Tekla Structures Basic Training

Tekla Structures 10.0

April 26, 2004

Contents

15 Collaboration

In this chapter

This chapter introduces the principles of working with reference models in Tekla Structures. Reference models are usually models from other systems – e.g. pipes, equipments etc. made by process industry systems. It is important to see those pipes and equipments to be able to model steel or concrete structure around them avoiding collisions. Reference models can be dxf, dwg or dgn format. Also Tekla Structures use in multiuser mode is explained.

We will first import some HVAC (heating, ventilation, air-conditioning) and Process Industry (pipes, equipments) dwg files. Reference models can be created by using e.g. Autocad, Magicad, Cadmatic, PDS, PDMS etc. programs. Then we train what kind of possibilities you have when working with reference models.

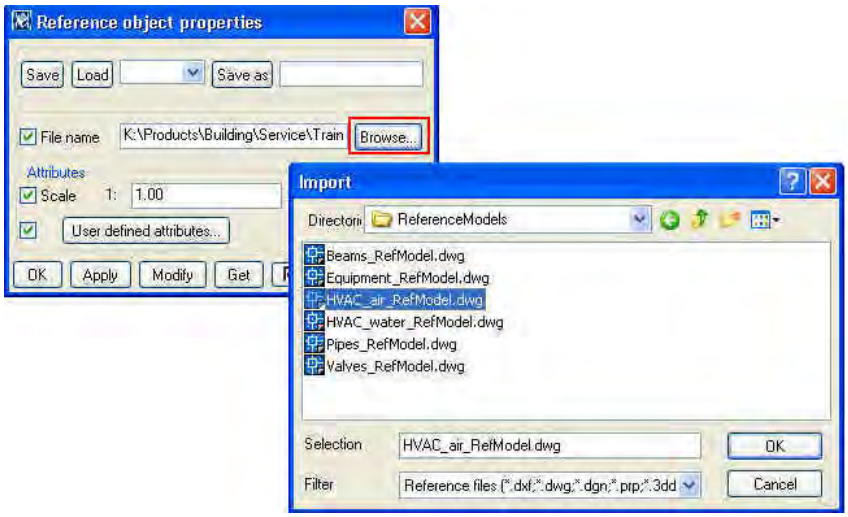
15.1 Import of Reference Models

See **Help: Reference models->using one model**.

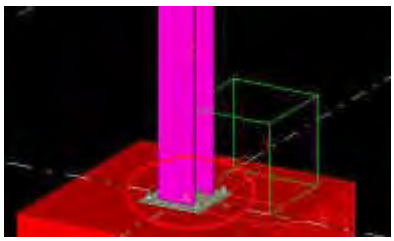
Create DWG reference object

1. Double click the **Create reference object** icon.

2. Browse first reference file (HVAC_air_RefModel.dwg) under ReferenceModels folder.



3. Click **OK**.
4. Pick position to global origin.



It is good to have a separate view where to pick origin point and in other view you can see the appearing reference model.

Import also other reference models under folder ReferenceModels in the same way.

It can take some CPU time when importing large reference models. It can be optimized e.g. by defining number of segments used in reference pipes.

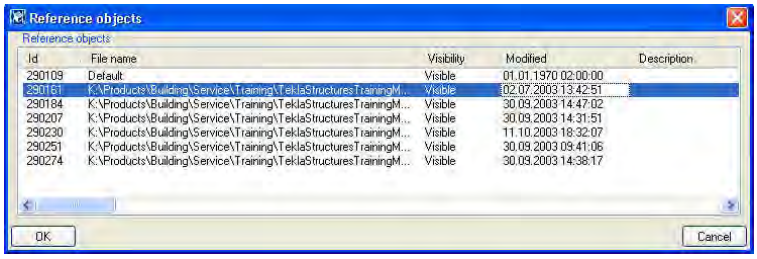
See **Help: Reference models->Handling large reference models**.

15.2 Defining Visibility and User Attributes

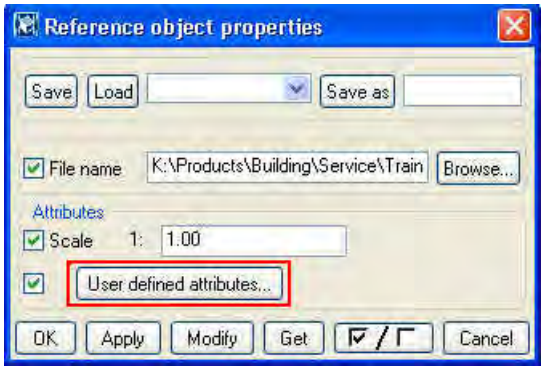
It is possible to define visibility and user defined attributes in reference model dialog.

Edit the description of reference file

1. Start command **File->Reference objects… Reference object** dialog appears.



2. Double click to HVAC_air_RefModel.dwg reference file. **Reference object properties** dialog appears.



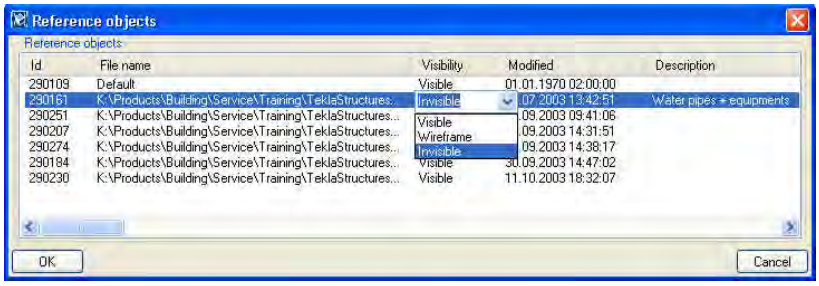
3. Press **User defined attributes…** button. User attribute dialog appears.
4. Add info text Water pipes + equipments to description field of user attributes dialog (**Reference (1)** dialog).

5. Press **Modify** button. Description field will be filled in **Reference object** dialog.

Change the visibility of reference file

Visibility can be defined for many reference models even at same time.

1. Select HVAC reference file rows in reference object dialog while pressing **Shift** button.
2. Change visibility option to Invisible.
3. Change visibility option back to Visible.



User attribute fields in dialog can be defined in objects.inp file.

See **Help: Reference models->Using several reference models**.

15.3 Snapping and Picking to Reference Models

Tekla Structures recognizes reference models in snapping. You can notice this by creating e.g. construction line to reference model or checking distances of reference model. Note that **Snap to geometry lines / points** has to be on.

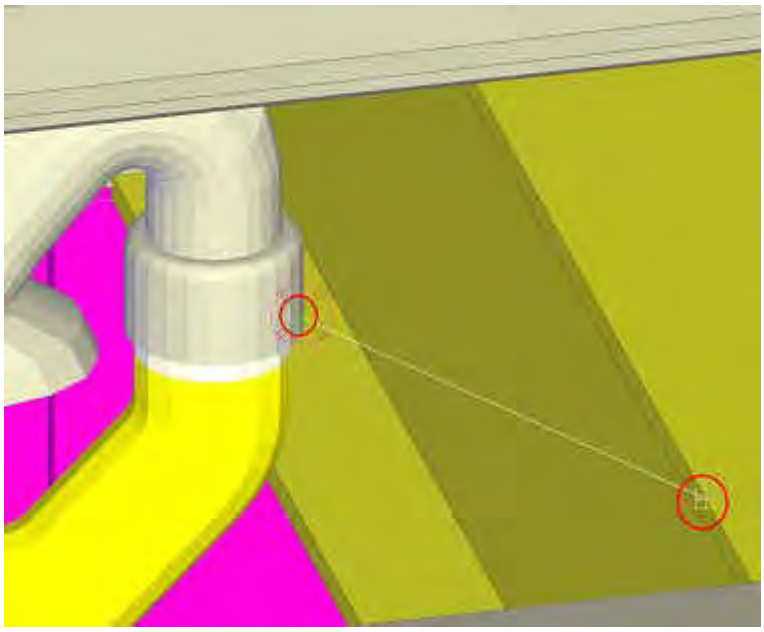
Create a free measure to check available space

Check the distance from edge of lavatory pipe to edge of I-beam.

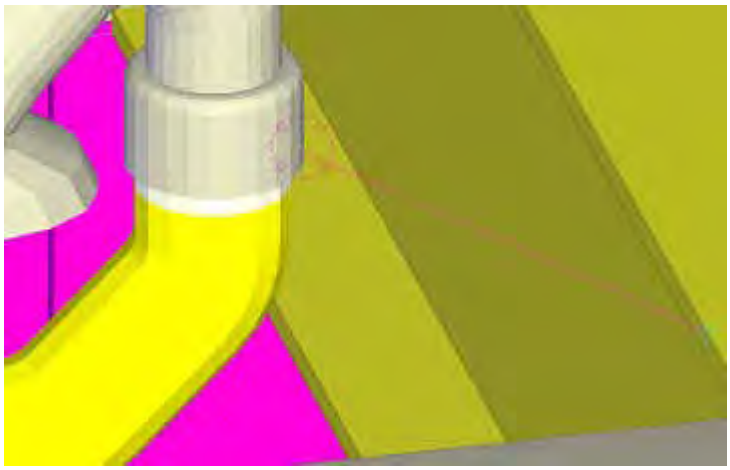
1. Select hollow core slab near to toilet and choose from pop up menu **Hide** command.
2. Start **Create free measure** command. Note: **Select objects in components** has to be on. Switch also **Snap to perpendicular points** to on.

3. Pick first point to edge of pipe of toilet. You can rotate view to make picking correct point easier.

4. Pick second point to edge of I-beam. Use perpendicular point.



5. Result of distance can be seen on left bottom corner. Distance in x-coordinate direction is 289 mm which is ok.



15.4 Handling Reference Models

Only reference models which are inside work area will be visible. For example defining work area correct you can get only reference models visible you need. DGN-format reference models are also clipped if environment XS_REFERENCE_USE_RENDERED_CLIPPING is defined. Switching Xsnap off increases picking speed.

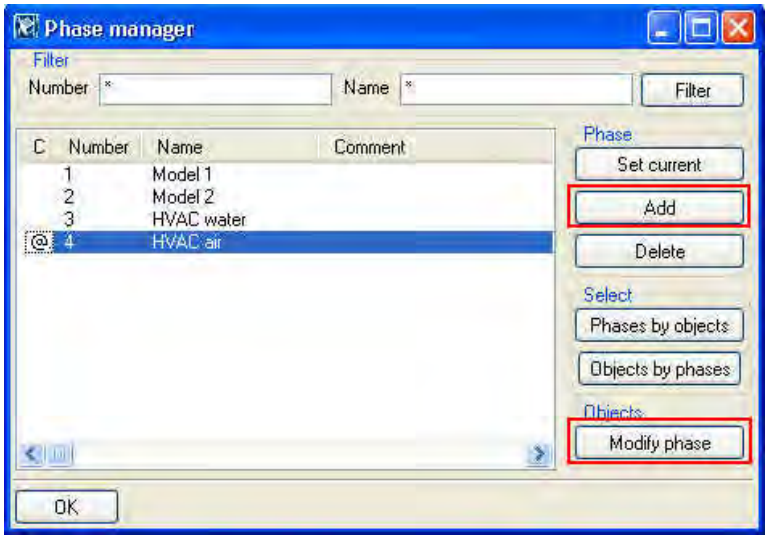
See **Help: Reference models->Handling large reference models**.

Change the phase number of HVAC reference models

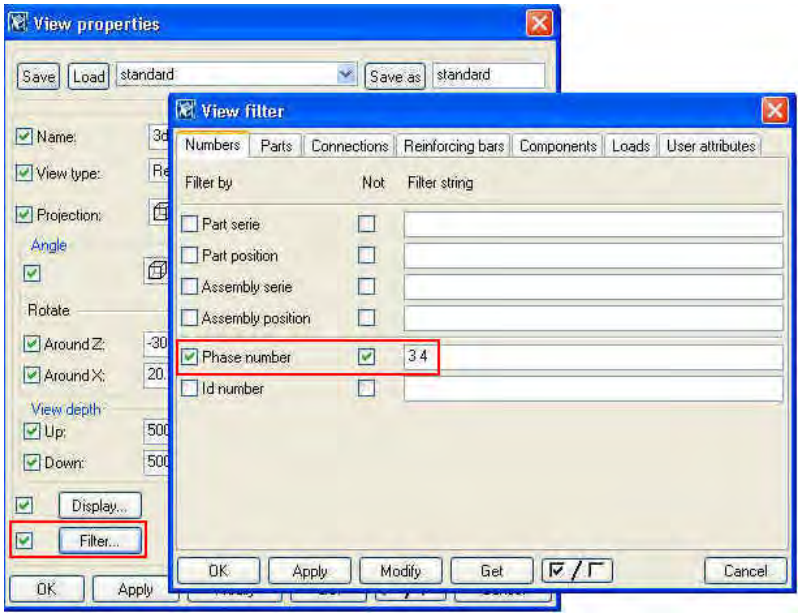
Phase numbers effect also to reference models and it is a good way in filtering.

1. Select command **Properties->Phase number…** to get **Phase manager** dialog visible.
2. Press **Add** button 2 times to get 2 more phase number rows.
3. Add comments HVAC water and HVAC air to new phase lines.

4. Select HVAC_water reference file and press **Modify phase** button.
5. Select HVAC_air reference file and press **Modify phase** button.

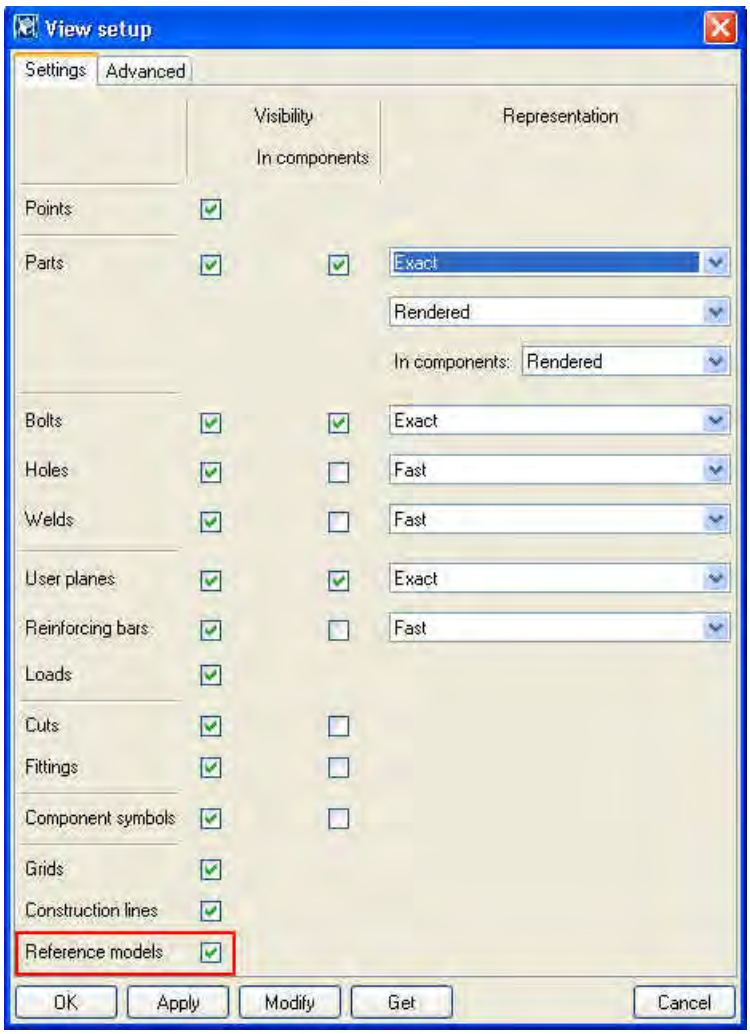


6. Double click to view to get **View properties** dialog and press **Filter…** button.
7. Add new phase numbers to Phase number field and put Not option on.



8. Press **Modify** button and HVAC* reference files will be filtered out from view.

In **View setup** dialog box (**Properties -> View… -> Display…**) you can define if you want to see reference models.



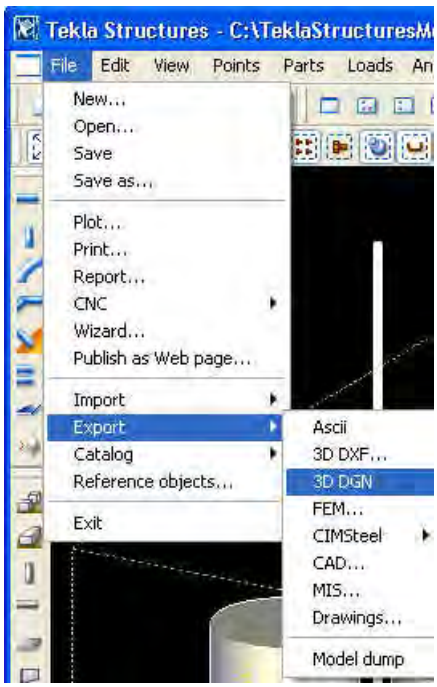
15.5 Export Reference Model of Tekla Structures Model

Tekla Structures model can be exported to other systems (e.g. PDS, PDMS,Cadmatic) by using 3D dgn, 3D dxf or other formats. This is needed to ensure structural model fits to e.g. process model of pipes, equipments etc. In this example you will create a 3D dgn reference model and still import it back to model.

Export model in 3D dgn format

1. Select desired parts (e.g. whole model).
2. Start command **File->Export->3d DGN**.

Output file (Model.dgn) will be created to model folder.



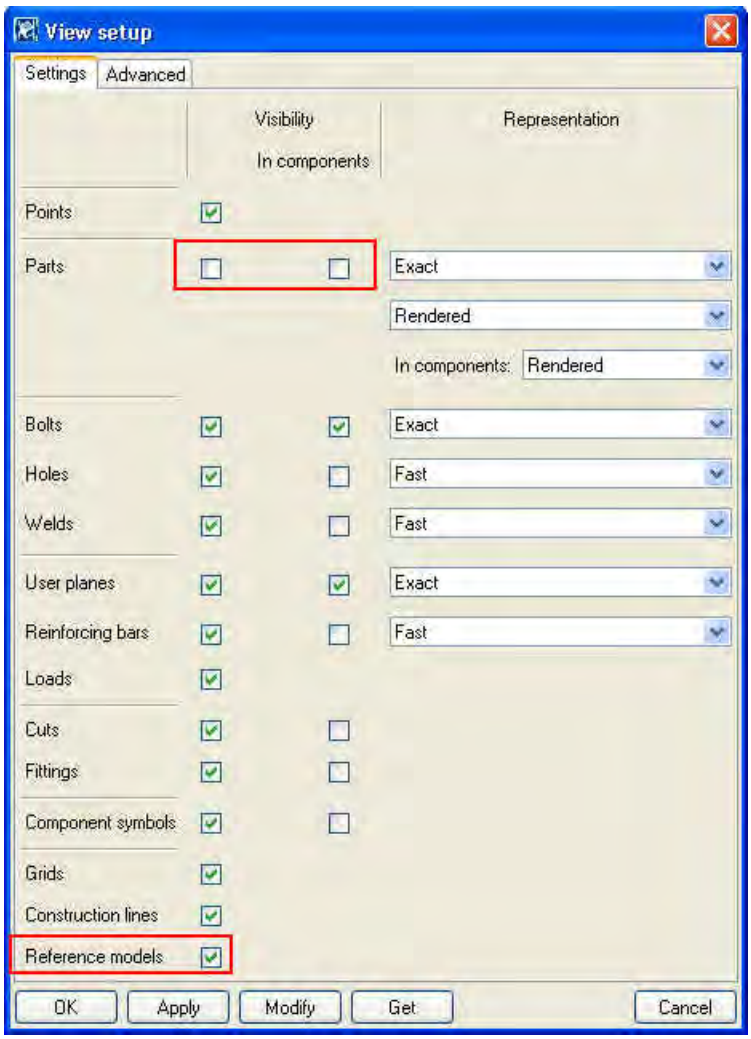
Create a DGN reference model of existing structural model for checking purpose

Work in the same way as earlier.

1. Double click the **Create reference object** icon.

2. Browse the reference file (Model.dgn).
3. Click **OK**.
4. Pick position to global origin.

You can check situation e.g. defining another view and displaying only reference models.

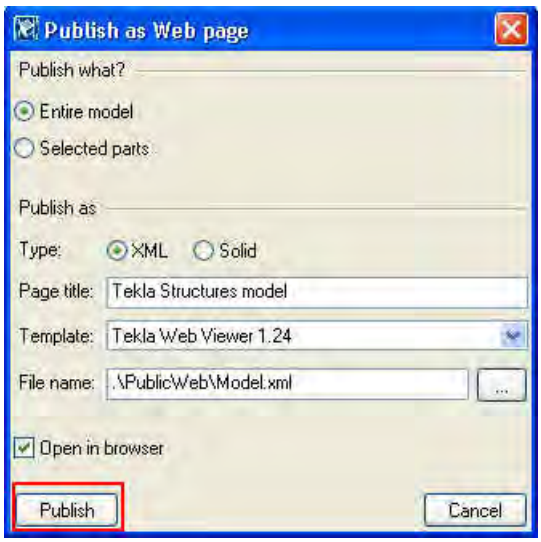


15.6 Publish Model as a Web Page

Tekla Structures model can be published as a web page. Then other persons can watch the model using Internet Explorer (so Tekla Structures is not needed). This is easy and effective way to show e.g. current status of model.

Publish model as a web page

1. Start command **File->Publish as Web page…**
2. Press **Publish** button.



Separate Tekla Web Viewer window appears.

See **Help: Tekla WebViewer**.

In the Tekla Web Viewer model you can pan, fly, rotate model etc.

See **Help: Tekla WebViewer -> How to move and zoom ?**

15.7 Multiuser Mode

In multiuser mode several persons can work in a same model at same time. In big models it is often necessary. Using multiuser mode is an easy and efficient way to handle projects but it needs some settings and it is recommendable to read Tekla Structures Online help pages.

See **Help: Multiuser mode**.

Example of multiuser modeling you can find in:

Help: 2.2. Modeling in multiuser mode-> working with a master model.

See also **Help: Guidelines for multiuser drawings**.