

# Tekla StruXML Import

User's Guide to FEM-Design - Tekla Structures Integration

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# Disclaimer

The Tekla StruXML Import is a tool that enables a link between FEM-Design and Tekla Structures. Substantial amount of time and effort have gone into development and testing Tekla StruXML Import tool. We did our best to ensure the reliability of the software and the accuracy of this document. However, the user must accept that no warranty is given by the developers concerning accuracy of this software or information found in this document.

Anyone that has doubts concerning the accuracy of the Tekla StruXML Import, or has suggestions regarding development of the Tekla StruXML Import, is welcome to contact us at: <u>iwona.budny@strusoft.com</u>.

For support, please use: <u>support.femdesign@strusoft.com</u>. When sending support question, please remember to always attach an original Tekla Structures model, FEM-Design model and a struxml file.

# **Current link versions**

- Tekla StruXML Import 1.0.002

# Compatibility

- Tekla Structures: version 17-21.1, 2016, 2016i

# Download

- FEM-Design Download Center
- StruSoft Installer

# Additional materials

- Tekla FEM-Design Integration
- StruSoft blog
- StruSoft Official YouTube Channel
- <u>Tekla FEM-Design connection in StruSoft Forum</u>

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# 1. Introduction

# 1.1. Manual scope

This document describes the concept behind the link between FEM-Design and Tekla Structures, and explains how to exchange data between those two programs using the Tekla StruXML Import tool.

# 1.2. Installation

Download the latest version of Tekla StruXML Import from StruSoft Installer or from <u>FEM-Design</u> <u>Download Center</u> and run the installation file.

When the installation process is completed, Tekla StruXML Import tool will appear under StruSoft folder in the Start menu, as shown in Figure 1-1.



Figure 1-1

# 1.3. Concept

Tekla StruXML Import Tool enables direct communication between FEM-Design and Tekla Structures. The direct data transfer is based on conversion of FEM-Design analysis model transfer into Tekla Structures native objects. FEM-Design analysis model is saved as struxml file type and converted to Tekla native objects in the Tekla StruXML Import tool. The proper sections and materials are assigned to Tekla native objects in the mapping process.

# 1.4. Functionality

The Tekla StruXML Import Tool has the following functionality (Figure 1-2):

- importing FEM-Design model to create a new Tekla Structures model,
- updating Tekla Structures model with changes made in FEM-Design model after the initial import.

One can import / update:

- selected element(s),
- group of elements (e.g. all beams, columns, etc.),
- all elements.



#### Figure 1-2

When updating the Tekla model, changes (in comparison to the initially imported objects) are recognized on both FEM-Design (struxml) and Tekla side. Following changes can be recognized:

- new element (only in struxml),
- modification of an element (in struxml and in Tekla),
  - section / thickness
  - material
  - geometry
  - ID (only in struxml)
- deletion of element (in struxml and in Tekla).

If certain object is changed, it is assigned to one of the status categories: New, Modified, Deleted or Conflicted. Also, a certain type of change is reflected in the object name (Figure 1-3):

- object type is bolded when geometry changed,
- section name is bolded when it changed,
- material name is bolded when it changed,
- ID is bolded when it changed,
- object name is strikethrough if it was deleted.

The same rule applies if an object is changed in Tekla. Certain part of the Tekla name is bolded or strikethrough to reflect the change type.

\delta Tekla StruXML Impor		-	
Import Materials Sect	ons Options		
File name C:\Users\	wona\Desktop\2.struxml		Browse
Туре	StruXML	Tekla	
✓ Beam (5)	Beam 'B.1.1' [Rectangle 150x300] [C30/3	87] Beam 'BEAM' [300*150] [C30/37]	
Column (0)	Beam 'B.2.1' [Rectangle 150x400] [C30]	/37] Beam 'BEAM' [300*150] [C30/37]	
Plate (0)	Beam 'B.3.1' [Rectangle 150x300] [C16/2	20] Beam 'BEAM' [300*150] [C30/37]	
Status	Beam 'BB.1.1' [Rectangle 150x300] [C30	)/37] Beam 'BEAM' [300*150] [C30/37]	
New (0)	Beam 'B.5.1' [Rectangle 150x300] [C30/3	Eam 'BEAM' [300*150] [C30/37]	
✓ Modified (4)			
✓ Deleted (1)			
Conflicted (0)			

Figure 1-3

One can accept a certain change (and update the Tekla object), or deny (ignore) it. Each object can be treated individually.

# 1.5. Designed workflow

The workflow to import a FEM-Design model into Tekla Structures is shown in the Figure 1-4:



le name C:\Users\Jwona\Deskto				
	p\Export model.struxml		Brows	e
ype Strul	KML	Tekla		
✓ Beam (2) 😑 Beam	n 'B.1.1' [HE-A 300] [S 355]			1
✓ Column (146) 😑 Bean	n 'B.2.1' [HE-A 300] [S 355]			1
✓ Plate (58)	mn 'C.1.1' [Rectangle 300x400] [C30/37]			
🗸 Wall (100) 😑 Colu	mn 'C.2.1' [Rectangle 300x400] [C30/37]			
Z New (306) Oclu	mn 'C.3.1' [Rectangle 300x400] [C30/37]			
Modified (0)	mn 'C.4.1' [Rectangle 300x400] [C30/37]			
Deleted (0) Oclu	mn 'C.5.1' [Rectangle 300x400] [C30/37]			
Conflicted (0)	mn 'C.6.1' [Rectangle 300x400] [C30/37]			
Colu	mn 'C.7.1' [Rectangle 300x400] [C30/37]			
Matching (0) Oclu	mn 'C.8.1' [Rectangle 300x400] [C30/37]			
Colu	mn 'C.9.1' [Rectangle 300x400] [C30/37]			
😑 Colu	mn 'C.10.1' [Rectangle 300x400] [C30/37]			
Ignore	Activate		Conver	a.



Open an existing FEM-Design model

Save the model as struxml file type.



## Start the Tekla StruXml Import tool

- Load the struxml file.
- Map the materials and sections.
- Set additional options.
- Import the model to Tekla Structures.



Model is created in Tekla Structures

Figure 1-4

# 1.6. Transferred data

The list of transferred and converted data is as follows:

- geometry of FEM-Design analysis model (beams, trusses, columns, plane walls, plane plates),
- mapped cross-section of linear members (beams, trusses, columns),
- thickness of plane walls and plane plates,
- mapped material,
- analytical element ID of an object (optional).

# 2. Tekla StruXML Import

This chapter explains the detailed workflow of the integration between FEM-Design and Tekla Structures, as well as the functionality of the Tekla StruXML Import tool. In the table below, a detailed workflow is described.

	In FEM-Design:	Save FEM-Design model as .struxml file type (Chapter 2.1).
	In Tekla:	Start Tekla Structures and open an existing model, or create a new model (Chapter 2.2).
EKLA	In Tekla StruXML Import:	Start Tekla StruXML Import tool (Chapter 2.3).
TOT		In the <b>Import</b> tab load the struxml file (Chapter 2.3.1).
N MODEL		Go to <b>Materials</b> tab and map all the materials used in the model (Chapter 2.3.2).
1-DESIG		Go to <b>Sections</b> tab and map all the sections used in the model (Chapter 2.3.3).
L FEV		Go to <b>Options</b> tab and decide upon the optional settings (Chapter 2.3.4).
IMPORT		Go back to <b>Import</b> tab, select an element / elements to convert to Tekla model and press <b>Convert</b> (Chapter 2.3.5).
		Close the Tekla StruXML Import tool.
	In Tekla:	Continue working with the imported model and when finished, <b>Save</b> the model (with the original name).
	In FEM-Design:	Save the new version of the earlier imported FEM-Design model as .struxml file type.
	In Tekla:	Open the previously imported model.
	In Tekla StruXML Import:	Start Tekla StruXML Import tool.
		In the <b>Import</b> tab load the new struxml file (Chapter 2.3.1)
		If necessary, go to <b>Materials</b> tab and map all the new materials used in the model (Chapter 2.3.2).
LA MODE		If necessary, go to <b>Sections</b> tab and map all the new sections used in the model (Chapter 2.3.3).
ате Текі		If necessary, go to <b>Options</b> tab and decide upon the optional settings (Chapter 2.3.4).
UPD,		Go back to <b>Import</b> tab, and verify the status of elements (Chapter 2.3.6).
		- Select an element / elements and press <b>Convert</b> if you wish to update the Tekla element to the struxml version.
		- Select an element / elements and press <b>Ignore</b> if you wish to ignore the element and do not update the Tekla element to the struxml version.
		Close the Tekla StruXML Import tool.
	In Tekla:	Continue working with the imported model and when finished, <b>Save</b> the model (with the original name)

# 2.1. Saving FEM-Design model

In FEM-Design go to **File** -> **Save as** and save your model as .struxml file type. Struxml file type is an alternative FEM-Design format that among other things, is used as data exchange format between FEM-Design and other programs such Tekla Structures and Revit.



Figure 2-1

# 2.2. Creating Tekla model

Start Tekla Structures and open an existing model, or create a new model.

See Tekla Structures x64	
File Edit View Modeling Analysis Detailing Drawings & Reports Tools Window Help	
🗈 🖻 8   < 9 9 5 50   9 9   🗟 🖉 🗑   = 5 6 5 31   5 🖉 1	. 🖬   4.   4 4   70   17 🖽
電磁電   1-11   目前後鋒  1-11  日日前  1	
Sew New	×
Save in: C:\TeklaStructuresModels\	Browse
Model name: Test model	]
Model template: (None)	]
Model type: Single-user Server name:	<u> </u>
ОК	Cancel



If you consider updating your Tekla model later, **you must keep the same name of the Tekla model**. If you save your initially imported model with a different name, all the identifiers will be changed and there will not be possibility to update the model later.

# 2.3. Tekla StruXML Import tool

Start the Tekla StruXML Import tool. **Remember that Tekla Structures has to be opened in the background**. The tool will first establish connection to the Tekla Structures.

😵 Tekla StruXML Import			- 🗆 X
Import Materials Sections	5 Options		
File name			Browse
	StruXML	Tekla	
	Ignore Activate		Convert
Connected to Tekla Struc	:tures 21.1 🔫 🗕		



## 2.3.1. Import tab

Press **Browse** and locate the struxml file containing the FEM-Design model that you wish to import to Tekla. Upon loading the file the dialogs in the Import tab become active just as shown in the example in Figure 2-4.

There are four main dialogs in the Import tab:

- Filter window
- Objects list
- Actions window
- Log area

#### 2.3.1.1. Filter window

Elements in the struxml file are filtered by two parameters: Type and Status.

Following **Type** of element is recognized:

Beam:	Beams and truss members in struxml
Column:	Columns in struxml
Plate:	Plane plates in struxml
Wall:	Plane walls in struxml

Following **Status** of an element is recognized:

New:	New element in struxml (not existing in Tekla model before)
Modified:	Element has been modified in struxml or in Tekla after the initial import
Deleted:	Element has been deleted in struxml or in Tekla after the initial import
Conflicted:	Element is modified both in struxml and in Tekla after the initial import
Ignored:	User ignored the element and did not convert it to Tekla
Matching:	Element has a matching status between struxml and Tekla

Following rules apply:

- If an element of a specific type and status exist in the loaded struxml file, the corresponding category will be bolded and selected by default.
- The value in parenthesis shows the total number of elements belonging to certain category.
- Elements belonging to selected categories in the Filter dialog are visible in the Object list.

ổ Tekla StruXML Import				_		$\times$
Import Materials Sections	Options					
File name C:\Users\Iwon	na\Desktop\2016-03-18 Tekla Imp	ort test\FD models\Com	plete structure.struxml		Brov	vse
Туре	StruXML		Tekla			
Beam (0)	🖨 Column 'C.1.1' [HE-A 200] [!	S 355]	-			$\sim$
Column (61)	Column 'C.2.1' [Square 300]	[C30/37-1]	-			
✓ Plate (5)	Column 'C.3.1' [Square 300]	[C30/37-1]	-			
✓ Wall (33)	Column 'C.4.1' [Square 300]	[C30/37-1]	-			
Status	Column 'C.5.1' [Square 300]	[C30/37-1]	-			
Modified (0)	Column 'C.6.1' [HE-A 200] [	\$ 355]	- OBJECTS LIST			
Deleted (0)	Column 'C.7.1' [Square 300]	[C30/37-1]	-			
Conflicted (0)	Column 'C.8.1' [Square 300]	[C30/37-1]	-			
	Column 'C.9.1' [Square 300]	[C30/37-1]	-			
Ignored (0)	Column 'C.10.1' [Square 30	0] [C30/37-1]	-			_ ]
Matching (U)	Column 'C.11.1' [HE-A 200]	[S 355]	-			
FILTER WINDOW		ΑςτιοΝ			Com	vert
		Action	3 1112011		com	
Connected to Tekla Struct	tures 21.1	Takin insport toot\ED as	dale\Camalata structura strumal			
Processing StruXML net tit	ies	Tekia import test(FD me	dels (complete structure struxmi			
Refreshing Tekla data	i tanat					
Loading StruXML file succ	ceeded					
	L	JG AREA				
About Manual					CI	ose

Figure 2-4

# 2.3.1.2. Objects list

This dialog is divided into two parts: StruXML and Tekla (Figure 2-7):

- In StruXML column, one can see a list of all elements from the struxml file (according to selected type or status filter).
- In Tekla column, one can see a list of corresponding objects that have been converted to Tekla (before the elements are converted, the Tekla column will be empty Figure 2-5).

The naming convention is following:

StruXML

Tekla

Type 'ID' [Sections or Thickness][Material]

Type 'Name' [Sections or Thickness][Material]

This is how the dialog looks like just after loading a struxml file. All objects in StruXML side are red because the mapping was not perform yet (a tooltip is shown if you hover a mouse over any object). The Tekla column is empty because no elements were converted to Tekla yet.

🔇 Tekla StruXML Import	rente d to Telde rich		- 🗆 X
Import Materials Sections	Options		
File name C:\Users\Iwor	na\Desktop\2016-03-18 Tekla Import te	st\FD models\Complete structure.struxml	Browse
Туре	StruXML	Tekla	
Beam (0)	Column 'C.1.1' [HE-A 200] [S 355	] -	^
✓ Column (61)	Column 'C.2.1' Cannot map Strux	(ML section to Tekla profile!	
✓ Wall (33)	Column 'C.3.1' Cannot map Strux	(ML material to Tekla material!	
Status	Column 'C.4.1' [Square 300] [C30	/37-1] -	
✓ New (99)	Column 'C.5.1' [Square 300] [C30	//37-1] -	
Modified (0)	Column 'C.6.1' [HE-A 200] [S 355	] -	
Deleted (0)	Column 'C.7.1' [Square 300] [C30	/3/-1] -	
Conflicted (0)	Column C.8.1 [Square 300] [C30	/3/-1] -	~
Ignored (0)	Ignore Activate		Convert
Connected to Tekla Struc	tures 21.1		
Loading StruXML file C:\I	Users\Iwona\Desktop\2016-03-18 Tekla	Import test\FD models\Complete structure.struxml	
Processing StruXML entit	ties		
Refreshing Tekla data			
Loading StruxIVL file suc	ceeaea		
About Manual			Close

Figure 2-5

#### This is how the same dialog looks like after completing the mapping (all objects are now in black):

🔇 Tekli	a StruXML Iı	mport								—		×
Import	Materials	Sections	Options									
File nam	ne C:\U	lsers\lwon	a\Desktop\2	016-03-18 Te	ekla Import tes	t\FD models\	Complete st	ructure.stru	xml		Brov	vse
Туре			StruXM	L			Tekla					
Be	eam (0)		🖲 Columr	'C.1.1' [HE-/	A 200] [S 355]		-					$\sim$
	olumn (61	)	🖲 Columr	'C.2.1' [Squa	are 300] [C30,	/37-1]	-					
	late (5)		🖲 Columr	'C.3.1' [Squa	are 300] [C30,	/37-1]	-					
Statur	iaii (55)		🖲 Columr	'C.4.1' [Squa	are 300] [C30,	/37-1]	-					
	ew (99)		🖲 Columr	'C.5.1' [Squa	are 300] [C30,	/37-1]	-					
M	lodified (0)		🖲 Columr	'C.6.1' [HE-/	A 200] [S 355]		-					
D	eleted (0)		🖲 Columr	'C.7.1' [Squa	are 300] [C30,	/37-1]	-					
Co	onflicted ((	))	🖲 Columr	'C.8.1' [Squa	are 300] [C30,	/37-1]	-					
🔲 lg	nored (0)		Ignore	Activate	20011020	41					Conv	ert
Con	nected to T	ekla Struct	ures 21.1									
Load	ding StruXN	IL file C:\U	sers\lwona\	Desktop\2016	6-03-18 Tekla	mport test\F[	D models\Co	mplete stru	icture.strux	ml		
Proc	cessing Stru	XML entition	es									
Refr	reshing Tekla	a data										
U Load	ding StruXN	IL file succ	eeded									
About M	anual										Cl	ose

Figure 2-6

🞸 Tekla StruXML Import		_	
Import Materials Sections	Options		
File name C:\Users\Iwor	na\Desktop\2016-03-18 Tekla Import test\FD mod	dels\Complete structure.struxml	Browse
Туре	StruXML	Tekla	
Beam (0)	Column 'C.1.1' [HE-A 200] [S 355]	Column 'COLUMN' [HEA200] [S355JR]	
Column (61)	Column 'C.2.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]	
✓ Plate (5)	Column 'C.3.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]	
✓ Wall (33)	Column 'C.4.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]	
Status	Column 'C.5.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]	
Modified (0)	Column 'C.6.1' [HE-A 200] [S 355]	Column 'COLUMN' [HEA200] [S355JR]	
Deleted (0)	Column 'C.7.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]	
Conflicted (0)	Column 'C.8.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]	
	Column 'C.9.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]	
Ignored (0)	Column 'C.10.1' [Square 3001[C30/37-1]	Column 'COLUMN' [300*3001[C30/37]	LUMN' [300*300] [C30/37] LUMN' [300*300] [C30/37] LUMN' [300*300] [C30/37]
Matching (99)	Ignore Activate		Convert
Creating Wall 'W.29.1'			
Creating Wall 'W.30.1'			
Creating Wall 'W.31.1'			
Creating Wall 'W.32.1'			
Creating Wall 'W.33.1'			
Creating Plate 'P.5.1'			
Converting objects comp	AL Import       -       -       -         als       Sections       Options       Brc         C:\Users\lwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml       Brc         )       StruXML       Tekla         (61)       Column 'C.1.1' [HE-A 200] [S 355]       Column 'COLUMN' [HEA200] [S355]R]         (61)       Column 'C.2.1' [Square 300] [C30/37-1]       Column 'COLUMN' [300*300] [C30/37]         )       Column 'C.4.1' [Square 300] [C30/37-1]       Column 'COLUMN' [300*300] [C30/37]         (0)       Column 'C.6.1' [HE-A 200] [S 355]       Column 'COLUMN' [300*300] [C30/37]         (0)       Column 'C.6.1' [HE-A 200] [S 355]       Column 'COLUMN' [300*300] [C30/37]         (0)       Column 'C.6.1' [HE-A 200] [S 355]       Column 'COLUMN' [300*300] [C30/37]         (0)       Column 'C.6.1' [HE-A 200] [S 355]       Column 'COLUMN' [300*300] [C30/37]         (0)       Column 'C.6.1' [Square 300] [C30/37-1]       Column 'COLUMN' [300*300] [C30/37]         (0)       Column 'C.10.1' !Square 300] [C30/37-1]       Column 'COLUMN' [300*300] [C30/37]         (1)       Column 'C.10.1' !Square 300] [C30/37-1]       Column 'COLUMN' [300*300] [C30/37]         (2)       Golumn 'C.10.1' !Square 300] [C30/37-1]       Column 'COLUMN' [300*300] [C30/37]         (3)       'Square 300] [C30/37-1]       <		
bout Manual			Close

And this is how the same dialog looks like after converting all objects to Tekla:

Figure 2-7

#### 2.3.1.3. Actions window

Here is where the user decides what to do about a selected object(s). One can press **Convert**, in order to convert (import or update) selected object(s) to Tekla.

One can press **Ignore**, in order not to convert (import or update) selected object(s) to Tekla. One can press **Activate**, in order to activate back an ignored object.

#### 2.3.1.4. Log area

Here is where the user can see all the log messages that the tool sends when processing the model. When importing / updating the model, each action type is reflected in certain message (Figure 2-7), e.g:

- Creating Beam/Column/Plate/Wall ID
- Modifying Beam/Column/Plate/Wall ID
- Deleting Beam/Column/Plate/Wall ID

In case of some recognized problem (e.g. unsupported contour of plate), a warning message will be displayed below the processed object.

#### 2.3.2. Materials tab

In the Materials tab one should map all the materials used in the FEM-Design model into corresponding materials from Tekla Material Catalog.

In the left part of the dialog called StruXML, one can find list of all materials<sup>\*</sup> used in the FEM-Design model, just as shown in Figure 2-8.

\*Some material names can be listed several times (if they have different application data properties in FEM-Design).

😴 Tekla StruXML Import	_	×
Import Materials Sections Options		
StruXML Tekla		
C25/30-1		
C30/37-1		
S 355		

Figure 2-8

In the right part of the dialog called Tekla, one should type (or paste) the corresponding material name from Tekla Material Catalog, just as shown in Figure 2-9.

🎸 Tekla StruXML Import	- 0	×
Import Materials Sections Options		
StruXML Tekl		
C25/30-1 C20,	35	
C30/37-1 C30,	37	
\$ 355 \$355	IR	

Figure 2-9

In order to find the name of Tekla material, one can open Tekla Material Catalog (it can be open simultaneously with Tekla StruXML Import tool) and browse through the library. Certain material name can be copied to the particular cell in the Materials tab.

Modify Material Catalog	×	
Selected grade: S355JR	General Analysis Design User attributes	
	Alias 1:       Fe510B         Alias 2:	
- S235JRG1 - S235JRG2 - S275J0 - S275J2G3 - S275J2G4 - S275JR - S350GD+Z - S355J2G3 - S355J2G4 - S355J2G4 - S355J2G4 - S355J2G4 - S355J2H - S355J2G4 - S355J2H - S355J2G4 - S355K2G4 - S355K2G4 - S355K2G4 - S402H - Steel_Undefined - X60 - X70 - Concrete - Reinforcing bar - Timber - Miscellaneous	Import     Materials     Sections     Options       StruXML     Tekla     C20/35       C30/37-1     C30/37       S 355     S355JR	
Filter: * Filter.		
OK Export Import	Connected to Tekla Structures 21.1 Loading StruXML file C:\Users\\wona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml	

Figure 2-10

#### 2.3.3. Sections tab

In the Sections tab one should map all the sections used in the FEM-Design model into corresponding sections from Tekla Profile Catalog.

In the left part of the dialog called StruXML, one can find list of all sections used in the FEM-Design model, just as shown in Figure 2-11.

Import     Materials     Sections     Options	_	×
StruXML	Tekla	
HE-A 200		
Square 300		

Figure 2-11

In the right part of the dialog called Tekla, one should type (or paste) the corresponding section name from Tekla Profile Catalog, just as shown in Figure 2-12.

🎸 Tekla StruXML Import	_	×
Import Materials Sections Options		
StruXML Tekla		
HE-A 200 HEA200		
Square 300 300*300		

Figure 2-12

In order to find the name of Tekla section, one can open Tekla Profile Catalog (it can be open simultaneously with Tekla StruXML Import tool) and browse through the library. Certain section name can be copied to the particular cell in the Sections tab.

S Modify Profile Catalog		×
Profile name: HEA200 Filter: * Filter	General Analy Profile type Profile type: Profile subtype	I profiles
	Calculated cr Start 0.7 Picture	Tekla StruXML Import     Materials     Sections     Options     StruXML     HE-A 200     Square 300     300*300
	Property Height Width Web thicknes Flange thickn Rounding rad Rounding rad Flange slope r	
⊕-f9         HEB           ⊕-f9         HEM           ⊕-f9         HEM           ⊕-f9         INP           ⊕-f9         INP           ⊕-f9         HI           ⊕ f9         HI	) ) ) ) ) ) ) )	Connected to Tekla Structures 21.1 Loading StruXML file C:\Users\Wona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml Processing StruXML entities Refreshing Tekla data

Figure 2-13

Pay attention when mapping e.g. rectangular concrete sections. There is a different naming convention of the concrete sections between FEM-Design and Tekla.

In FEM-Design, a naming convention for a default concrete rectangular section is following: **bxh**, where b is the width of a section, and h is the height of the section e.g.: 150x300 (Figure 2-14).

In Tekla, naming convention for a default concrete rectangular section can be following: h\*b, where b is the width of a section, and h is the height of the section e.g.: 300\*150 (Figure 2-15).





So a rectangular beam 150x300 in FEM-Design has to be mapped as shown in Figure 2-16, in order to be imported correctly to Tekla.

	StruXML	Tekla	
	Rectangle 150x300	300*150	
1			



#### 2.3.4. Options tab

In the Options tab, one can decide about optional settings regarding the imported data (Figure 2-17).

	A 101 100	Soutre 300	300*300		
😴 Tekla StruXML	Import			_	$\times$
Import Materials	Sections Options				
Importing data	i de la companya de l				
🗌 Put StruX	ML Identifier into 'User Fie	ld 4' of the Tekla object			
Put user-	defined input parameter fo	or model object default			
	Name	Class			
Beam					
Column					
Plate					
Wall					



There are two options:

- Put StruXML identifier into "User Field 4" of the Tekla object

If this is option is checked, the analytical ID of FEM-Design object (Figure 2-18) will be imported along with its geometry, and placed in the User-defined attributes of the Tekla object, in User field 4 (Figure 2-19).





	😵 Concrete Be	eam Properties			×						
	Save Load	standard 🗸 🗸	Save as star	ndard							
	Attributes Pos	sition Cast unit Defo	rmina								
	✓ Name	BEAM	Sekla Stru	ctures x64 Co	ncrete b	eam (1)					×
	Profile	300*150	EliPlan	BVBS	HMS	General Desig	n Tek	la Structural De	signer	Concrete	information
· · · · · · ·		500 150	Parameters	Workflow	End	Conditions	Analysis	IFC export	Concr	ete finish	Unitechnik
	Material	C30/37	Comment								
	Finish		Preliminary r	mark							
	Class	1	Locked					~			
	User-defin	ed attributes	Fabricator n	ame							
	- oser denn		User field 1								
and the second second			User field 2								
and the second			User field 3								
a de la companya de l							D 1 1				
			User field 4				D.1.1				
			User Phase	(affects num)	bering)						

Figure 2-19

#### - Put user-defined input parameter for model object default

If this option is checked, the fields below become active and one can define the Name and Class parameter for each type of imported elements, as shown in Figure 2-20. This input will be imported along with the object as shown in Figure 2-21.

If this option is not checked, all objects will receive default name and class.

😴 Tekla StruXML I	Import			_	×
Import Materials	Sections Options				
Importing data	і.				
✓ Put StruXI	ML Identifier into 'User Field	4' of the Tekla object			
✓ Put user-o	defined input parameter for	model object default			
	Name	Class			
Beam	Bjælke	5	]		
Column	Søjle	10	]		
Plate	Plade	15	]		
Wall	Væg	20	]		

Figure 2-20

🛜 Concrete Be	am Properties	×	
Save Load	standard 🗸 Save as standard		
Attributes Pos	ition Cast unit Deforming		
<mark>∕ N</mark> ame	Bjælke		
Profile	300*150	Select	
 🗹 Material	C30/37	Select	
🗹 Finish			
Class	5 🔶		
User-define	ed attributes		

Figure 2-21

## 2.3.5. Import

Follow this example to understand the simple import mechanism.

After loading a struxml file and completing sections and materials mapping (and choosing optional setting) the Import dialog looks like on Figure 2-22.

Tekla StruXML Import	- 0	×			
Import Materials Sections Options					
File name C:\Users\Iwona\Desktop\2016-03-18	Tekla Import test\FD models\Complete structure.struxml	Browse			
Type StruXML	Tekla				
Beam (0) Oclumn 'C.1.1' [H	E-A 200] [S 355] -	$\sim$			
Column (61)	uare 300] [C30/37-1] -				
Column 'C.3.1' [Sc	uare 300] [C30/37-1] -				
Status	uare 300] [C30/37-1] -				
✓ New (99)	uare 300] [C30/37-1] -				
Modified (0) Oclumn 'C.6.1' [H	E-A 200] [S 355] -				
Deleted (0) Oclumn 'C.7.1' [Sc	uare 300] [C30/37-1] -				
Conflicted (0) Oclumn 'C.8.1' [Sc	uare 300] [C30/37-1] -				
Column 'C.9.1' [Sc	juare 300] [C30/37-1] -				
Matching (0) Oclumn 'C.10.1' [S	Gquare 300] [C30/37-1] -				
Column 'C.11.1' [ł	HE-A 200] [S 355] -				
😑 Column 'C.12.1' [ł	HE-A 200] [S 355] -				
😑 Column 'C.13.1' [ł	HE-A 200] [S 355] -				
😑 Column 'C.14.1' [ł	HE-A 200] [S 355] -				
😑 Column 'C.15.1' [ł	HE-A 200] [S 355] -	$\sim$			
Ignore Activate	e	Convert			
Connected to Tekla Structures 21.1 Loading StruXML file C:\Users\Iwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml Processing StruXML entities Refreshing Tekla data Coading StruXML file succeeded					
About Manual		Close			

Figure 2-22

In order to convert (import) object to Tekla:

- select a certain object (it will highlight in blue) or,
- select a group of objects (click on several objects with Ctrl button pressed) or,
- select one random object and press Ctrl+A in order to select all objects (Figure 2-23)

#### and press Convert.

File name       C:\Users\\wona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml         fype       StruXML       Tekla         @ Beam (0)       Column (61)       Column 'C.1.1' [HE-A 200] [S 355]       -         Y New (99)       Column 'C.3.1' [Square 300] [C30/37-1]       -         Y New (99)       Column 'C.4.1' [Square 300] [C30/37-1]       -         Y New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         Y New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         Y New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         Y New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         Y New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         Y New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         Y New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         Y New (99)       Column 'C.1.1' [Square 300] [C30/37-1]       -         Y New (99)       Column 'C.1.1' [Square 300] [C30/37-1]       -         Y New (99)       Column 'C.1.1' [Square 300] [C30/37-1]       -         Y New (99)       Column 'C.1.1' [Square 300] [C30/37-1]       -         Y Connetced (0)       Column 'C.1.1' [Square 300] [C30/37-1]       -         Y Column 'C.1.1' [ME-A 200] [S 355]       -	Browse
StruXML       Tekla         Beam (0)       Column (C.1.1' [HE-A 200] [S 355]       -         ✓ Column (61)       Column 'C.2.1' [Square 300] [C30/37-1]       -         ✓ Wall (33)       Column 'C.4.1' [Square 300] [C30/37-1]       -         ✓ New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         ✓ New (99)       Column 'C.6.1' [Square 300] [C30/37-1]       -         ✓ New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         ✓ New (99)       Column 'C.6.1' [HE-A 200] [C30/37-1]       -         ✓ Outmn 'C.6.1' [HE-A 200] [C30/37-1]       -       -         Ø Column 'C.6.1' [HE-A 200] [C30/37-1]       -       -         Ø Column 'C.6.1' [HE-A 200] [C30/37-1]       -       -         Ø Column 'C.6.1' [Square 300] [C30/37-1]       -       -         Ø Column 'C.1.1' [HE-A 200] [S 355]       -       -         Ø Column 'C.1.1' [HE-A 200] [S 355]       -       -         Ø Column 'C.1.1' [HE-A 200] [S 355]       -       -         Ø Column 'C.1.1' [HE-A 200] [S 355]       -       -	
Beam (0)       Column 'C.1.1' [HE-A 200] [S 355]       -         ✓ Column (61)       Column 'C.2.1' [Square 300] [C30/37-1]       -         ✓ Plate (5)       Column 'C.3.1' [Square 300] [C30/37-1]       -         ✓ Wall (33)       Column 'C.4.1' [Square 300] [C30/37-1]       -         ✓ New (99)       Column 'C.6.1' [HE-A 200] [S 355]       -         Modified (0)       Column 'C.6.1' [HE-A 200] [S 355]       -         Deleted (0)       Column 'C.7.1' [Square 300] [C30/37-1]       -         Conflicted (0)       Column 'C.1.1' [HE-A 200] [S 355]       -         Ignored (0)       Column 'C.1.1' [Square 300] [C30/37-1]       -         Column 'C.1.1' [HE-A 200] [S 355]       -       -         Column 'C.1.1' [Square 300] [C30/37-1]       -       -         Conflicted (0)       Column 'C.1.1' [Square 300] [C30/37-1]       -         Column 'C.1.1' [Square 300] [C30/37-1]       -       -         Column 'C.1.1' [Square 300] [C30/37-1]       -       -         Column 'C.1.1' [HE-A 200] [S 355]       -       -         Ignore       Activate       -         Connected to Tekla Structures 21.1       -       -         Loading StruXML entities       -       -         Refreshing Tekla data       -       - </td <td></td>	
V Column (61)       Column 'C.2.1' [Square 300] [C30/37-1]       -         V Plate (5)       Column 'C.3.1' [Square 300] [C30/37-1]       -         Wall (33)       Column 'C.4.1' [Square 300] [C30/37-1]       -         Mattaus       Column 'C.6.1' [HE-A 200] [S 355]       -         Modified (0)       Column 'C.6.1' [HE-A 200] [S 355]       -         Conflicted (0)       Column 'C.6.1' [Square 300] [C30/37-1]       -         Conflicted (0)       Column 'C.6.1' [Square 300] [C30/37-1]       -         Conflicted (0)       Column 'C.6.1' [Square 300] [C30/37-1]       -         Conflicted (0)       Column 'C.10.1' [Square 300] [C30/37-1]       -         Column 'C.11.1' [HE-A 200] [S 355]       -       -         Column 'C.12.1' [Square 300] [C30/37-1]       -       -         Column 'C.11.1' [Square 300] [C30/37-1]       -       -         Column 'C.12.1' [Square 300] [C30/37-1]       -       -         Column 'C.12.1' [HE-A 200] [S 355]       -       -         Connected to Tekla Structures 21.1       -       -       -         Loading StruXML file C:\Users\wona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml       -         Processing StruXML entities       Refreshing Tekla data       -	
Yrate (5)       Column 'C.3.1' [Square 300] [C30/37-1]       -         Wall (33)       Column 'C.4.1' [Square 300] [C30/37-1]       -         tatus       Column 'C.5.1' [Square 300] [C30/37-1]       -         Modified (0)       Column 'C.6.1' [HE-A 200] [S 355]       -         Deleted (0)       Column 'C.6.1' [Square 300] [C30/37-1]       -         Conflicted (0)       Column 'C.8.1' [Square 300] [C30/37-1]       -         Conflicted (0)       Column 'C.8.1' [Square 300] [C30/37-1]       -         Conflicted (0)       Column 'C.9.1' [Square 300] [C30/37-1]       -         Column 'C.10.1' [Square 300] [C30/37-1]       -       -         Ocolumn 'C.11.1' [HE-A 200] [S 355]       -       -         Column 'C.12.1' [HE-A 200] [S 355]       -       -         Connected to Tekla Structures 21.1       Loading StruXML file C:\Users\wona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml         Processing StruXML entities       Refreshing Tekla data	
Walin (55) <ul> <li>Column 'C.4.1' [Square 300] [C30/37-1]</li> <li>Column 'C.5.1' [Square 300] [C30/37-1]</li> <li>Column 'C.6.1' [HE-A 200] [S 355]</li> <li>Column 'C.6.1' [HE-A 200] [C30/37-1]</li> <li>Column 'C.6.1' [Square 300] [C30/37-1]</li> <li>Column 'C.8.1' [Square 300] [C30/37-1]</li> <li>Column 'C.9.1' [Square 300] [C30/37-1]</li> <li>Column 'C.9.1' [Square 300] [C30/37-1]</li> <li>Column 'C.9.1' [Square 300] [C30/37-1]</li> <li>Column 'C.10.1' [Square 300] [C30/37-1]</li> <li>Column 'C.11.1' [HE-A 200] [S 355]</li> <li>Column 'C.12.1' [HE-A</li></ul>	
Active       Oclumn 'C.5.1' [Square 300] [C30/37-1]       -         Modified (0)       Column 'C.6.1' [HE-A 200] [S 355]       -         Deleted (0)       Column 'C.7.1' [Square 300] [C30/37-1]       -         Conflicted (0)       Column 'C.8.1' [Square 300] [C30/37-1]       -         Ignored (0)       Column 'C.10.1' [Square 300] [C30/37-1]       -         Column 'C.10.1' [Square 300] [C30/37-1]       -         Column 'C.11.1' [HE-A 200] [S 355]       -         Ignore       Activate         Connected to Tekla Structures 21.1       Loading StruXML file C:\Users\lwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml         Processing StruXML entities       Refreshing Tekla data	
Modified (0)       Column 'C.6.1' [HE-A 200] [S 355]       -         Deleted (0)       Column 'C.7.1' [Square 300] [C30/37-1]       -         Conflicted (0)       Column 'C.8.1' [Square 300] [C30/37-1]       -         Ignored (0)       Column 'C.10.1' [Square 300] [C30/37-1]       -         Column 'C.11.1' [Square 300] [C30/37-1]       -       -         Column 'C.11.1' [Square 300] [C30/37-1]       -       -         Column 'C.11.1' [HE-A 200] [S 355]       -       -         Ignore       Activate       -       -         Connected to Tekla Structures 21.1       Loading StruXML file C:\Users\lwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml         Processing StruXML entities       Refreshing Tekla data       -	
Column 'C.7.1' [Square 300] [C30/37-1]     Column 'C.8.1' [Square 300] [C30/37-1]     Column 'C.8.1' [Square 300] [C30/37-1]     Column 'C.9.1' [Square 300] [C30/37-1]     Column 'C.9.1' [Square 300] [C30/37-1]     Column 'C.10.1' [Square 300] [S355]     Column 'C.10.1' [Mathematical State and the st	
Conflicted (0) Ignored (0) Column 'C.8.1' [Square 300] [C30/37-1] Column 'C.9.1' [Square 300] [C30/37-1] Column 'C.10.1' [Square 300] [S355] Column 'C.10.1' [HE-A 200] [S 355] Column 'C.10.1' [HE-A 200] [HE A 200] [HE	
Column 'C.9.1' [Square 300] [C30/37-1] -     Column 'C.10.1' [Square 300] [C30/37-1] -     Column 'C.10.1' [Square 300] [C30/37-1] -     Column 'C.11.1' [HE-A 200] [S 355] -     Column 'C.12.1' [H	
Activate     Connected to Tekla Structures 21.1 Loading StruXML file C:\Users\Iwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml Processing StruXML entities Refreshing Tekla data	
Column 'C.11.1' [HE-A 200] [S 355] - Column 'C.12.1' [HE-A 200] [S 355] - Ignore Activate Connected to Tekla Structures 21.1 Loading StruXML file C:\Users\Iwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml Processing StruXML entities Refreshing Tekla data	
Connected to Tekla Structures 21.1 Loading StruXML file C:\Users\Iwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml Processing StruXML entities Refreshing Tekla data	
Ignore         Activate           Connected to Tekla Structures 21.1         Loading StruXML file C:\Users\lwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml           Processing StruXML entities         Refreshing Tekla data	
Connected to Tekla Structures 21.1 Loading StruXML file C:\Users\Iwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml Processing StruXML entities Refreshing Tekla data	Convert
Loading StruXML file C:\Users\lwona\Desktop\2016-03-18 Tekla Import test\FD models\Complete structure.struxml Processing StruXML entities Refreshing Tekla data	
Processing StruXML entities Refreshing Tekla data	
Kefreshing Tekla data	
Loading StruXML file succeeded	

Figure 2-23

When selected objects are converted, they appear in the Tekla model (Figure 2-24) and their status in the Tekla StruXML Import will change to Matching (Figure 2-25).



Figure 2-24

 K Tekla StruXML Import						
Import Materials Sections	Options					
File name C:\Users\Iwor	na\Desktop\2016-03-18 Tekla Import test\FD model	s\Complete structure.struxml	Browse			
Туре	StruXML	Tekla				
Beam (0)	Column 'C.1.1' [HE-A 200] [S 355]	Column 'COLUMN' [HEA100] [S355JR]	~			
✓ Column (61)	Column 'C.2.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]				
✓ Plate (5)	Column 'C.3.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]				
	Column 'C.4.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]				
Naw (0)	Column 'C.5.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]				
Modified (0)	Column 'C.6.1' [HE-A 200] [S 355]	Column 'COLUMN' [HEA100] [S355JR]				
Deleted (0)	Column 'C.7.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]				
Conflicted (0)	Column 'C.8.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]				
	Column 'C.9.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]				
Ignored (0)	Column 'C.10.1' [Square 300] [C30/37-1]	Column 'COLUMN' [300*300] [C30/37]				
V Matching (99)	Column 'C.11.1' [HE-A 200] [S 355]	Column 'COLUMN' [HEA100] [S355JR]				
	Column 'C.12.1' [HE-A 200] [S 355]	Column 'COLUMN' [HEA100] [S355JR]				
	Ignore Activate		Convert			
Creating Plate 'P.4.1'						
Creating Wall 'W.28.1'						
Creating Wall 'W.29.1'						
Creating Wall 'W.30.1'						
Creating Wall 'W.31.1'						
Creating Wall 'W.32.1'						
Creating Wall 'W.33.1'						
Creating Plate 'P.5.1'						
Converting objects completed						
bout Manual			Close			

Figure 2-25

## Press **Close** to close the Tekla StruXML Import Tool.

If you do not see your model in Tekla, or you see only part of it:

- double click in the drawing area and adjust the View depth
- right click in the drawing area and select Fit work area to Entire Model

	And the second sec				
				Interrupt	
				Properties	
				Move	· · · · · ·
			_	Fit Work Area to Entir	e Model
				Redraw View	
				Zoom	>
and the second se				Update Window	
and the second se		~ //		Next Window	
		and		Create General Arrang	gement Drawing
				🔏 Create Clip Plane	
		View Properties			
		- Hew Hopenics			
		Save Load standard		✓ Save as	standard
		View			
D		☑ Name:	3d		
		Angle:	🗇 3D	🗸 🗹 Rotatio	n around Z: -30.00
C		Projection:	C Orthogonal	V Rotatic	on around X: 20.00
		e nojection.	Er ernegenar		
B		Representation	- territerit		
Y		Color and transparency in all vie	ws: standard		* Representation
		Visibility			
		View depth: View depth: 200	100.00		
The second		Down: 200			
- Martin - Carlos - C	3	Visibility of object types:	spidy		
	4	sta	ndard	✓ Object group	
		OK Apply	Modify	Get	
			10 m		

Figure 2-26

## 2.3.6. Update

If you continue working on the (previously imported to Tekla) model in FEM-Design, you can use the new version of that model to update the current version of Tekla model. The current version of the model can include some changes applied after the previous struxml model was imported. A brief workflow is shown in Figure 2-27



Figure 2-27

When importing another version of the same FEM-Design model, changes are recognized in comparison to the previously imported version and to the current version of Tekla model. Following changes are recognized:

In StruXML model:

- New object
- Modified objects
  - Geometry
  - Section
  - Material
  - ID
- Deleted objects

In Tekla model:

- Modified objects
  - Geometry
  - Section
  - Material
- Deleted objects

When updating Tekla object to the FEM-Design version, the previous object in Tekla is deleted, and a new object that matches FEM-Design properties, is created in its place. It is not possible to update any Tekla object on parameter level.

Please follow the next example, to understand the idea of the update mechanism.

#### Example:

A certain FEM-Design model was first imported to Tekla. Afterwards the model was further developed in FEM-Design, and some changes have been made also in Tekla.

a. Model modifications in FEM-Design

Following changes have been applied (Figure 2-28):

- two columns has changed the section,
- one plate has changed the material,
- one wall was deleted,
- one new column was created.

The model was saved as a new struxml file with new name. This modified FEM-Design model is what we call 'FEM-Design Model - Version 2' on Figure 2-27.



Figure 2-28

b. Model modifications in Tekla

Following changes have been applied (Figure 2-29):

- wall's geometry has been modified (openings were modified).

This modified Tekla model is what we call 'Tekla Model - Version 2' on Figure 2-27.



Figure 2-29

#### c. Update

In order to update the current version of the Tekla model, start the Tekla StruXML Import tool, and browse for the new version of the FEM-Design model.

Upon loading the file, one can see a list of all changes (Figure 2-30). If some objects are marked in red, it means that some additional mapping is required. In such case, perform the missing material and sections mapping first.



Figure 2-30

By default, only the changes are checked to be visible. In this example there is 1 new object, 4 objects are modified, and 1 object is deleted. The remaining 94 objects are matching (matching objects are not displayed by default).

In order to have better overview of the model changes, one can decide to display only one type of modification at a time, e.g. display only New, or only Modified, etc.

#### New objects

Display only new objects (Figure 2-31). There is one new column added in FEM-Design (struxml) model. In order to add it to Tekla model, select the cell and press **Convert**.



Figure 2-31

New column is added into Tekla model, and its status will change to Matching.

New (0) Modified (4) Deleted (1) Conflicted (0) Ignored (0) Matching (95)				
	Ignore	Activate		Convert
Creating Wall 'W.32.1' Creating Wall 'W.33.1' Creating Plate 'P.5.1' Converting objects com Loading StruXML file C: Processing StruXML ent Refreshing Tekla data Loading StruXML file su Creating Column 'C.62.1	pleted (Users\lwona\De ities cceeded	sktop\Tekla	Import model\struxml_2.struxml	^



#### Modified objects

Now, let's look at modified objects (Figure 2-33).

- Two columns in FEM-Design (struxml) changed their sections from HEA200 to HEA180 (therefore the section name **[HE-A 180]** is bolded). When looking at the corresponding object in Tekla, one can see what the original section was [HEA 200].
- One panel (wall) changed its geometry in Tekla model (therefore, the **Panel** word is bolded).
- One slab changed its material in FEM-Design from C25/30 to C30/37 (therefore, the material name **[C30/37-1]** s bolded).



Figure 2-33

In order to apply the three changes made in FEM-Design to the Tekla model, select the three objects and press **Convert** (Figure 2-34).

Туре	StruXML	Tekla
Beam (0)	Olumn 'C.48.1' [HE-A 180] [S 355]	Column 'Column' [HEA200] [S355JR]
Column (62)	Column 'C.53.1' [HE-A 180] [S 355]	Column 'Column' [HEA200] [S355JR]
✓ Plate (5)	Wall 'W.28.1' [200] [C30/37-1]	Panel 'Wall ' [3000*200] [C30/37]
✓ Wall (33)	Plate 'P.5.1' [250] [C30/37-1]	Slab 'Plate' [250] [C25/30]
New (0) Modified (4) Deleted (1) Conflicted (0) Ignored (0) Matching (95)		
	Ignore Activate	Convert

Figure 2-34

The two columns have a new profile in Tekla now, and the slab changed the material to C30/37. All three objects changed their status to Matching.

🖇 Tekla StruXML Import – 🗆 🗙								×
Import Materials Section	s Options							
File name C:\Users\Iwo	na\Desktop\Tek	da Import mode	l\struxml_2.strux	ml			Brov	vse
Туре	StruXML				Tekla			
Beam (0)	🔵 Wall 'W.28	3.1' [200] [C30/37	7-1]		Panel 'Wall ' [3000*200] [C30/37]			
Column (62)			-					
✓ Plate (5)								
✓ Wall (33)								
Status								
New (0)								
✓ Modified (1)								
Conflicted (0)								
Conneccu (o)								
Ignored (0)								
Matching (98)	ing (98)							
	Ignore	Activate					Conv	rert
Refreshing Tekla data								^
Loading StruXML file sug	cceeded							
Creating Column 'C.62.1								
Converting objects completed								
Modifying Column 'C.48	Modifying Column 'C.48.1'							
Modifying Column 'C.53, I' Modifying Diste 'P.5.1'								
	preced							$\sim$

Figure 2-35

#### Ignored objects

The last object that is left in Modified category is the wall W.28.1 that was modified in Tekla. Here, if you want to bring the original version of the wall that exist in the FEM-Design (struxml) model, select it and press **Convert**. The wall in Tekla will be modified to the previous version.

But if you want to keep the current modified version of the wall in Tekla, just select the object and press **Ignore**.

🎸 Tekla StruXML Im	port					_		×
Import Materials	Sections Options							
File name C:\Us	File name         C:\Users\lwona\Desktop\Tekla Import model\struxml_2.struxml         Browse							
Туре	StruXML				Tekla			
Beam (0)	Wall 'W.2	8.1'[200][C30/	/37-1]		Panel 'Wall ' [3000*200] [C30/37]			
✓ Column (62)								
Wall (33)								
Status								
New (0)								
Modified (0)								
Deleted (1)								
Conflicted (0)								
✓ Ignored (1) -	←							
Matching (9	3)							
	Ignore	Activate					Conve	ert

Figure 2-36

No modification will be done to Tekla wall, and its status will change to Ignored (Figure 2-36). In Ignored, you will be able to see the list of all objects that were not automatically converted to Tekla model.

If you want to activate an ignored object, select it and press **Activate**. This way, the object will be move to its original category.

**Ignore** can also be used if, for some reason, you do not want to automatically update the Tekla objects with FEM-Design change (maybe you prefer to do it manually).

To summarize: **Ignore** can be used in two situations:

- When an object was changed (modified / deleted) only in Tekla and you want to keep this state, and do not update the object to the previous version from FEM-Design (struxml).
- When an object was changed (modified / deleted) only in FEM-Design and you do not want to automatically update the Tekla model with this change.

#### Deleted objects

Display only deleted objects (Figure 2-37). There is one wall that was deleted in FEM-Design model (struxml).





If you wish to update the Tekla model (delete that wall), just select the object and press **Convert**. The wall will be deleted from Tekla and its status will change to <u>Matching</u>.



Figure 2-38

(If you do not want to delete that wall in Tekla, select the object and press **Ignore**).

## <u>Conflict</u>

In case any object was modified in both places, i.e. in FEM-Design and in Tekla, one has to decide which version of the object to accept (it is not possible to keep the state of Tekla object and update it only with the change from FEM-Design).

To demonstrate an example of a conflict, let's assume that in the next round, a slab was modified in FEM-Design (opening was added), and the same slab was also modified in Tekla (slab boundaries were extended).

Upon loading the struxml file containing another version of the FEM-Design model, a conflict is recognized (Figure 2-39). Both changes were made to the slab's geometry therefore the name of the objects are bolded in both sides.

In order to accept the version of the plate from FEM-Design (struxml), one should select the object and press **Convert**. The slab in Tekla will be updated to the current version from FEM-Design (but the change applied in Tekla to that slab will be lost).

In order to keep the version of the slab in Tekla, and do not automatically update it to FEM-Design version, one should select the object and press **Ignore**. This way we can keep the Tekla modification (and perhaps apply the other modification manually in Tekla).

Туре	StruXML	Tekla
Beam (0)	Plate 'P.5.1' [250] [C30/37-1]	Slab 'Plate' [250] [C30/37]
Column (62)		
✓ Plate (5)		
✓ Wall (33)		
Status		
New (0)		
Modified (0)		
Deleted (0)		
✓ Conflicted (1)		
Matching (96)		
	Ignore Activate	Convert

Figure 2-39

# 2.4. Limitations and future development

Tekla StruXML Import 1.00.000 is the first release of the tool and has certain limitations. Development of this tool will continue and one can expect many improvements in the next versions.

Recognized limitations:

- The original name of the Tekla model cannot be changed if one wants to update that model later.
- Contour of the slab / wall including arc is not supported and such slab /wall will not be imported to Tekla.
- Openings in the slab / wall including arc are not supported and such openings will not be created in Tekla (slab / wall will be imported).

Future development:

- Import axes and storeys as grid system to Tekla.
- Import profiled panels to Tekla.
- Improvements in mapping (saving mapping, introducing Tekla material and section catalogs into the tool).
- Improvements in the user input (more categories for Name and Class).