Principles of Drawings

Tekla Structures 11.0 Basic Training

March 16, 2005

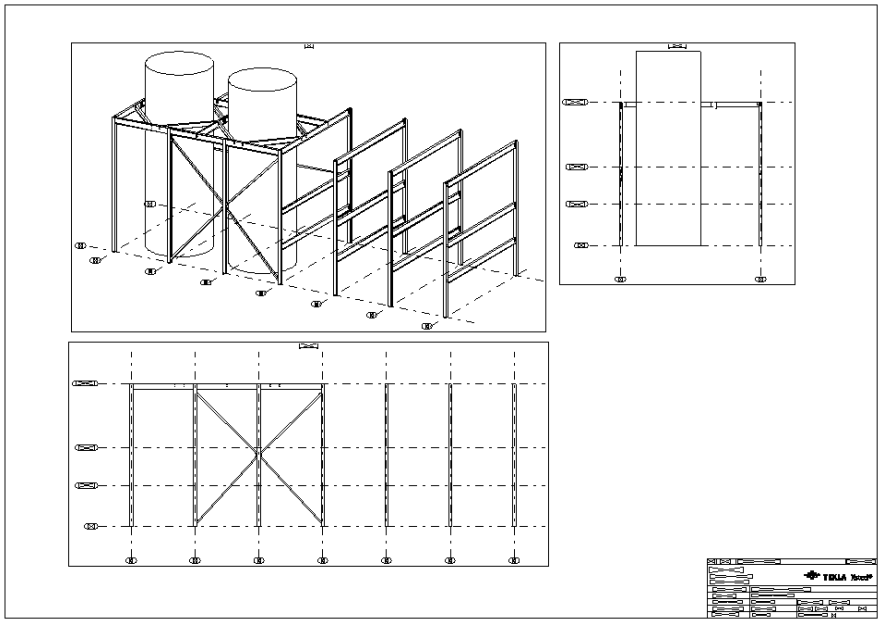
Contents

10 Principles of Working with Drawings

In this lesson

This chapter introduces the principles of working with drawings in Tekla Structures.

We will first explain the integration between drawings and the model. Then we will introduce general arrangement (GA) drawings and create an example drawing from the **Basic Model 1** model (see the picture below presenting the steel frame). GA drawings will be used as examples throughout this lesson.

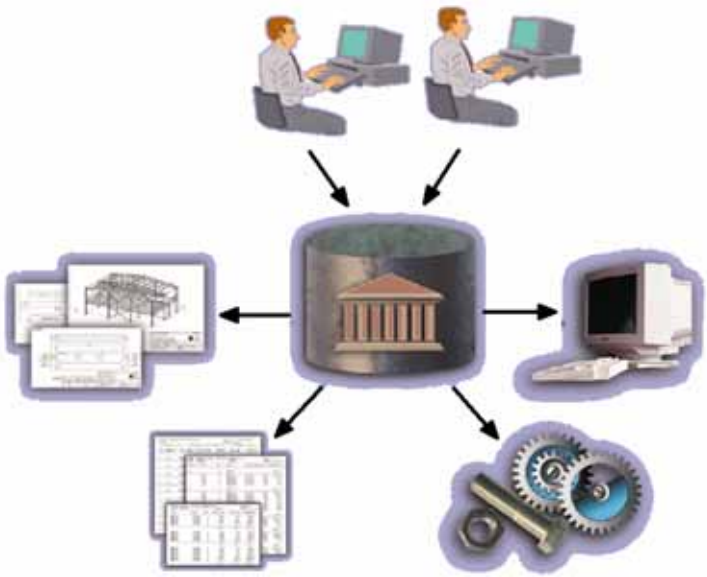


We will also:

- Introduce other drawing types available in Tekla Structures
- Introduce the drawing list
- Introduce the various levels of editing the drawings
- Study the drawing objects and layout
- Plot drawings
- Introduce revision control

10.1 Integration between Drawings and the Model

Tekla Structures stores all the important project information in one place, i.e. the model. Drawings and other printouts such as reports, nc data files etc. are output produced directly from the model.



Tekla Structures model

The model contains all the important project information:

- Parts' geometrical and structural information
- Part marking
- Bolts
- Bolt marking
- etc.

All the modifications must be done directly in the model. The model is always modified in the Tekla Structures Model Editor.

Drawings

The drawings are current views of the members contained in the model with added definitions for:

- the sheet size to be used
- the way titles and tables are placed on the sheets
- what is dimensioned and how
- which marks are displayed

- etc.

You can create drawings at any stage of a project.

Some of the drawing commands are located in the Model Editor and some are in the Drawing Editor. You will find all the commands for creating and managing drawings in the Model Editor. To view and edit drawings, you will use the Drawing Editor.

Help: Drawing > Introduction to Drawings

Changes in the model members

Changes in the model members can result in the drawings no longer being up-to-date. The following are examples of changes that affect the drawings:

- A part's profile or geometry changes
- Parts have been added or deleted
- The number of identical parts has changed

Tekla Structures updates the related drawings the next time you number the model. Numbering does not have to be up-to-date to create or open general arrangement drawings.

10.2 Creating Drawings

We will now introduce general arrangement (GA) drawings and create an example drawing of the **Basic model 1** model.

General Arrangement (GA) drawings

The Tekla Structures can be used to create general arrangement (GA) drawings.

GA drawings can contain several views, which can include the whole model or any part of it. With the GA drawings you can create erection, foundation and other plans, as well as details from views in the model.

You can create general arrangement drawings from one or several named model view(s) with the following options:

- Create one drawing for each selected view
- Add all selected views to one drawing
- Create an empty drawing

You can create an empty drawing and add named model views to the drawing in the Drawing Editor. The views must exist but they do not necessarily have to be open.

You cannot modify the appearance, such as the viewing angle, of model views in the Drawing Editor. Therefore, check and modify the appearance of model views in the Model Editor before creating GA drawings. For example, check that the plan views are really 2D views, and rotate the rendered 3D views the way you want them to be shown in the drawing.

See Lesson 12 for more information about creating GA drawings.

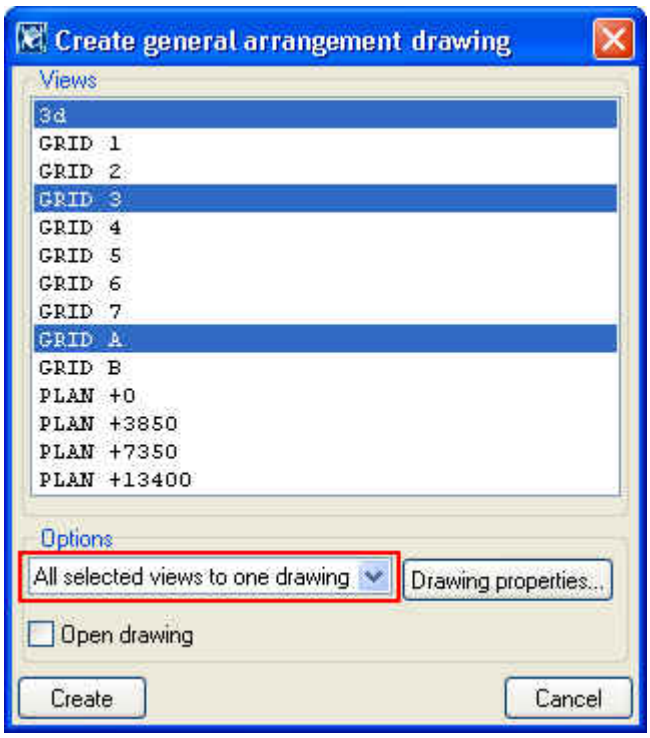
In the example below, we will create a general arrangement drawing from **Basic Model 1** by including several named model views in the drawing.

You do not need to number the model, or update numbering to create or open general arrangement drawings.

Start GA drawing creation

To create a GA drawing that contains selected views, e.g. 3d, GRID 3 and GRID A, from **Basic Model 1**:

1. Open **Basic Model 1**.
2. Select **Drawing > General arrangement drawing...** from the menu.
3. Select the 3d, GRID 3 and GRID A views in the **Create general arrangement drawing** dialog box. Then select the option **All selected views to one drawing**.



You can select multiple views (or toggle the selection) in the dialog box above by holding down the **Ctrl** key and picking each view separately.

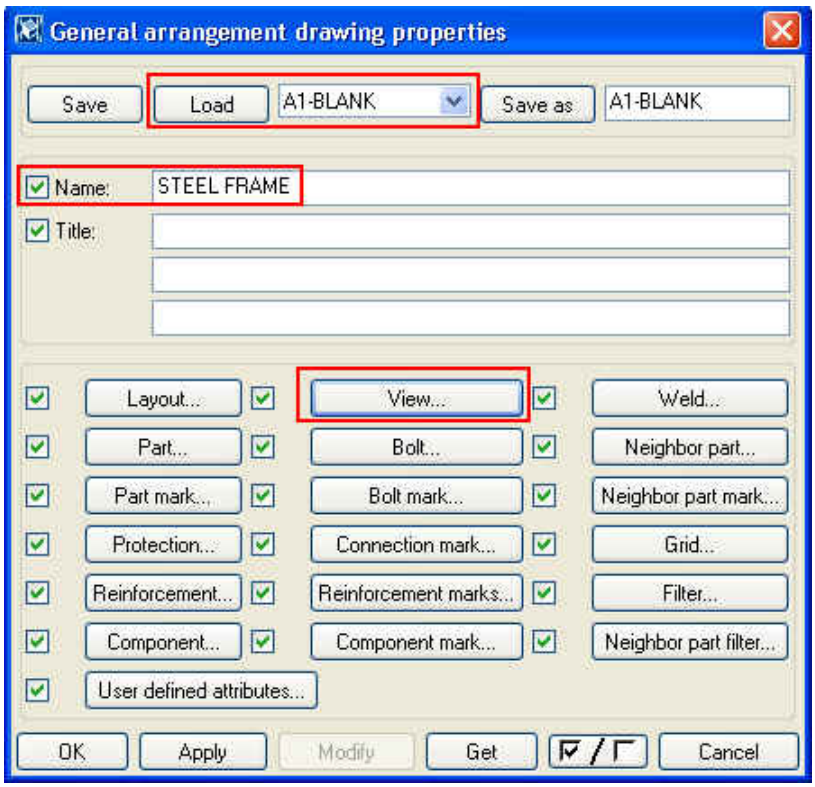
GA drawing views are automatically labeled with the current view name.

With the **One drawing per view** option you can select all the plan views in the dialog box, and create separate drawings with predefined drawing properties all at once.

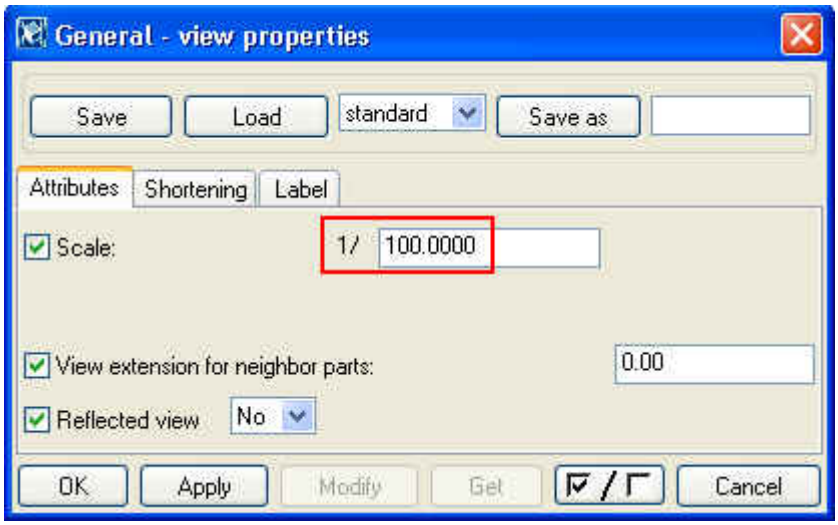
Define drawing properties

To define the properties of the GA drawing:

1. Click the **Drawing properties...** button to open the **General arrangement drawing properties** dialog box.
2. Select **A1-BLANK** settings from the option menu and click **Load.**
3. Give the drawing a distinctive name in the **Name** field, e.g. **STEEL FRAME** (or **CONCRETE FRAME** if your model was made of precast concrete beams and columns).
4. Click the **View...** button to open the **General - view properties** dialog box.



5. On the **Attributes** tab, change the drawing scale to **100** and click **OK** to apply the scale and close the dialog box.



If you have a steel frame

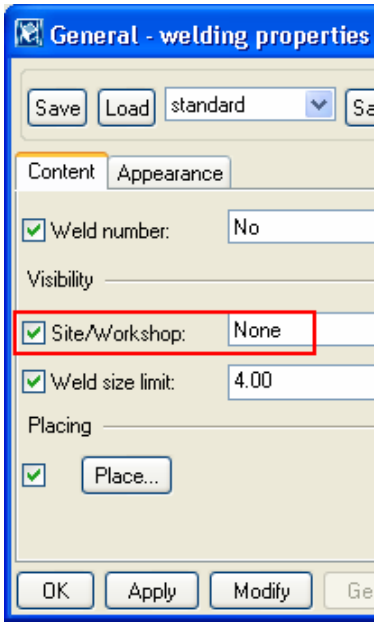
6. Click the **Weld...** button to open the **General - welding properties** dialog box.

7. On the **Content** tab, set the **Visibility** of site and workshop welds to **None** and click **OK**.

If you have a concrete frame

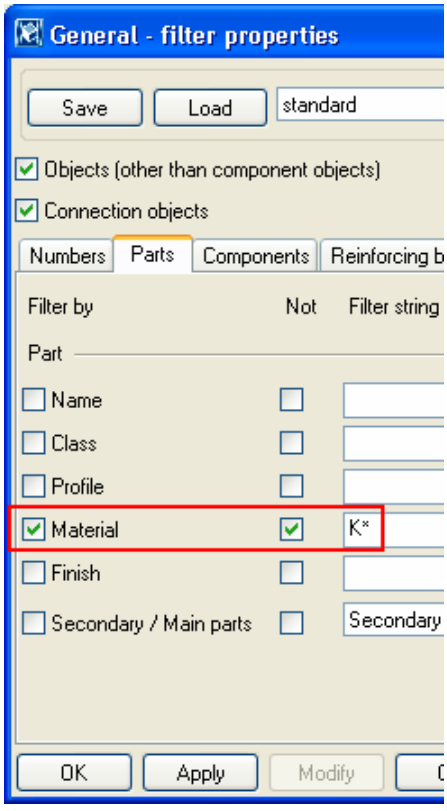
6. Click the **Reinforcement...** button to open the **General – reinforcing bar properties** dialog box.

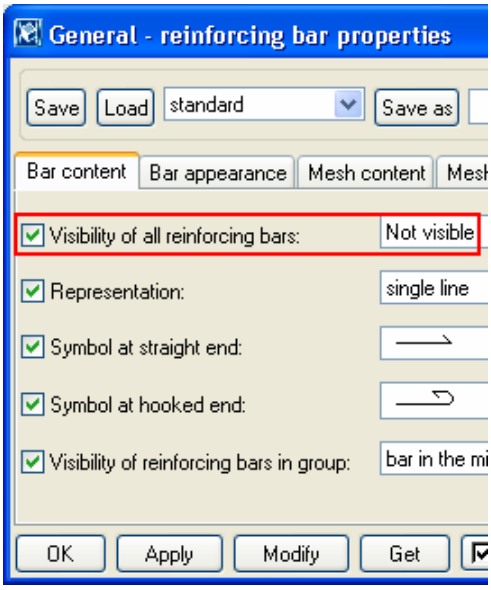
7. On the **Bar content** tab, set the **Visibility of all reinforcing bars** to **Not visible** and click **OK**.



8. Click the **Filter...** button to open the **General - filter properties** dialog box.

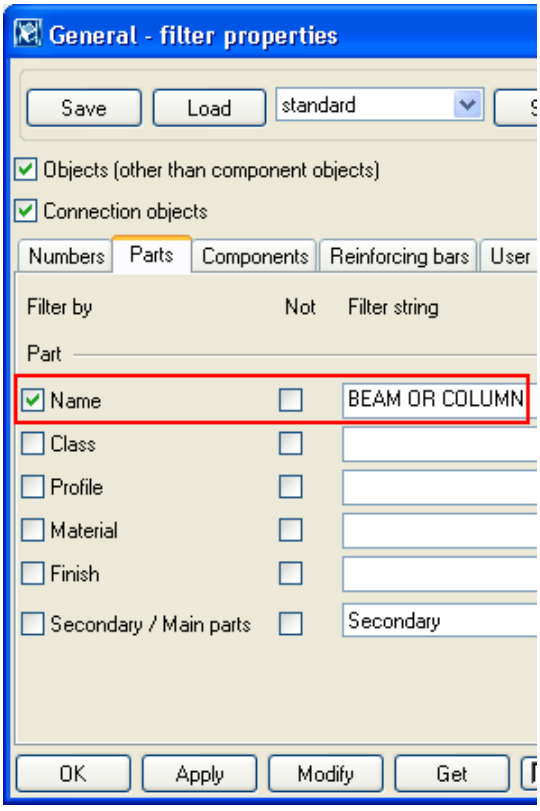
9. On the **Parts** tab, use the **Filter by Material** field to filter drawing objects so that no concrete parts are shown. Enter **K*** as the filter string, tick the **Not** option on and click **OK**.





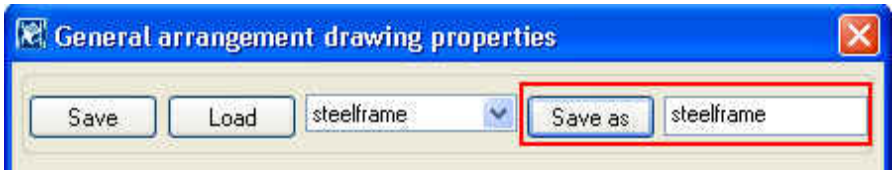
8. Click the **Filter...** button to open the **General - filter properties** dialog box.

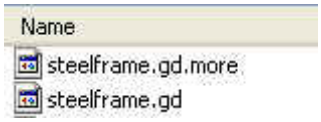
9. On the **Parts** tab, use the **Filter by Name** field to filter drawing objects so that only beams and columns are shown. Click **OK**.



10. In the **General arrangement drawing properties** dialog box, save the selected drawing properties with a unique file name, e.g. **steelframe (**or **concreteframe**),

by typing the file name and then clicking the **Save as** button. Drawing property files steelframe.gd and steelframe.gd.more are created in the **..\Basic Model 1\attributes** folder.





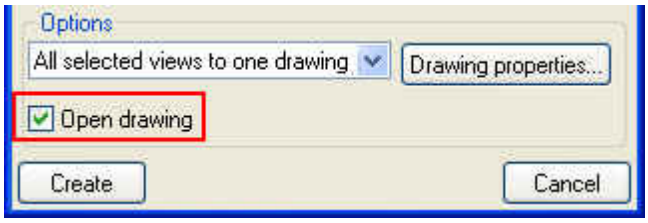
11. Click **OK** to apply the selected GA drawing settings and to close the **General arrangement drawing properties** dialog box.

For more information on drawing properties, see **Help: Drawing > Drawing properties**.

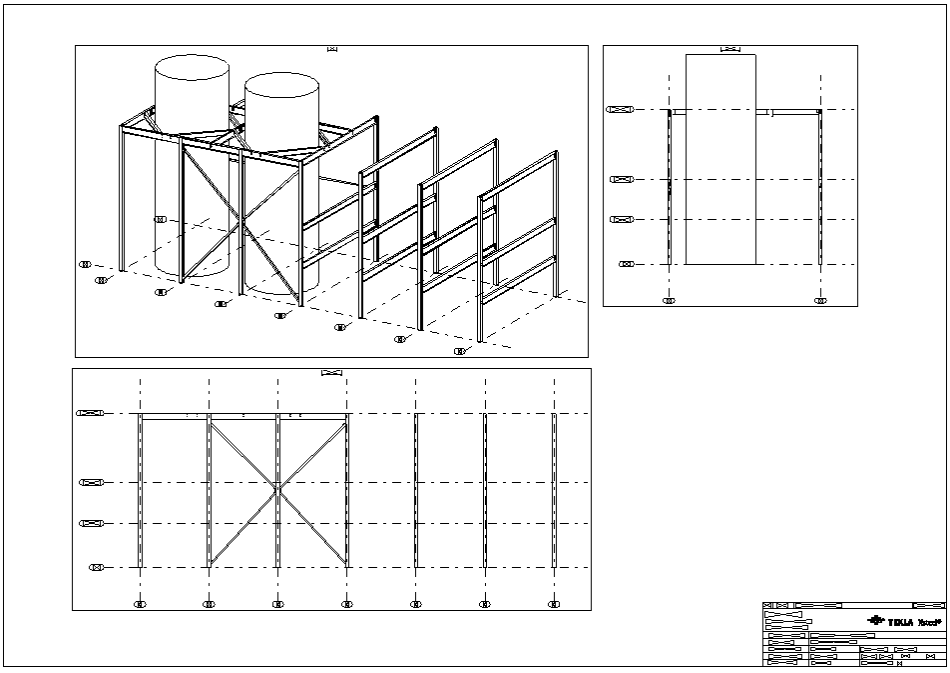
Create and open the GA drawing

To create and open the GA drawing:

1. Select the **Open drawing** checkbox in the **Create general arrangement drawing** dialog box to have Tekla Structures automatically open the drawing.



2. Click **Create**.
3. Check that the created GA drawing is as shown below.



All of the views in the GA drawing will be created according to the same GA drawing properties you applied. If some views need different properties, you have to modify the view properties afterwards in the Drawing Editor.

You can first define the GA drawing properties by selecting **Properties > General arrangement drawing...** from the menu, and then load and apply the desired properties. After that open the **Create general arrangement drawing** dialog box to create the GA drawing with the selected views.

Other drawing types

In addition to general arrangement drawings, four other types of drawings can be created in Tekla Structures. These will be presented in greater detail in Lessons 11 and 13.

Single-part drawings are workshop drawings of individual steel parts. Drawings can be produced for any steel part in the model. The single-part drawings can contain holes but welded parts cannot be included. This drawing type is available in Steel Detailing module.

Assembly drawings are typically workshop drawings where details of an assembly consisting of steel parts are presented for fabrication. In most cases, an assembly consists of single steel parts that are either bolted or welded to the main steel part. This drawing type is available in Steel Detailing module.

Cast unit (CU) drawings are formwork or reinforcement drawings of reinforced concrete structures such as foundations. This drawing type is available in the Precast Concrete Detailing module.

Multi-drawings are workshop drawings which gather together several single-part or assembly drawings on one sheet. This drawing type is available in Steel Detailing module.

Lesson 11 Assembly and single-part drawings / Cast unit drawings

Lesson 13 Multi-drawings and multinumbering

10.3 Drawing List

We will briefly cover the Tekla Structures drawing list.

You can use the drawing list to:

- Select and open your drawings for viewing and editing in the Drawing Editor
- Update, clone and delete drawings
- Update GA drawing marks
- Display and filter drawings shown in the list
- Choose drawings to select parts in the model, or show only the drawings of the selected parts in the list (not available for GA drawings)
- Lock, freeze and issue drawings
- Add revisions to drawings
- Modify properties of several drawings at a time.

The drawing list also displays the creation and modification dates of the drawings, drawing size and type, etc.

See Lesson 13 for updating GA drawings.

Opening and closing drawings

You can only have one drawing open at a time. If you already have a drawing open, Tekla Structures prompts you to save that drawing before opening the next one.

Open drawing list and a GA drawing

To open the drawing list and a drawing in Tekla Structures:

1. Select **Drawing > List...** from the menu or click the **Open drawing list** icon on the **Standard** toolbar.

2. In the drawing list select the previously created G [1] drawing.
3. Click **Open**, or double-click on the drawing to open it in the Drawing Editor.

See also **Help: Drawing > Getting started with drawings > Opening drawings**.

When selecting GA drawings in the drawing list, the activated buttons at the bottom of the **Drawings** dialog box are **Open**, **Update marks, Delete** and **Cancel**. The table below describes their functionality.

Button	Description
Open	Opens the selected drawing in the Drawing Editor. You can only select one drawing from the list at a time. If the Open button is grayed, you have more than one drawing selected. You can also double-click a drawing on the list to open it. See also

Button	Description
	Opening drawings.
Open next/previous	Opens the previous or next drawing in the list.
Update	Updates frozen drawings, and recreates unfrozen drawings. Locked drawings are not updated.
Update marks	Updates marks in selected drawings.
Clone…	Clones the selected drawing for a similar part.
Delete	Deletes selected drawings. You cannot delete locked drawings.
Cancel	Closes the dialog box.

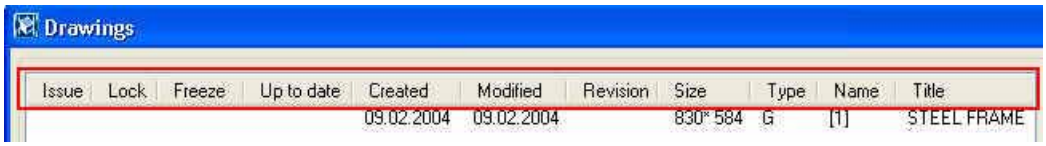
Close a drawing

To close the drawing in the Drawing Editor:

1. Select **File > Close drawing** from the menu or click the cross in the upper right corner of the drawing window.
2. Tekla Structures asks: Do you want to save the current drawing?
3. Select **Save** or **Save and Freeze** to keep the changes that you have made to the drawing, or close the drawing without saving by clicking **No**.

Drawing list contents

All of your existing drawings are shown in the drawing list. The example below shows the header line information that is available in the drawing list.



See also **Help: Drawings > Getting started with drawings > Drawing list**.

The table below explains the header line items of the drawing list.

Item	Explanation
Flags	Flags are characters (I, L, F, n, *, etc.) at the beginning of each row. They indicate the drawing status.

Item	Explanation
Dates	The creation and modification dates of the drawing.
Revision	The revision number or mark of the drawing.
Size	Paper size, which is shown automatically.
Type	The drawing types are identified by the following letters: • W for single-part drawings. • A for assembly drawings. • C for cast-unit drawings. • G for general arrangement drawings. • M for multi-drawings.
Mark	The drawing mark is the number of the part from which the drawing was created. You cannot change drawing marks.
Name	You can add a drawing title using the **Name** field in the drawing properties dialog box.
Title 1, Title 2, Title 3	Add extra drawing title fields to the drawing properties dialog box.
User-defined attributes	Include up to 20 user-defined attributes in drawing lists.

You can sort the order of the drawings by clicking the desired header line button in the drawing list.

You can adjust the column widths of the drawing list and Tekla Structures will keep the changes.

Drawing status flags

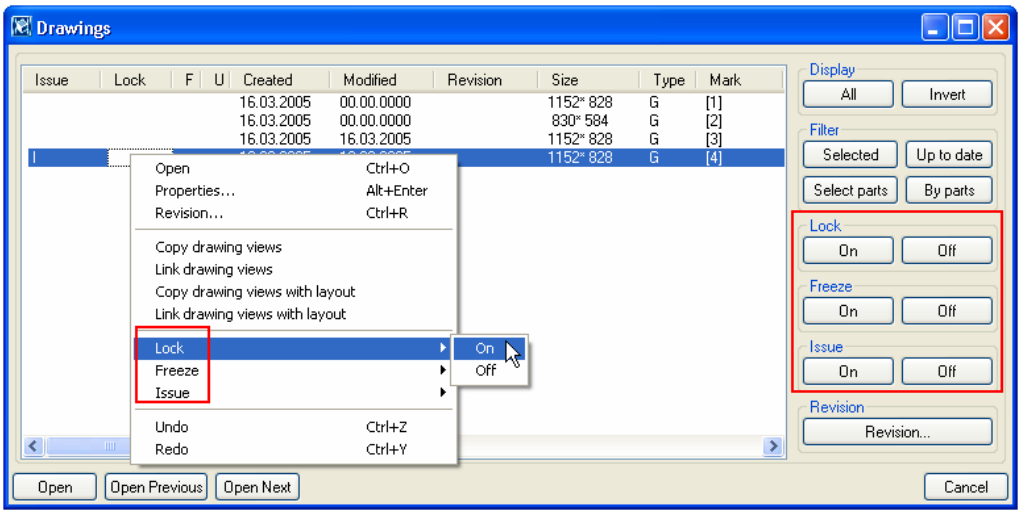
The status of drawings is represented by flags, which are shown on the left hand side of the drawing list.

For more information about drawing status flags, see **Help: Drawing > Getting started with drawings > Drawing status flags**.

Lock and **Issue** flags can be manually added to the selected drawings. The **M** flag appears automatically on issued GA drawings that have been modified.

Lock GA and other drawings from being accidentially deleted or changed.

Use the buttons on the right hand side of the drawing list to change the status of a drawing. Alternatively, select the drawing in the list, right-click to open the pop-up menu and change the drawing status.



Lock a GA drawing

To lock and unlock a GA drawing:

1. Select the G [1] drawing in the drawing list.
2. Click the **Lock - On** button and the **L** flag will appear.
3. Try to delete the drawing by clicking **Delete**.
4. Try to open the drawing by clicking **Open**.
5. Click the **Lock - Off** button to reset the lock.
6. Click **Open**. The drawing opens in the Drawing Editor.

You cannot open or delete a locked drawing without unlocking it.

Issue a GA drawing

To issue a GA drawing:

1. Select the G [1] drawing in the drawing list.
2. Click the **Issue - On** button and the **I** flag will appear.
3. Open the drawing to view the GA drawing title.
4. Check that the issue date is shown correctly in the drawing title.

10.4 Drawing Levels

You can edit drawings in the Drawing Editor on three levels:

- Drawing properties
- View properties
- Object properties

For more information about the drawing properties and different drawing levels, see the following help files:

Help: Drawing > Introduction to drawings > Three levels of editing drawings

Help: Drawing > Drawing properties

Lesson 12 GA drawings

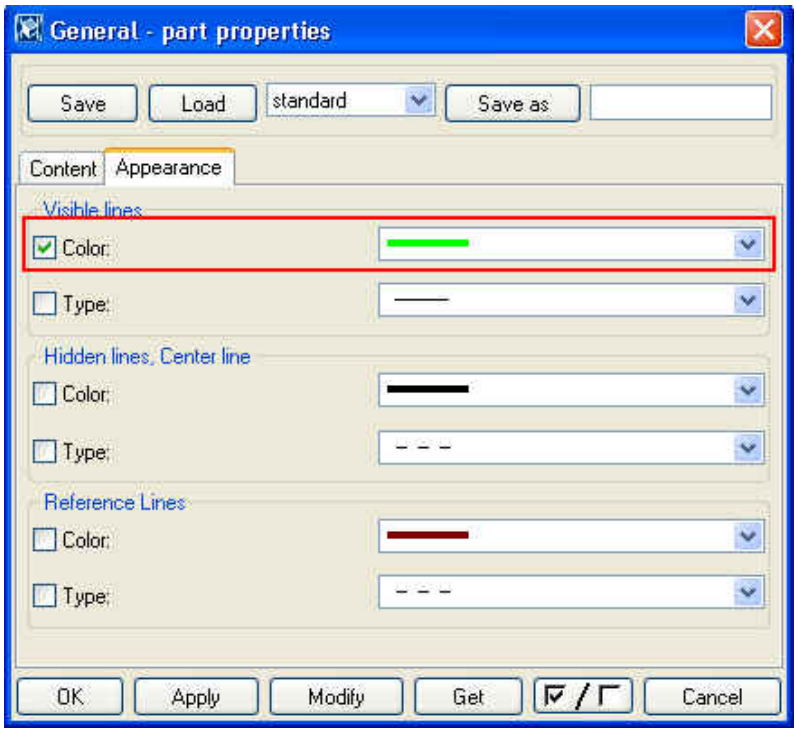
Modify drawing properties

On the highest level you can change the drawing properties, which affect all of the objects in the drawing.

Modify part's color on drawing level

To change the GA drawing properties, e.g. the color of parts, in the Drawing Editor:

1. Select **Properties > Drawing...** on the menu or double-click on the drawing to open the **General arrangement drawing properties** dialog box.
2. Click the **Part...** button to open the **General - part properties** dialog box.
3. Select the **Appearance** tab.
4. Change the **Color** of **Visible lines**, e.g., to green. Check and see that the checkbox is marked with a tick.



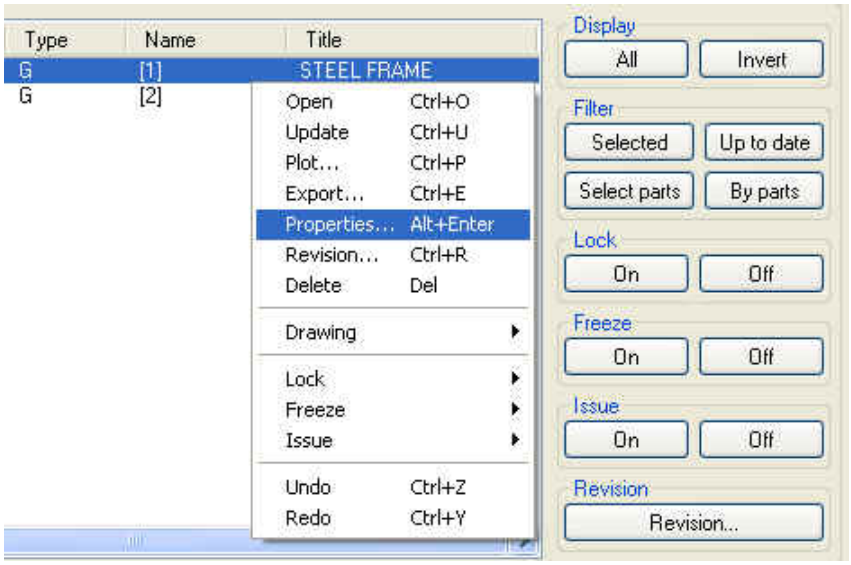
5. Click **Modify** and **OK**.

Create another GA drawing by following the steps described in Chapter 10.2 Creating drawings. Select different views, e.g. the PLAN +0 and PLAN +13400 views, to be included in the drawing.

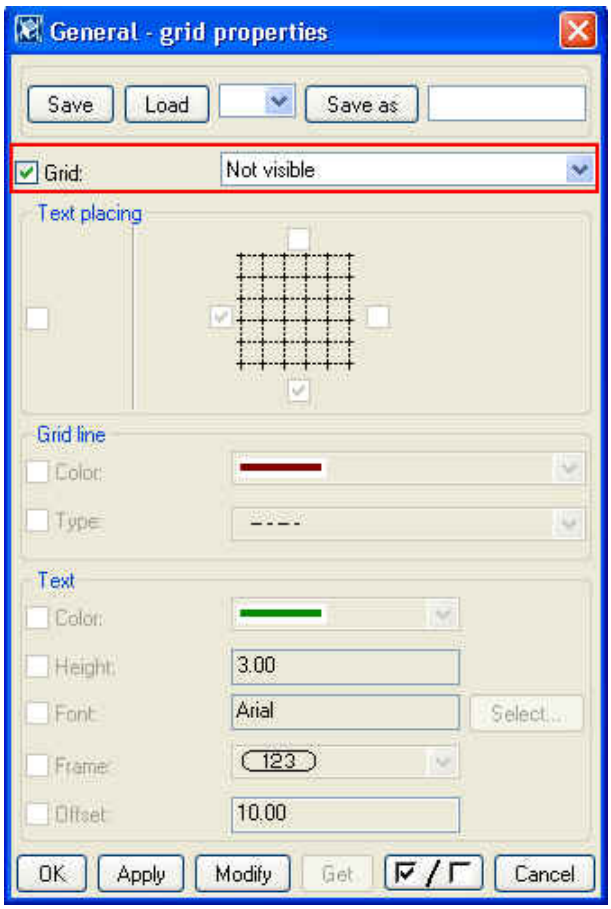
Change grid visibility of many GA drawings

To simultaneously change the drawing properties, e.g. grid visibility, of more than one GA drawing:

1. Open the drawing list in the Model Editor.
2. Select two GA drawings in the drawing list by holding down the **Ctrl** key.
3. Right-click to open the pop-up menu.
4. Select **Properties...** or press **Alt+Enter** as shortcut to open the **General arrangement drawing properties** dialog box.



5. Click the **Grid...** button to open the **General - grid properties** dialog box.
6. Click the **On/Off** button to clear the checkboxes.
7. Change the grid visibility to **Not visible**.



8. Click **Modify** and **OK**.
9. Click **OK** to close the **General arrangement drawing properties** dialog box.
10. Open the modified drawings one at a time to check that the changes were carried out correctly.

Whenever possible, you should modify drawings by changing the drawing properties. These modifications also remain when the drawing is recreated due to a model change.

Modify view properties

The second level is to edit the view level, where you modify the selected drawing's view.

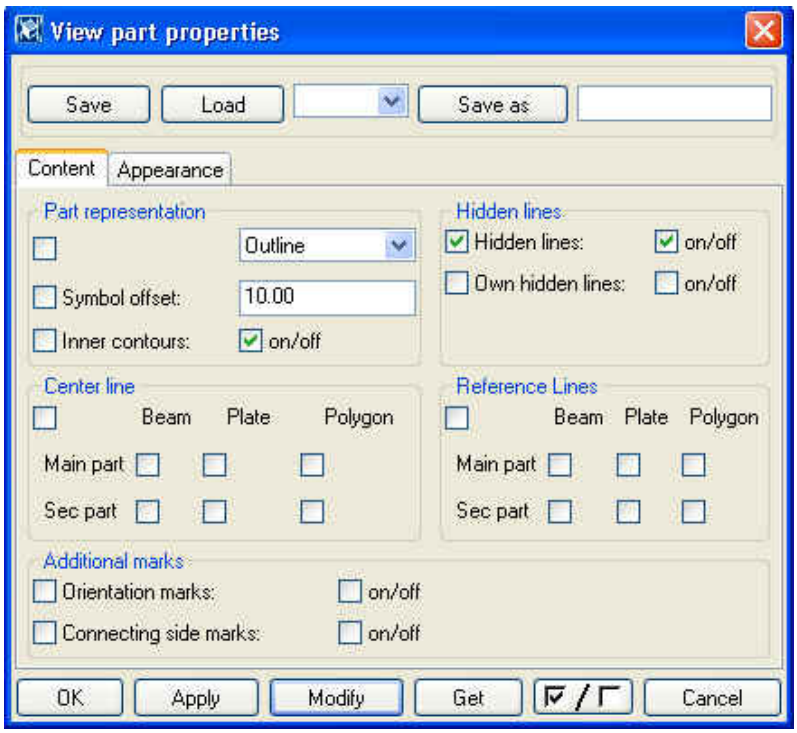
Modify properties of selected view

To present hidden lines of adjacent parts and to add part marks to the GRID A view of the G [1] drawing:

1. Double-click on the border around the GRID A drawing view to open the **View properties** dialog box.

Show hidden lines of parts

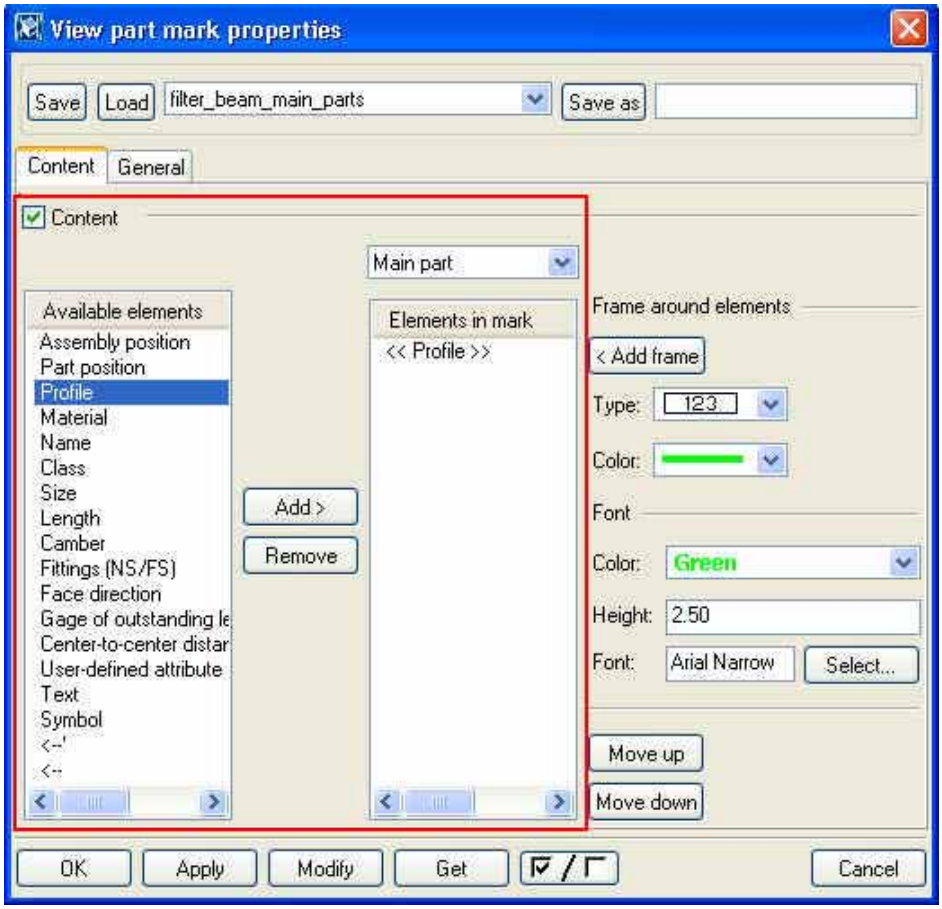
2. Click the **Part...** button to open the **View part properties** dialog box.
3. Select the **Content** tab.
4. Click the **On/Off** button to clear the checkboxes.
5. Turn the **Hidden lines** option on. Check that the checkbox is marked with a tick.



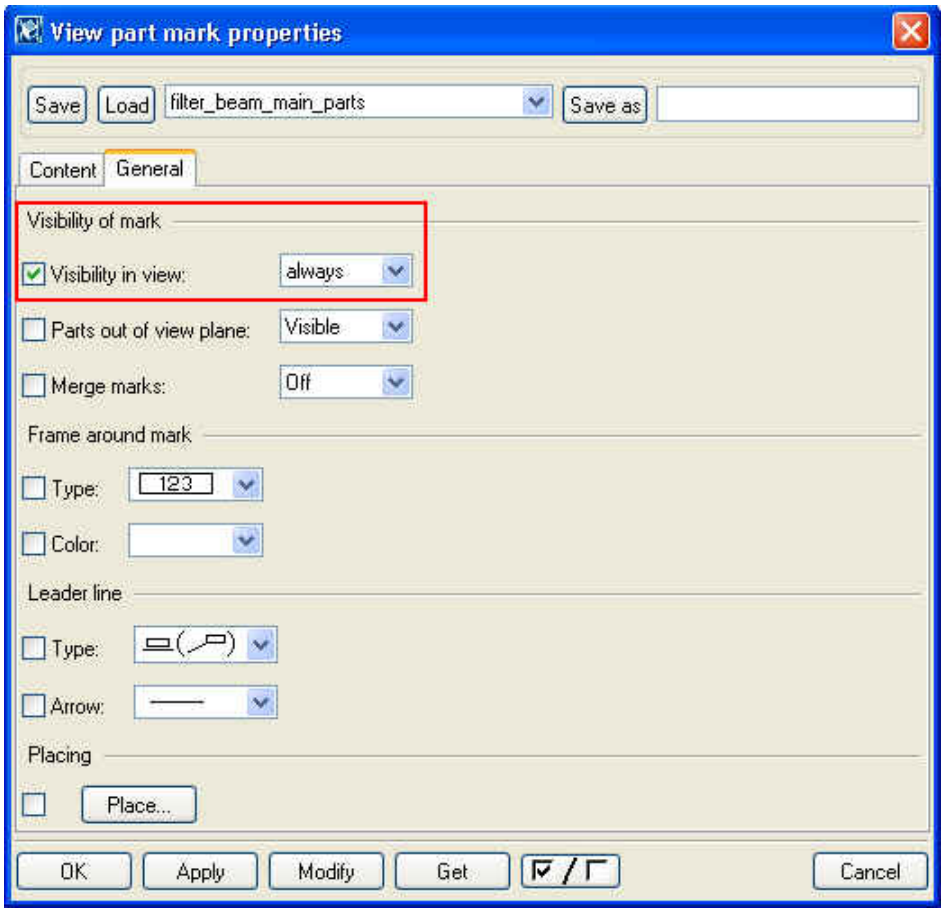
6. Click **Modify** and **OK**.

Change part mark content

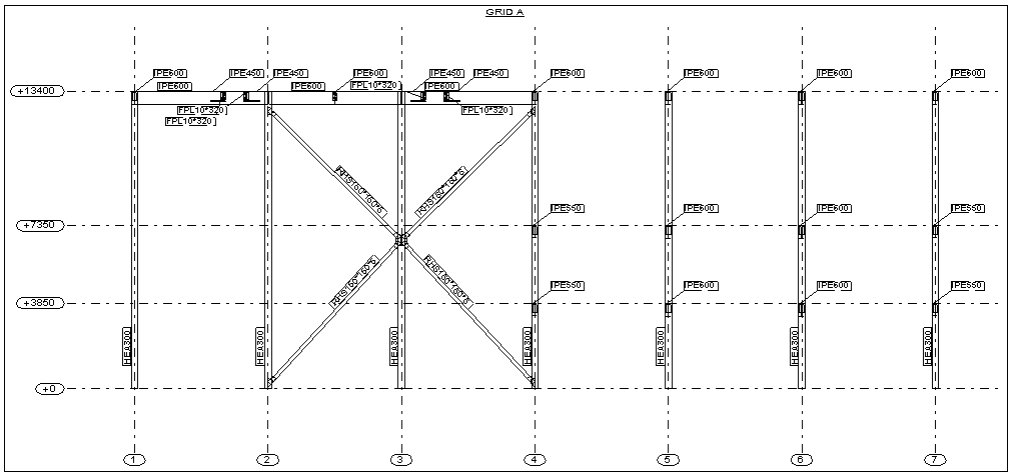
7. Click the **Part mark...** button to open the **View part mark properties** dialog box.
8. On the **Content** tab, remove the **<<Assembly position>>** from the **Elements in mark** list for the main parts, and add **Profile** to the list.



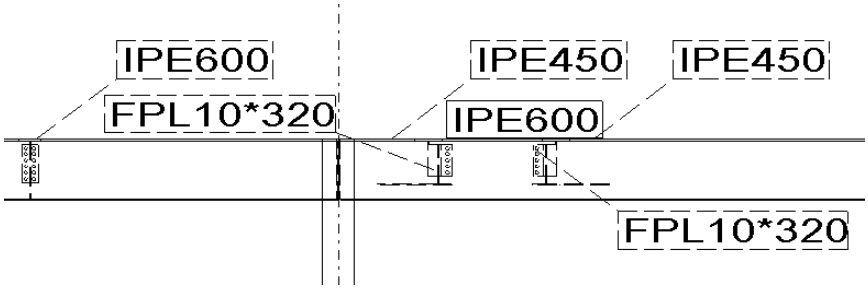
9. On the **General** tab, change **Visibility in view** to **always** and click **Modify** and **OK**.



The GRID A view should now show the hidden lines of adjacent parts and part marks representing the main part profiles.



Dashed line type in part mark frames and leader lines indicate that the object is behind another object in the drawing.



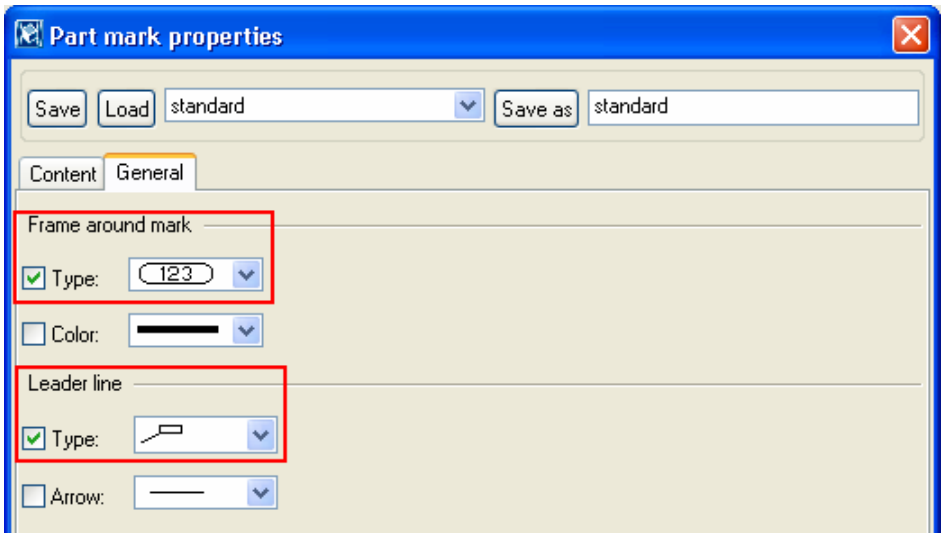
Modify object properties

The third and lowest level is to edit at the object level, where you change individual objects in the drawing.

Modify frame and leader line of a single part mark

To change the properties of a single part mark:

1. In the GRID A view, double-click on the part mark of the RHS profile (diagonal brace) to open the **Part mark properties** dialog box.
2. On the **General** tab, change the frame and leader line types as shown below.



3. Click **Modify** and **OK**. The part mark should now look like the following.

10.5 Drawing Objects

In Tekla Structures, the term drawing object refers to lines, rectangles, arcs, circles, poly-lines, polygons, clouds, symbols, text, DWG/DXF files, marks and dimensions.

General arrangement drawings are not automatically dimensioned in Tekla Structures. Therefore you need to dimension GA drawings manually. In addition, you may want to include additional drawing objects for temporary and/or revision-related information, e.g. clouds and text.

For more information, see **Help: Drawing > Editing drawings**.

Create Drawing Objects

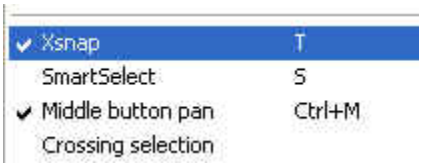
In the G [1] drawing, we will manually dimension the location of the diagonal bracing connection and add a cloud and a note text to the connection.

Create manual dimensions

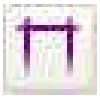
To add manual Y-dimensions to the diagonal bracing connection (on gridline 3) in the GRID A view:

1. Set the snap settings on the **Drawings: Snap settings** toolbar as shown below.

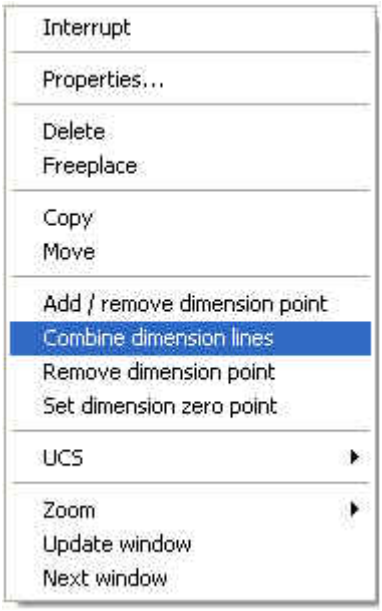
2. To enable the tentative snap, which helps with the selecting of points, check that the **Xsnap** is set on in the **Setup** menu.



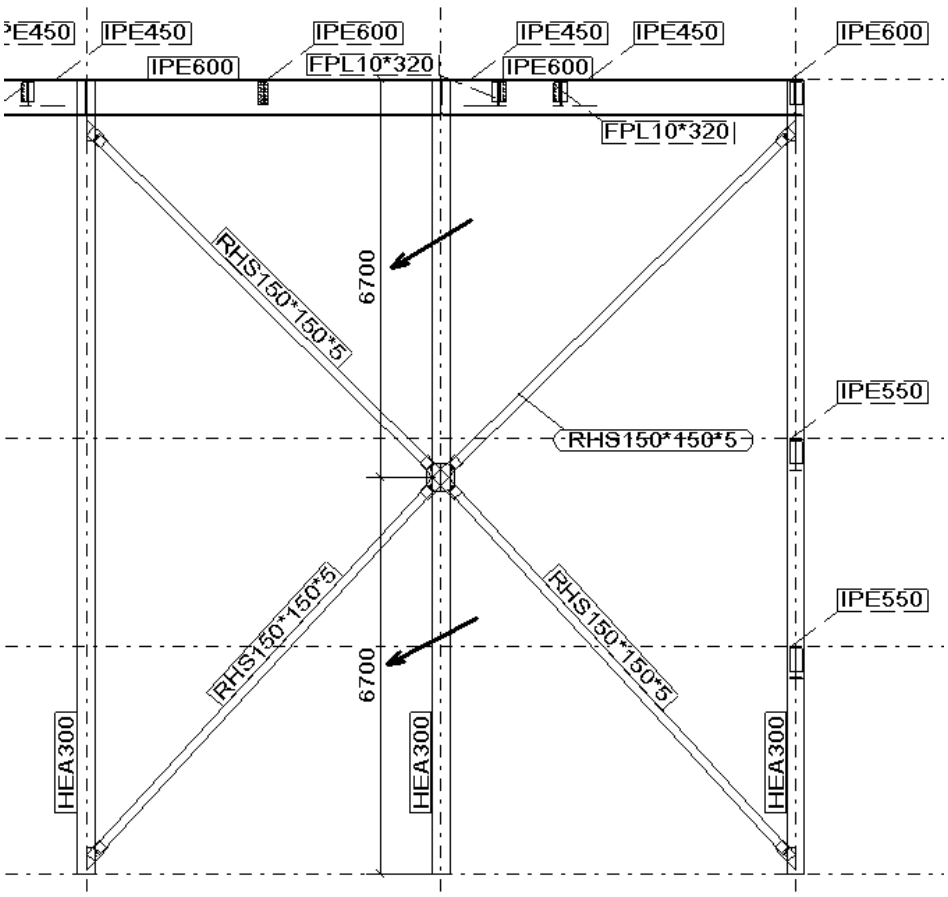
3. Click the **Create y dimension** icon on the **Drawings: Dimension** toolbar.



4. Snap, first, to the center point of the connection created between the four diagonal braces, and then to the intersection of GRID 3 and GRID +0. Move the cursor to the left side of GRID 3 to select the location of the dimension line. End the command with the middle mouse button.
5. Snap again to the center point of the connection and then to the intersection of GRID 3 and GRID +13400, select the dimension line location and click the middle mouse button.
6. Select both dimensions (by holding down the **Ctrl** key), right-click and select **Combine dimension lines** on the pop-up menu. The separate dimension lines are now combined to one dimension line. Select the dimension line and move it to the correct location by dragging with the mouse.



You should now have the vertical location of the diagonal brace connection shown in the GRID A view (see the figure below).



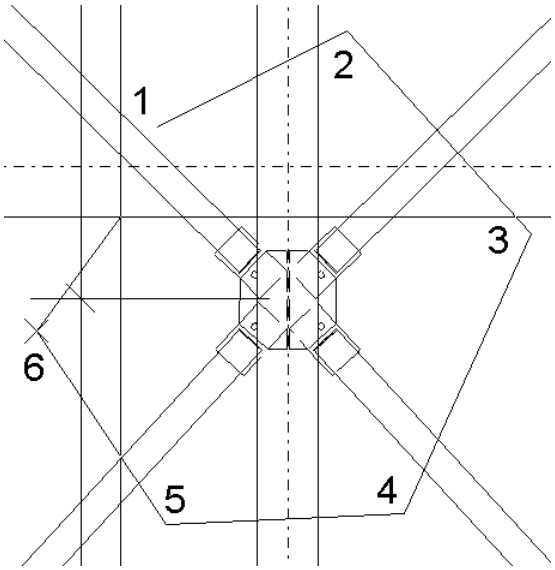
Create a cloud

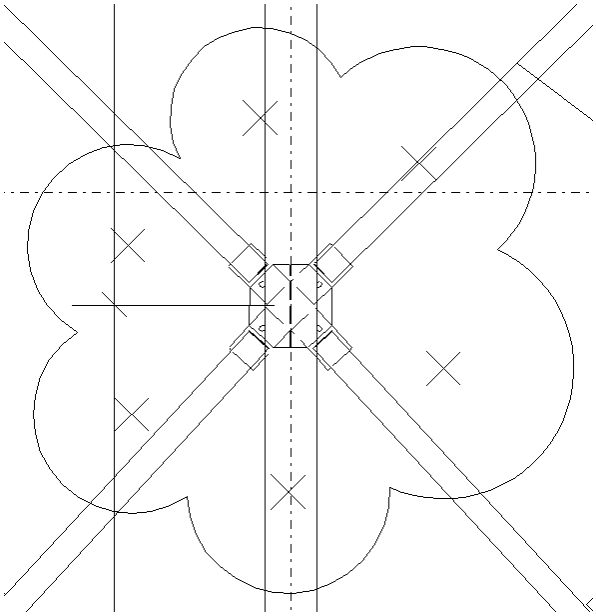
To add a cloud and a note text to the GRID A view:

1. Click the **Snap to any position** icon on the **Drawings: Snap settings** toolbar.

2. Click the **Draw cloud** icon on the **Drawings: Drawing** toolbar.

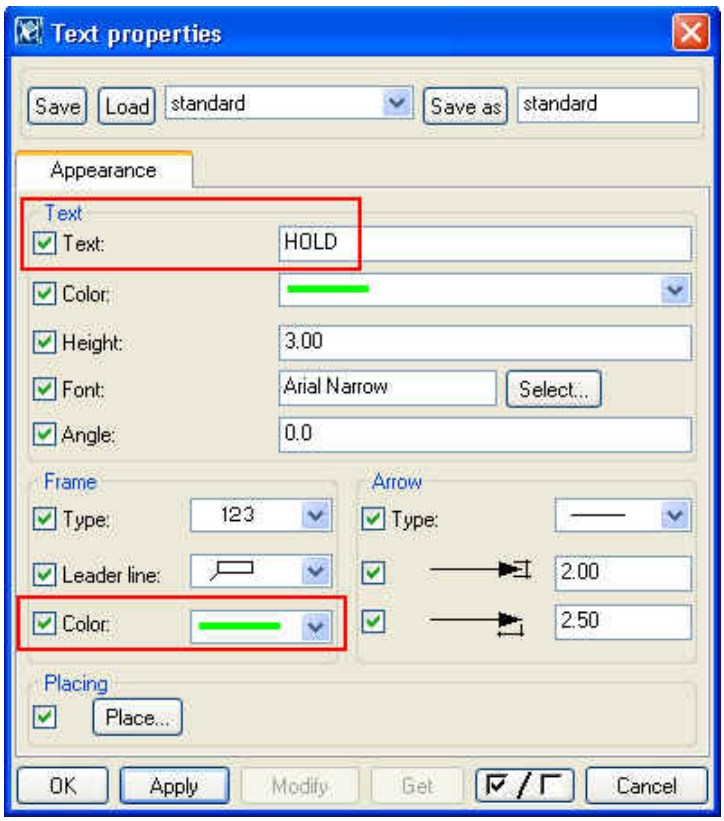
3. Pick points for the cloud position around the diagonal bracing connection on gridline 3. End the selection with the middle mouse button.





Create a note text for the cloud

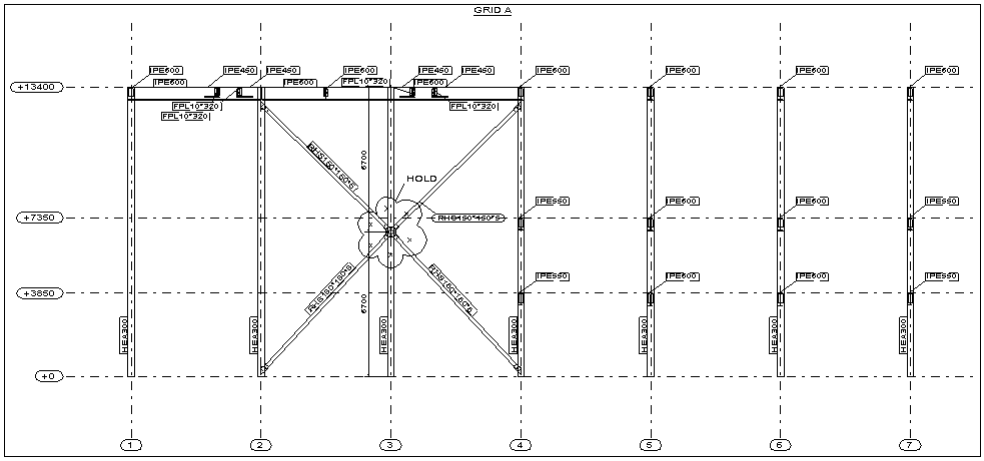
1. Select **Properties > Text...** to open the **Text properties** dialog box.
2. Select the **standard** settings from the option menu and click **Load**.
3. Change the text properties and frame as shown below and click **Apply** and **OK**.



4. Click the **Create text with leader line** icon in the **Drawings: Drawing** toolbar.

5. First, pick an edge of the cloud as the origin of the leader line and then another point to place the text.

The GRID A view should now look like the figure shown below:



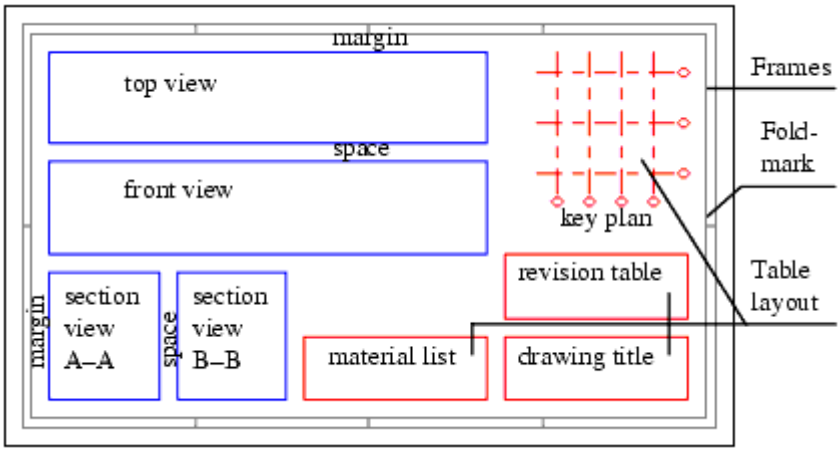
6. Select **File > Close drawing** and click **Save** in the **Question** dialog box.

10.6 Drawing Layouts

Now we will have a brief introduction on how the Tekla Structures drawing layouts function.

A drawing consists of the layout and drawing views, e.g. plans, side views, and section views. A layout connects a set of table layouts and a set of drawing sizes. Before you create a drawing, you must select a layout.

The example below illustrates the relationship between the table layout and drawing views. The drawing views are blue, and the elements of table layout are red.



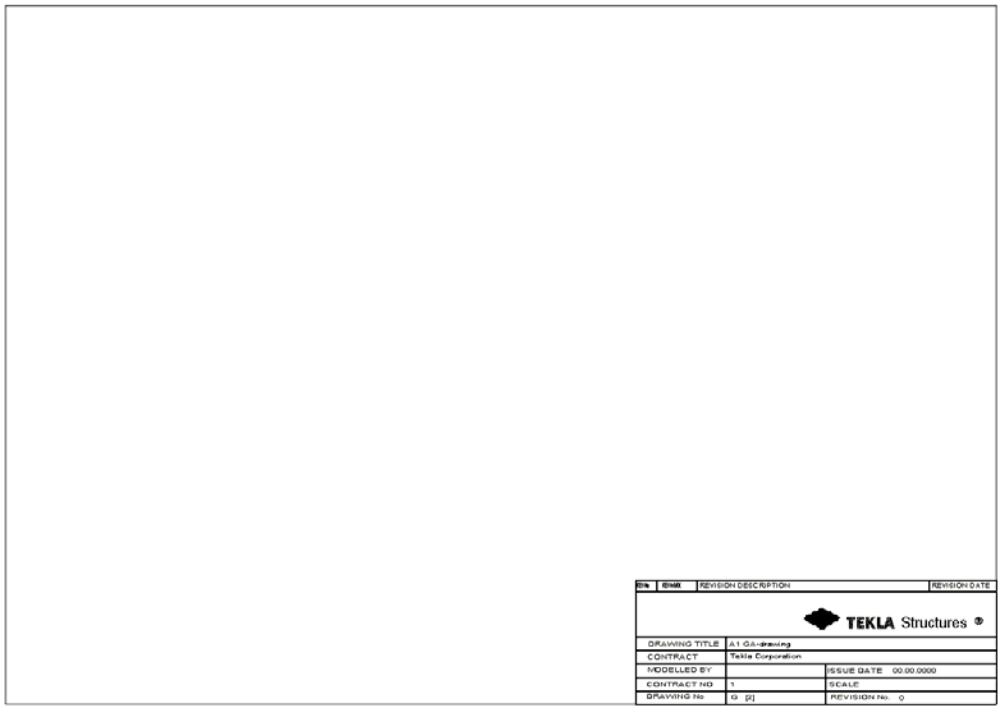
See the following links for more information about drawing layouts:

Lesson 12 GA drawing

Help: Drawing > Drawing layout

View contents of a drawing layout

An example of a GA drawing layout for the A3 drawing sheet size is shown below. The drawing title and revision table included in this layout are also shown separately and enlarged.



Revision table:

1	A	Testing	27.5.03
REV No	REV MARK	REVISION DESCRIPTION	REVISION DATE

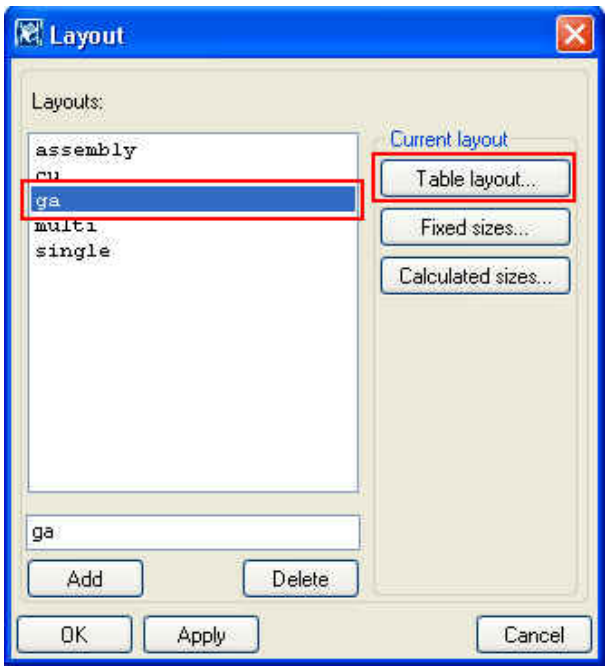
Drawing title for GA drawings:

REV No	REV MARK	REVISION DESCRIPTION	REVISION DATE
TEKLA Structures ®			
DRAWING TITLE	A1 GA-drawing		
CONTRACT	Tekla Corporation		
MODELLED BY		ISSUE DATE 00.00.0000	
CONTRACT NO	1	SCALE	
DRAWING No	G [2]	REVISION No. 0	

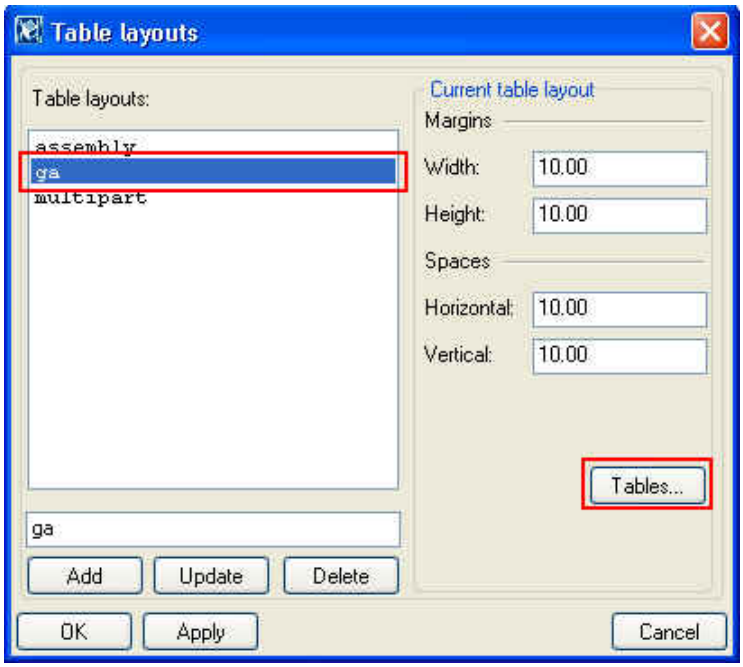
View GA drawing table layout

To view the contents of the GA drawing table layout in the Model Editor:

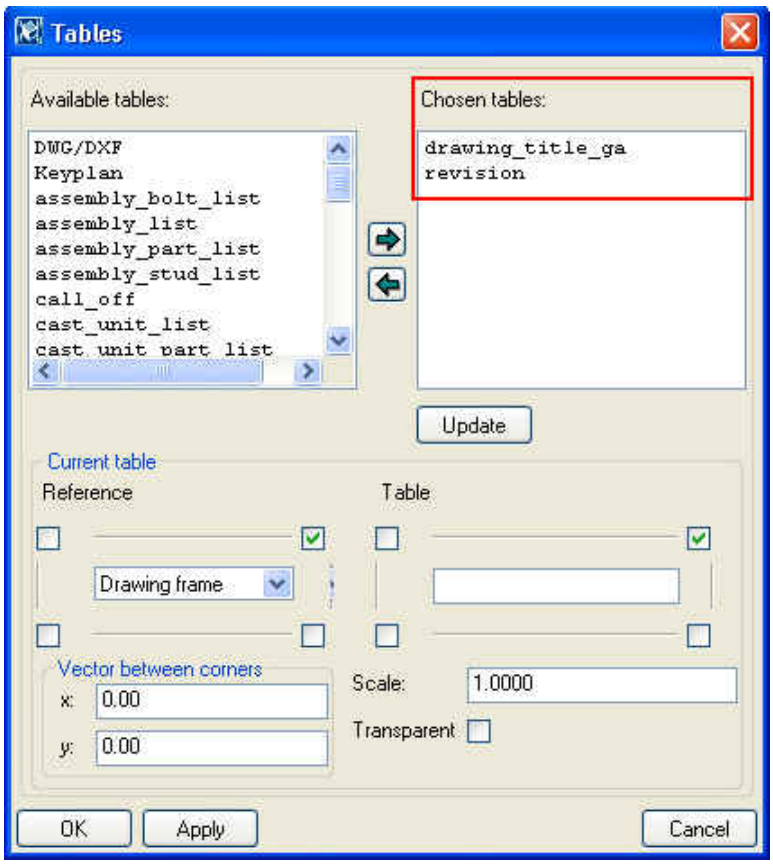
1. Select **Properties > Layout...** from the menu to open the **Layout** dialog box.
2. Select **ga** in the list of **Layouts** and click the **Table layout...** button to open the **Table layouts** dialog box.



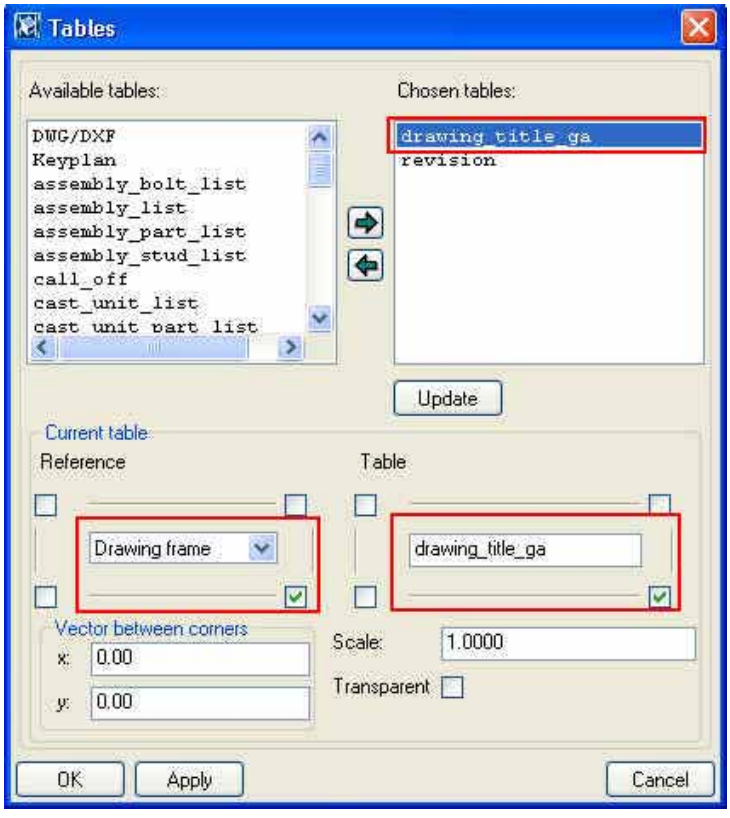
3. Select **ga** in the list of **Table layouts** and click the **Tables...** button to open the **Tables** dialog box.



4. The content of the ga table layout is presented in the **Chosen tables** list.



5. Select the **drawing_title_ga** and **revision** table one at a time to view their location in the table layout. The former, for example, is bound by its lower right corner to the lower right corner of the drawing frame (that is the reference object).



6. Click **Cancel** to close the dialog box.

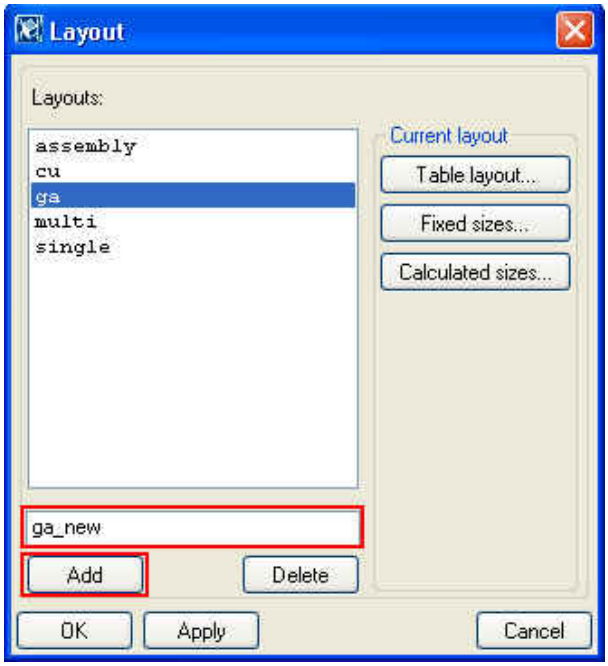
Create a new layout

We will use the existing ga layout as basis for creating a new layout for GA drawings.

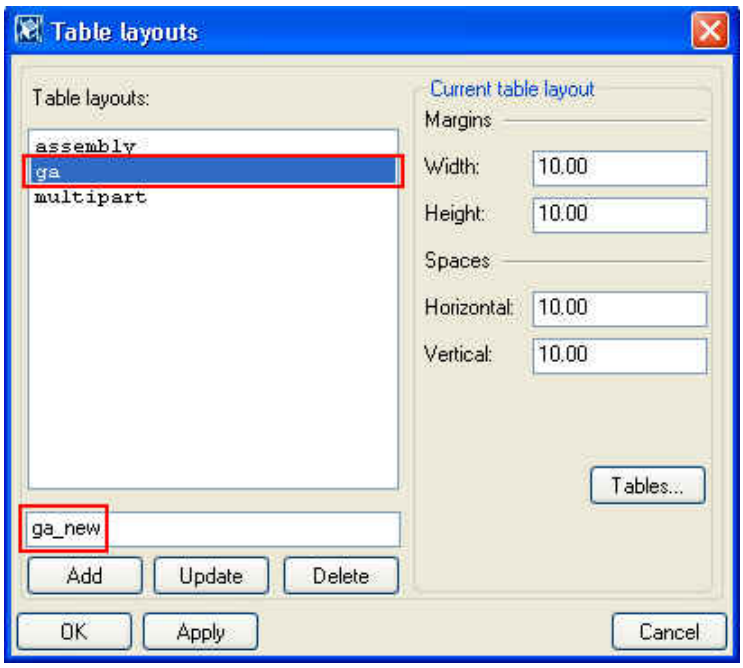
Create a new GA drawing layout

To create a new layout:

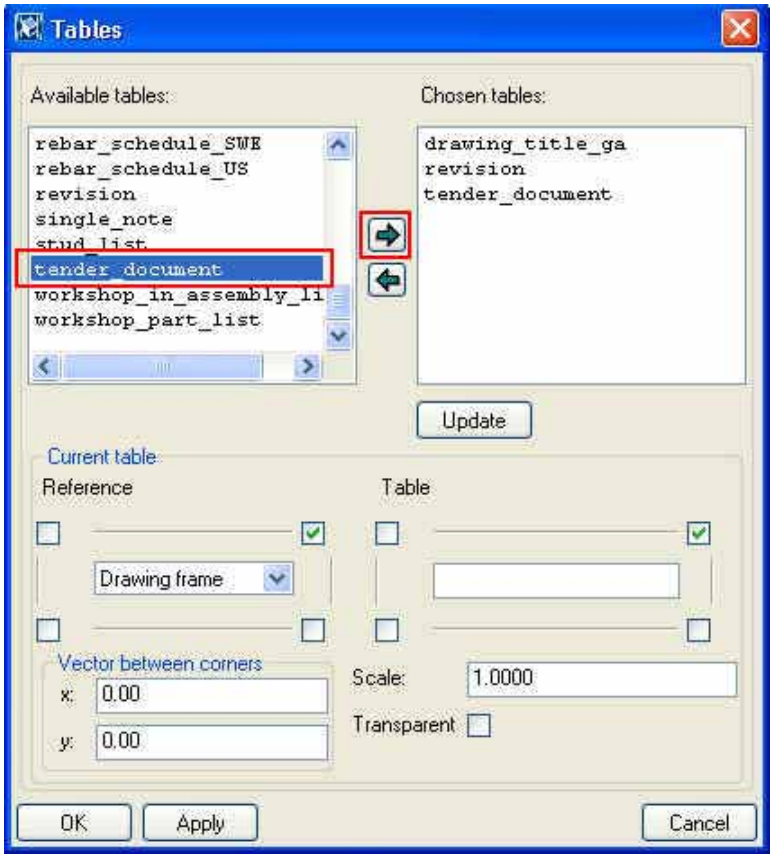
1. Open the **Layout** dialog box from the **Properties** menu.
2. Select **ga** from the list of **Layouts** and type a name for the new layout (as shown below) and click **Add**.



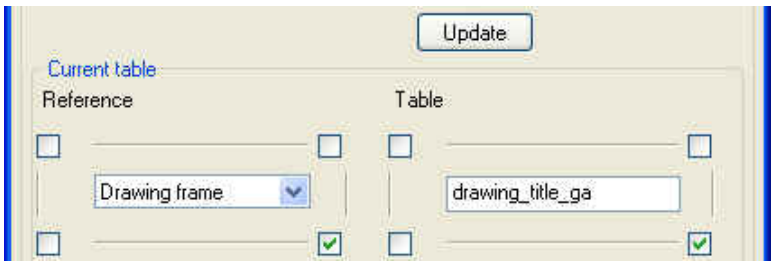
3. Select the newly created **ga_new** layout in the list and click **Table layout...** to open the **Table layouts** dialog box.
4. Select **ga** in the list of **Table layouts** and type a name for the new table layout (as shown below) and click **Add**.

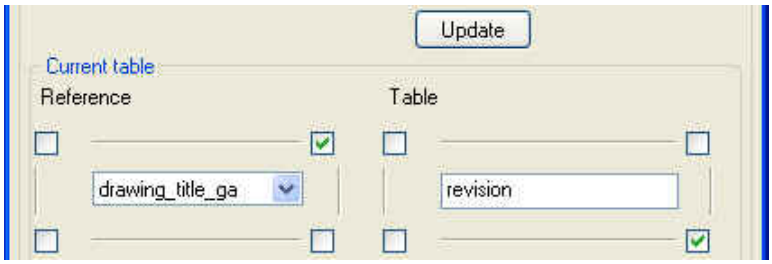


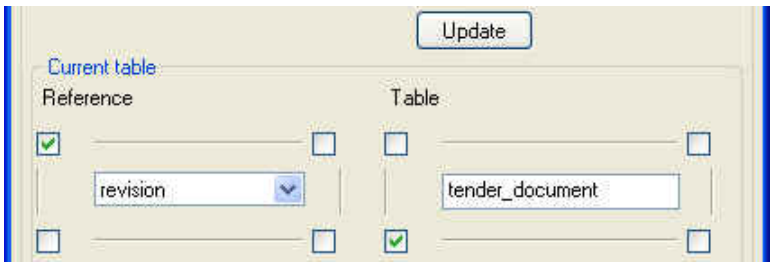
5. Select the newly created **ga_new** table layout in the list and click **Tables...** to open the **Tables** dialog box.
6. Select **drawing_title_ga**, **revision** and **tender_document** one at a time in the **Available tables** list and add them (using the arrow button) to the **Chosen tables** list.



7. Set the location and click **Update** for each table separately (as shown below).







8. Click **OK** to apply and close the **Tables** dialog box.
9. Click **Update** in the **Table layouts** dialog box to update the **ga_new** table layout and click **OK** to close the dialog box.
10. Click **OK** to close the **Layout** dialog box.

The new layout settings were saved with the file name **ga_new.lay** to the **..\Basic Model 1\attributes** folder.

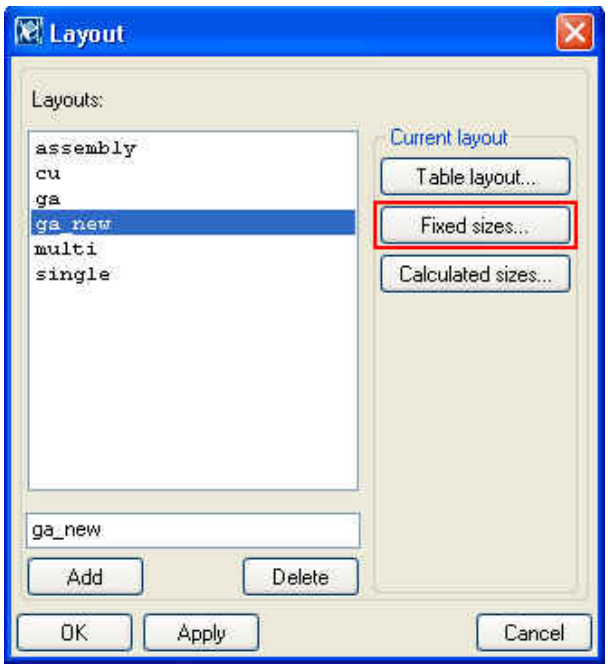
Define drawing sizes for the new layout

Before using the new layout, we need to define drawing size where it will be used. In Tekla Structures, you have two options how to set the drawing size. You can either:

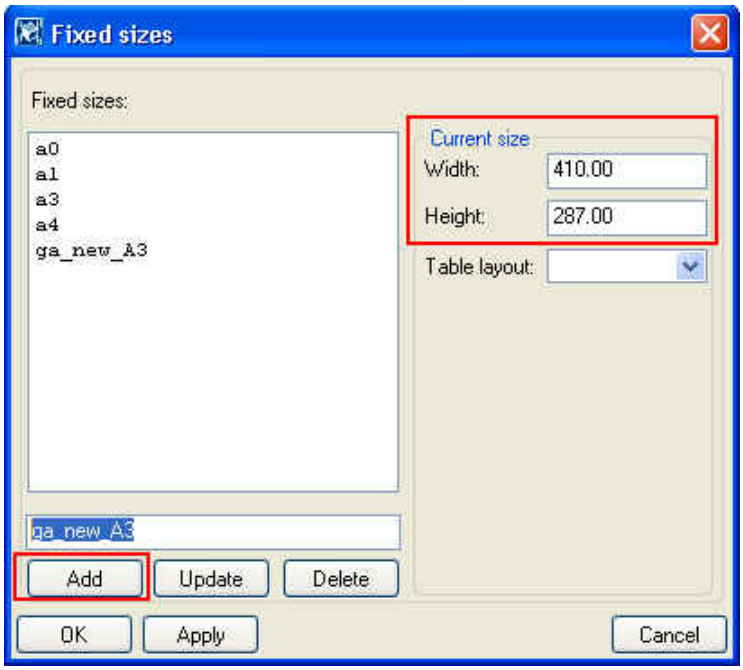
- Specify exact sizes for drawings.
- Let Tekla Structures find appropriate drawing sizes (according to the layout, tables in it, and the drawing view scales).

To define fixed drawing sizes:

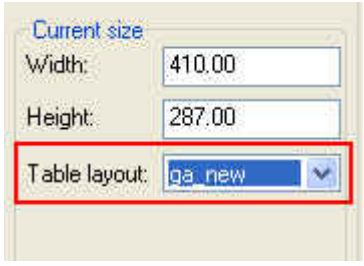
1. Reopen the **Layout** dialog box from the **Properties** menu.
2. Select **ga_new** from the list of **Layouts** and click **Fixed sizes...**



3. In the **Fixed sizes** dialog, type name **ga_new_A3** for new size, define width and height for A3 size drawing (410 x 287), and click **Add**.



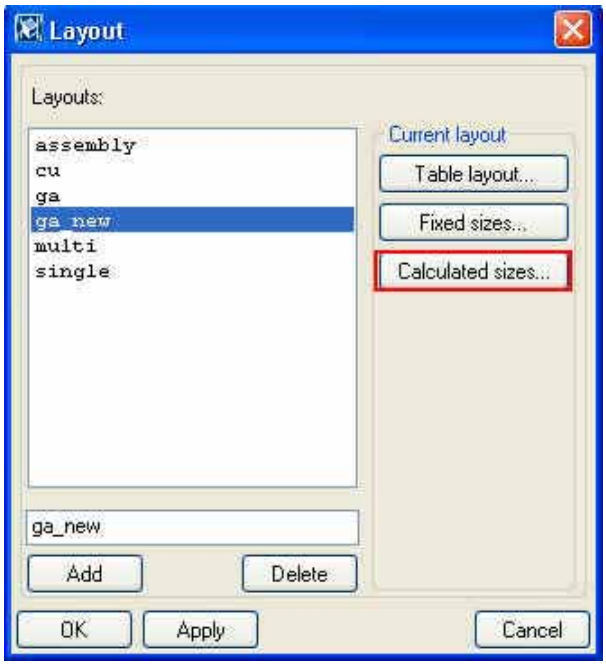
4. Select **ga_new** from **Table layout** pull-down menu and click **Update**. You have now defined ga**_new_A3** size to use **ga_new** layout.



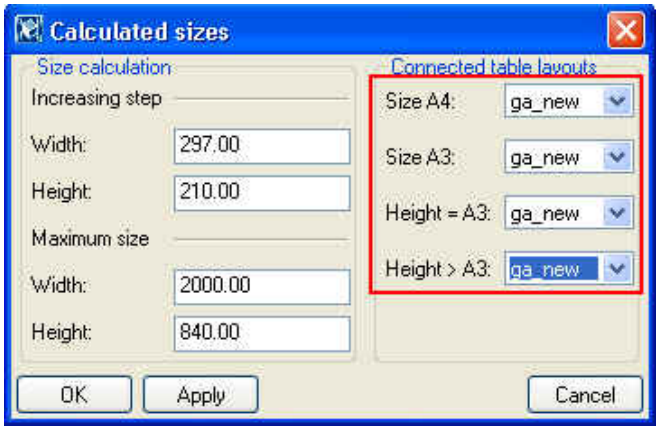
5. Repeat steps 3 and 4 for **ga_new_A4,** drawing size A4 (287x200).
6. Click **OK** to close the **Fixed sizes** dialog box.
7. Click **OK** to close the **Layout** dialog box.

To define calculated drawing sizes:

1. Reopen the **Layout** dialog box from the **Properties** menu.
2. Select **ga_new** from the list of **Layouts** and click **Calculated sizes...**



3. Connect all sizes to **ga_new** layout by selecting **ga_new** from pull-down menu.



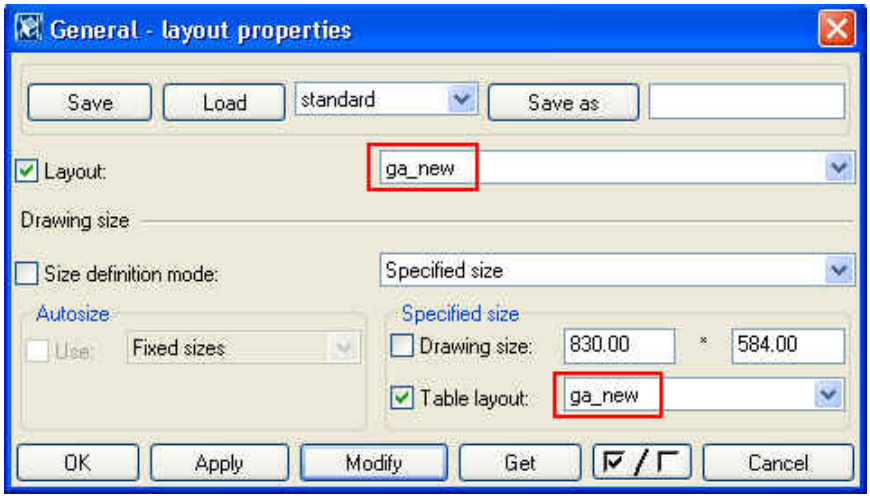
4. Click **OK** to close the **Calculated sizes** dialog box.
5. Click **OK** to close the **Layout** dialog box.

Use the new GA drawing layout

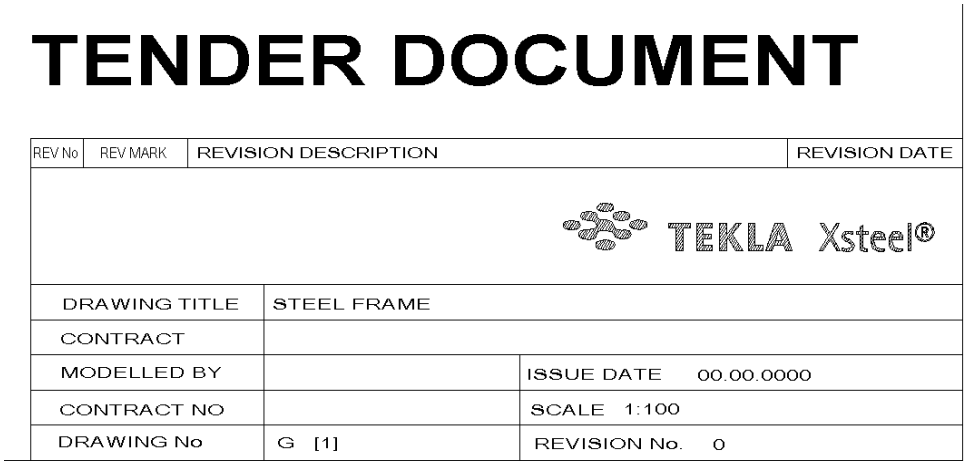
To use the newly created GA drawing layout:

1. Open the drawing list and double-click on the G [1] drawing to open it.
2. Open the **General arrangement drawing properties** dialog box and click on the **Layout...** button.
3. In the **General – layout properties** dialog box, click on the **On/Off** button to clear the checkboxes.

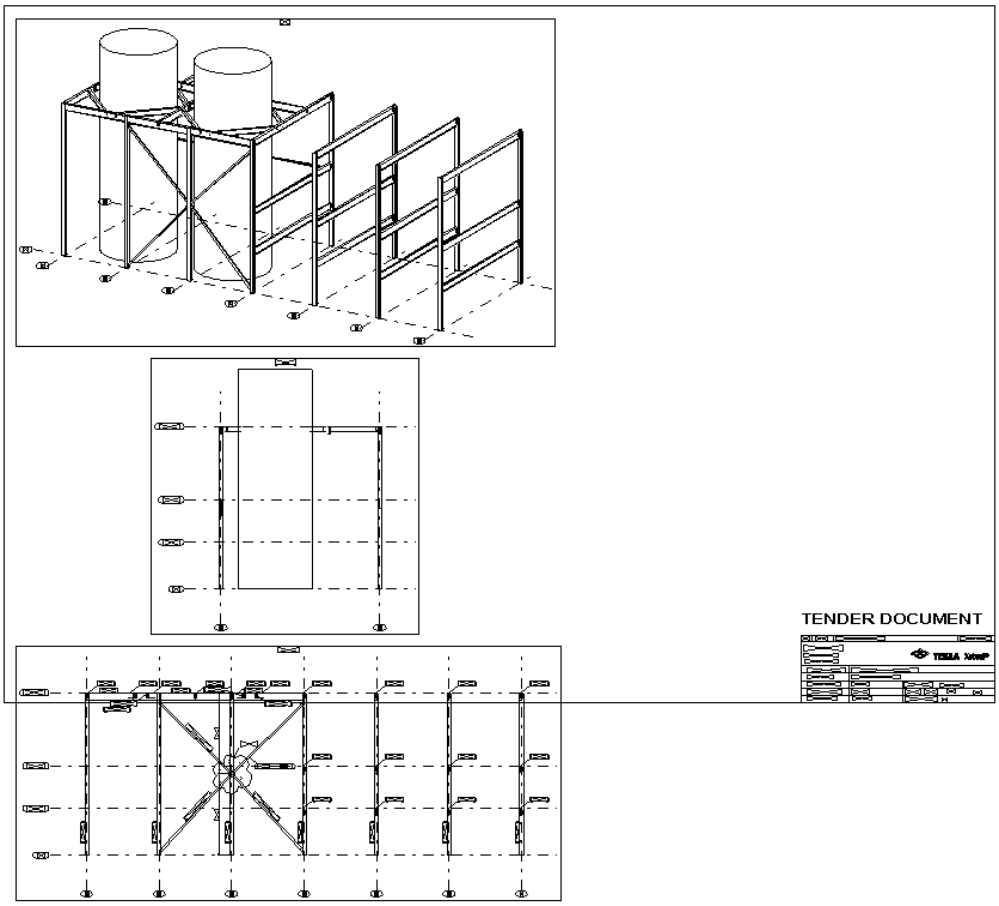
4. Select the **ga_new** in the **Layout** and **Table layout** fields and click **Modify**.



5. Check that the drawing layout is changed correctly. The drawing title should be present in lower right corner of the drawing, the revision table and the note **TENDER DOCUMENT** is as shown below.



When the drawing is modified so that the whole drawing needs to be recreated, the drawing views are rearranged. As a result the views are placed differently thane they were before (see picture below). We will now rearrange them manually.

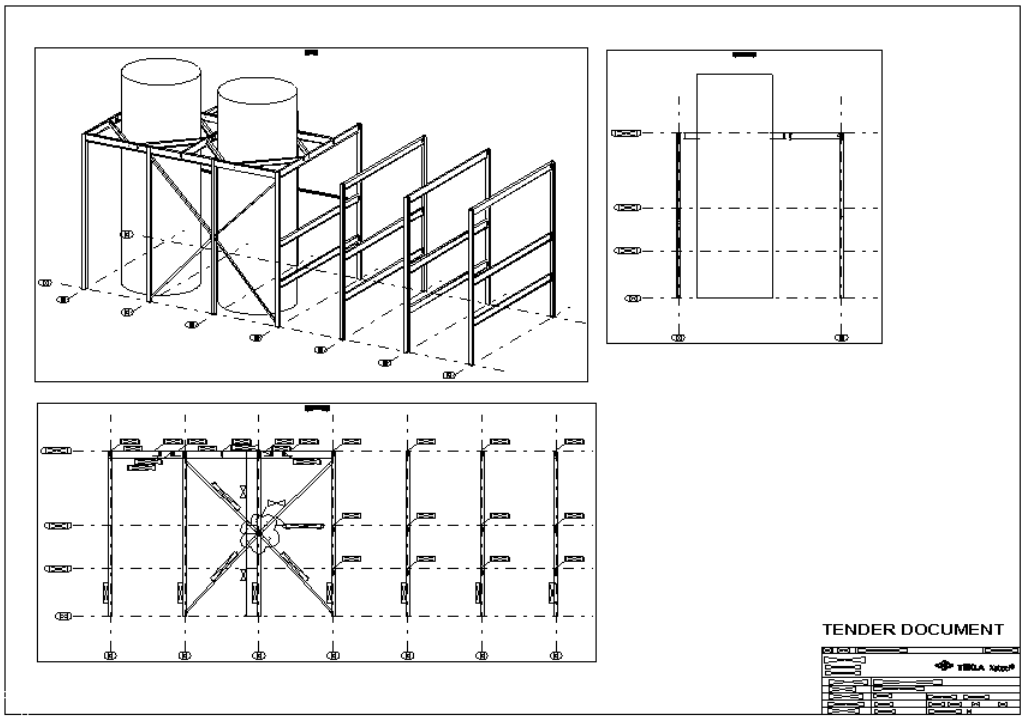


Move drawing views

To move drawing views:

1. Select the view frame of GRID 3.
2. Hold down the **Shift** key and drag the view with the mouse to the right side of the 3D view.
3. Move the GRID A view correspondingly

Your G [1] drawing should now look like the one shown below.



You can place drawing views more accurately by aligning them horizontally or vertically. For instructions, see **Help: Drawing > Editing drawings > Working with drawing views > Aligning drawing views**.

10.7 Plotting Drawings

Tekla Structures plots drawings both to selected print devices and to files. Single drawings can be plotted from the Drawing Editor, and single or multiple drawings, which have been selected in the drawing list, can be plotted from the Model Editor.

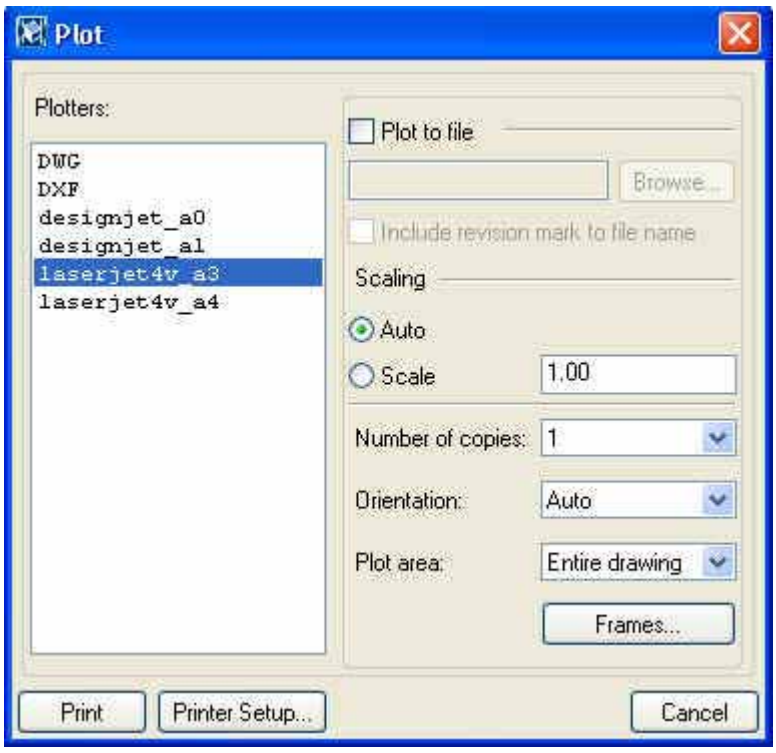
Plotting

Plot a single GA drawing

To plot a single GA drawing from the Drawing Editor:

1. Open the G [1] drawing in the Drawing Editor.
2. Select **File > Plot current...** to open the **Plot** dialog box, or click the **Plot** icon on the **Drawings: Standard** toolbar.

3. Select the print device (plotter) to be used and click **Print**.



For more information about available plot options, see **Help: Drawing > Printing > Plot options**.

Plot multiple GA drawings

To plot multiple GA drawings from the Model Editor:

1. Open the drawing list.
2. Select at least two GA drawings in the drawing list.
3. Click on the **Plot** icon on the **Standard** toolbar.

4. Select the print device to be used and click **Print**.

If you select several print devices, Tekla Structures sends each drawing to the device with the smallest paper size, on which the drawing will fit.

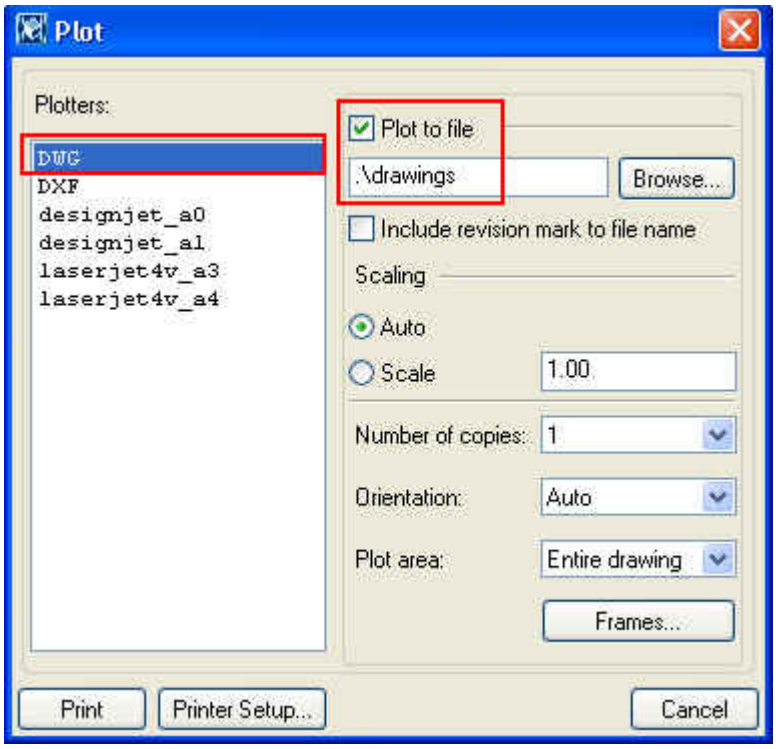
For more information about printing to print device, see **Help: Drawing > Printing > Printing drawings**.

Plotting to a file

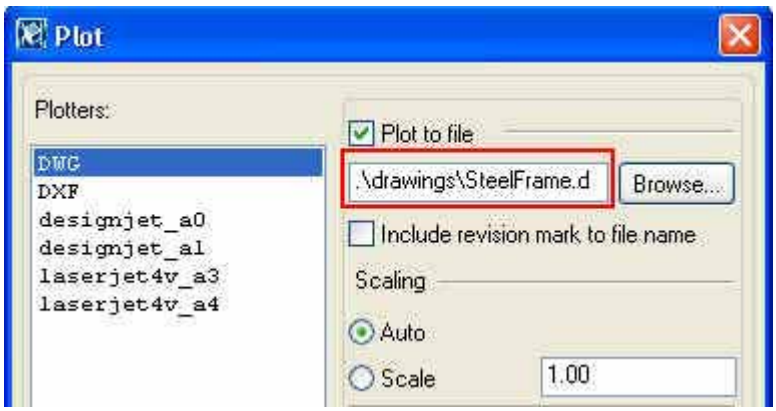
Plot a GA drawing as a dwg file

To plot the G [1] drawing to a file:

1. Open the drawing list in the Model Editor.
2. Select the G [1] drawing in the list.
3. Click on the **Plot** icon to open the **Plot** dialog box.
4. Select **DWG** as the plotting format in the **Plotter** list. Check that the **Plot to file** option is marked with a tick.
5. Type **.\drawings** in the plot file name field below the **Plot to file** option. This will define the **..\Basic Model 1\drawings** folder as the destination folder of the plot files.



6. Click **Print** to plot the drawing to DWG.
7. Give a particular plot file name by typing, e.g., **..\drawings\SteelFrame.dwg** in the plot file name field, and click **Print**.



8. Check that the drawings were successfully plotted to the **..\Basic Model 1\drawings** folder. This folder should contain the saved *.dwg drawings.

If you do not enter a file name for the destination plot file, or you have chosen several drawings, Tekla Structures uses the drawing name(s) as file name(s). If you do not enter a folder name, Tekla Structures creates the file(s) in the current model folder.

You can also print a drawing to DWG using the Drawing Editor. Open the selected drawing and follow the above steps, starting at step 3.

Tekla Structures does not distinguish between upper and lower case letters. For example, a drawing named A.1 overwrites a drawing named a.1.

For more information about plotting to file, see:

Help: Drawing > Printing > Printing drawings > Printing to DWG/DXF

Help: Drawing > Printing > Printing drawings to file

For more information about defining drawing plot file names and plot directories, see:

Help: Drawing > Printing > Printing drawings to file > Switches for naming plotfiles

10.8 Controlling Drawing Revisions

Now we will cover the revision handling features of Tekla Structures.

When the model changes:

- You have to update or revise drawings
- Attach revision information to the drawings.

Tekla Structures displays the revision information alongside the revision number or the mark in the drawing list and in the revision table within the drawings. The revision table also shows the revision date. You can create a list of revisions in a report.

For more information about drawing revisions and creating reports, see the following links:

Help: Drawing > Getting started with drawings > Working with drawings > Defining drawing revisions

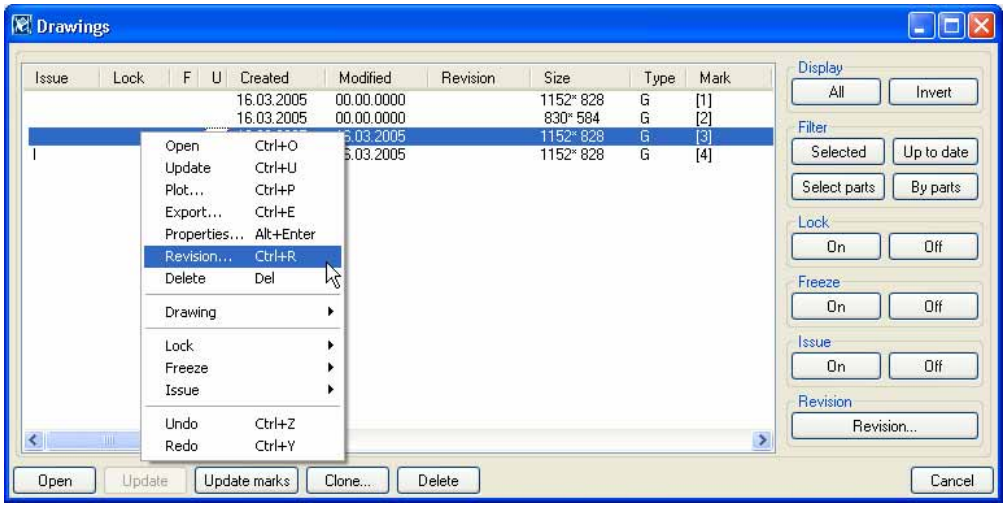
Lesson 8 Numbering and reports

Create, modify and delete revision marks

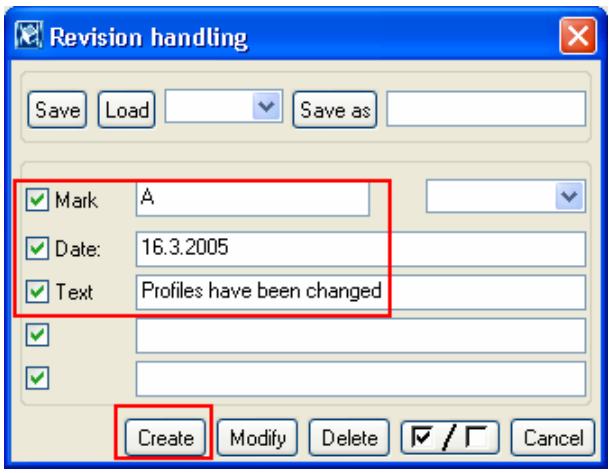
Create revision mark

To add a revision mark to the G [1] drawing:

1. Modify the model by changing the profile of the columns on gridline 1 from HEA300 to HEA320.
2. Open the drawing list in the Model Editor.
3. Select the drawing to revise, right-click and select **Revision...** to open the **Revision handling** dialog box.



4. Enter the revision mark, revision date and description text of the revision in the dialog box as shown below, and click **Create**.



Once the revision is created, a revision number is automatically assigned to the drawing. The revision number is shown in the dialog box.

5. Check that the revision number is shown in the drawing list.

I	L	F	U	Created	Modified	Revision	Size	Type	Mark	Name
				16.03.2005	16.03.2005	1	1152* 828	G	[3]	Steel frame

6. Open the drawing to check that the drawing title and revision table display the revision information correctly.

1	A	Profiles have been changed	16.3.2005
REV No	REV MARK	REVISION DESCRIPTION	REVISION DATE

TEKLA Structures ®

DRAWING TITLE	Steel frame		
CONTRACT	Tekla Corporation		
MODELLED BY		ISSUE DATE	00.00.0000
CONTRACT NO	1	SCALE	1:50
DRAWING No	G [3]	REVISION No.	1

Several drawings can share the same revision mark, date, and information. To attach the same revision information to several drawings simultaneously, select multiple drawings from the drawing list.

You can choose whether Tekla Structures shows the revision numbers or the revision marks in the drawing list. By default, revision numbers are shown. For more information, see the following links:

Help: Drawing > Getting started with drawings > Defining drawing revisions

Help: System > Files and folders > Startup batch file.

Modify revision information

To modify the revision information of an existing revision mark:

1. First create a new revision to the G [1] drawing by following steps 2-5 presented above:
   - Change the model
   - Use B as the revision mark
   - Type revision date and description
   - Click **Create**
   - Leave the **Revision handling** dialog box open
2. Select the revision number **2** in the drop-down box next to the **Mark** field. The corresponding revision information is shown in the dialog box.
3. Change the revision mark to **C**, modify the description text, and click **Modify**.
4. Open the drawing to check that the modification is shown correctly in the revision table.

Delete revision mark

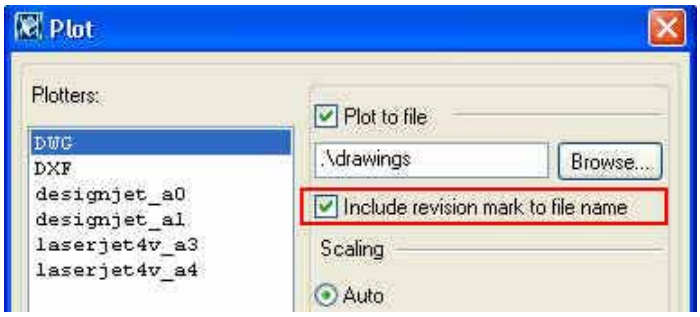
To delete a revision mark:

1. Select the revision number **2** in the **Revision handling** dialog box.
2. Click **Delete**.
3. The updated revision number of the drawing is now **1**. Check that the revision number is shown correctly in the drawing list. Open the drawing to check that the revision table is also updated.

When you delete a revision, Tekla Structures automatically adjusts the remaining revision numbers for that drawing.

Show revision mark in plot file names

When you plot drawings to files such as DWG, DXF or PDF, you can include the latest revision number or mark in the plot file name. In the **Plot** dialog box, select the checkbox of the **Include revision mark to file name** option as shown below.



Show revision information in a report

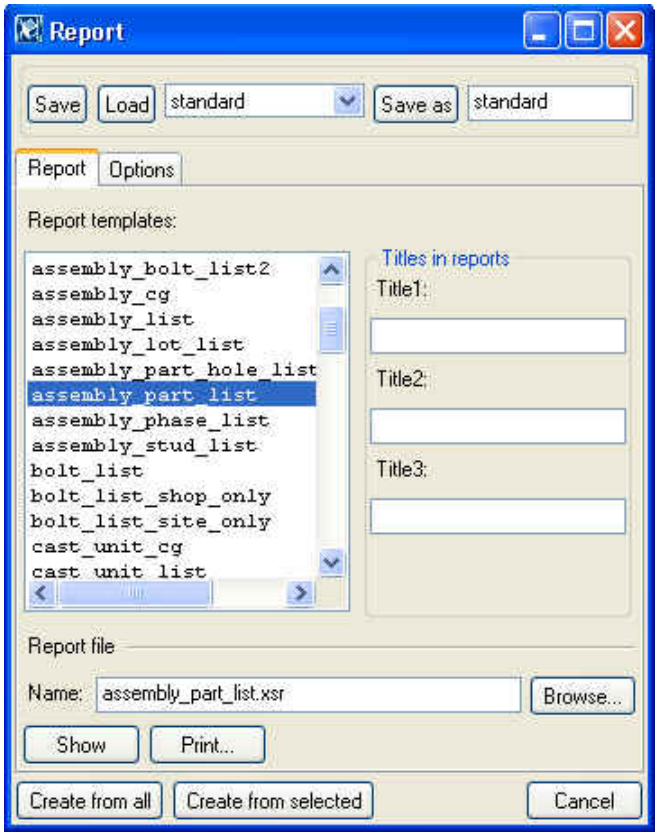
The report **drawing_issue_rev** shows the revision dates and revision information of drawings. For more information about reports see Lesson 9 Numbering and Reports.

Show revision information in report

To create a report containing the revision information:

1. Click on the **Report** icon on the **Standard** toolbar to open the **Report** dialog box.

2. Select the **drawing_issue_rev** from the report list and click the **Create from all** button.



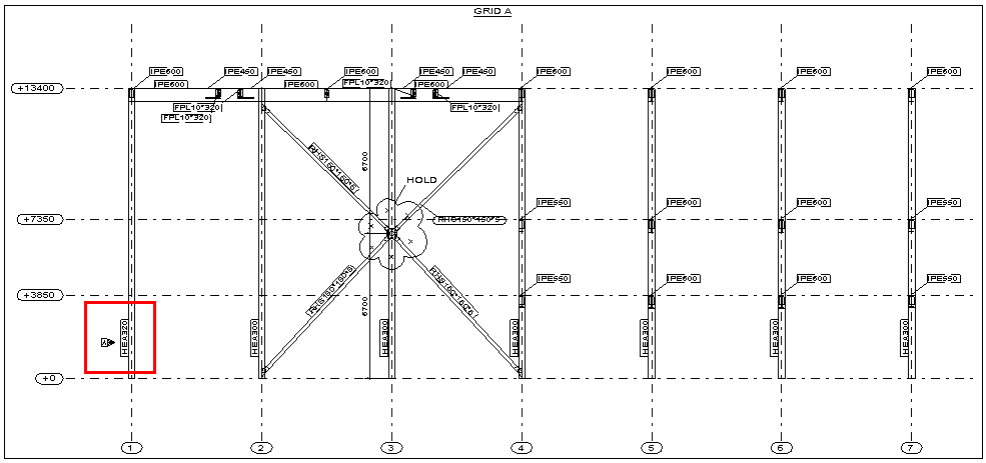
3. Click on the **Show** button to open the report.
4. Check that the revisions are shown correctly in the report drawing_issue_rev.xsr (Tekla Structures creates the report in the model folder).

See the picture below as an example of the drawing_issue_rev report. Revisions made to the G [3] drawing are marked with a red rectangle.

```
DRAWING REVISION HISTORY FOR CONTRACT No:                    Page: 1
TITLE:                              PHASE:                   Date: 25.06.2003
-------------------------------------------------------------------------------
DRG NAME    REV.MARK  DATE      DESCRIPTION                        ISSUE DATE
-------------------------------------------------------------------------------

G   [1]                                                          23.05.2003
-------------------------------------------------------------------------------

G   [2]                                                          23.05.2003
-------------------------------------------------------------------------------

G   [3]                                                          23.05.2003
-------------------------------------------------------------------------------

G   [3]       A      23.5.03    Details and dimensions ch      23.05.2003
-------------------------------------------------------------------------------

G   [3]       B      23.5.03    Dimensions changed             23.05.2003
-------------------------------------------------------------------------------
```

Create revision marks in drawings

We will create revision marks in the drawings to help locate the changes made to the model.

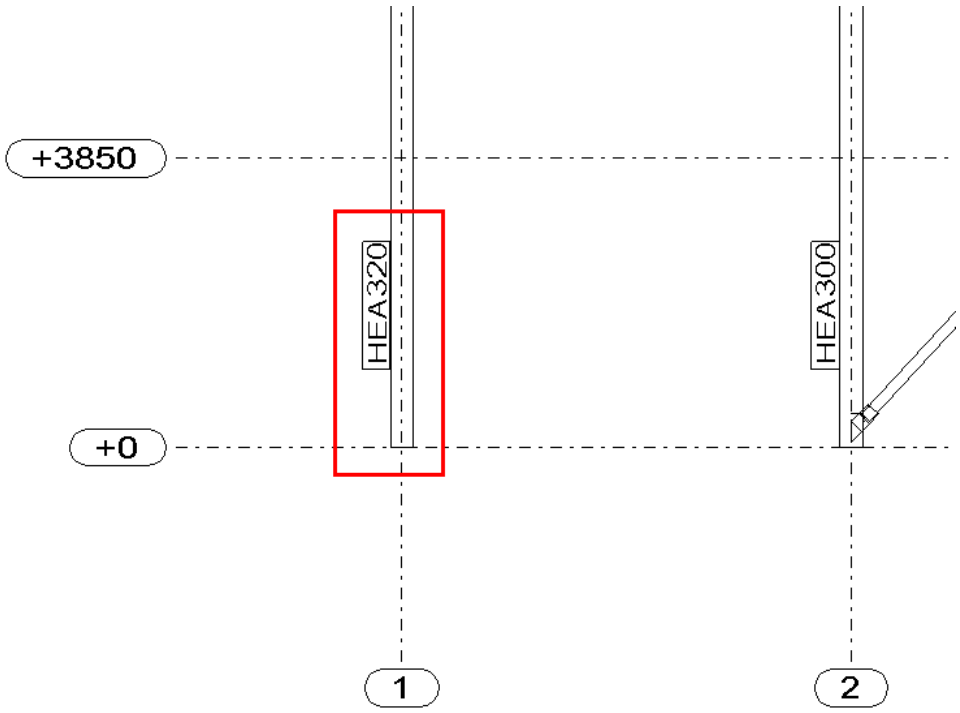


For more information about creating revision marks in drawings, see **Help: Drawing > Editing drawings > Editing drawings reference > Create>Revision mark**.

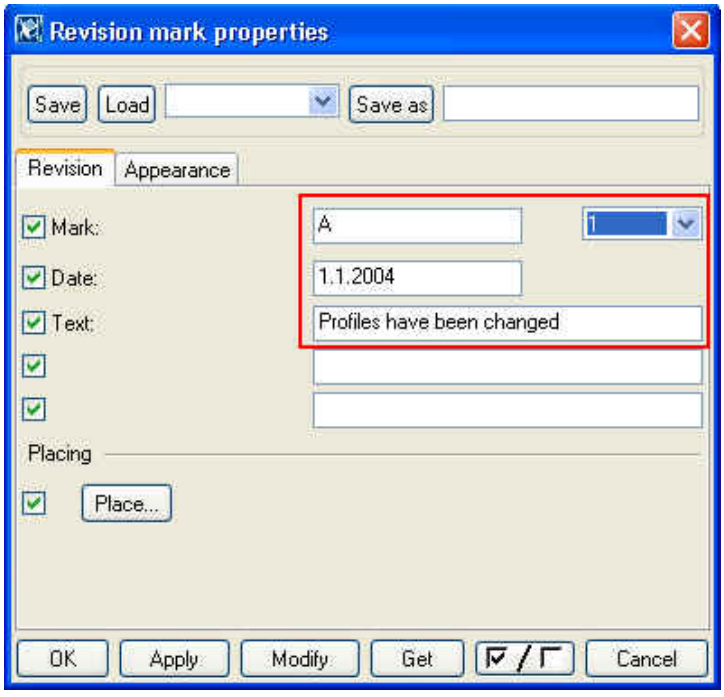
Define revision mark appearance

To create a revision mark in the G [1] drawing:

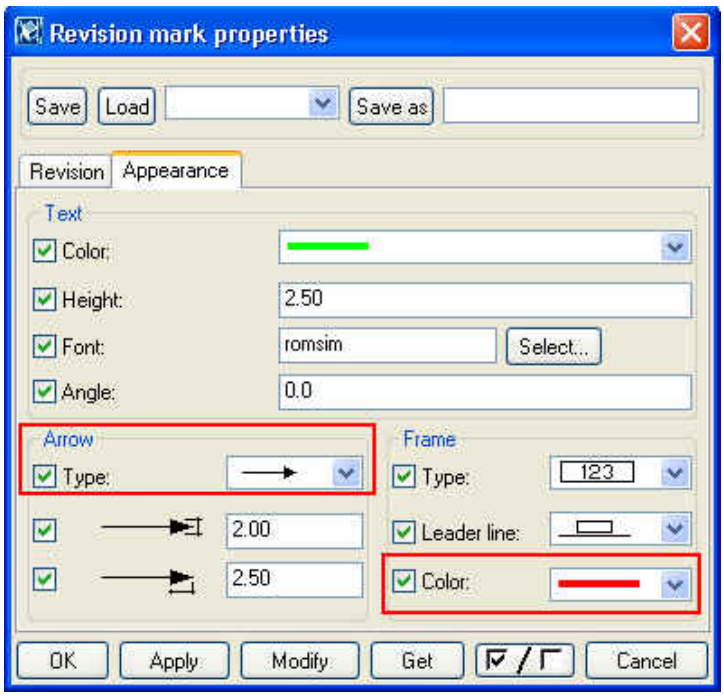
1. Select the G [1] drawing in the drawing list and click on the **Update marks** button to update all marks.
2. Open the selected drawing and check that the part mark of the column on gridline 1 in the GRID A view has changed.



3. Select **Properties > Revision mark...** from the menu to open the **Revision mark properties** dialog box.
4. Select the revision number **1** in the drop-down box next to the **Mark** field to obtain the corresponding revision information.



5. On the **Appearance** tab, select the **Arrow** type as shown below, change the **Frame** color of the revision mark to red and click **OK**.



Create revision mark in GA drawing

1. Select **Create > Revision mark > Arrow on right** from the menu and pick a point to place the mark. For example, pick close to the column and its part mark on gridline 1 in the GRID A view.
2. Double-click on the revision mark to obtain its properties. Check that the contents of the revision mark is correct, and its appearance corresponds to the properties set in step5.