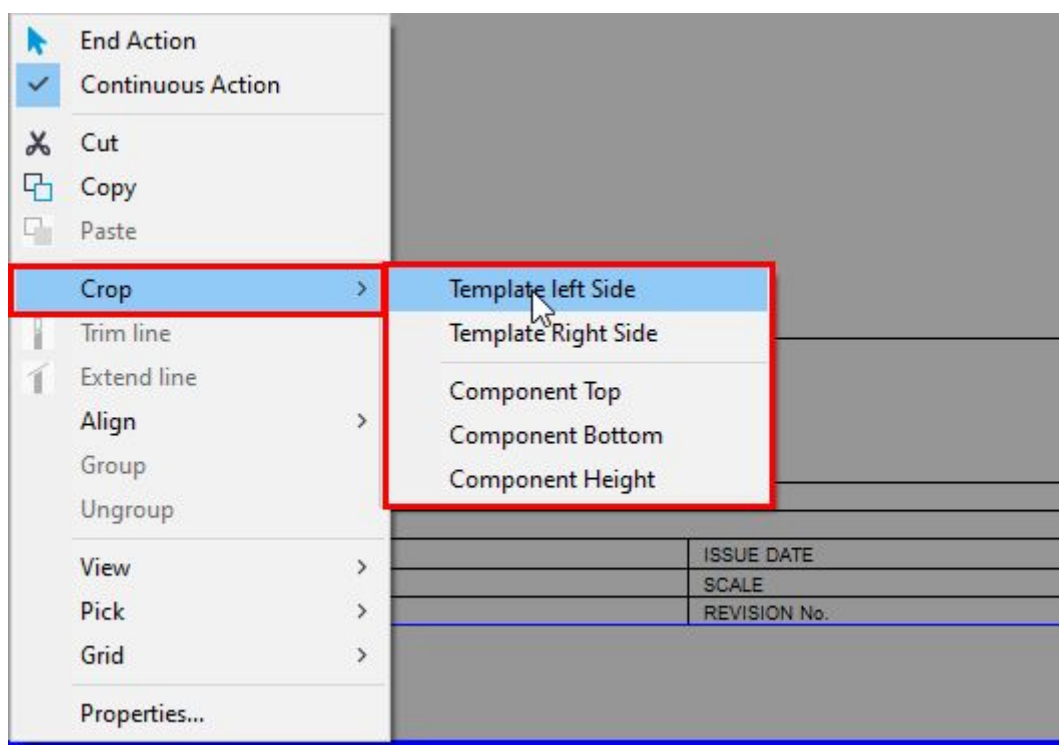
Step 7.

Resize the Row.

At the moment the Row itself is still the size of the original DWG which we imported. We want this to fit the Title Block we now have remaining inside it.

Select the Row.

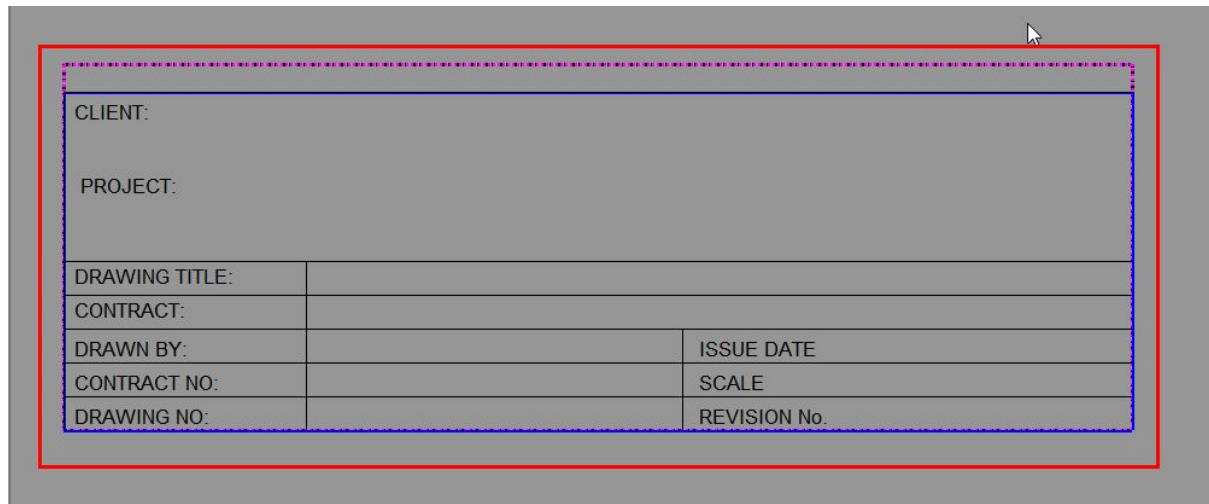
Right click and select crop



Choose Template left side and then repeat for all the remaining options.

Unfortunately this is not a continuous command and you will have to perform it each time for each side and the height.

Once done the template should look like this:



The image shows a drawing template layout within a gray rectangular frame. A red solid border encloses the entire content area. Inside this, a blue dashed border outlines the specific fields. The layout includes:

- A large rectangular area at the top for 'CLIENT:' and 'PROJECT:'.
- A table below with the following structure:

DRAWING TITLE:		
CONTRACT:		
DRAWN BY:		ISSUE DATE
CONTRACT NO:		SCALE
DRAWING NO:		REVISION No.

We are left with the finished linework and are ready to add template attributes.

Step 8.

Valuefields.

Value Fields are containers for information used by Tekla Structures. We can call the contents of these containers by adding the desired attribute property to the valuefield.

For Example, If we want to display the information we have added to the Project Number field in the Models Project properties area we will use the PROJECT.NUMBER attribute in the required valuefield.

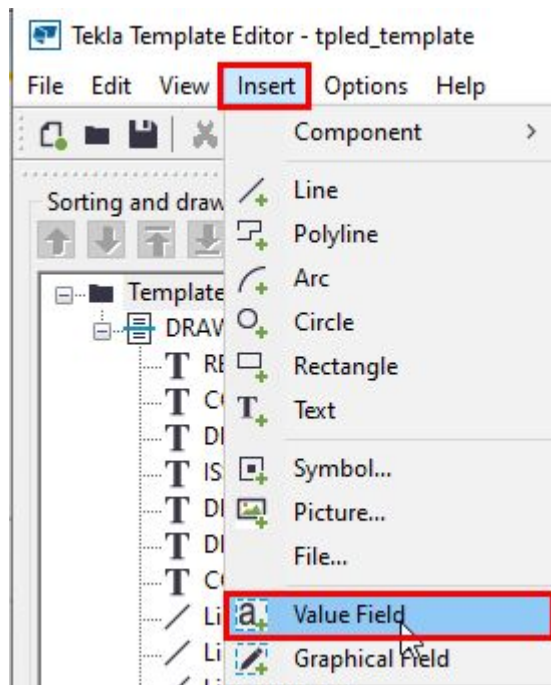
We will add a few to the template here but using the same process you will be able to add all that you require.

We will add Project and Drawing attributes.

- Project Number
- Project Name
- Drawing Name

The process is the same for all of these and you can continue to other properties as you need to.

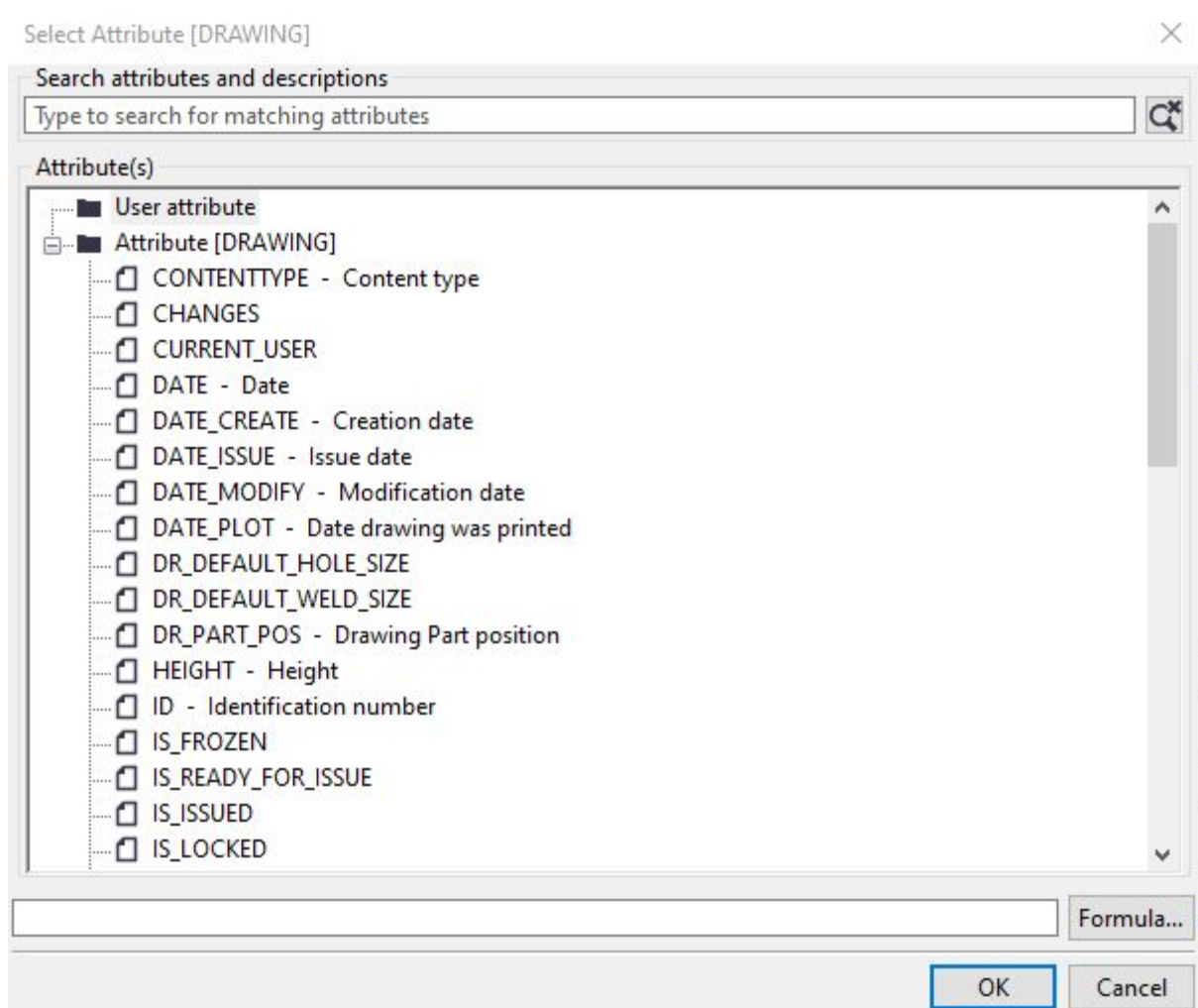
Select the Insert menu and value field.



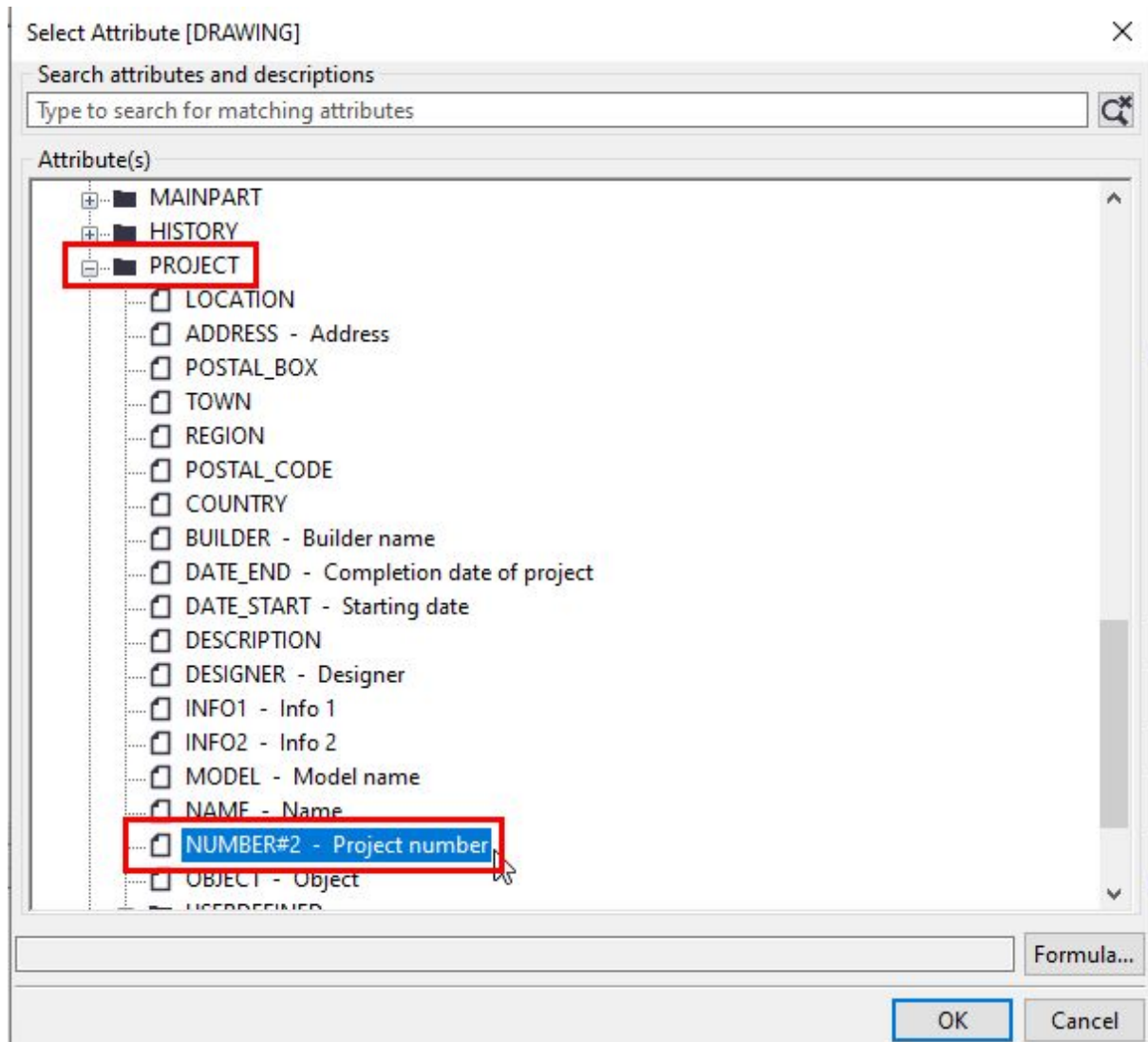
Place the value field in the free space adjacent to the CONTRACT NO: text.

CLIENT:		
PROJECT:		
DRAWING TITLE:		
CONTRACT:		
DRAWN BY:		ISSUE D.
CONTRACT NO:	Value Field	SCALE
DRAWING NO:		REVISIO

The value field Select Attribute dialog box will open where you can select an attribute with default properties.

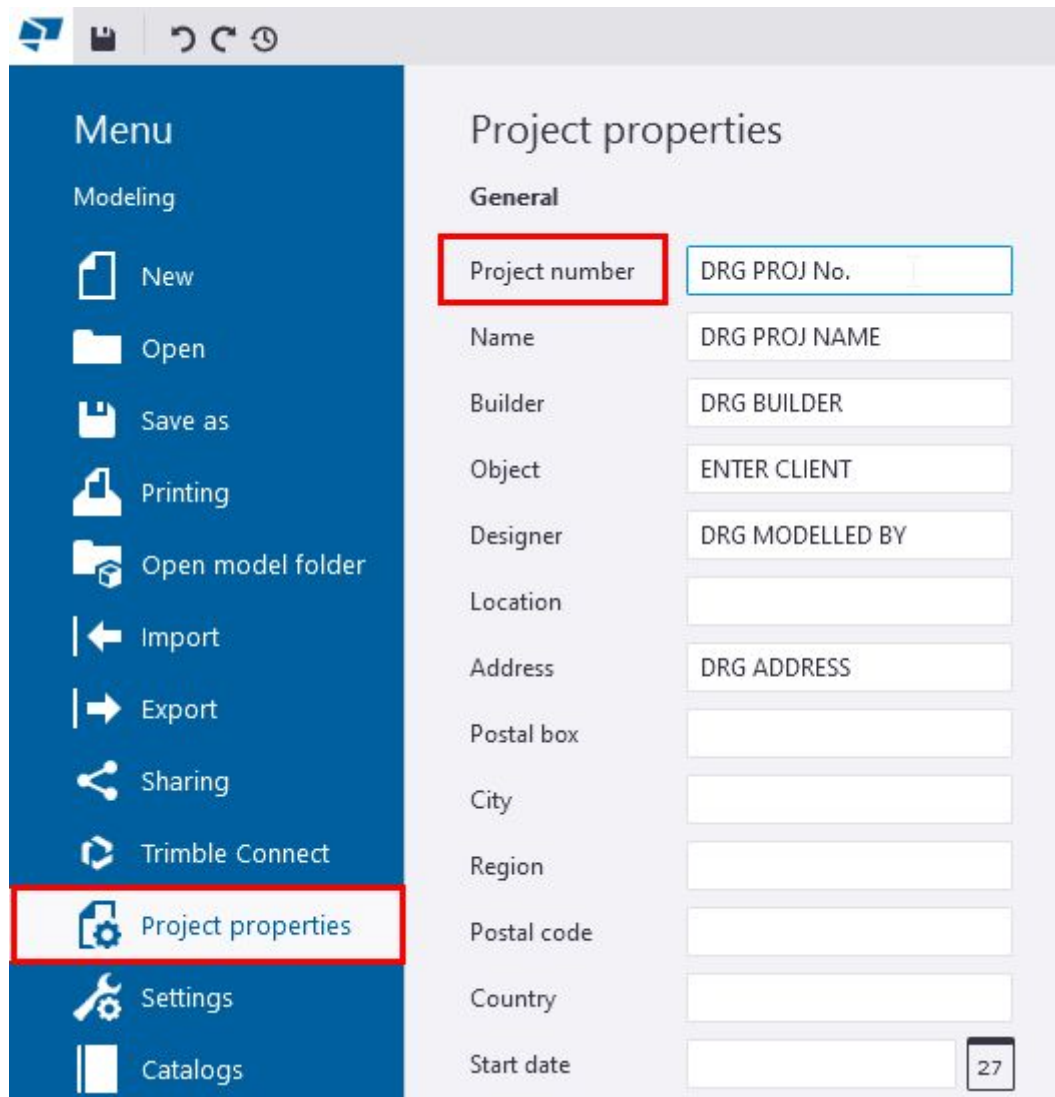


We are adding a Project level property here so will need to scroll down to the PROJECT folder, expand it and choose the relevant attribute. In this case the NUMBER attribute.



Select this and click OK.

This relates to the Project number from the Project Properties in Tekla Structures found in its File Menu.

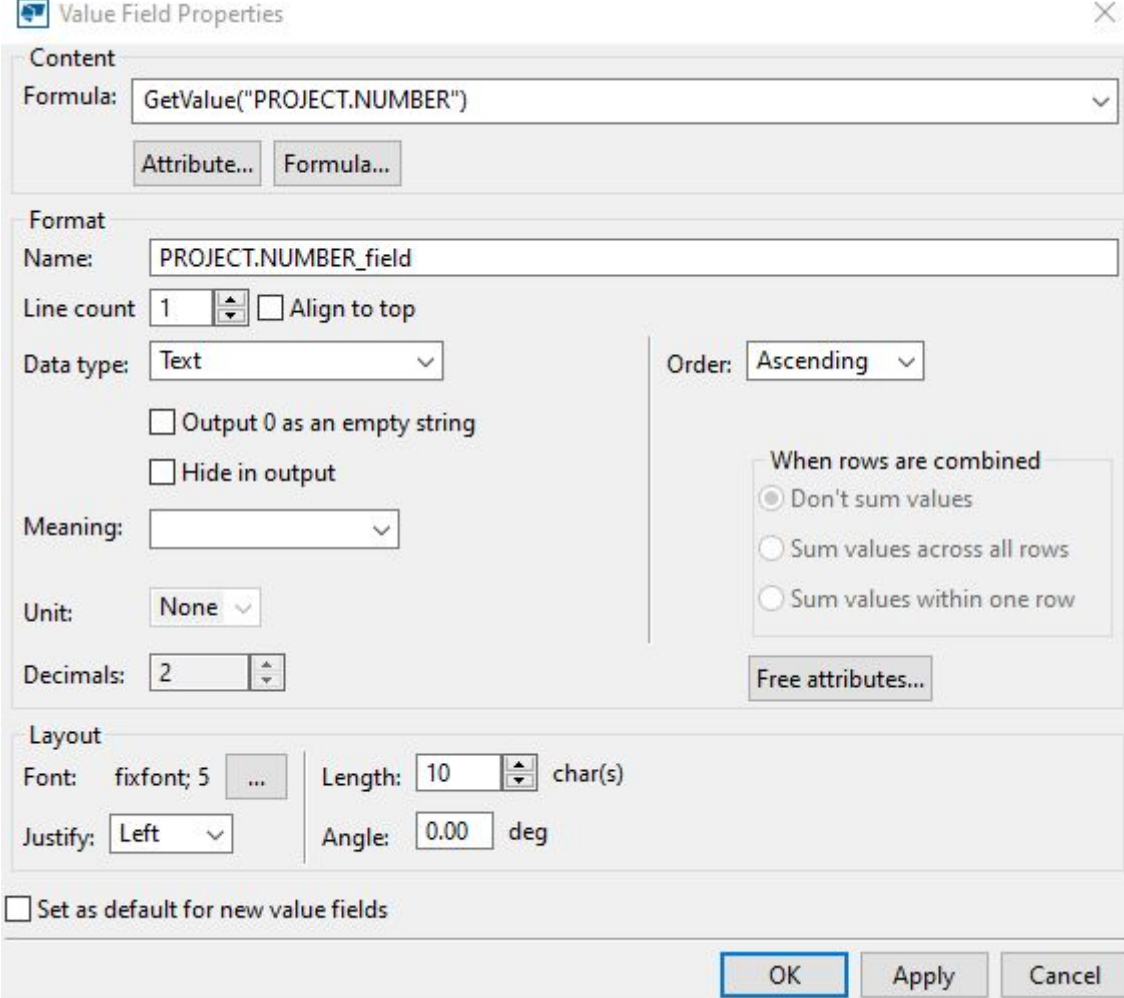


The screenshot shows the Tekla Structures software interface. On the left is a blue 'Menu' sidebar with various options. The 'Project properties' option is highlighted with a red rectangular box. On the right is the 'Project properties' dialog box. The 'General' tab is selected. The 'Project number' field is highlighted with a red rectangular box and contains the text 'DRG PROJ No.'. Other fields in the dialog include 'Name' (DRG PROJ NAME), 'Builder' (DRG BUILDER), 'Object' (ENTER CLIENT), 'Designer' (DRG MODELLED BY), 'Location', 'Address' (DRG ADDRESS), 'Postal box', 'City', 'Region', 'Postal code', 'Country', and 'Start date' (with a calendar icon showing 27).

Project properties	
Project number	DRG PROJ No.
Name	DRG PROJ NAME
Builder	DRG BUILDER
Object	ENTER CLIENT
Designer	DRG MODELLED BY
Location	
Address	DRG ADDRESS
Postal box	
City	
Region	
Postal code	
Country	
Start date	27

We want to change the properties of this value field to suit out drawing office standards for example.

Double click the newly added Value field. The Value Field Properties dialog will open.



The image shows the 'Value Field Properties' dialog box, which is used to configure the output of a value field. The dialog is organized into several sections: 'Content', 'Format', 'Layout', and a 'Set as default' checkbox at the bottom. The 'Content' section contains a 'Formula' dropdown set to 'GetValue("PROJECT.NUMBER")' and buttons for 'Attribute...' and 'Formula...'. The 'Format' section includes a 'Name' field with 'PROJECT.NUMBER_field', a 'Line count' spinner set to 1 with an 'Align to top' checkbox, a 'Data type' dropdown set to 'Text', an 'Order' dropdown set to 'Ascending', and checkboxes for 'Output 0 as an empty string' and 'Hide in output'. A 'Meaning' dropdown is also present. The 'Layout' section shows 'Font' set to 'fixfont; 5' with a color picker, 'Justify' set to 'Left', 'Length' set to 10 'char(s)', and 'Angle' set to 0.00 'deg'. A 'Decimals' spinner is set to 2. A 'When rows are combined' section has three radio buttons: 'Don't sum values' (selected), 'Sum values across all rows', and 'Sum values within one row'. A 'Free attributes...' button is located below this section. At the bottom, there is a checkbox for 'Set as default for new value fields' and three buttons: 'OK', 'Apply', and 'Cancel'.

Value Field Properties

Content

Formula: GetValue("PROJECT.NUMBER")

Attribute... Formula...

Format

Name: PROJECT.NUMBER_field

Line count: 1 ☐ Align to top

Data type: Text

Order: Ascending

☐ Output 0 as an empty string

☐ Hide in output

Meaning:

Unit: None

Decimals: 2

When rows are combined

☒ Don't sum values

☐ Sum values across all rows

☐ Sum values within one row

Free attributes...

Layout

Font: fixfont; 5 Length: 10 char(s)

Justify: Left Angle: 0.00 deg

☐ Set as default for new value fields

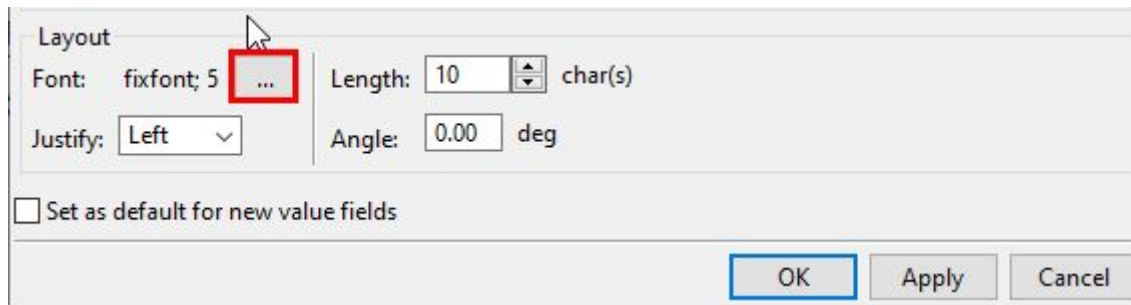
OK Apply Cancel

In this dialog you can control properties of the value field output, such as:

- Attribute used
- Formulas (if required)
- Data Type - Text, Number, Number
- Meaning - Length, Weight, Volume, Date/Time etc with decimals
- Order - Ascending, Descending, None
- Layout - Font, size colour etc, Justify, Length etc

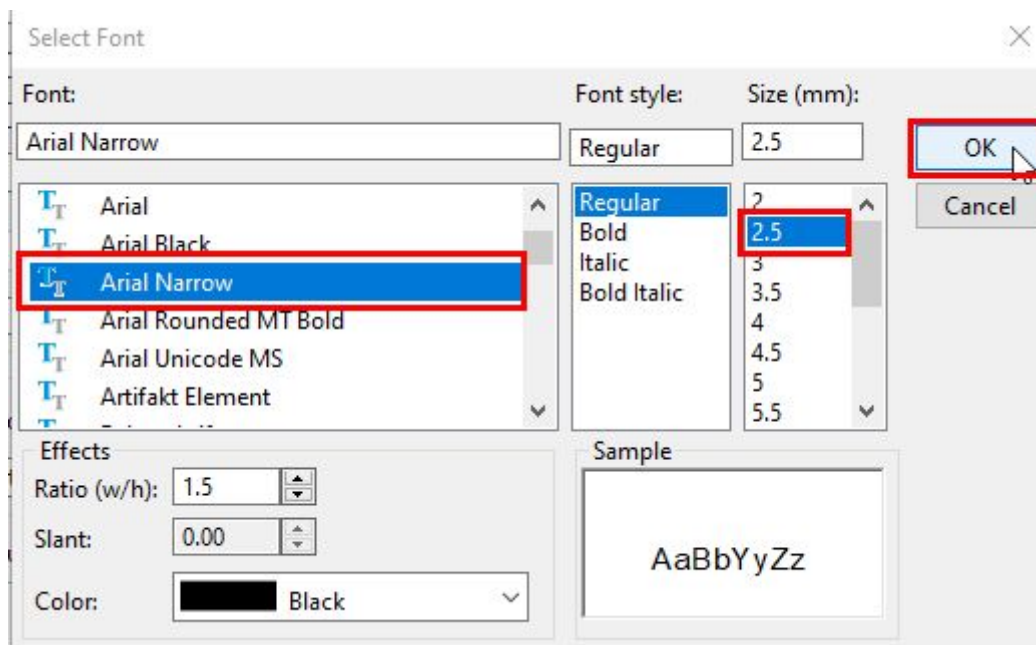
We will change the text properties.

At the bottom of the dialog next to the font and text height, click the ... button



Amend the text properties to suit your standards.

For example, Ariel Narrow and height 2.5



OK this sub-dialog and then Apply and OK the main dialog.

Step 9.

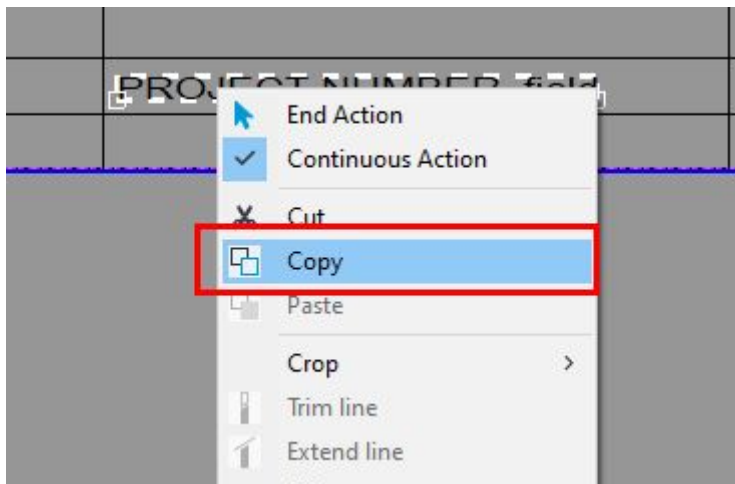
Repeat the above process for Project Name and Drawing Title.

Note: the Drawing Name attribute equates to TITLE in the attributes list.

Tip: If able you should copy an existing Value field and paste it and then amend the attribute to the desired one. This way font etc is preserved.

Select the Project Number valuefield.

Right click and select Copy

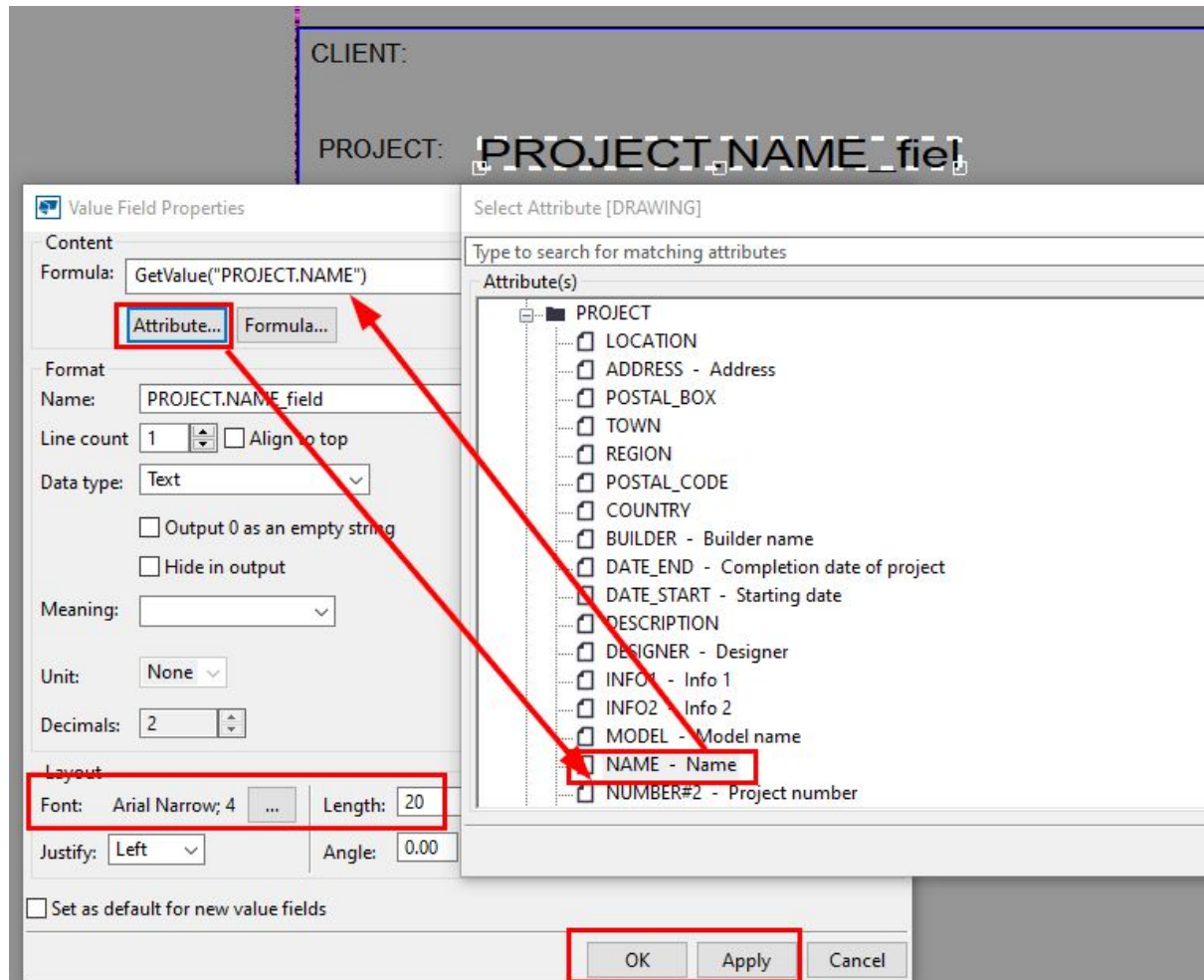


Paste the copied field next to the PROJECT text in the template.

Double click the value field

Click the Attribute button and select PROJECT → NAME.

You can also change the font size if required.



Click Apply and OK

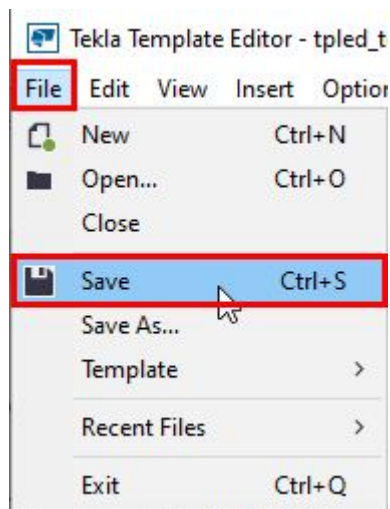
Repeat the process for the DRAWING → TITLE attribute.

You can continue with this process in order to fill out all of your requirements. The process, however, is the same so for the purpose of the tutorial, we will finish the editing process here.

Step 10.

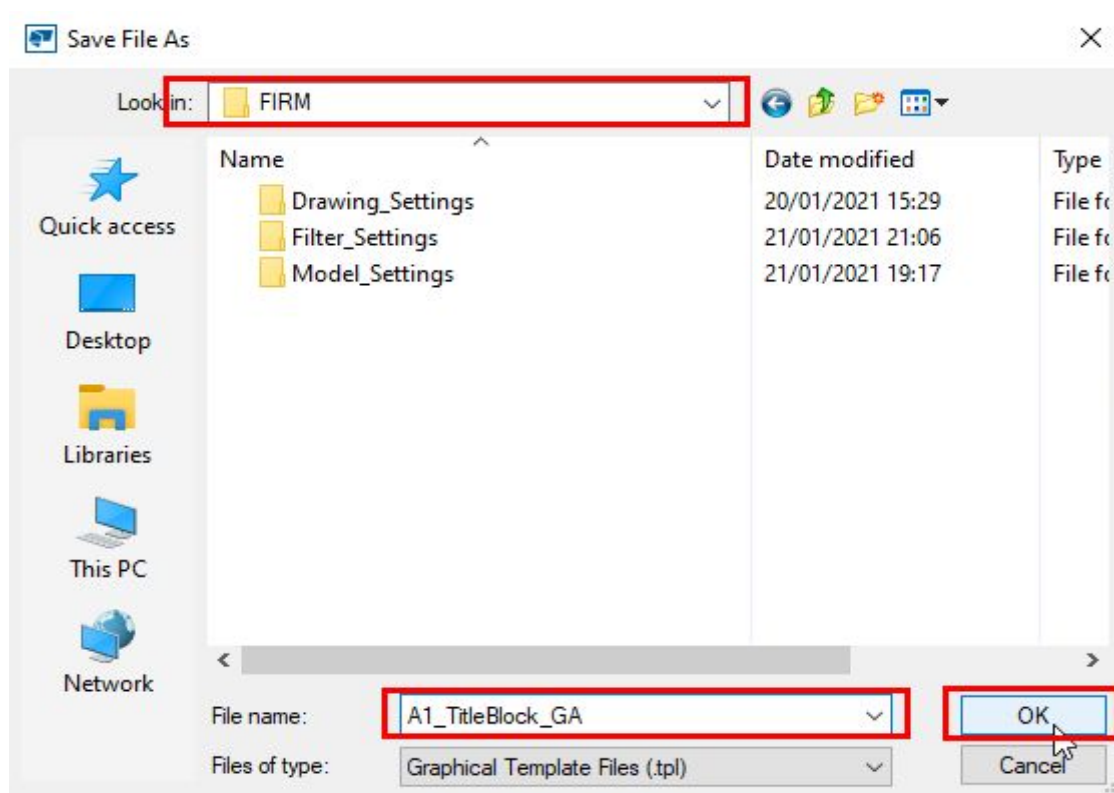
Save the file to the firm folder created earlier.

Open File - Save or click the Save icon



Browse to the location of your Firm folder.

Call the file A1_TitleBlock_GA (or relevant name) then click OK.



We will be able to test the file working after completing the next tutorial.

Part Two - Drawing Layout Editor.

The Drawing Layout Editor is a tool within Tekla Structures which we use to create drawing borders, bar bending schedules, automated tables etc.

In this section we will use the Drawing Layout Editor to create our drawing sheet with the Title Block created in the previous section.

This will be a simple introduction to the process of creating a layout, creating a drawing paper size to be used and then adding tables (our template) to this drawing layout.

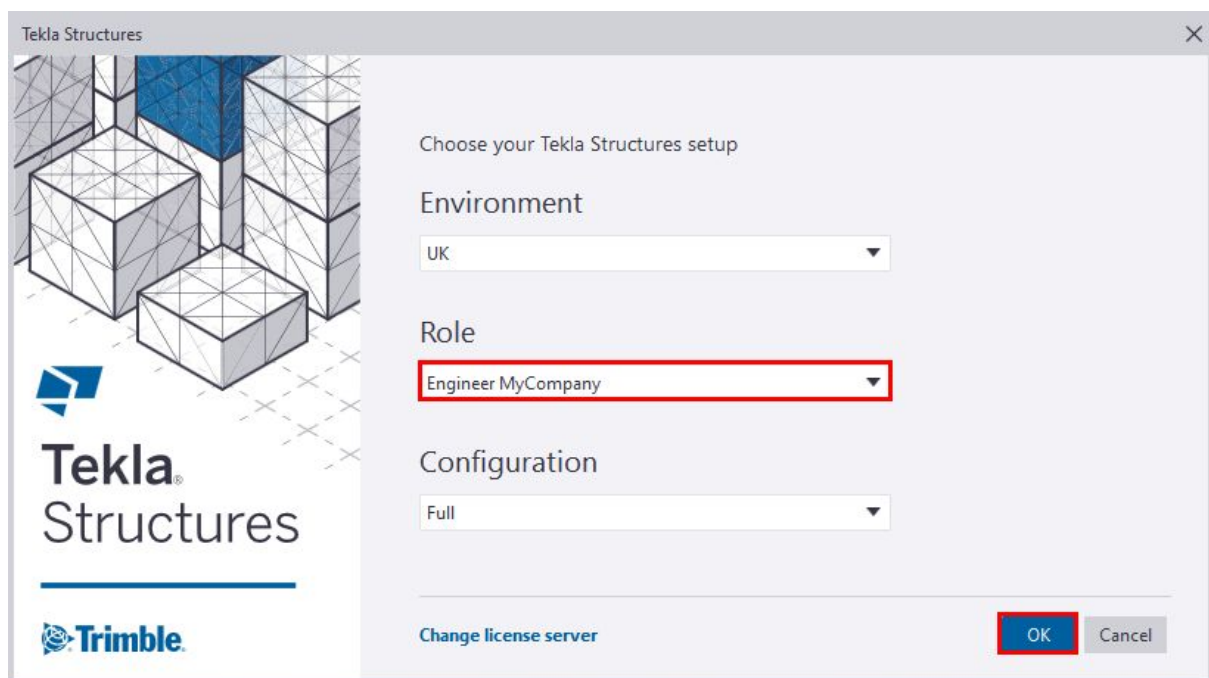
There is also an excellent guide to the Layout Editor in Tekla User Assistance which goes through many more functionalities of this tool. This is advised reading for those looking to administer the Tekla Structures software.

https://teklastructures.support.tekla.com/2021/en/dra_edit_drawing_layouts

Tutorial.

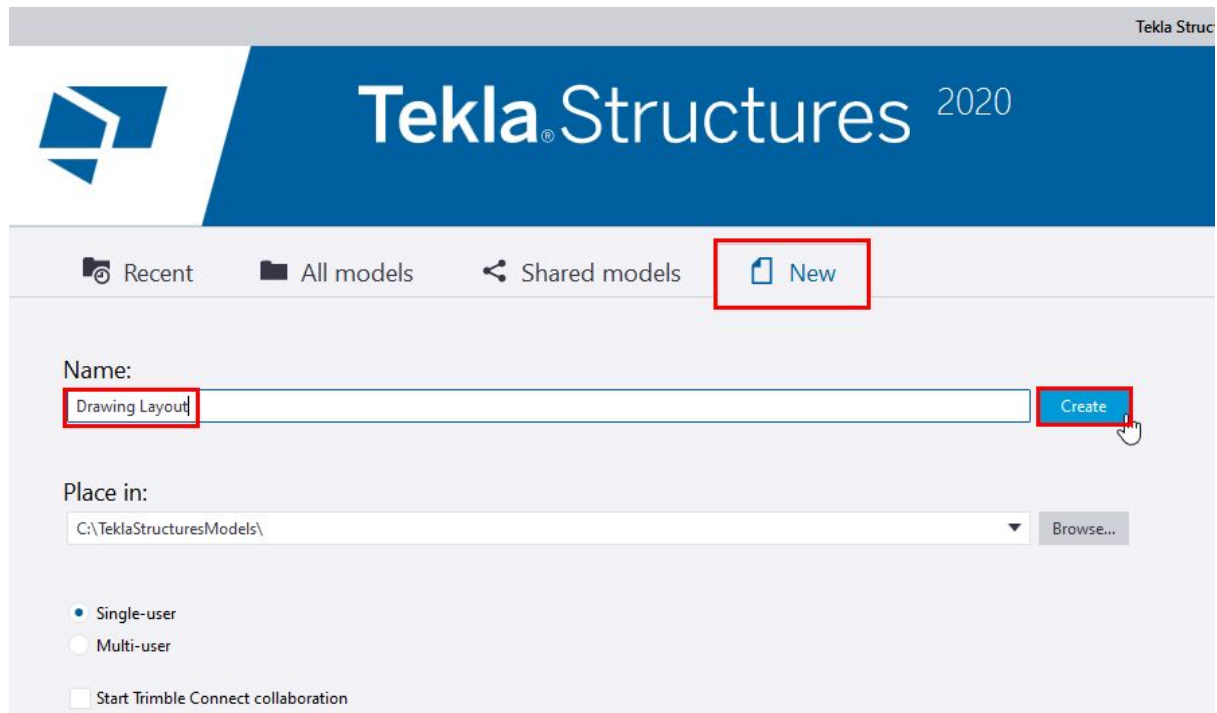
Step 1.

Open Tekla Structures ensuring that you are using the role created to use your firm folder. This will start up Tekla Structures with the files we have previously created in this guide.



Step 2.

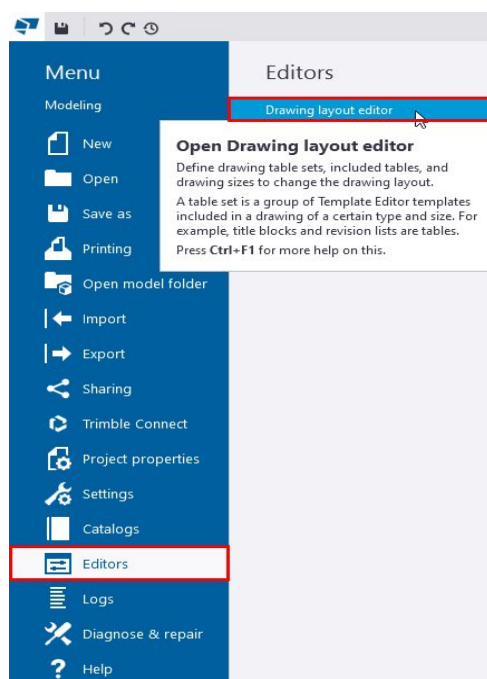
Create a new model and call this model - Drawing Layout.



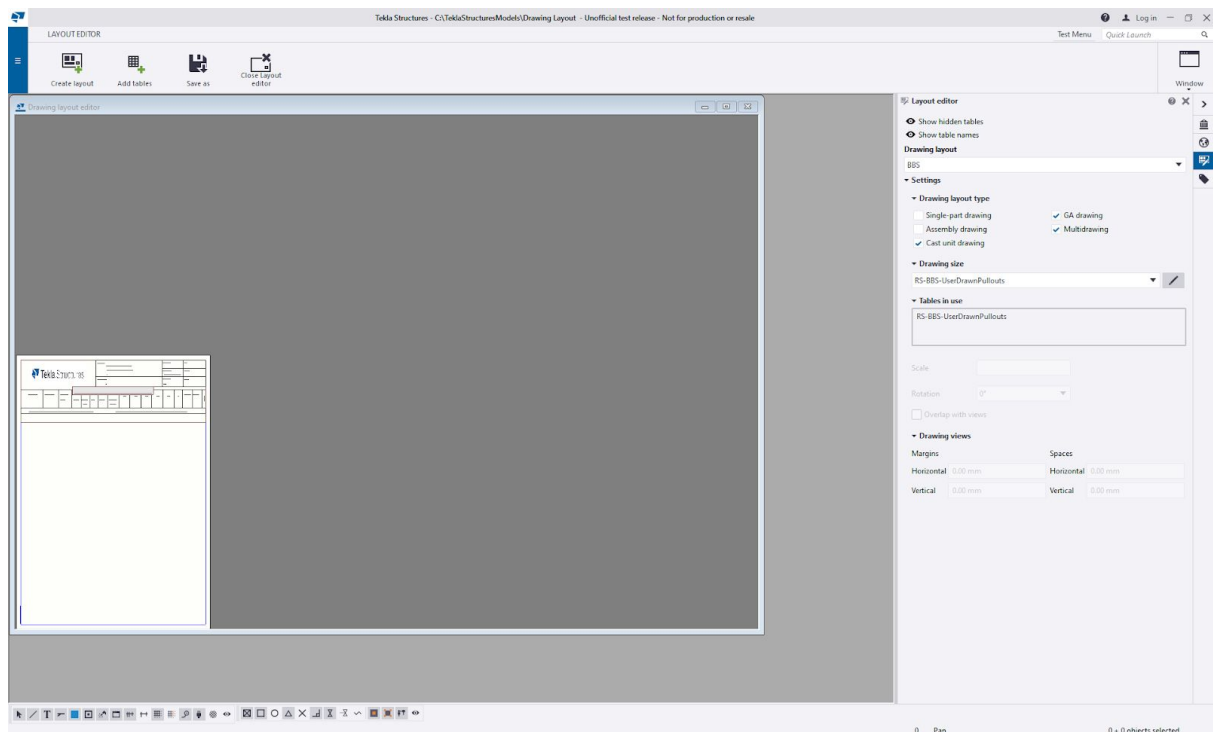
Step 3.

Open the Drawing Layout Editor.

Open the File Menu → Select Editors → Drawing Layout Editor.



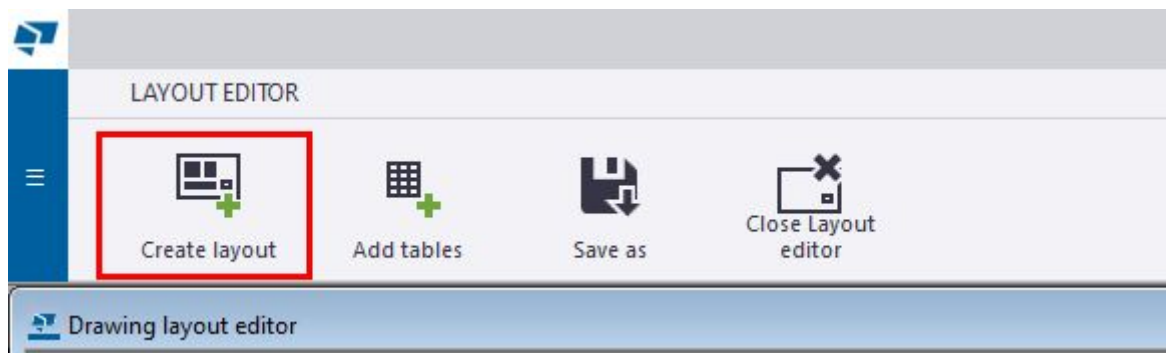
This will open the editor window. It will automatically open with a predefined layout from your installation.



Step 4.

Create a new layout.

Click the Create Layout button on the tools ribbon.

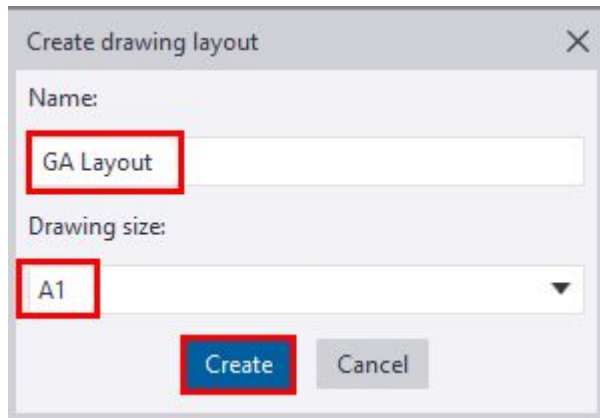


In the Create drawing layout dialog box give the layout a name and select a drawing size.

Name - GA Layout

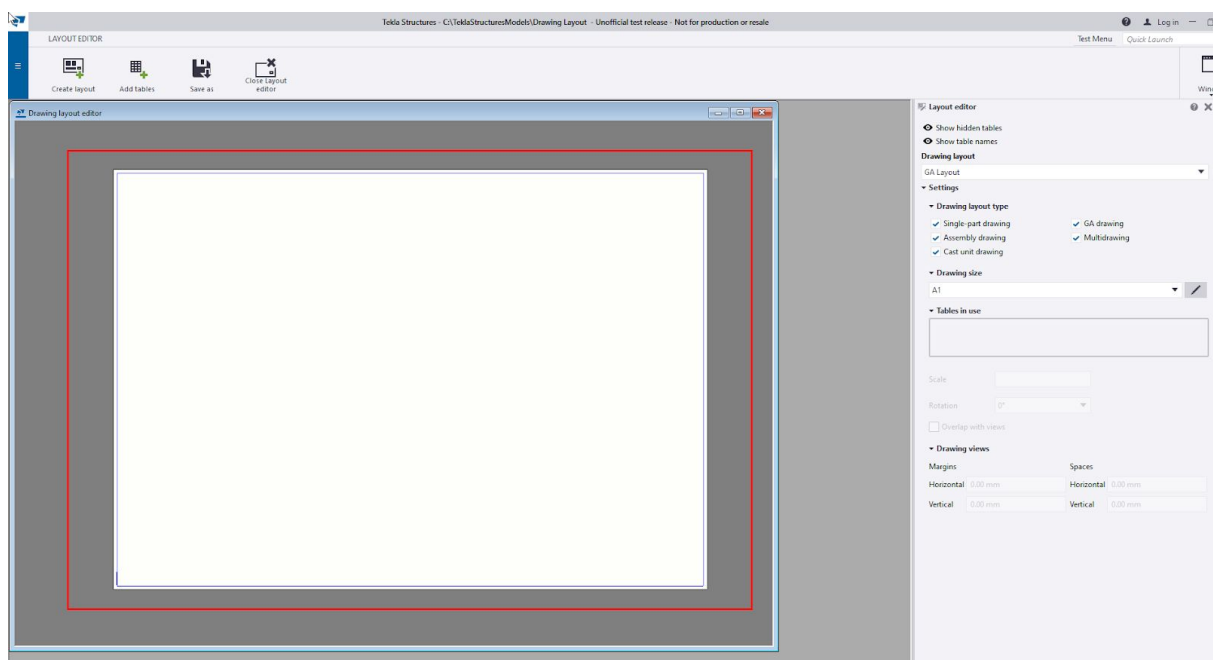
Drawing size - A1

Click Create



Note that the drawing layout can contain several page sizes and each size can contain differing templates if required.

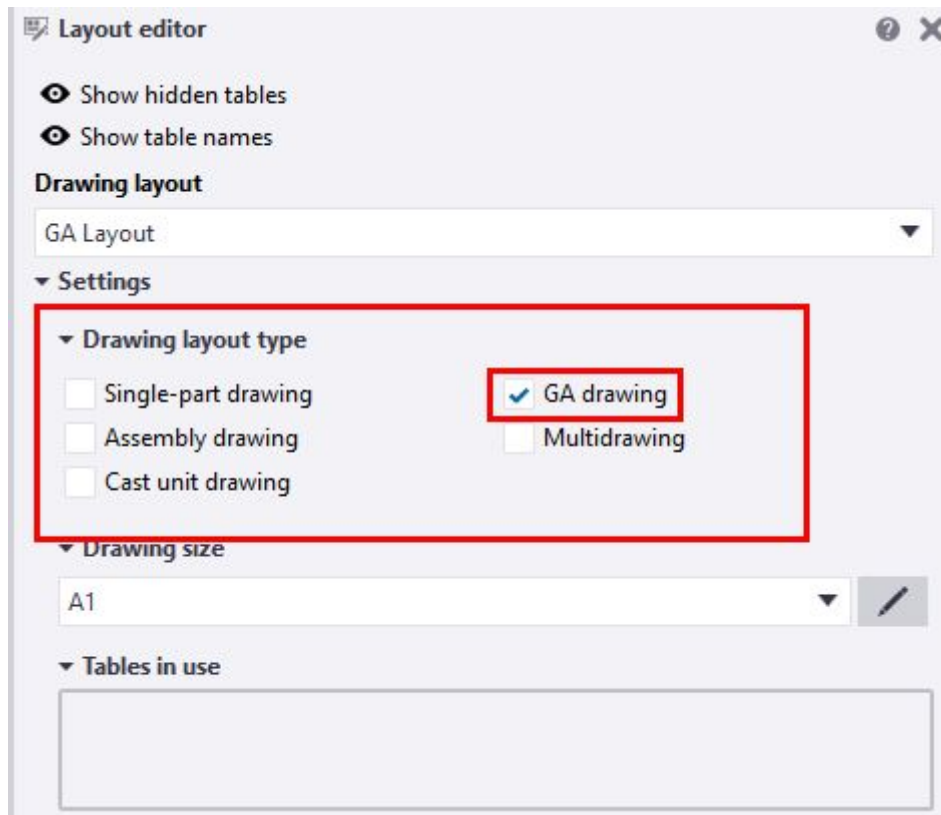
The A1 “canvas” will be displayed.



Step 5.

Set the Drawing Layout type.

We are going to make this layout for General Arrangement drawings but you are able to set these for all drawing types here.



Step 6.

Add an additional page size.

We will add an A3 page size to the Layout also.

In the Drawing size area click the pen icon.



The Drawing size settings dialog will open and display the current drawing size - A1. Click the + Icon to add a new line and select A3 from the drop down list.

Drawing size settings

Sizes in use

List the drawing size names you wish to use and their physical dimensions.

NAME	WIDTH	HEIGHT	AUTOSIZE	REMOVE
A1	841.00 mm	594.00 mm	<input checked="" type="checkbox"/>	
A3	841.00 mm	594.00 mm	<input checked="" type="checkbox"/>	

+

Frames for current drawing layout

LEFT	RIGHT	BOTTOM	TOP	COLOR
0.00 mm	5.00 mm	5.00 mm	5.00 mm	
0.00 mm	0.00 mm	0.00 mm	0.00 mm	

Vertical 0.00 mm Color

OK Cancel

Once selected the correct size for the page will be displayed.

NAME	WIDTH	HEIGHT	AUTOSIZE	REMOVE
A1	841.00 mm	594.00 mm	<input checked="" type="checkbox"/>	
A3	420.00 mm	297.00 mm	<input checked="" type="checkbox"/>	

Note: You are also able to create custom sizes by adding a new size and typing a name. You can then set the page size by double clicking the WIDTH and HEIGHT fields and adding new sizes.

Click OK to add the new size to the Layout.

It will now appear in the Drawing size area of the editor window.



Step 7.

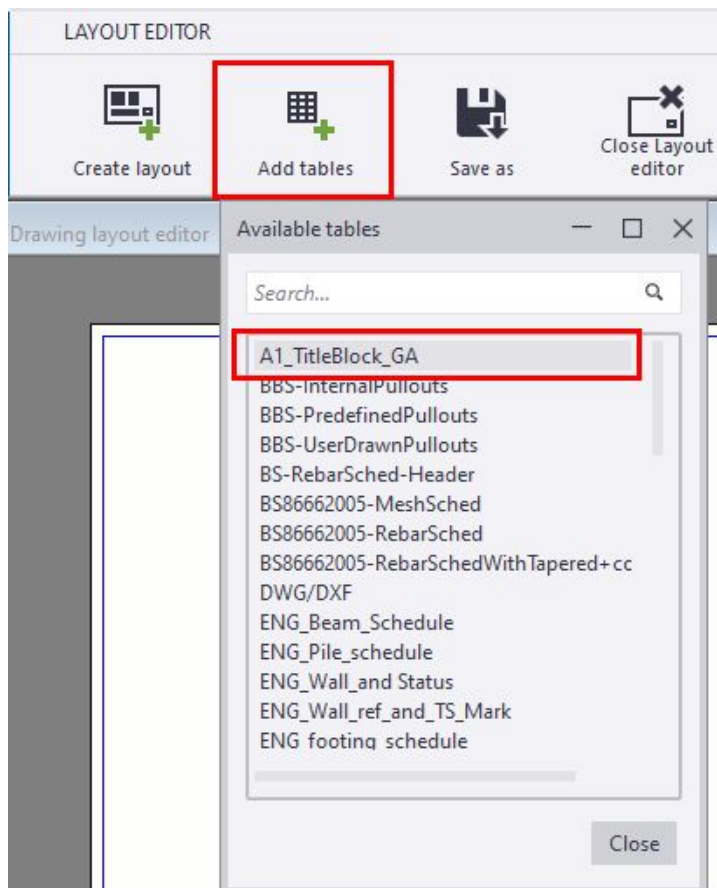
Adding a table to the layout.

We will now add the template we created earlier to the sheet. As long as the template is in the firm folder it will be available to select in the Add tables list.

Select Add tables from the ribbon.

Find the required template and select.

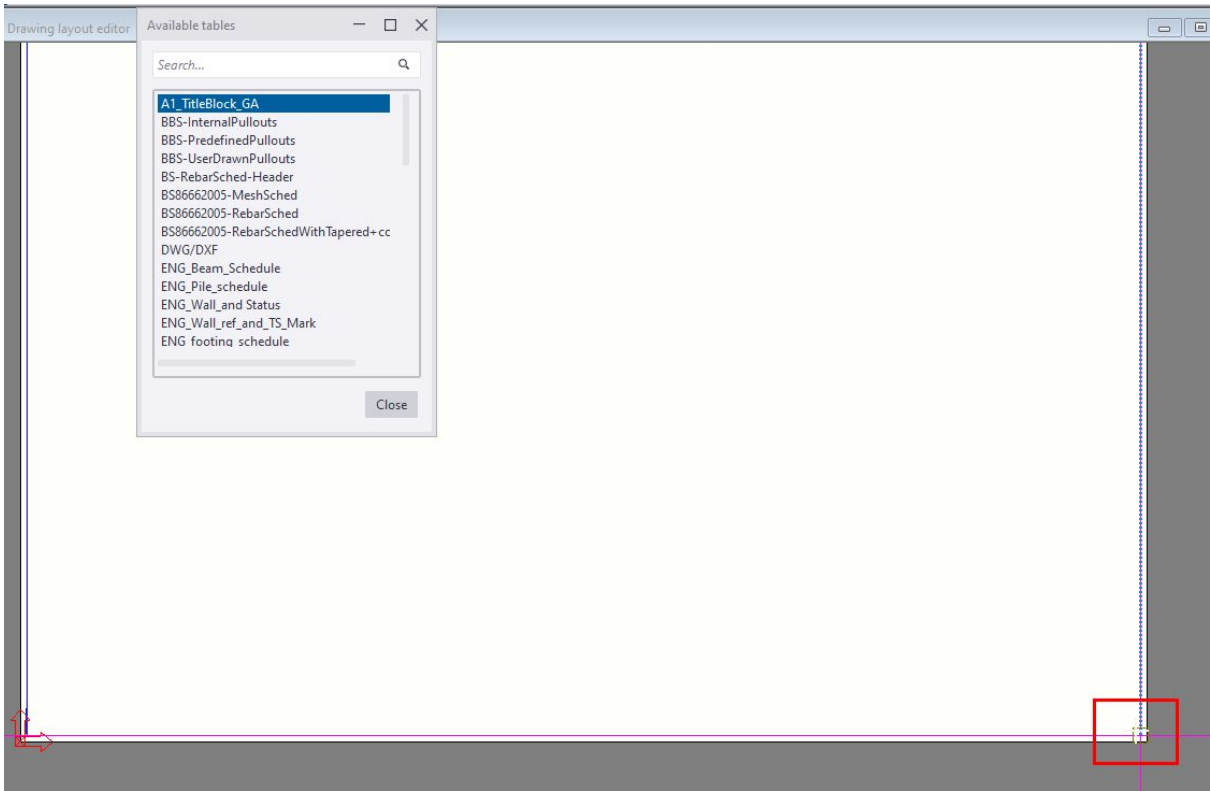
A1_TitleBlock_GA



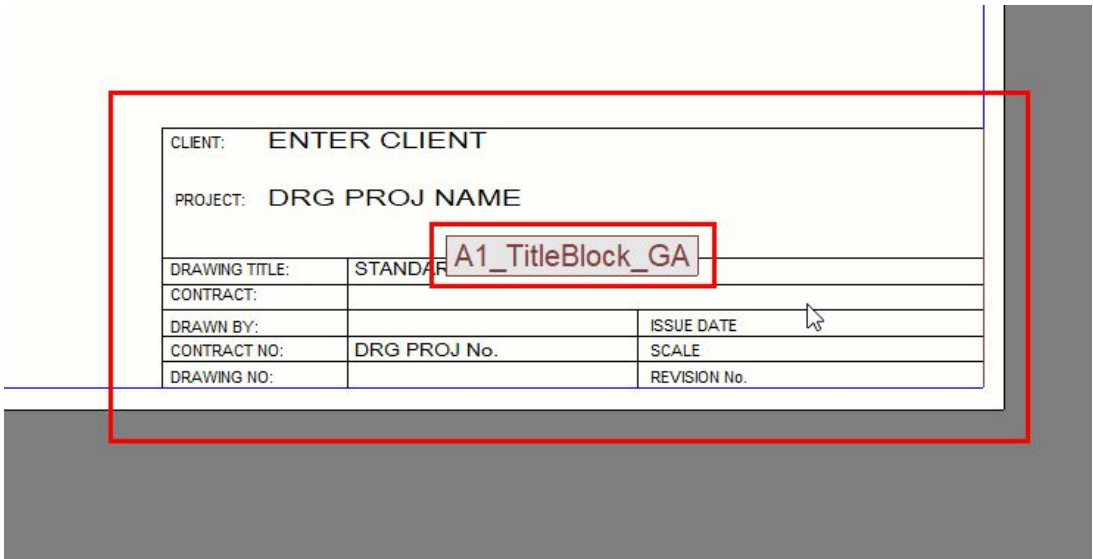
During this operation the Available tables dialog will remain open until you have finished adding templates to the layout.

Once the template is selected a crosshair will appear in the window for you to pick an insertion point.

We will pick the bottom right hand corner of the layout.



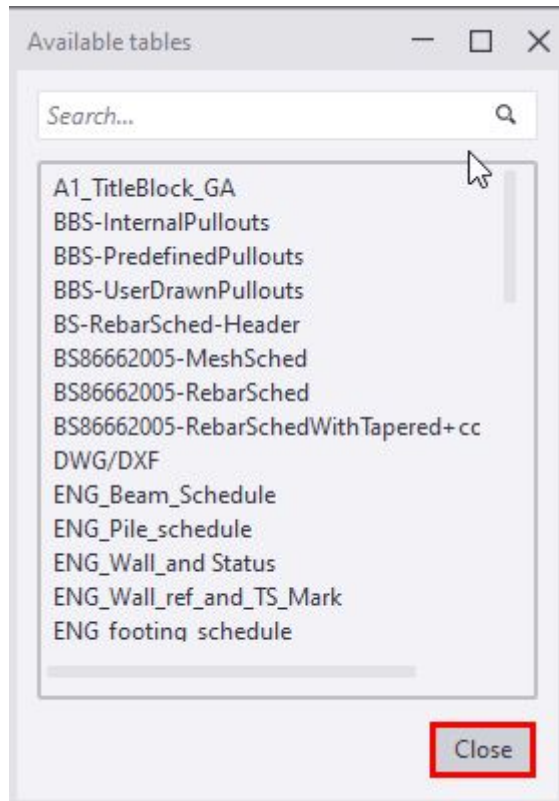
The template will appear and be pinned to this corner.



Notice how the value fields will populate with the associated data from the Tekla Structures database if there is a value in them.

If you are going to continue to add other tables you can repeat the above process and place them where required.

Once done click the close button on the Available tables dialog.



Step 8.

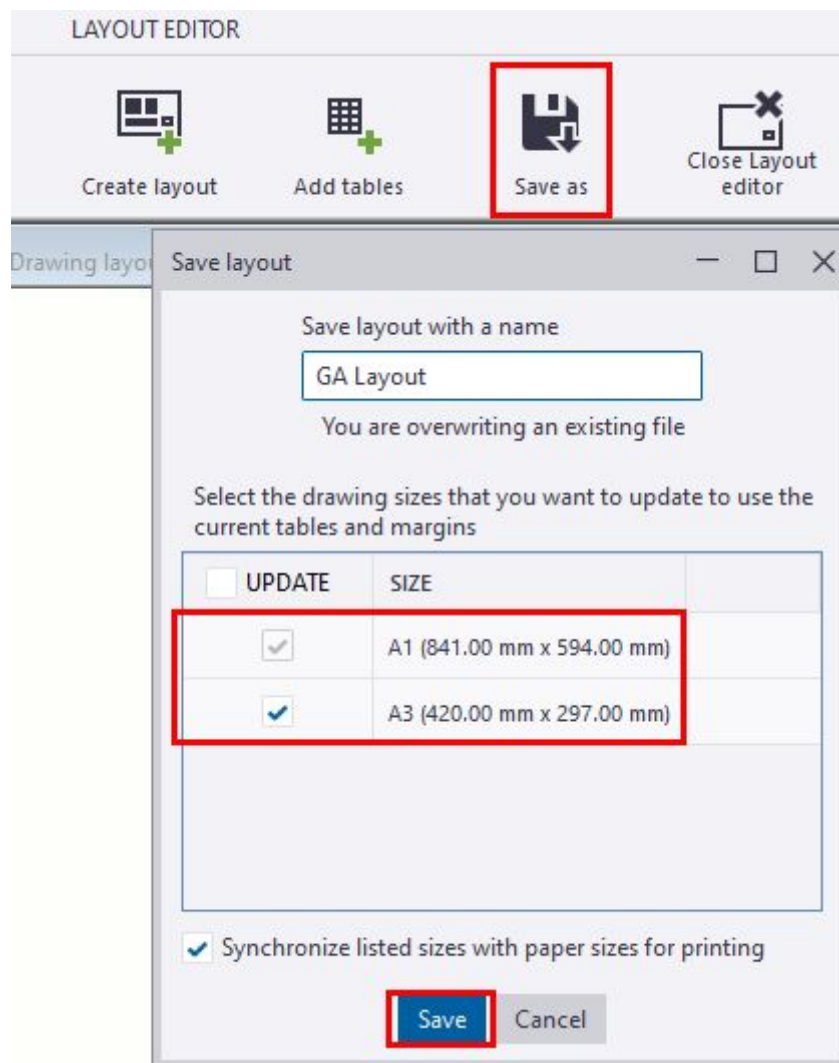
Save the drawing layout and drawing sizes and close the Layout editor.

Even though we have added the template to the A1 drawing size only, at the point of saving we are able to update any of the other drawing sizes with the changes we have made. This makes creating multiple sheets much easier.

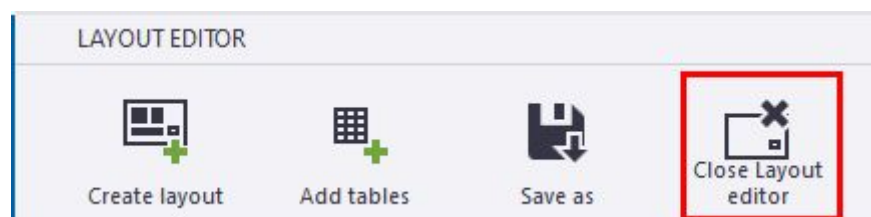
Click the Save as icon on the ribbon.

Ensure the A1 and A3 drawing sizes are checked in the UPDATE column.

Click Save



Click the Close Layout editor icon on the ribbon.

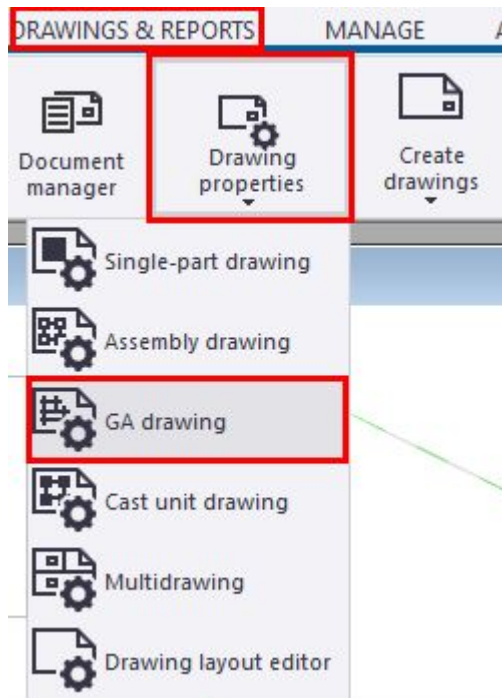


Step 9.

Create a GA drawing setting which uses the newly created layout.

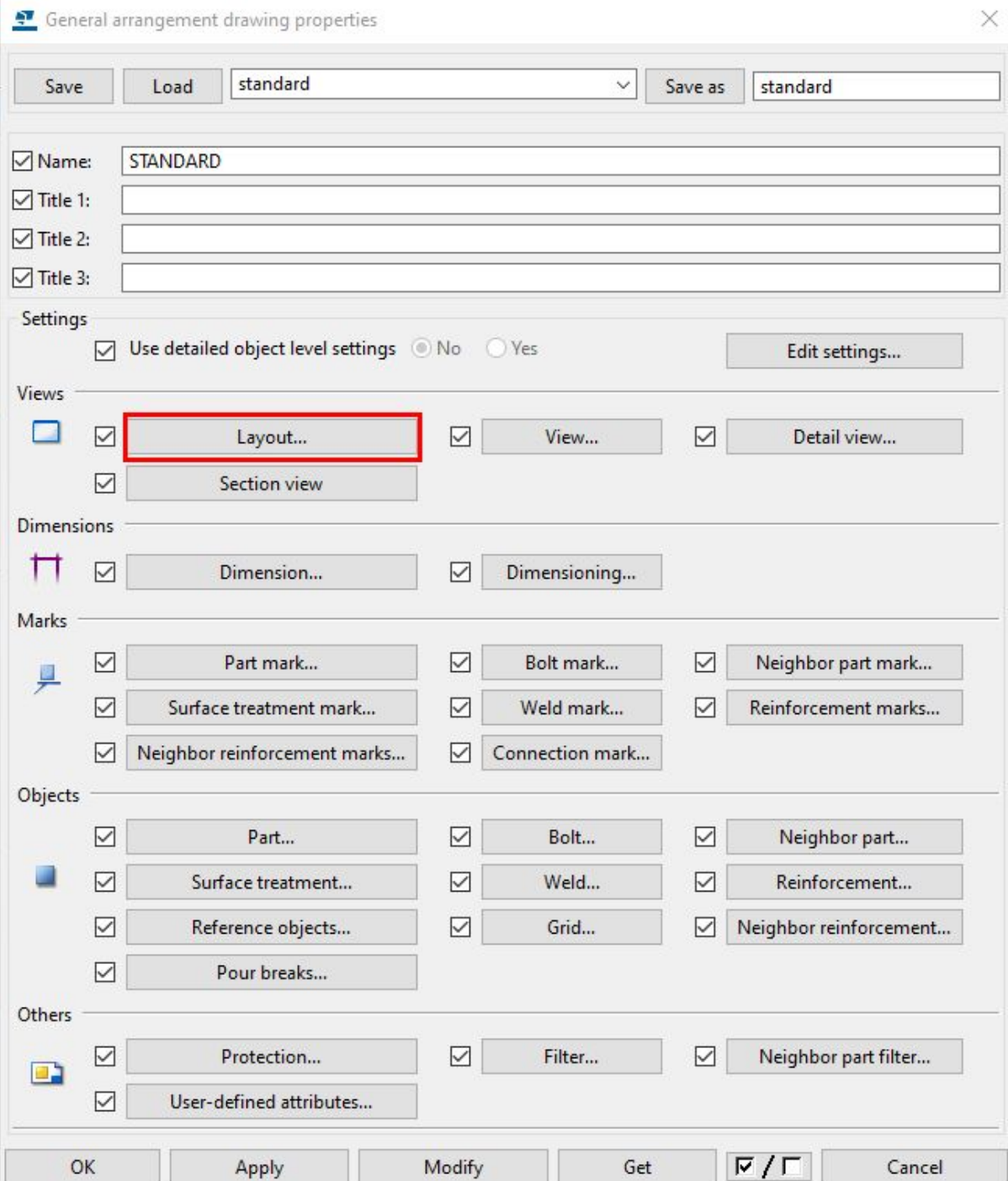
Click Drawings and Reports Menu on the ribbon.

Select Drawing Properties and choose GA drawing



The GA drawing properties dialog will open.

Click the Layout button.

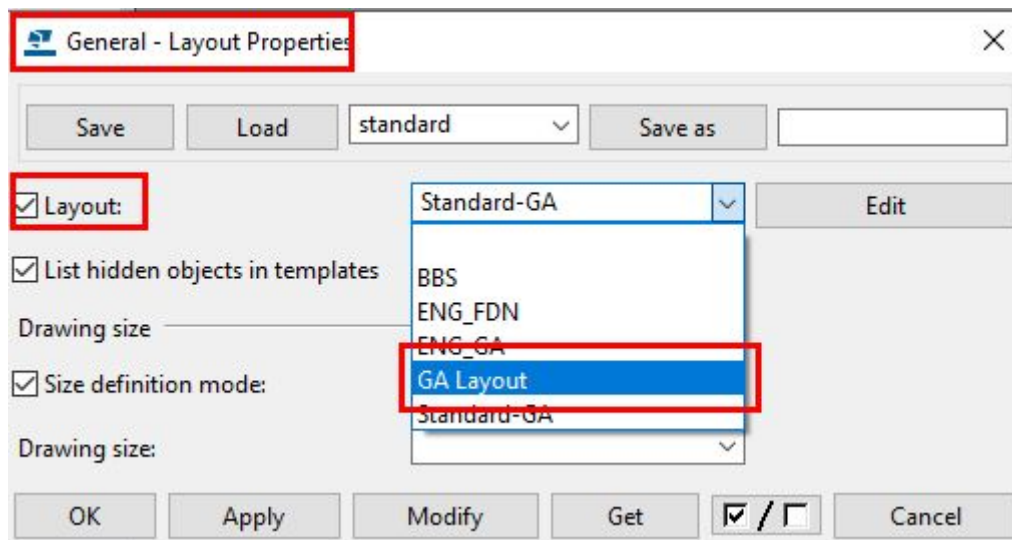


The dialog box is titled "General arrangement drawing properties" and has a close button (X) in the top right corner. It contains several sections for configuring drawing properties:

- Save/Load:** Buttons for "Save" and "Load", a dropdown menu showing "standard", and a "Save as" button followed by a text field containing "standard".
- Name/Title:** Checkboxes for "Name:", "Title 1:", "Title 2:", and "Title 3:", each followed by a text input field. The "Name" field contains "STANDARD".
- Settings:** A checkbox for "Use detailed object level settings" with radio buttons for "No" (selected) and "Yes", and an "Edit settings..." button.
- Views:** A section with a "Views" icon and checkboxes for "Layout..." (highlighted with a red box), "Section view", "View...", and "Detail view...".
- Dimensions:** A section with a "Dimensions" icon and checkboxes for "Dimension..." and "Dimensioning...".
- Marks:** A section with a "Marks" icon and checkboxes for "Part mark...", "Surface treatment mark...", "Neighbor reinforcement marks...", "Bolt mark...", "Weld mark...", "Connection mark...", "Neighbor part mark...", and "Reinforcement marks...".
- Objects:** A section with an "Objects" icon and checkboxes for "Part...", "Surface treatment...", "Reference objects...", "Pour breaks...", "Bolt...", "Weld...", "Grid...", "Neighbor part...", "Reinforcement...", and "Neighbor reinforcement...".
- Others:** A section with an "Others" icon and checkboxes for "Protection...", "User-defined attributes...", "Filter...", and "Neighbor part filter...".

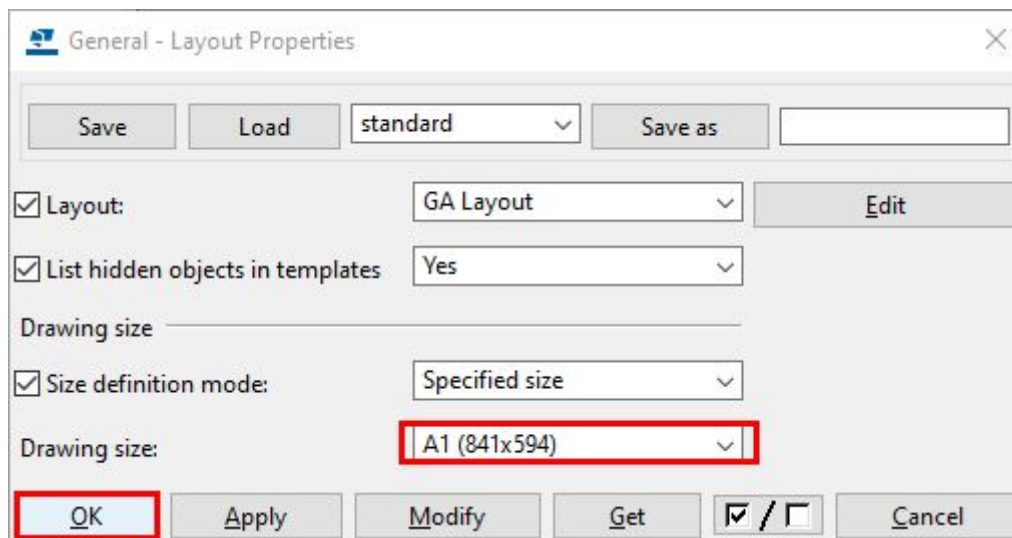
At the bottom, there are buttons for "OK", "Apply", "Modify", "Get", a checkbox for "Show/Hide" (checked), and "Cancel".

In the General - Layout Properties dialog, select the GA Layout we created earlier.



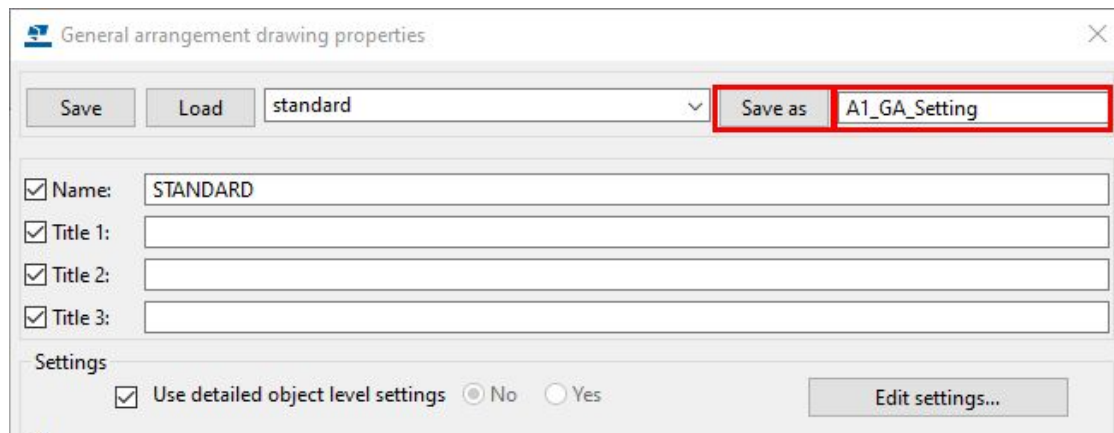
Once selected the Drawing sizes associated with that Layout will be available in the Drawing size area of the dialog box.

Select the A1 size and click OK.

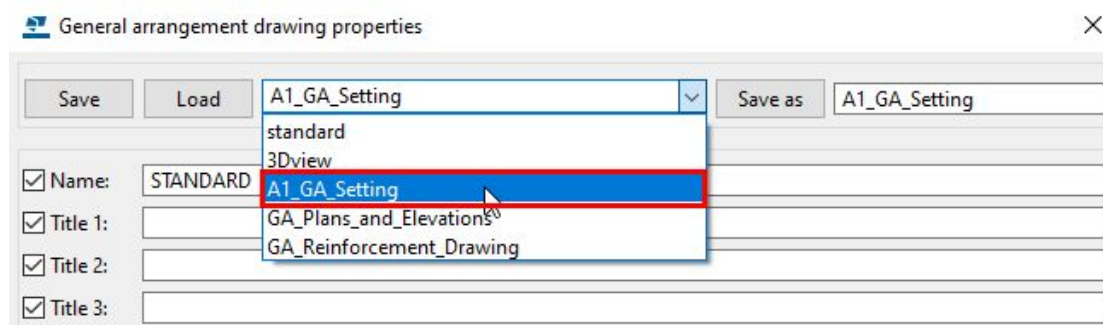


For now this is the only change we will make here. In the next section we will add Object level settings to control the presentation of the model objects in the drawing.

In the Save as field name the setting A1_GA_Setting and click the Save as button.



The saved setting will now be available in the Load dropdown.

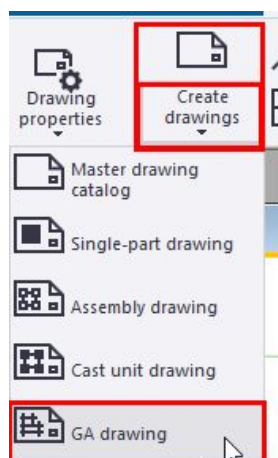


Step 10.

Test the new layout using the drawing setting.

We will create a blank GA for this test.

In the Drawings and Reports menu select the Create drawings dropdown menu and choose GA drawing.

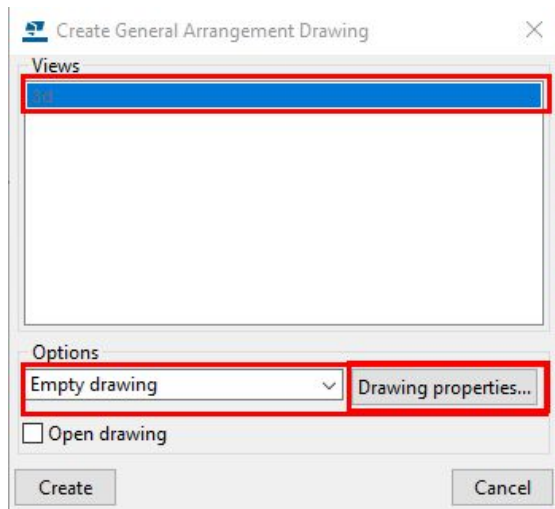


In the Create General Arrangement Drawing dialog.

Select a view

Select Empty drawing from the dropdown

Click the Drawing properties button.

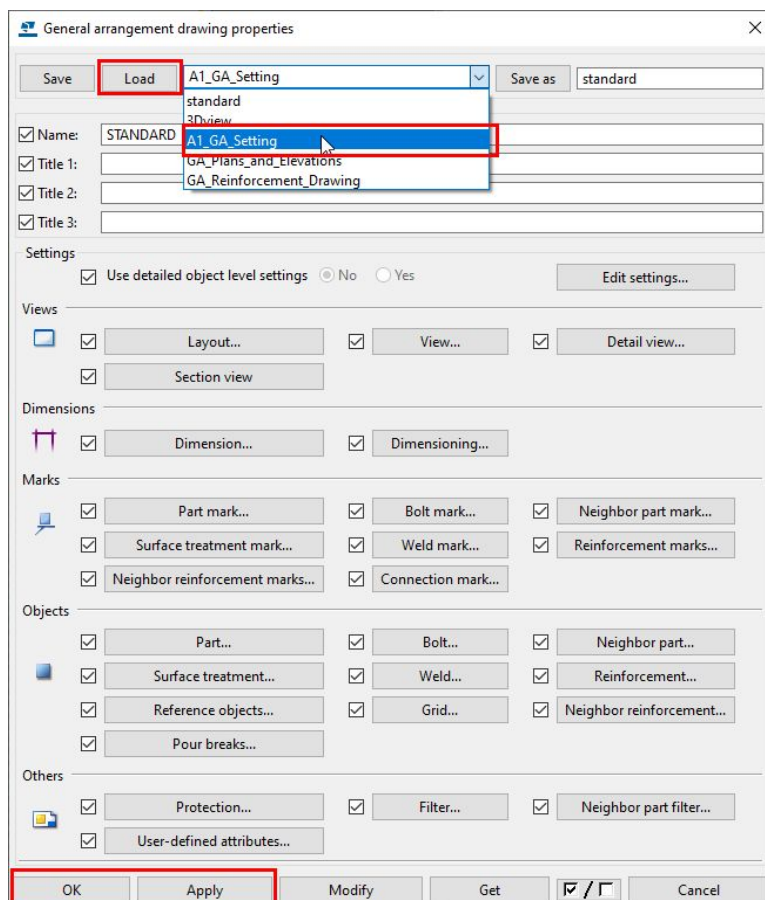


The General arrangement drawing properties dialog will open.

Select the A1_GA_Setting from the Load dropdown.

Click Load

Click Apply - OK

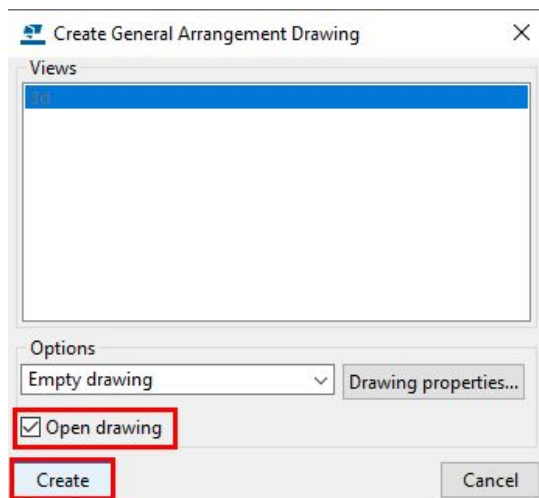


This will set the properties ready for creating the drawing and close down the dialog.

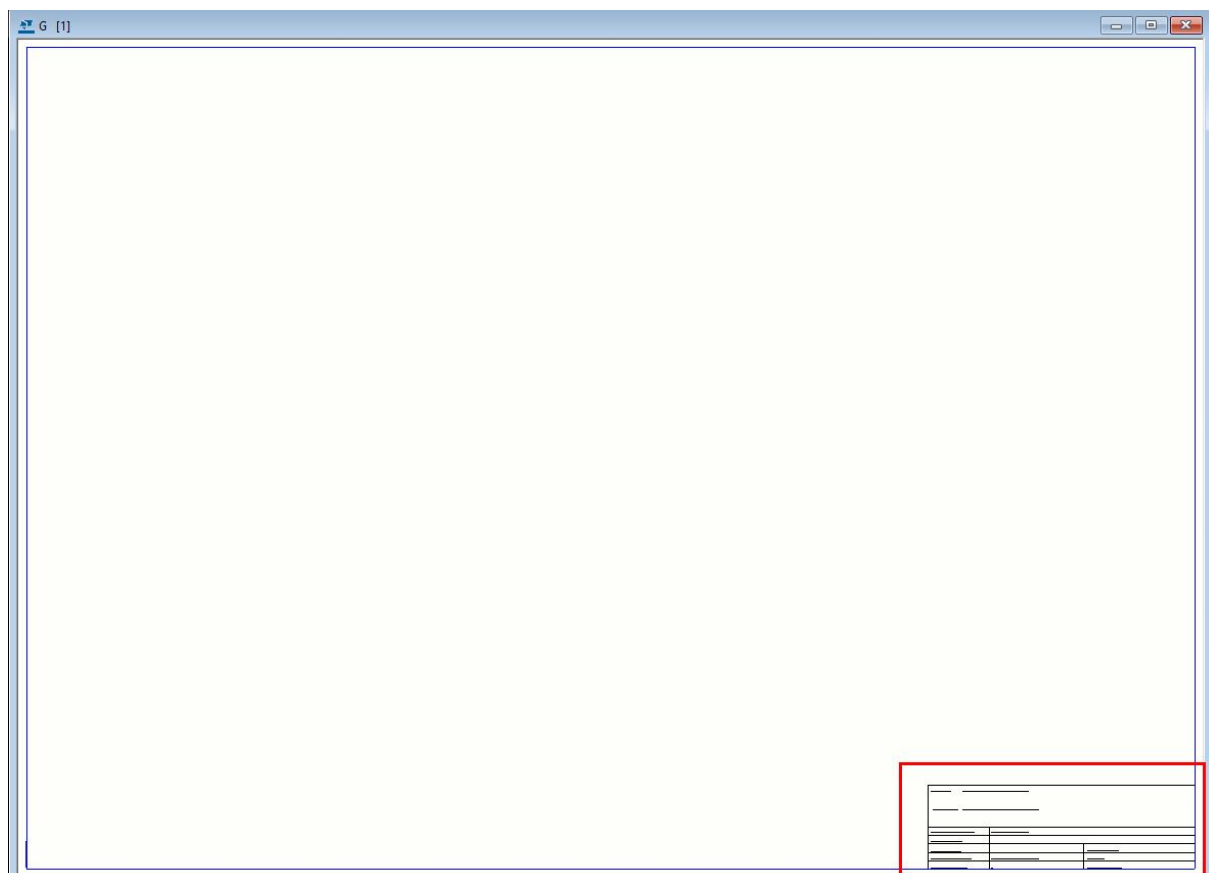
Back in the Create General Arrangement Drawing dialog

Check Open drawing tick box

Click Create.



The GA drawing will now be created and will open once completed.



Our new template at the bottom as constructed in the Drawing Layout Editor.

CLIENT: ENTER CLIENT		
PROJECT: DRG PROJ NAME		
DRAWING TITLE:	STANDARD	
CONTRACT:		
DRAWN BY:		ISSUE DATE
CONTRACT NO:	DRG PROJ No.	SCALE
DRAWING NO:		REVISION No.

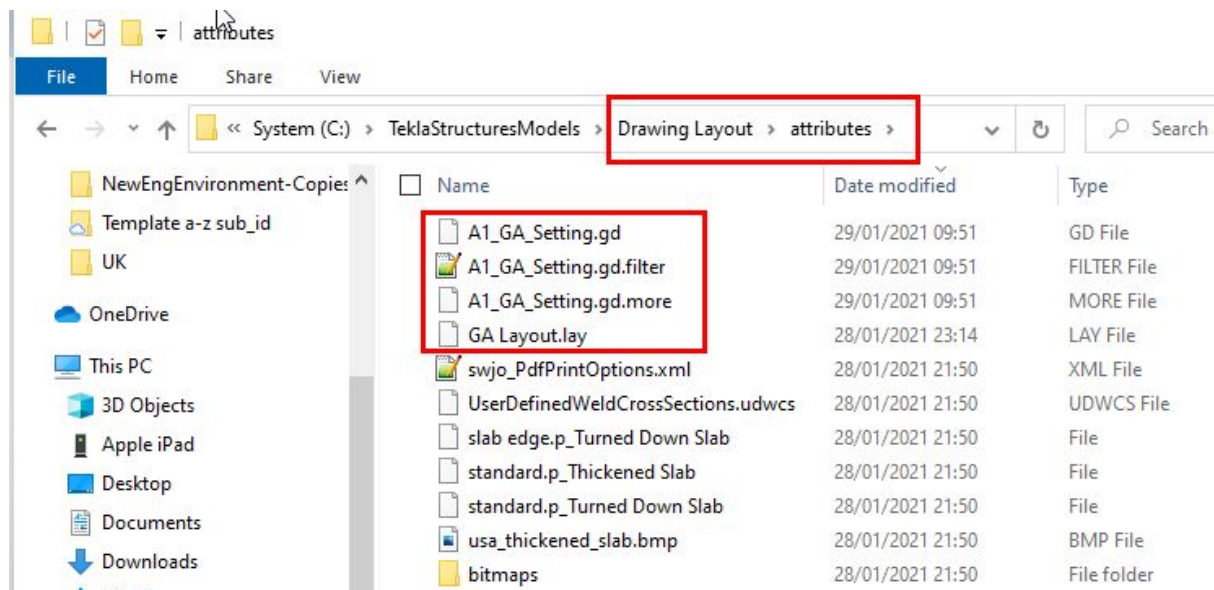
Step 11.

Move the created settings file to the firm folder for use in all other models.

The files we have created will be in the Model folders attributes folder.

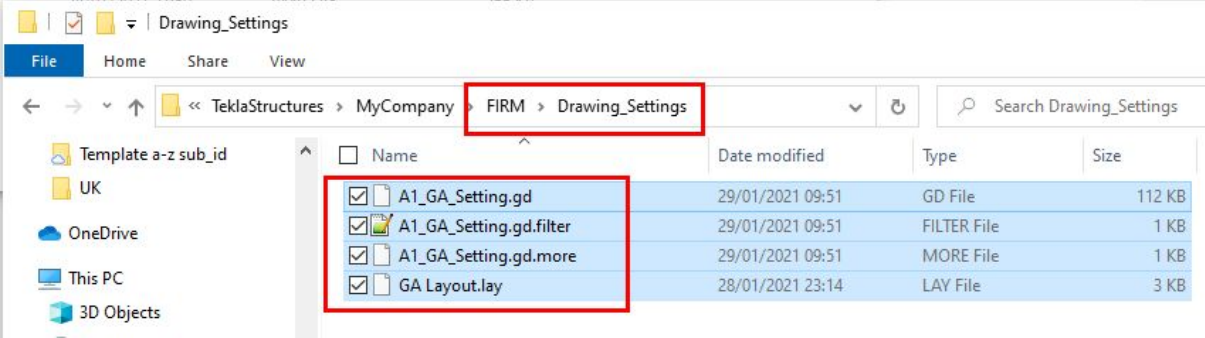
\\Drawing Layout\\attributes..

The files created are the layout file (.lay) and the GA drawing setting file (.gd, .gd.filter and .gd.more)



Select these files and copy to your FIRM folder.

Place them in the Drawing_Settings folder.



Part Three - Drawing Object Level Settings.

In this final section we will see how we are able to bring everything we have learnt and created over the previous 3 lessons together onto our drawing sheet.

Our Firm Folder holds all of the files, our Naming and Numbering conventions providing definitions to our modelled objects, our filters to find and select them, our drawing templates and layout to show them and now our object level settings to provide the presentation of those objects in the drawn space.

Each section leading and providing information for the next.

We will begin by creating a simple model which will contain a few objects which we want to control the presentation of in the drawing itself.

These will be a combination of steel and concrete members and will include the Ledge Beam we created in lesson 2.

Once you have created these settings you will add them to the Naming and Numbering conventions spreadsheet.

Object Type	Name	Part Prefix	Part Start Number	Assembly /Cast Unit Prefix	Assembly /Cast Unit Start Number	Filter	Drawing Object Setting
Steel Beam	Beam	M	1	B	1	SS Beam	(used in later tutorial)
Steel Column	Column	M	1	C	1	SS Column	
Steel Rafter	Rafter	M	1	R	1	SS Rafter	
Steel Purlin	Purlin	M	1	PN	1	SS Purlin	
Concrete Beam	Beam	-	-	CB	1	SIC Beam	
Concrete Column	Column	-	-	CC	1	SIC Column	
Concrete Pile	Pile	-	-	CP	1	SIC Pile	
Concrete Ledge Beam*	Ledge Beam	-	-	LB	1	SIC Ledge Beam	

After the completion of this basic tutorial you will be able to continue on your own to add all of the required Drawing Object level settings for your drawing office standards.

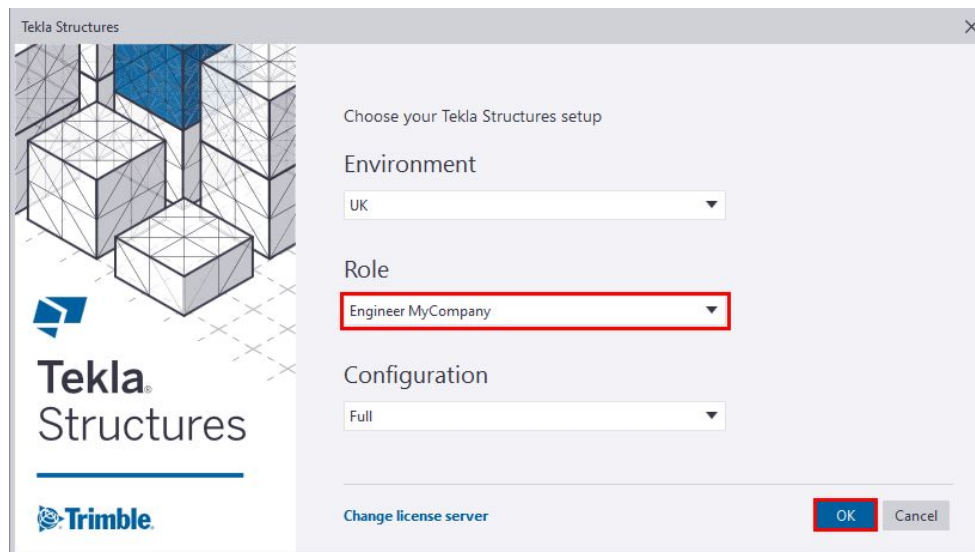
There is some excellent information on this in Tekla User Assistance and it is recommended reading to understand the inner workings of the drawing system and the Object Level settings.

https://teklastructures.support.tekla.com/2021/en/dra_three_levels_of_modifying_drawings
https://teklastructures.support.tekla.com/2021/en/dra_detailed_object_level_settings?da=GUID-1376E07C-F8F8-413F-A48D-A30DBDED48D5

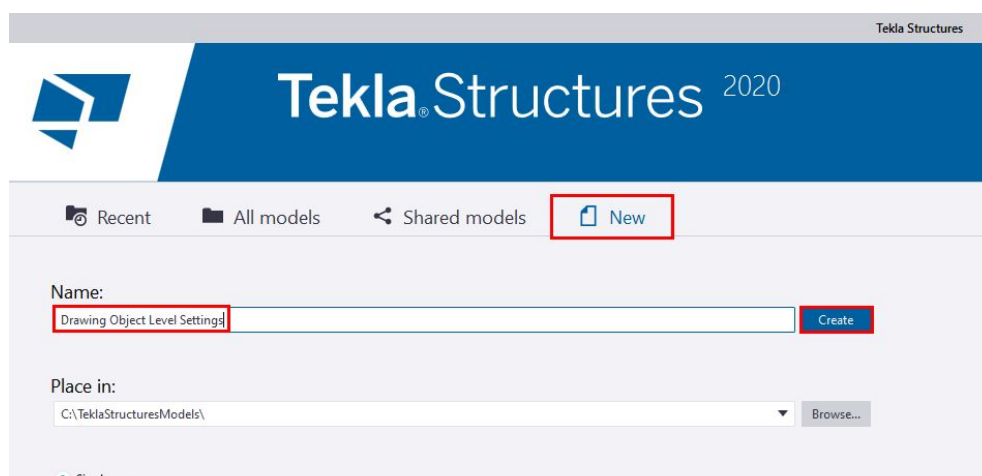
Tutorial.

Step 1.

Open Tekla Structures ensuring that the firm folder is selected.



Create a New model called Drawing Object Level Settings.

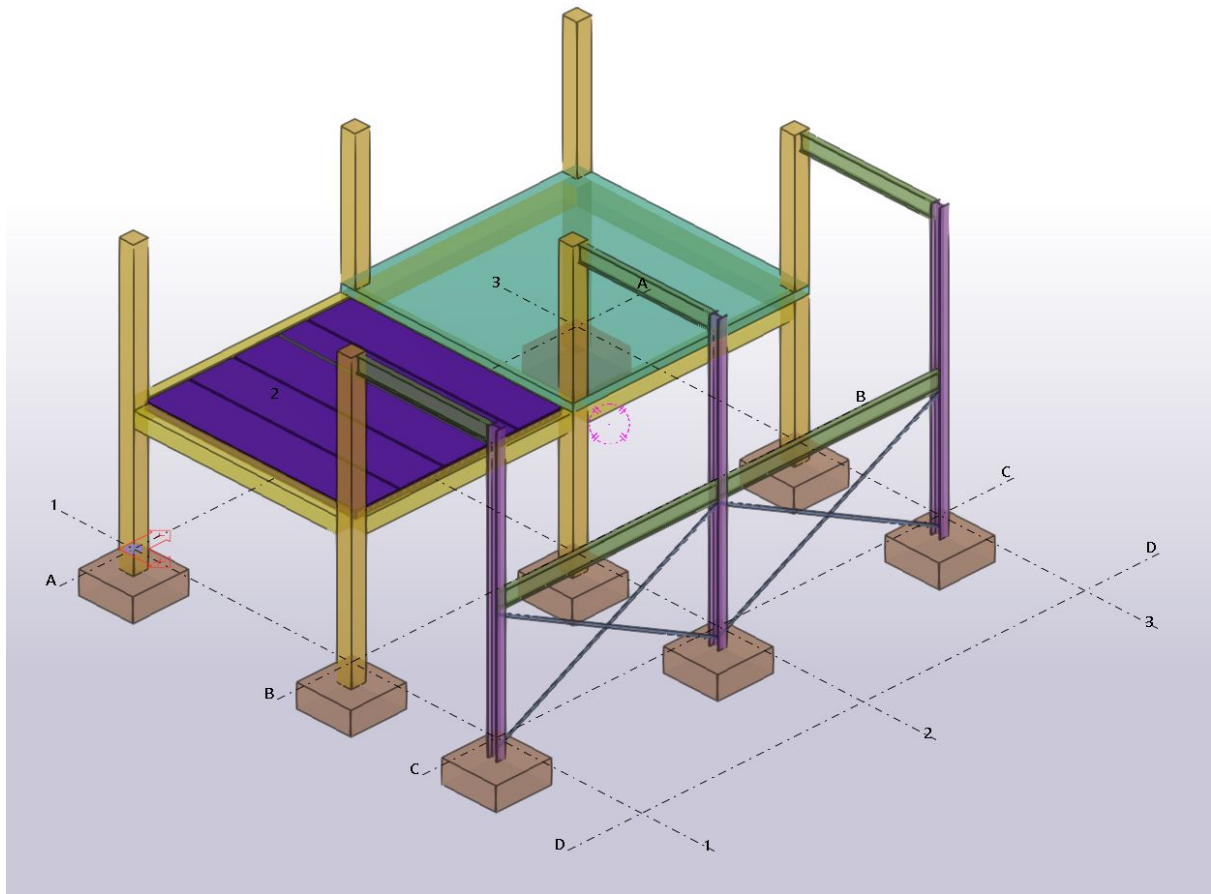


Step 2.

Once open we are going to model some objects into the 3d view. These just have to be some example members.

We will model in some Pad Footings, Steel Columns and Beams, some Bracing, and then some Concrete Columns and Beams, Hollowcore and Slabs- Ensure that you model in the Ledge Beam from the earlier lesson.

Something like this will suffice.



The model does not have to be precise, just indicative of the model objects you will create in your projects. You could also use one of your own, previously created models.

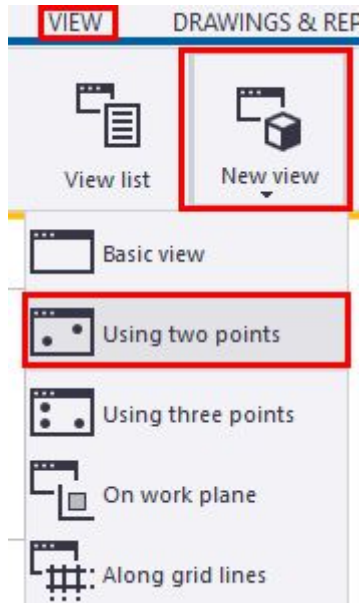
Step 3.

Create some elevation views.

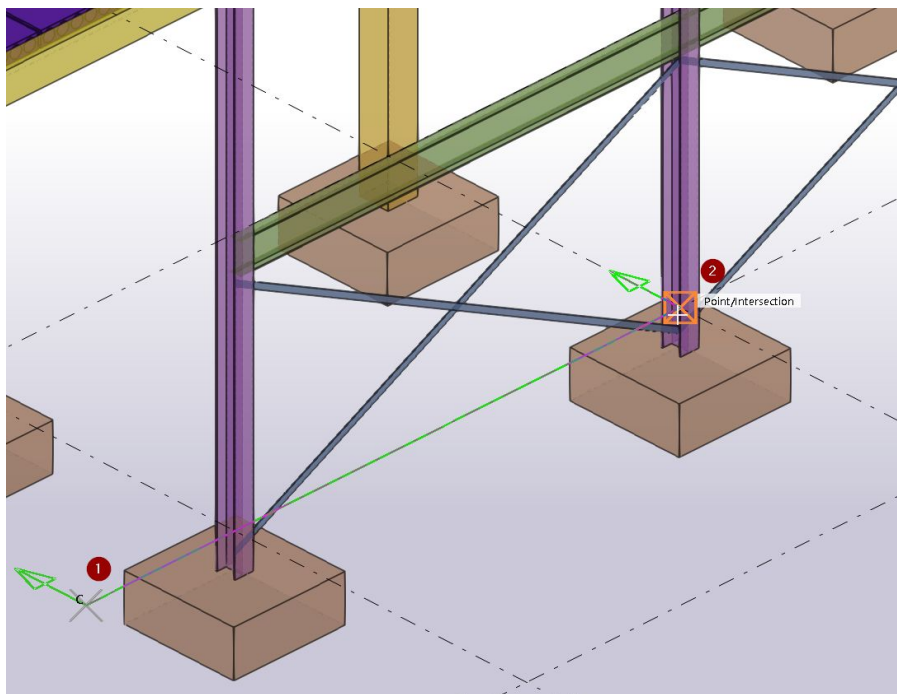
These will help us test the settings we create later on. These should be created in locations which show a good cross-section of your modelled objects.

In the above model these will be created along grids B and C as these will show both steel and concrete elevations.

In the View menu select New view → Using two points.



Select two points along the grid line you have chosen to use.



The green arrows indicate the created views direction.

In the newly created view double click the background to open the View properties.
Set them as below.

View Properties

Save Load Grid-Elevation Save as Grid-Elevation

View

☒ Name: Elevation on GL C

☒ Angle: ☐ Plane ☒ Rotation around Z: 46.00000

☒ Projection: ☒ Orthogonal ☒ Rotation around X: 20.80000

Representation

☒ Color and transparency in all views: standard Representation...

Visibility

View depth: ☒ Up: 500.00

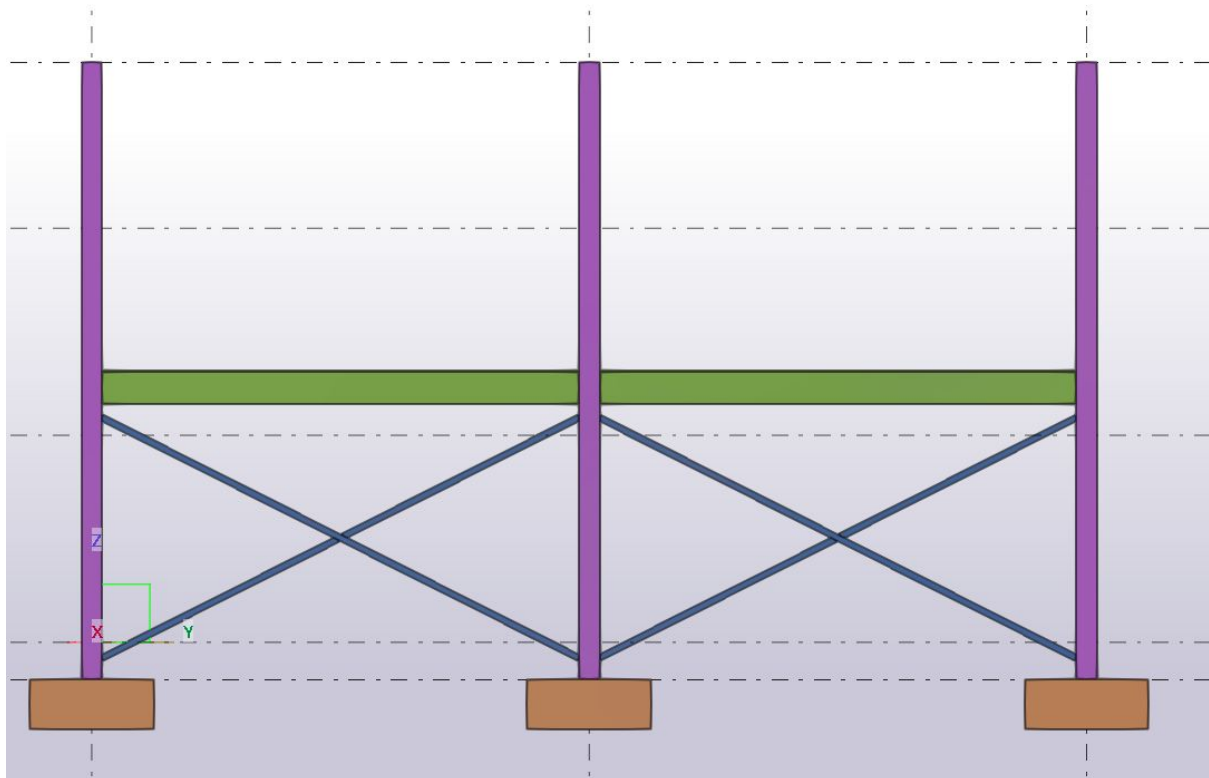
☒ Down: 500.00

☒ Visibility of object types: Display...

☒ Visible object group: standard Object group...

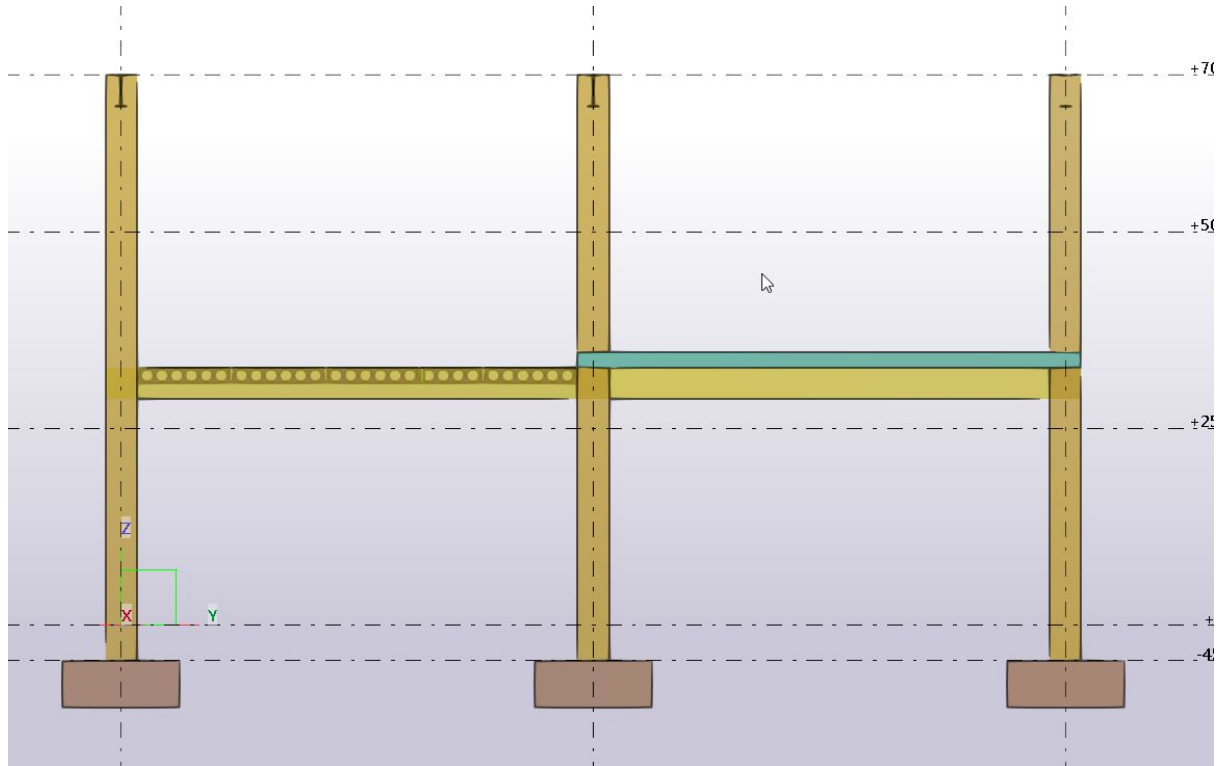
OK Apply Modify Get ☒ / ☐ Cancel

The view should look similar to this.



Repeat this process for any other relevant sections you wish to use later.

For example:

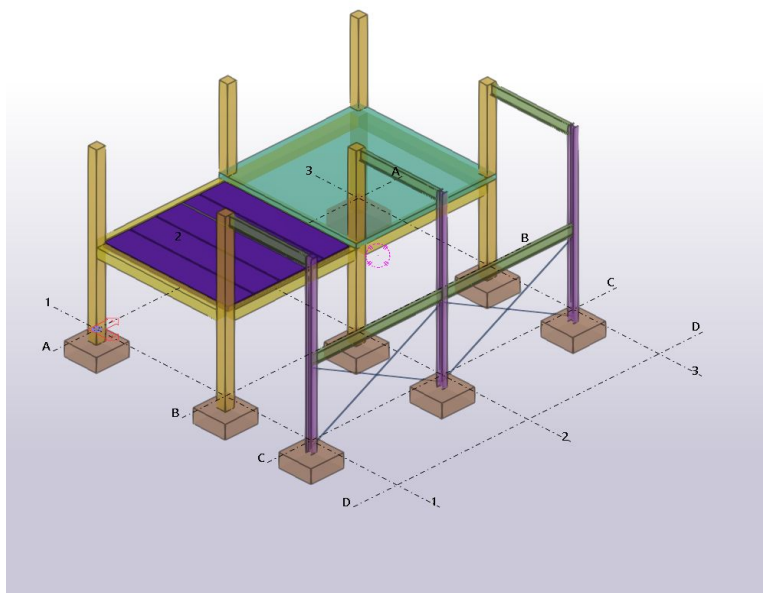


Step 4.

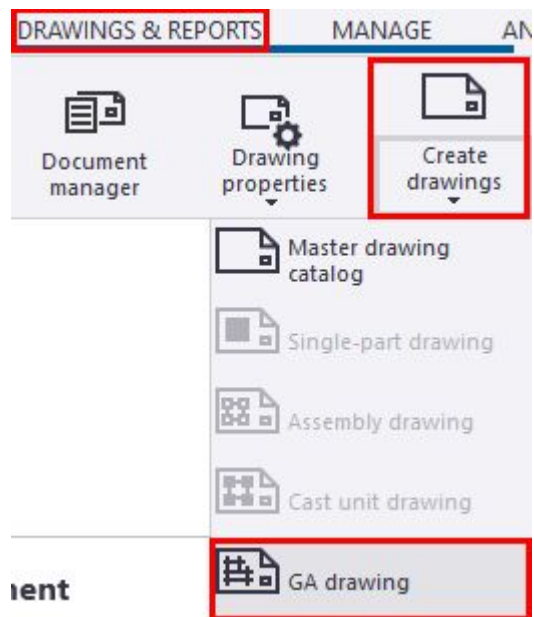
Create GA using previously saved A1_GA_Setting from the previous lesson.

We will use the 3d view to create the first drawing.

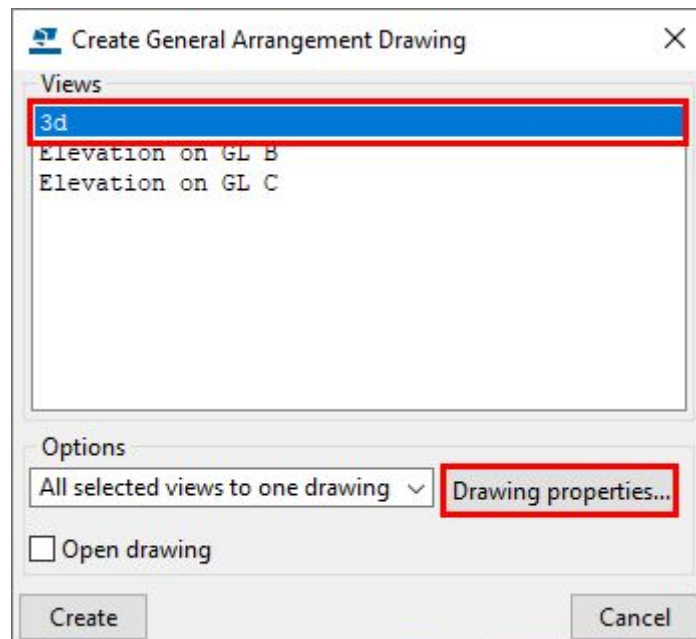
Set up the view up orientation as below.



Go to the Drawings and Reports ribbon.
Select the Create Drawings dropdown.
Choose Create GA drawing.



In the Create General Arrangement Drawing dialog.
Select the 3d view in the list.
Click the Drawing properties button.



In the General arrangement drawing properties.

Select the Load dropdown menu

Choose your saved setting from the last lesson - A1_GA_Setting.

Click Load.

Choose Apply to use these settings.

Click OK

General arrangement drawing properties

Save Load A1_GA_Setting Save as A1_GA_Setting

standard
3Dview
A1_GA_Setting
GA_Plans_and_Elevations
GA_Reinforcement_Drawing

☒ Name: STANDARD
☒ Title 1:
☒ Title 2:
☒ Title 3:

Settings
☒ Use detailed object level settings ☐ No ☐ Yes Edit settings...

Views
☒ Layout... ☒ View... ☒ Detail view...
☒ Section view

Dimensions
☒ Dimension... ☒ Dimensioning...

Marks
☒ Part mark... ☒ Bolt mark... ☒ Neighbor part mark...
☒ Surface treatment mark... ☒ Weld mark... ☒ Reinforcement marks...
☒ Neighbor reinforcement marks... ☒ Connection mark...

Objects
☒ Part... ☒ Bolt... ☒ Neighbor part...
☒ Surface treatment... ☒ Weld... ☒ Reinforcement...
☒ Reference objects... ☒ Grid... ☒ Neighbor reinforcement...
☒ Pour breaks...

Others
☒ Protection... ☒ Filter... ☒ Neighbor part filter...
☒ User-defined attributes...

OK Apply Modify Get / Cancel

In the Create General Arrangement Drawing dialog.

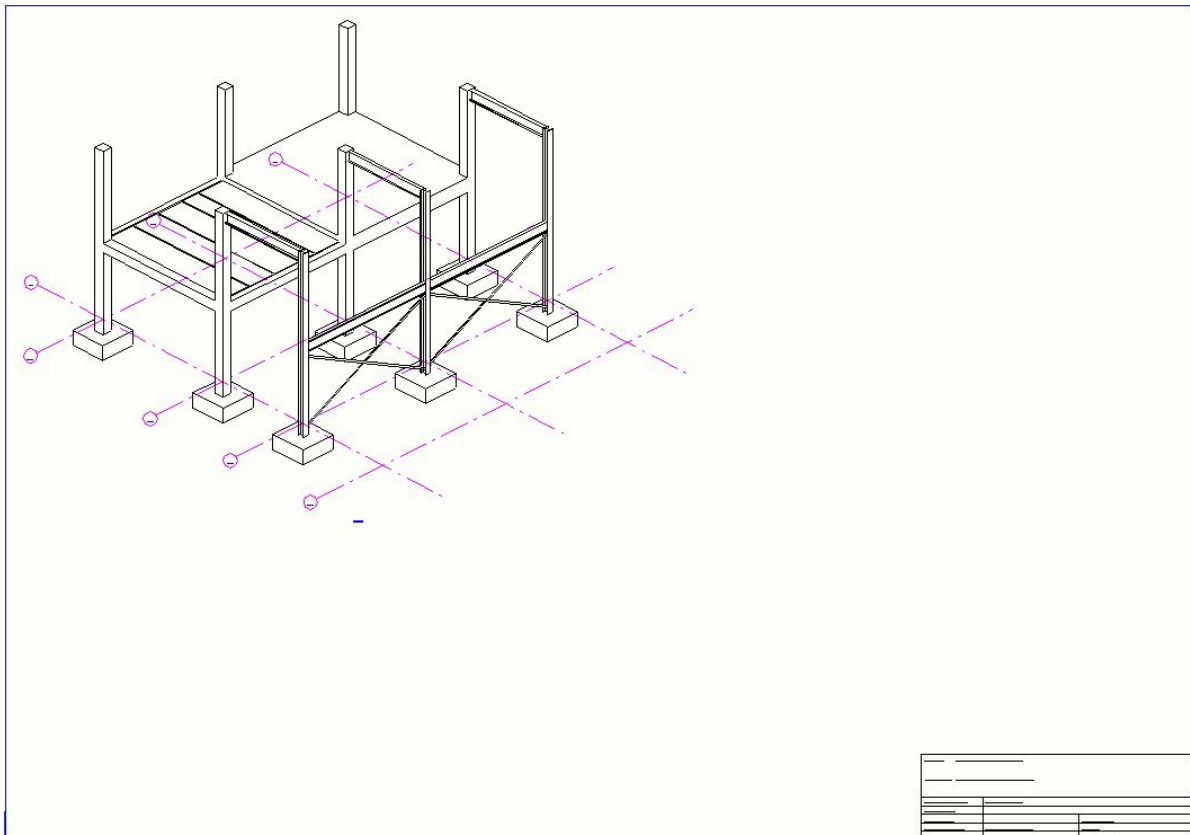
Set Options to either

- All selected views to one drawing
- One drawing per view

Check the Open drawing box

Click Create.

The drawing will open and should look something like this.



Note how all of the objects are drawn in the same style and colour.

Creating the Part representations.

Using the General arrangement drawing properties you are able to create and save required Part representation settings and save them for use in the detailed object level settings area.

You can for example make a setting for each object you want individually, which would create many files but be very detailed. Or you can create more general settings based upon the line type you require and then map that to the required part.

We will be doing the latter and be creating two settings each for Steel and Concrete in different colours.

- Hidden Line
 - Inc own hidden lines
- Non-hidden line

It is worth pointing out here that the colour you assign to the Part representation is important as these are mapped to your line thicknesses when printing the drawings.

There are some good explanations of how this works in TUA but we will not be going into this here.

https://teklastructures.support.tekla.com/2020/en/dra_show_printer_linewidth_in_drawings

https://teklastructures.support.tekla.com/2020/en/dra_colors_in_drawings

To see how these are built up double click the GA drawing background to open the properties.

General arrangement drawing properties

Save Load A1_GA_Setting Save as A1_GA_Setting

☒ Name: STANDARD
☒ Title 1:
☒ Title 2:
☒ Title 3:

Settings
☒ Use detailed object level settings ☐ No ☒ Yes [Edit settings...](#)

Views
☒ Layout... ☒ View... ☒ Detail view...
☒ Section view

Dimensions
☒

Marks
☒ Part mark... ☒ Bolt mark... ☒ Neighbor part mark...
☒ Surface treatment mark... ☒ Weld mark... ☒ Reinforcement marks...
☒ Neighbor reinforcement marks... ☒ Connection mark...

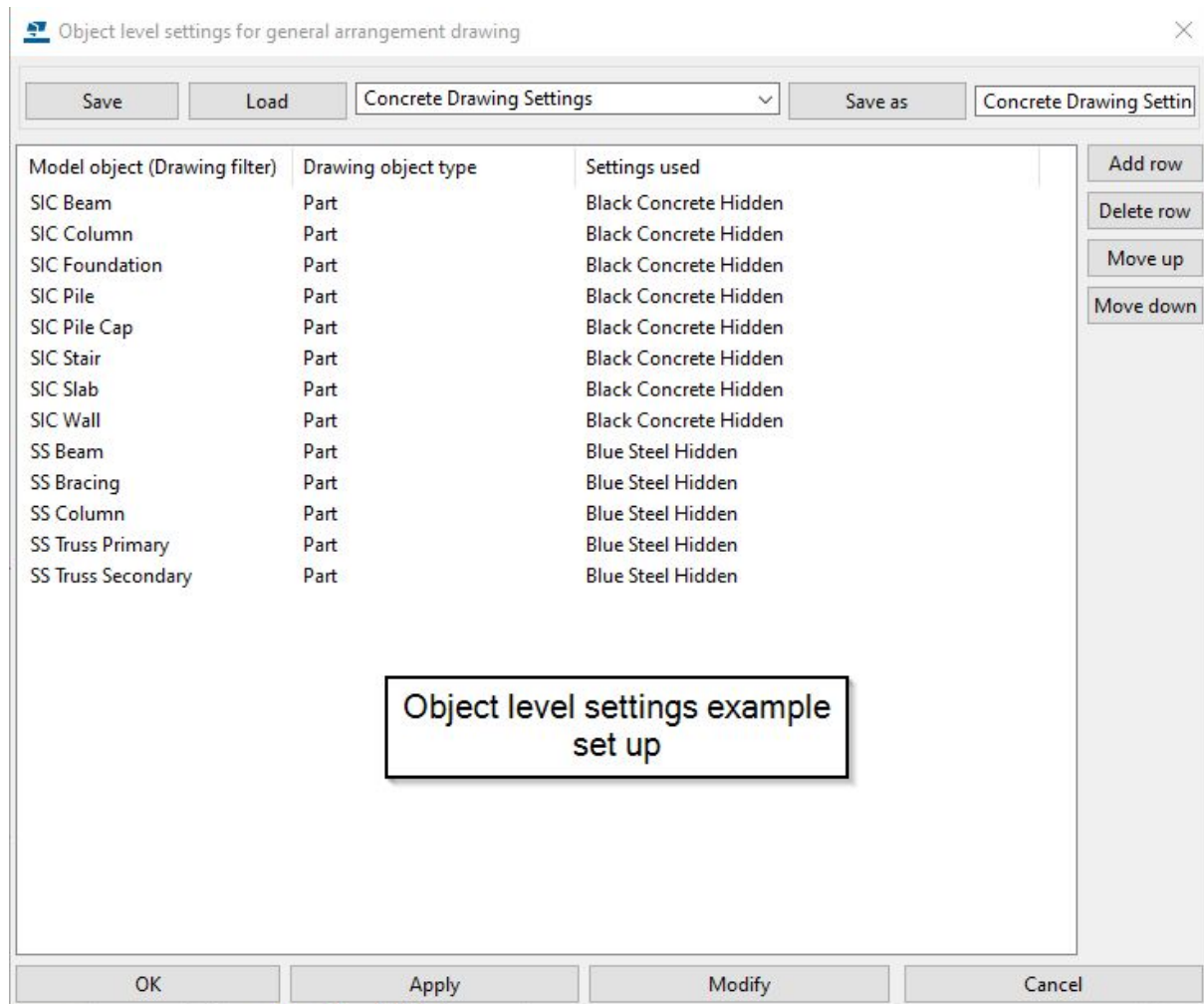
Objects
☒ Part... ☒ Bolt... ☒ Neighbor part...
☒ Surface treatment... ☒ Weld... ☒ Reinforcement...
☒ Reference objects... ☒ Grid... ☒ Neighbor reinforcement...
☒ Pour breaks...

Others
☒ Protection... ☒ Filter... ☒ Neighbor part filter...
☒ User-defined attributes...

OK Apply Modify Get ☒ / ☐ Cancel

The object level settings control this area of the drawing settings

Click the Edit settings button to open the Object level settings for the general arrangement drawing properties.

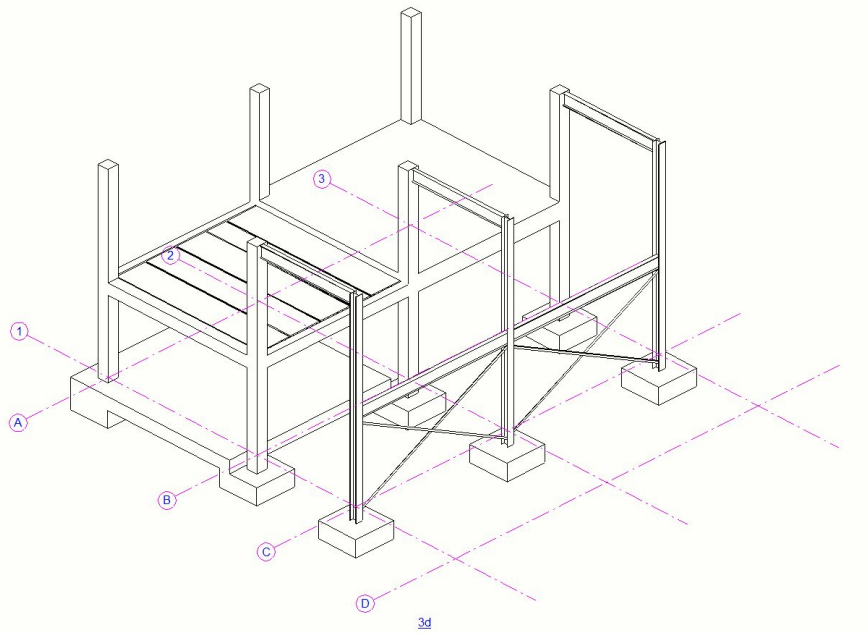


This dialog allows us to combine drawing filters with drawing object types and then by the saved property settings.

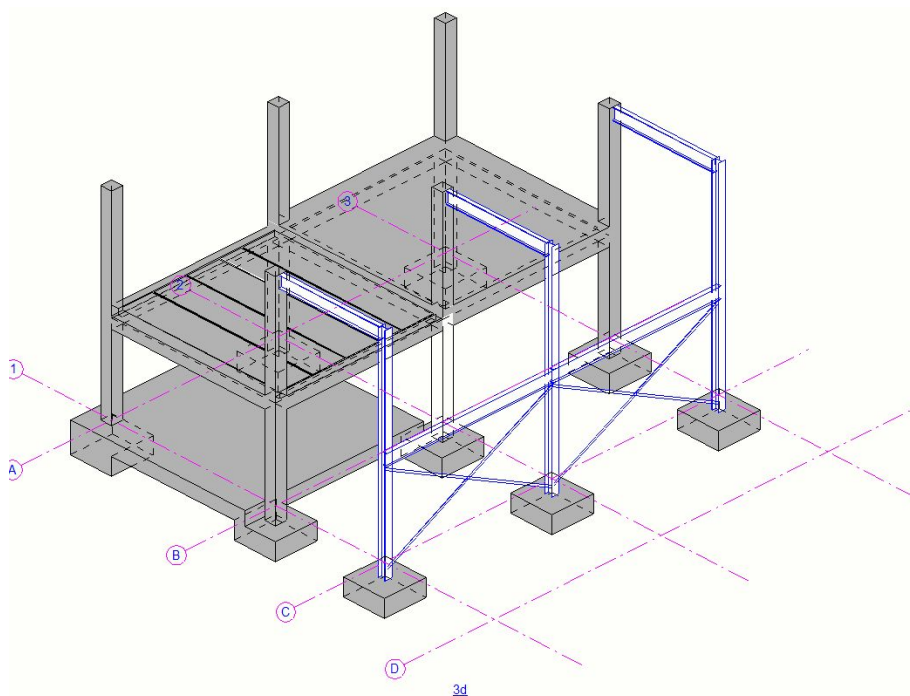
- The first column, drawing filter, will identify the required object in the drawing
- The second column, Drawing object type, will turn on the drawing object type for the filtered object/s only
- The third column, Settings used, will then apply the saved settings chosen and effect the object in the drawing accordingly

Note: We have already created filters which we can use in previous lessons. You can also create new ones using the drawing filter dialog if required.

Before Object Level settings:



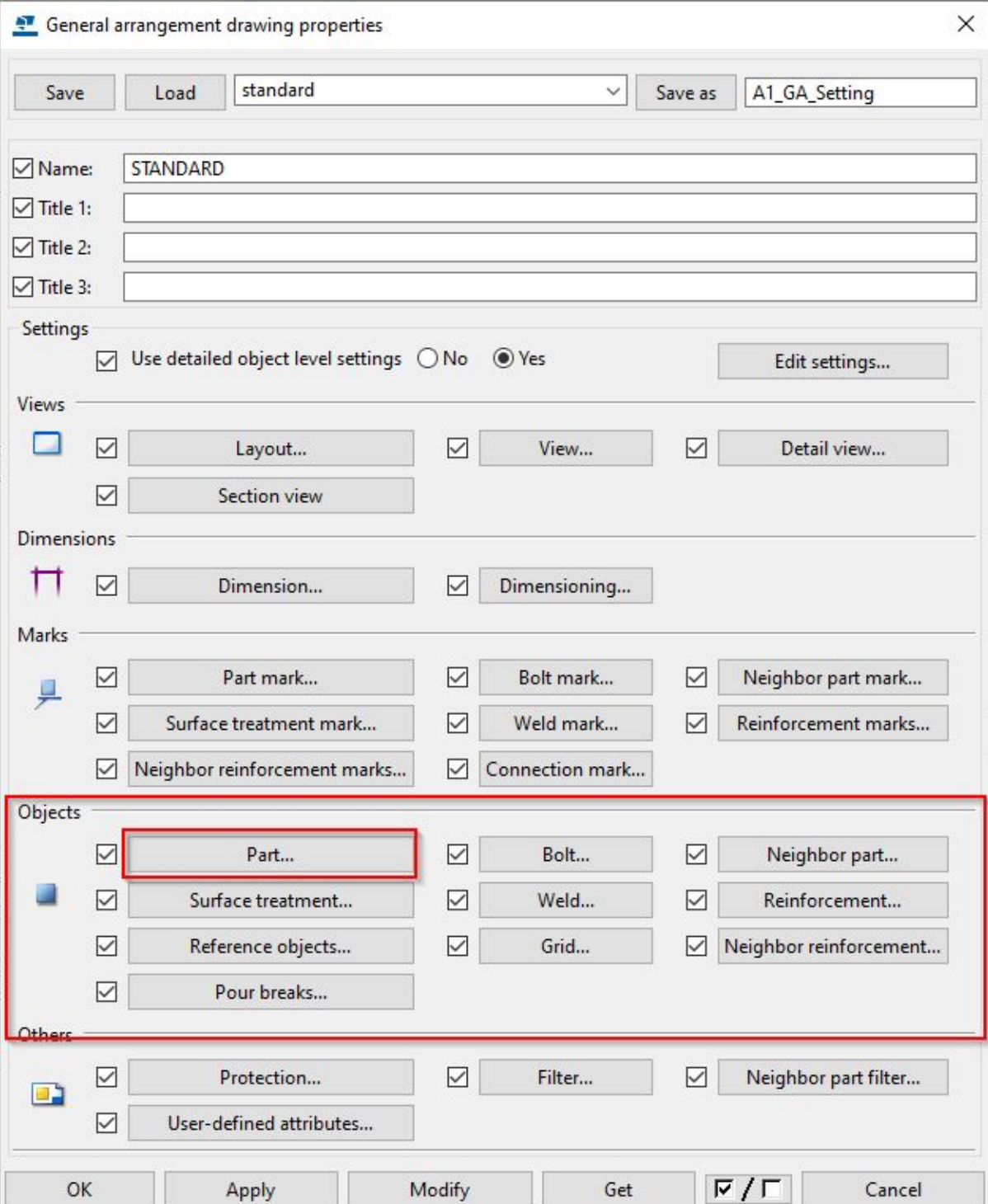
After Object Level settings:



Step 5.

Creating the required drawing object properties.

We first need to create the required setting for the object to use in the drawing. We can do this in the General arrangement drawing properties dialog box in the Objects section



The image shows the 'General arrangement drawing properties' dialog box. The 'Objects' section is highlighted with a red rectangle. It contains a list of object types with checkboxes and buttons to configure them. The 'Part...' button is highlighted with a red rectangle.

Section	Item	Checked	Action
Objects	Part...	<input checked="" type="checkbox"/>	Part...
	Surface treatment...	<input checked="" type="checkbox"/>	Surface treatment...
	Reference objects...	<input checked="" type="checkbox"/>	Reference objects...
	Pour breaks...	<input checked="" type="checkbox"/>	Pour breaks...
Objects	Bolt...	<input checked="" type="checkbox"/>	Bolt...
	Weld...	<input checked="" type="checkbox"/>	Weld...
	Grid...	<input checked="" type="checkbox"/>	Grid...
Objects	Neighbor part...	<input checked="" type="checkbox"/>	Neighbor part...
	Reinforcement...	<input checked="" type="checkbox"/>	Reinforcement...
	Neighbor reinforcement...	<input checked="" type="checkbox"/>	Neighbor reinforcement...
Others	Protection...	<input checked="" type="checkbox"/>	Protection...
	User-defined attributes...	<input checked="" type="checkbox"/>	User-defined attributes...

Select the Part button to open the Part properties dialog.
There are three tabs which allow us to set the:

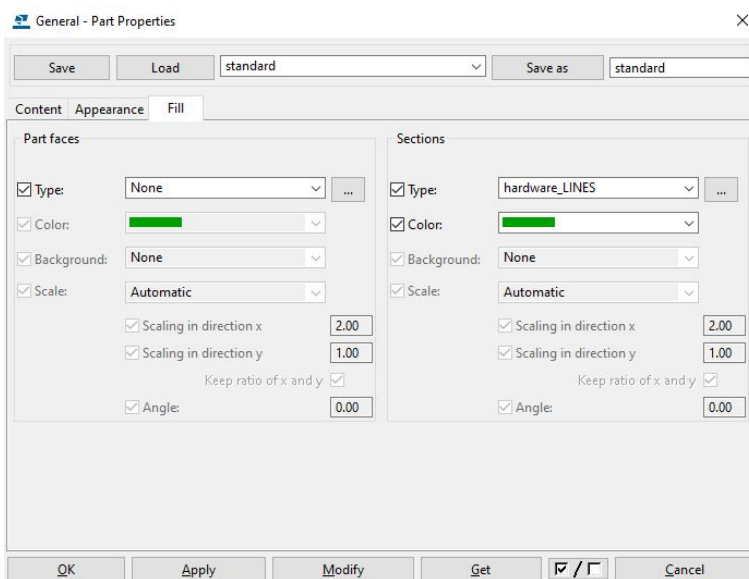
- Content - What will be shown of the object.
 - Representation
 - Hidden lines/Own hidden lines
 - Center and Reference lines
 - Additional marks

The screenshot shows the 'General - Part Properties' dialog box with the 'Content' tab selected. The dialog has a title bar with a close button. Below the title bar are 'Save', 'Load', and 'Save as' buttons, each followed by a dropdown menu showing 'standard'. The 'Content' tab is active, showing several sections: 'Representation' with a dropdown set to 'Outline', a 'Partial profile' section with 'Length' (1000.00) and 'Offset from middle point' (0.00) fields, and checkboxes for 'Symbol offset' (10.00) and 'Inner contours' (on/off). The 'Hidden lines' section has checkboxes for 'Hidden lines' and 'Own hidden lines', both set to 'on/off'. The 'Center line' section has checkboxes for 'Main part' and 'Sec part' under 'Beam', 'Plate', and 'Polygon' categories. The 'Reference lines' section has similar checkboxes. The 'Additional marks' section has checkboxes for 'Orientation marks', 'Connecting side marks', 'Edge chamfers', and 'Fillet edges', with 'Fillet edges' set to 'on/off'. At the bottom are 'OK', 'Apply', 'Modify', 'Get', a checkbox for 'Is part of assembly' (checked), and 'Cancel' buttons.

- Appearance - The Colour and Line Type
 - Visible lines
 - Hidden lines, Center lines
 - Reference lines

The screenshot shows the 'General - Part Properties' dialog box with the 'Appearance' tab selected. The dialog has the same title bar and 'Save', 'Load', and 'Save as' buttons with 'standard' dropdowns. The 'Appearance' tab is active, showing sections for 'Visible lines', 'Hidden lines, Center line', and 'Reference lines'. Each section has a 'Color' dropdown (set to black, red, and red respectively) and a 'Type' dropdown (set to solid, dashed, and dashed respectively). At the bottom are 'OK', 'Apply', 'Modify', 'Get', a checkbox for 'Is part of assembly' (checked), and 'Cancel' buttons.

- Fill - The objects hatching settings
 - Part faces
 - Sections

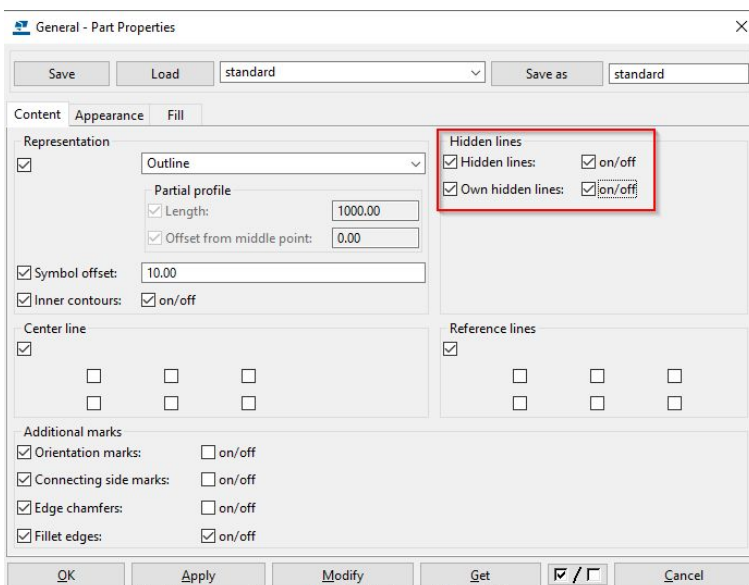


As mentioned at the beginning of this section, we will be making two settings for steel and concrete objects. They will be different colours and one will show hidden lines and one will not.

Starting with the Steel object setting. We will set the tabs as follows.

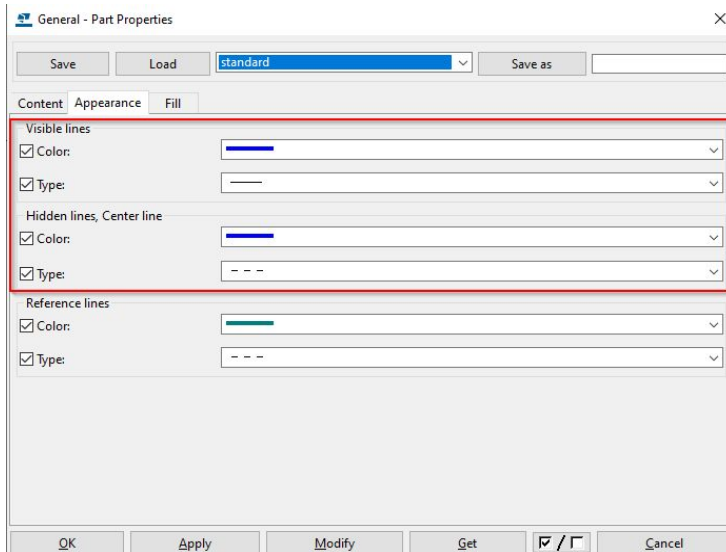
Content:

- Hidden and Own hidden lines on/off boxes ticked
- All other settings remain the same



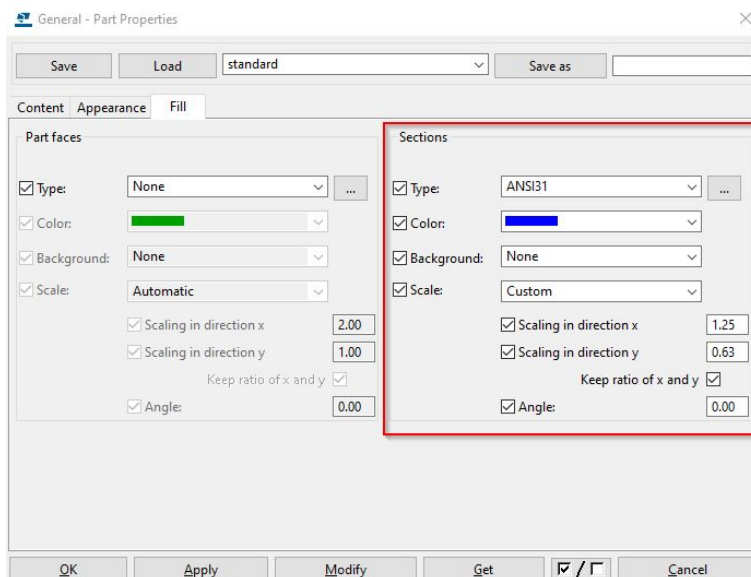
Appearance:

- Visible lines
 - Colour - Blue
 - Type - Solid line
- Hidden lines, Center line
 - Colour - Blue
 - Type - Dashed



Fill:

- Part faces - No change
- Sections
 - Type - ANSI31
 - Colour - Blue
 - Background - None
 - Scale - Custom - X 1.25 (keep ratio of x and y to get y)



Save the property as - Blue Steel Hidden.

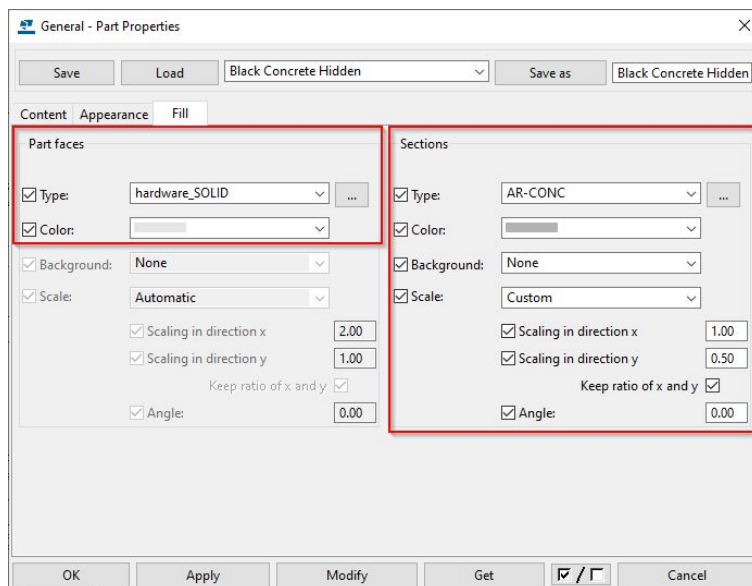
This naming convention denotes the colour, the material and the representation.

We will repeat this process for the steel object using Green and unticking the Hidden line properties.

The Naming convention will then be - Green Steel for example.

For the concrete object properties we will create only a Black variant of each Hidden and Non-hidden but change the Fill properties.

- Fill
 - Part faces
 - Hidden setting
 - Type - Hardware_SOLID
 - Colour - Medium Grey
 - Non-Hidden setting
 - Type - Hardware_SOLID
 - Colour - Medium Grey
 - Sections
 - Type - AR-CONC
 - Colour - Medium Grey
 - Background - None
 - Scale - Custom - X 1

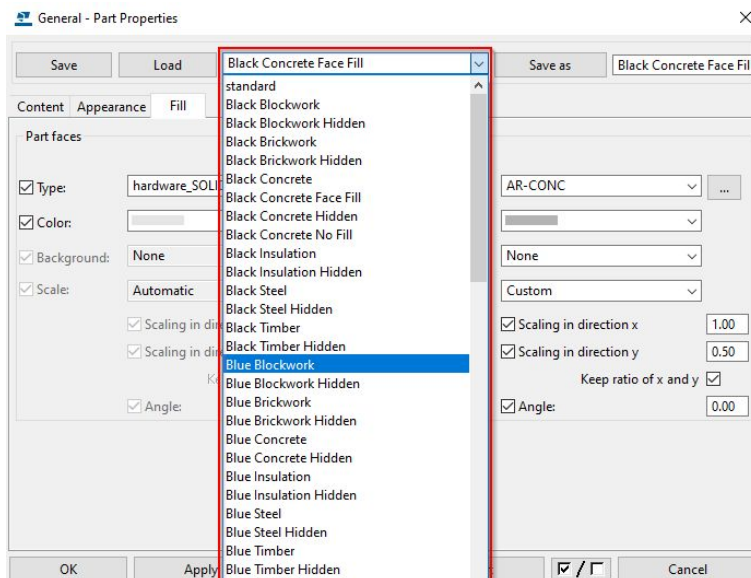


Save the Hidden setting - Black Concrete Hidden

Save the Non-hidden setting - Black Concrete

You can continue to make any other part representations you require.

For example:



Step 6.

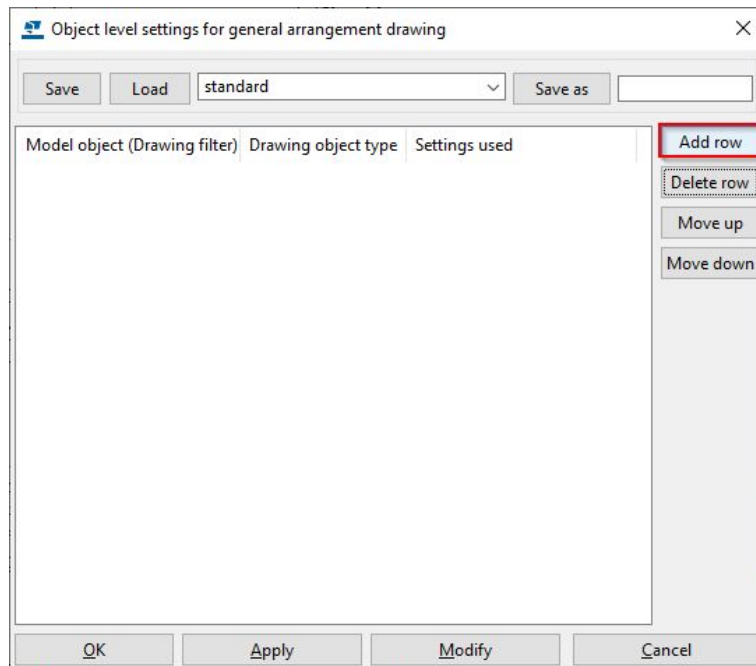
Set up the Detailed object level setting.

In the General arrangement drawing properties click the Edit settings button.

In the Object level settings dialog we will start to build the settings from the filters made earlier and the part settings we have just created.

Step 7.

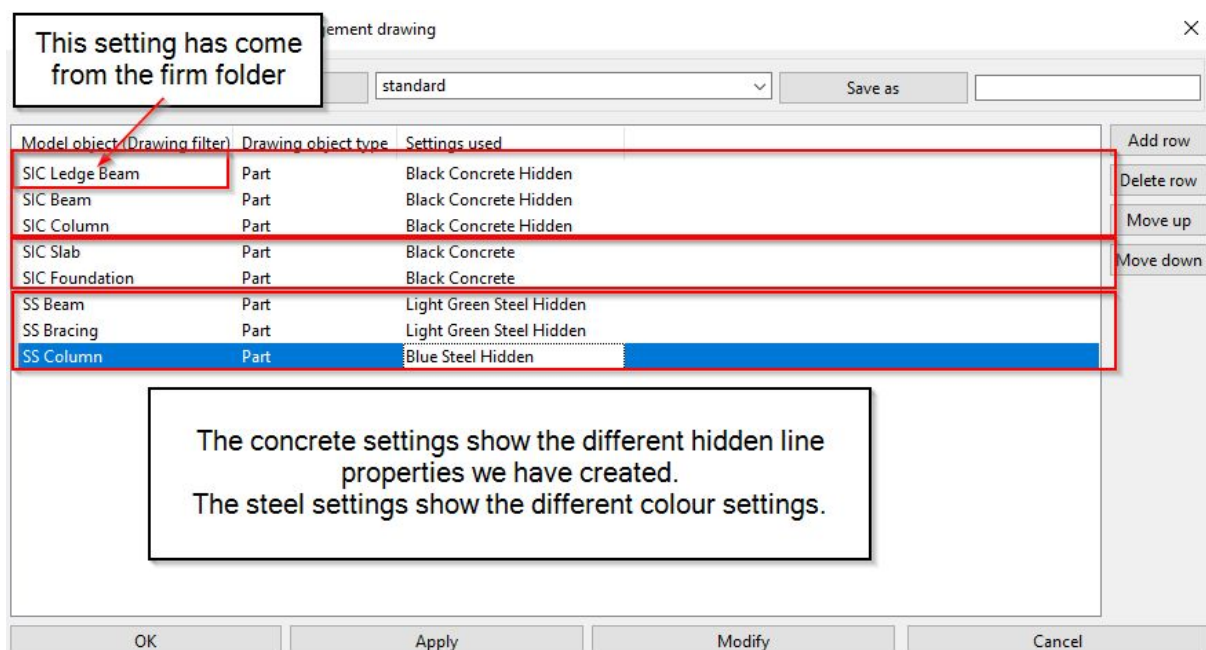
Click Add row.



Step 8.

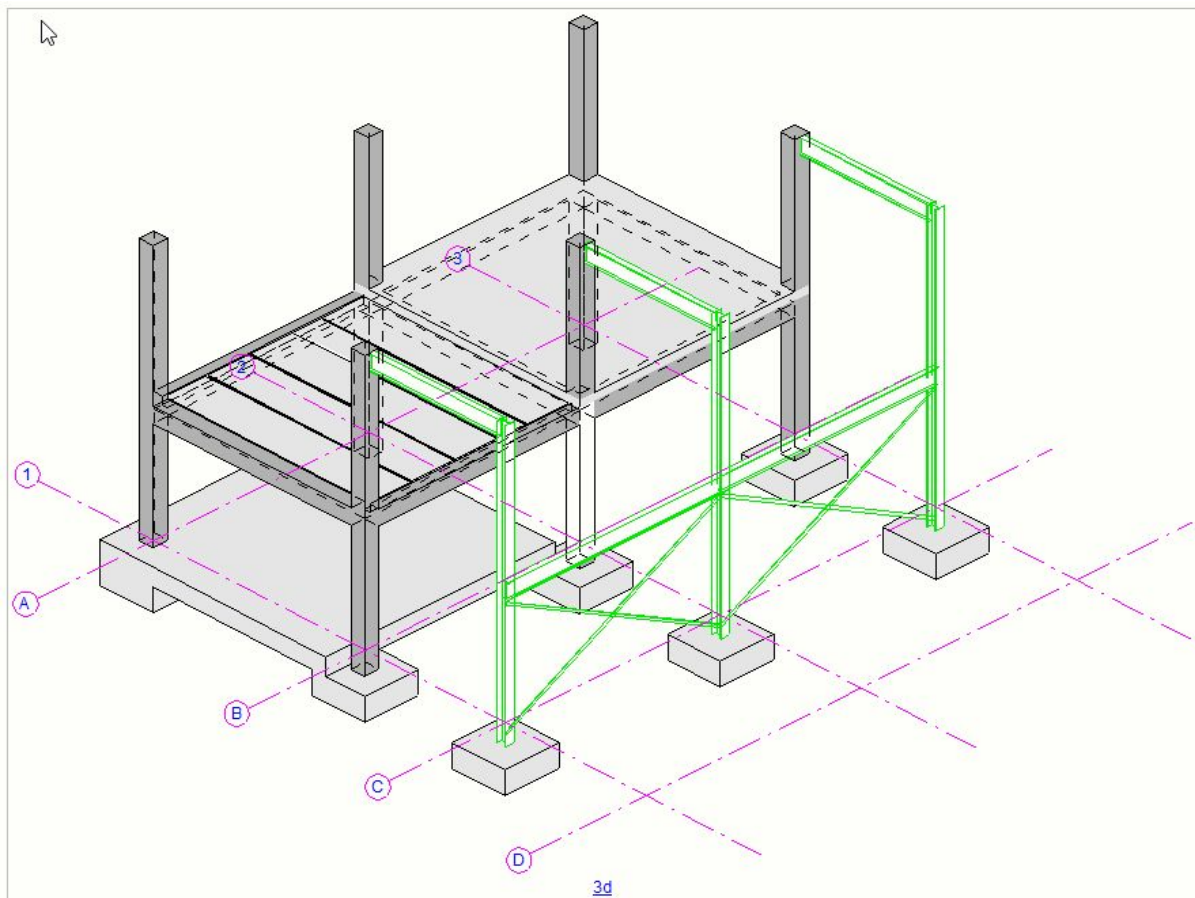
Set up the three columns using the Naming conventions sheet from Lesson 3.

Create as below.



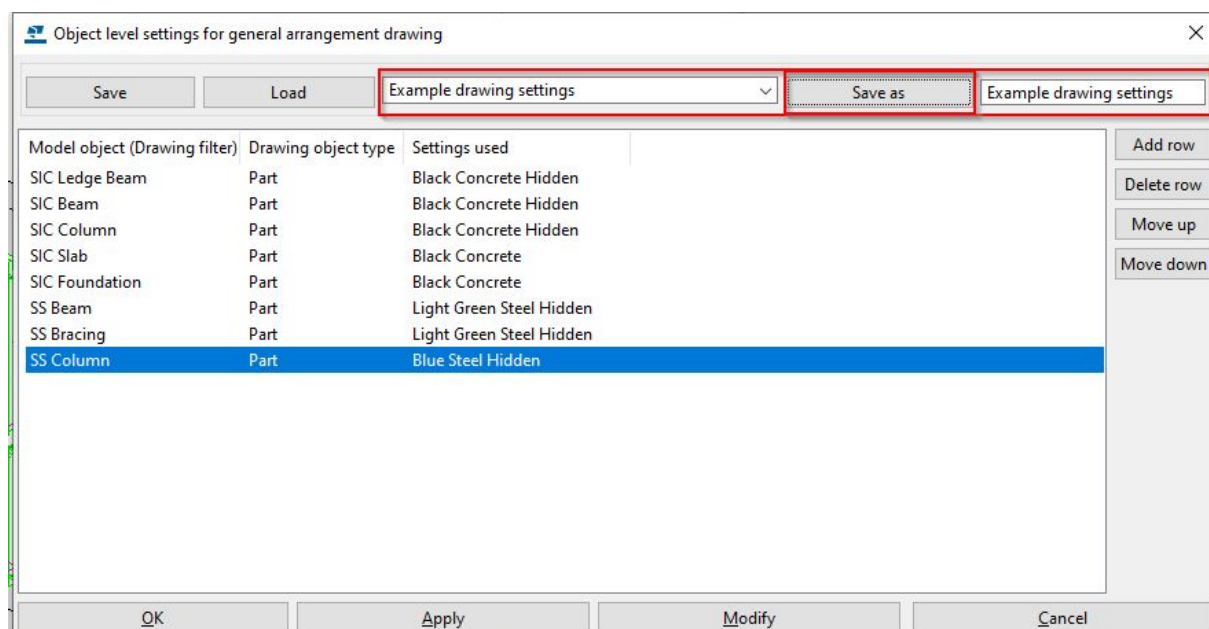
Click modify once completed.

You should see this result.



Step 9.

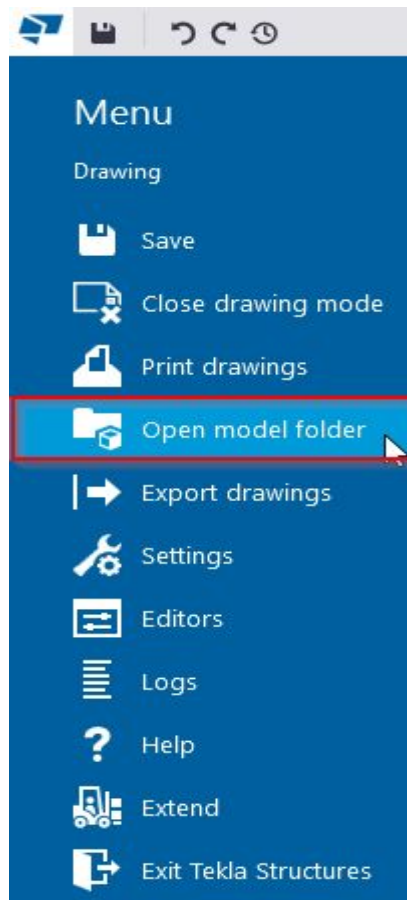
Save the setting in the Detailed object level settings dialog.



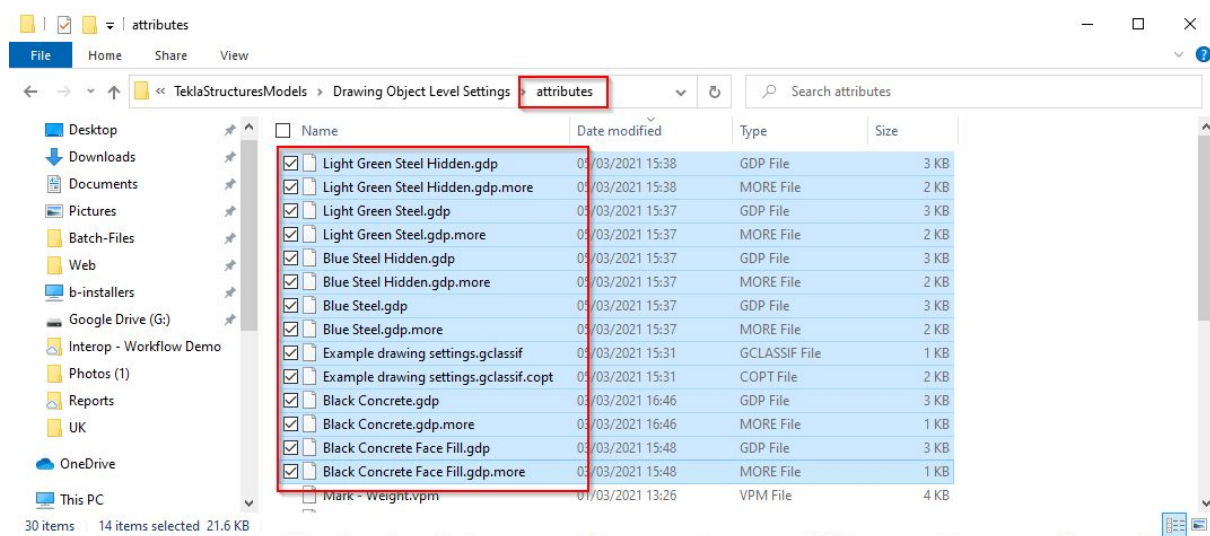
Step 10.

Move saved files to the firm folder.

Open the model folder.



Open the attributes folder and select the files required. This will include all of the part settings as well as the finished object level saved setting.



Step 11.

Add all of the setting properties in use to the Naming conventions list created throughout these lessons.

Object Type	Name	Part Prefix	Part Start Number	Assembly /Cast Unit Prefix	Assembly /Cast Unit Start Number	Filter	Drawing Object Setting
Steel Beam	Beam	M	1	B	1	SS Beam	Light Green Steel Hidden
Steel Column	Column	M	1	C	1	SS Column	Blue Steel Hidden
Steel Brace	Brace	M	1	BR	1	SS Bracing	Light Green Steel Hidden
Steel Rafter	Rafter	M	1	R	1	SS Rafter	Light Green Steel Hidden
Steel Purlin	Purlin	M	1	PN	1	SS Purlin	Light Green Steel Hidden
Concrete Beam	Beam	-	-	CB	1	SIC Beam	Black Concrete Hidden
Concrete Column	Column	-	-	CC	1	SIC Column	Black Concrete Hidden
Concrete Pile	Pile	-	-	CP	1	SIC Pile	Black Concrete Hidden
Concrete Ledge Beam*	Ledge Beam	-	-	LB	1	SIC Ledge Beam	Black Concrete Hidden
Concrete Slab	Slab	-	-	S	1	SIC Slab	Black Concrete
Concrete Foundation	Pile Cap	-	-	PC	1	SIC Foundation	Black Concrete

This is the end of the tutorials for the system set up. We have only covered the basics here in order for you to get going.

Using this knowledge you will be able to expand this simple set up into a much more comprehensive drawing office standard for your business.

From adding the Drawing object level settings from the GA drawing level to the View Level, Manipulating more drawing object types instead of just Part, such as, the part marking and rebar marks to creating settings for propping layouts, erection schedules and much more.