Insights to preparing for IFC-SG

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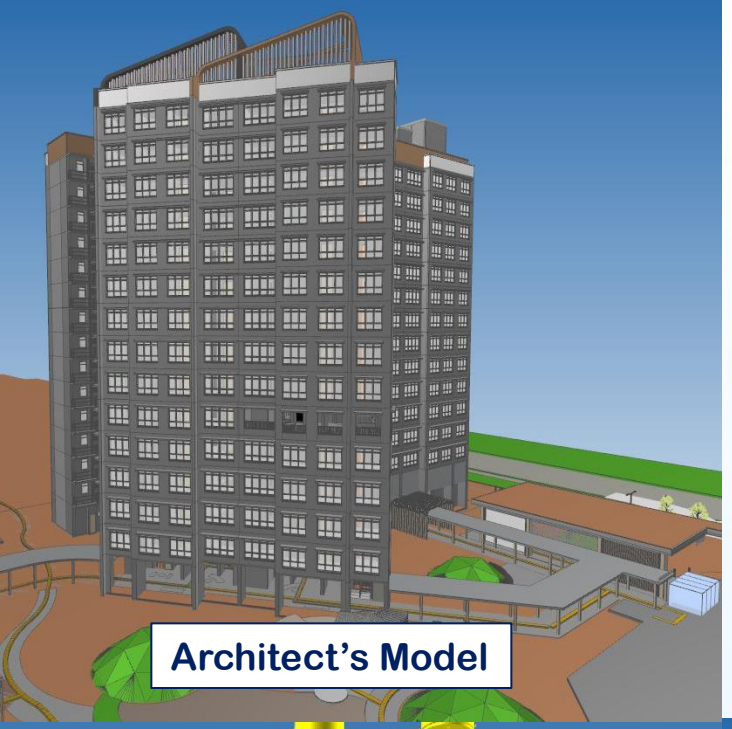
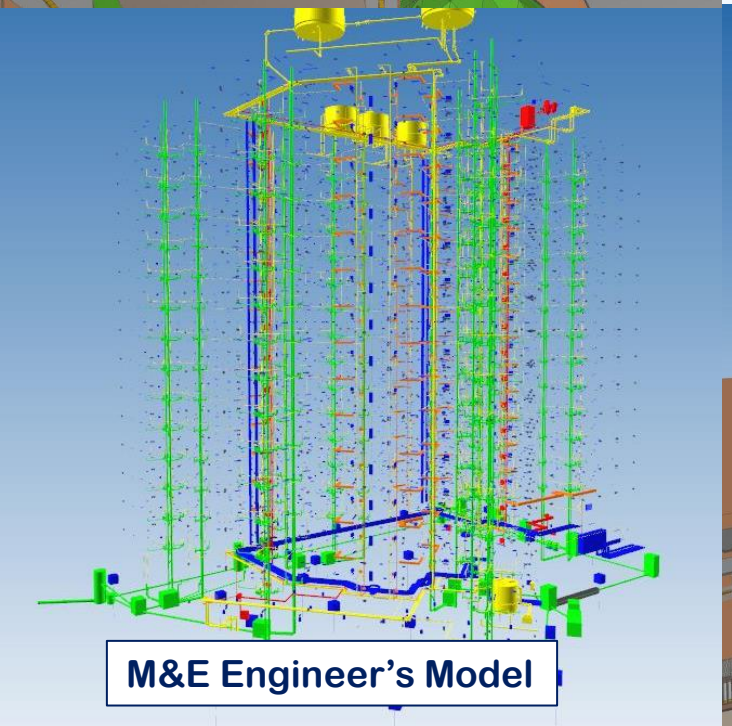
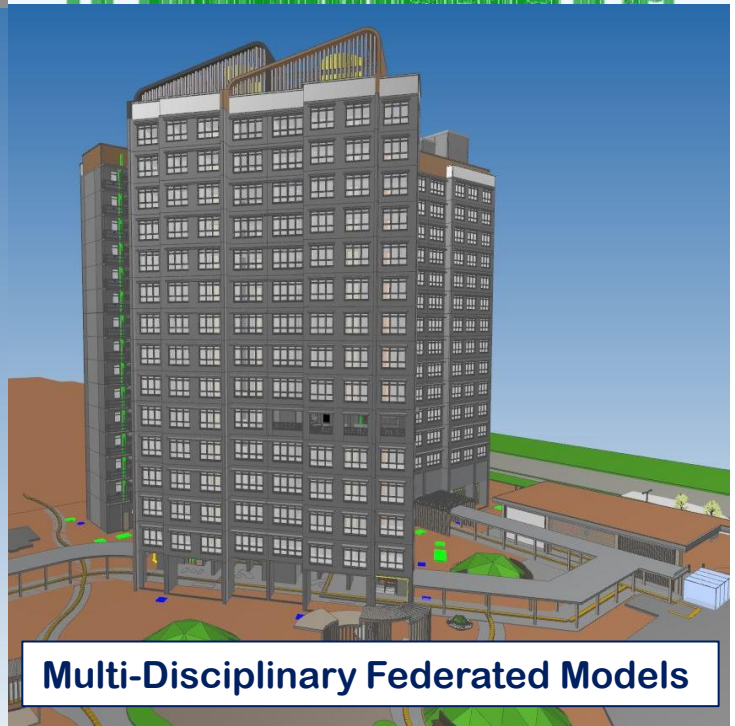






Background

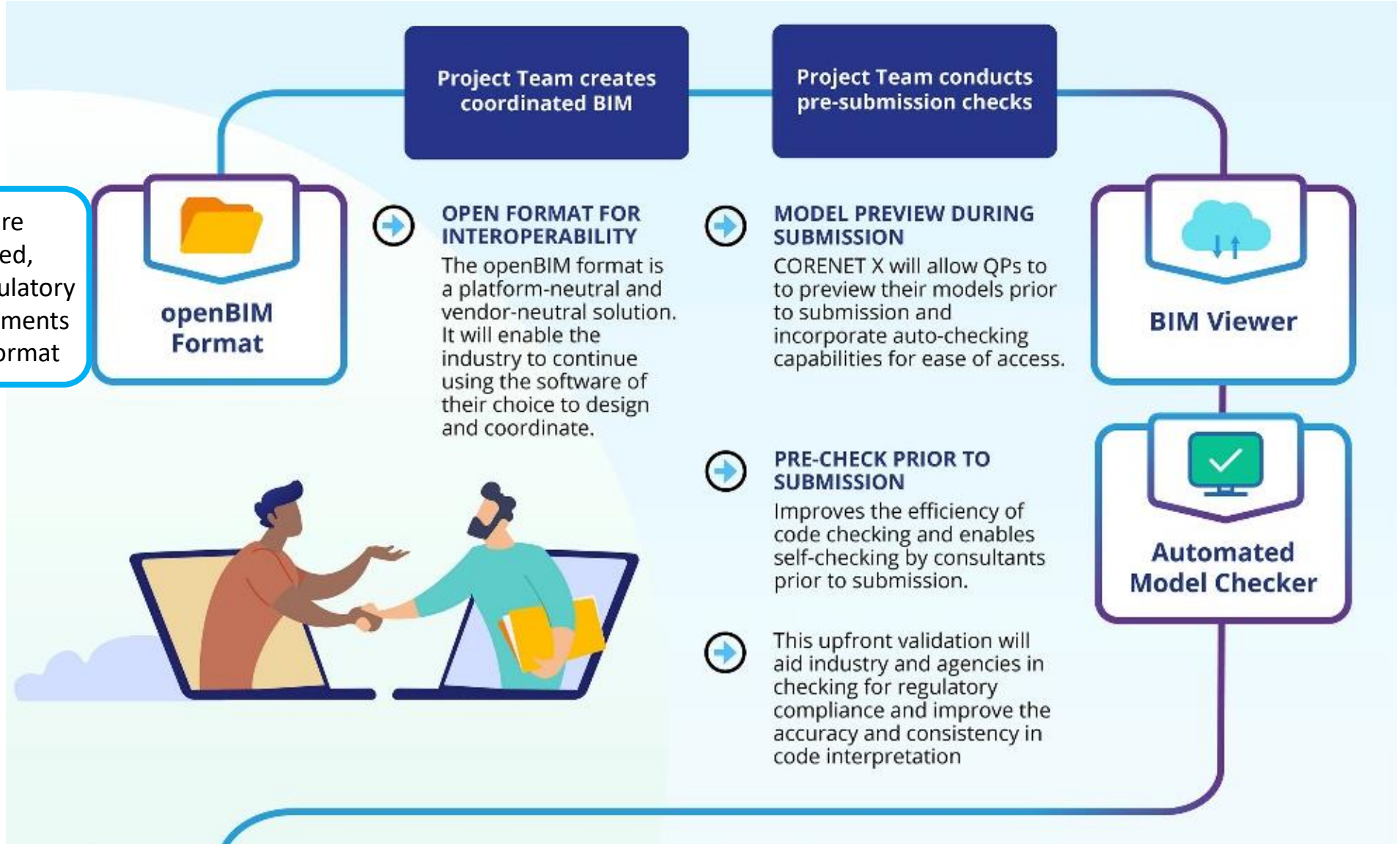
BCA, GovTech, HDB, P&T and UPC carried out a CORENET X modelling study on a completed project, Tampines Greenbloom Blk 875B

Insights from the study will be shared, including:

- What is IFC-SG
- Using CORENET X Config Files with existing company templates
- Workarounds, tips & tricks

IFC-SG in CORENET X

IFC-SG are customized, localized regulatory data requirements in the IFC format



Project Team makes submission for the project

LEVERAGING TECHNOLOGY TO EXTRACT RELEVANT INFORMATION

New Submission - Today, QPs need to prepare different sets of plans for different agencies. Leveraging technology, QPs will prepare one coordinated model and agencies will extract relevant information. This reduces the need for manual annotations on plans.

Amendment Submission - Today's amendment plans require QPs to prepare the submission highlighting deviations from earlier approved submissions. This process is currently carried out by QPs manually.

Going forward, QPs will only need to submit the amended model. Agencies will conduct model comparison with the previously approved model to identify amendments made.

Collaboration Platform (for inter-agency collaboration)

COLLABORATION AMONG AGENCIES

Aims to transform the current way agencies review plans, bringing agencies together to concurrently access the same coordinated BIM model.

Agencies will then collaborate within the same Collaboration Platform, and provide a coordinated response to the industry.

Agencies review the submission collectively

Agencies issue a consolidated response to the Project Team

ENABLES CLEARER COMMUNICATION

Today's Written Direction and comments from agencies are provided in a list to the QPs.

Leveraging technology, the comments will also be provided in the BIM Collaboration Format (BCF), which allows tracking and tagging of comments directly to the BIM model.

This aims to improve the current communication between industry and agencies.

GovTech's IFC-SG Resource Kit @ https://go.gov.sg/ifcsg

IFC-SG Mapping Table

- Regulatory information in IFC-SG representations for reference

IFC-SG Configuration Files

- Templates and configuration for native BIM authoring software to export to IFC-SG

IFC-SG Documentations

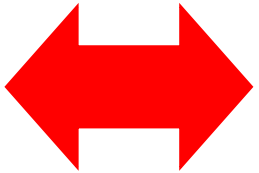
- Documentation such as the IFC-SG object listing, How-to guides for respective BIM software

IFC-SG Micro-Learning / Mini Modules Recordings

- Quick and easy step by step videos/demos to input information and export to IFC-SG for respective BIM software

Architectural BIM Manager’s Perspective

Modelling Tool and IFCSG mapping Excel file



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Tips on reading the IFC-SG mapping

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Tips on reading the IFC-SG mapping

IFC-SG Mapping Table

- Regulatory information in IFC-SG representations for reference

1 Understanding the IFG-SG Mapping Table / Excel Columns

	Agency	Identified Component	Identified parameters	Revit Representation	Archicad Representation	Domain	IFC4 Entities	IFC SubTypes (* = USERDEFINED)	Property Set	Property Name	
1											
47	BCA	Precast Refuse Chute	Construction Method	Model Groups	IFC Assignments	ARC	IfcBuildingSystem	*REFUSECHUTE	SGPset_BuildingSystem	ConstructionMethod	-
397	NEA	Refuse Room	Space Name	Rooms	Zone	REFER TO URA EXCEL	REFER TO URA EXCEL	-	-	-	-
398	NEA	Refuse Chute Chamber	Space Name	Rooms	Zone	REFER TO URA EXCEL	REFER TO URA EXCEL	-	-	-	-
401	NEA	Refuse Chute	-	Walls	Wall	ARC	IfcWall	*REFUSECHUTE	-	-	-
404	NEA	Refuselevel Sensor	Declaration	Generic Models	Object	ELEC	IfcSensor	LEVELSENSOR	SGPset_Sensor	Declaration	-
408	NEA	Refuse Handling Equipment	Capacity	Mechanical Equi	Flow Equipment	ACMV	IfcTank	-	Pset_TankTypeCommon	NominalCapacity	-
1370											

Tips on reading the IFC-SG mapping

2

Agency's Compliance

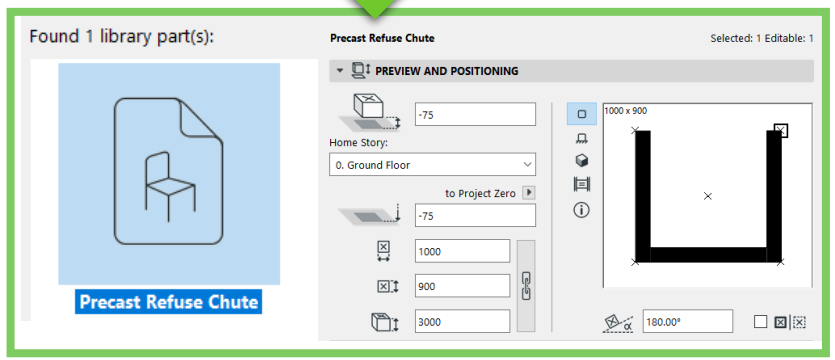
3

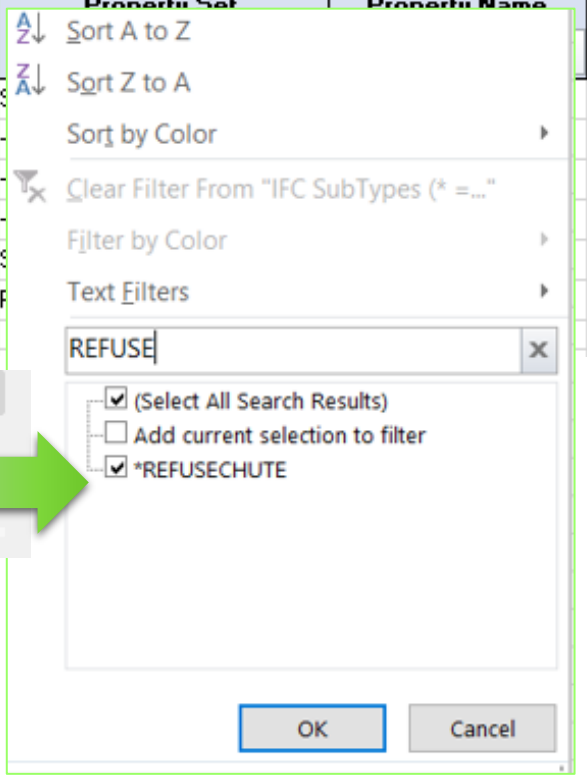
Take note on the Identified Component

4

Verify IFC Subtypes

	Agency	Identified Component	Identified parameters	Revit Representation	Archicad Representation	Domain	IFC4 Entities	IFC SubTypes (* = USERDEFINED)	Property Set	Property Name
1										
47	BCA	Precast Refuse Chute	Construction Method	Model Groups	IFC Assignments	ARC	IfcBuildingSystem	*REFUSECHUTE		
397	NEA	Refuse Room	Space Name	Rooms	Zone	REFER TO URA EXCEL	REFER TO URA EXCEL	-		
398	NEA	Refuse Chute Chamb	Space Name	Rooms	Zone	REFER TO URA EXCEL	REFER TO URA EXCEL	-		
401	NEA	Refuse Chute	-	Walls	Wall	ARC	IfcWall	*REFUSECHUTE		
404	NEA	Refuselevel Sensor	Declaration	Generic Models	Object	ELEC	IfcSensor	LEV ENSOR		
408	NEA	Refuse Handling Equi er	Capacity	Mechanical Equi	Flow Equipment	ACMV	IfcTank	-		
1370										

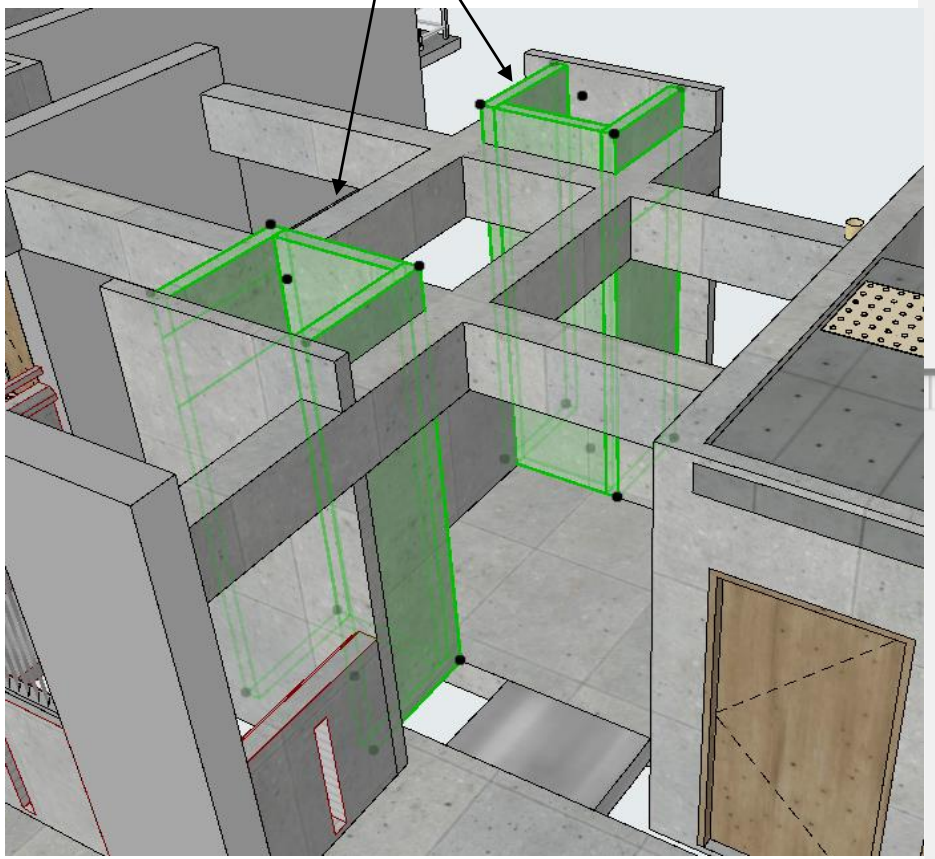


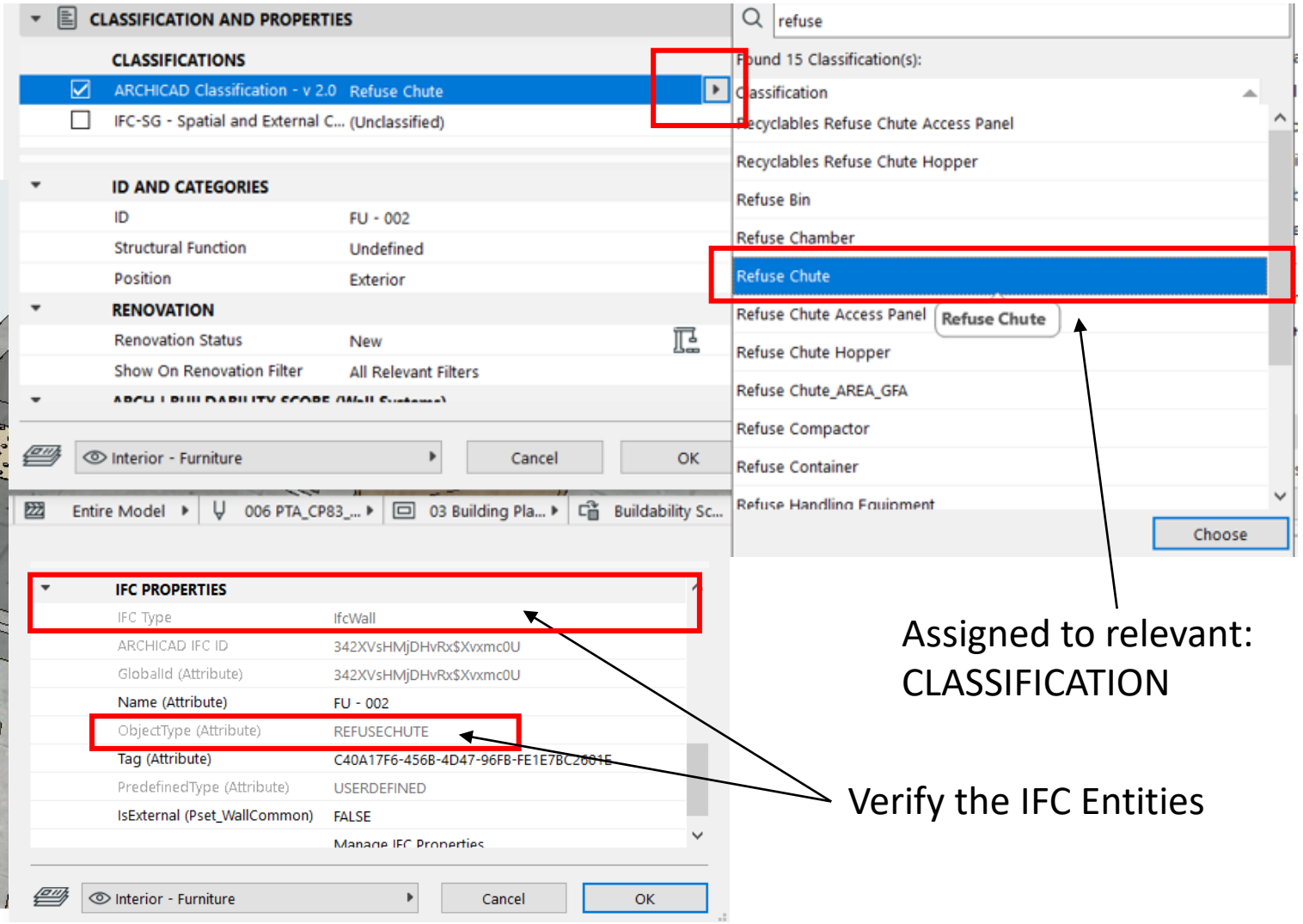


Check and Map the Classification & Properties

Tips on reading the IFC-SG mapping

Identify the IFC properties to be tagged into each element of the model.





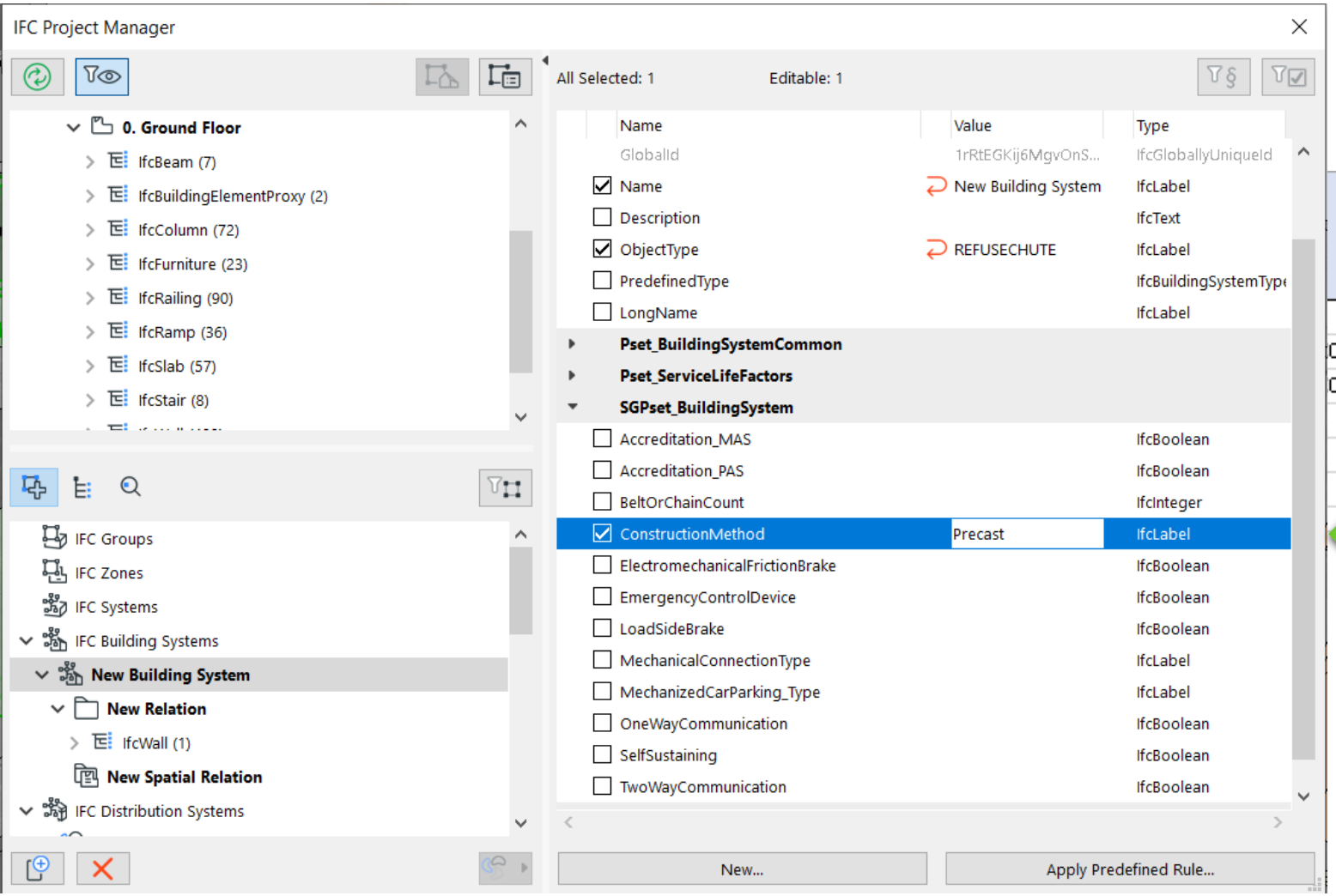
Assigned to relevant: CLASSIFICATION

Verify the IFC Entities

Tips on reading the IFC-SG mapping

5

Identify SG Property set & name



	IFC SubTypes (* = USERDEFINED)	Property Set	Property Name	Proper Value
	*REFUSECHUTE	SGPset_BuildingSystem	ConstructionMethod	
CEL	-	-	-	
CEL	-	-	-	
	*REFUSECHUTE	-	-	
	LEVELSENSOR	SGPset_Sensor	Declaration	
	-	Pset_TankTypeCommon	NominalCapacity	

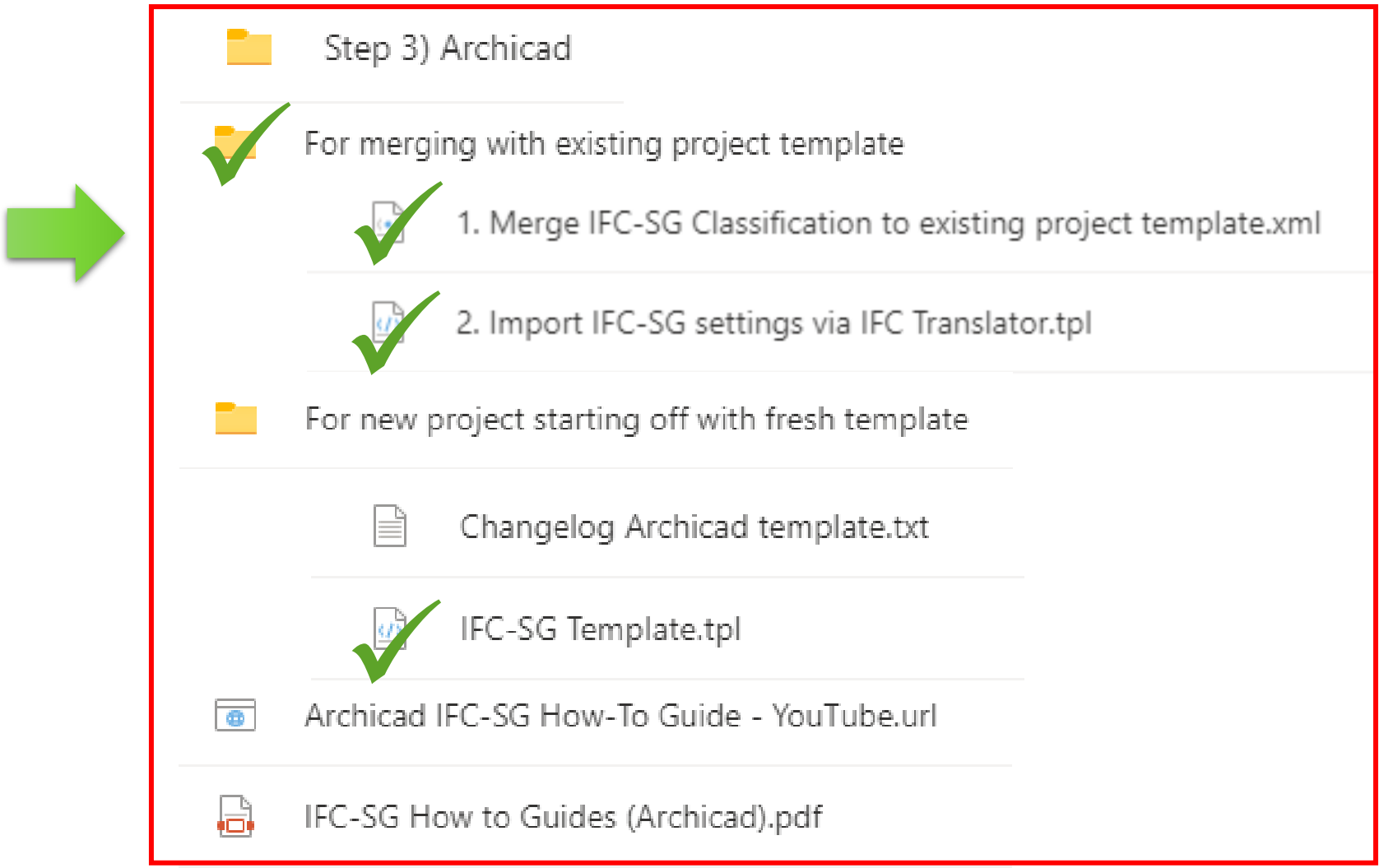
Check and Map the SGPset & Name

Preparing your model for the Archicad Configuration File

How to extract updated properties from IFC-SG Template from IFC-SG resource kit

IFC-SG Configuration Files

- Templates and configuration for native BIM authoring software to export to IFC-SG

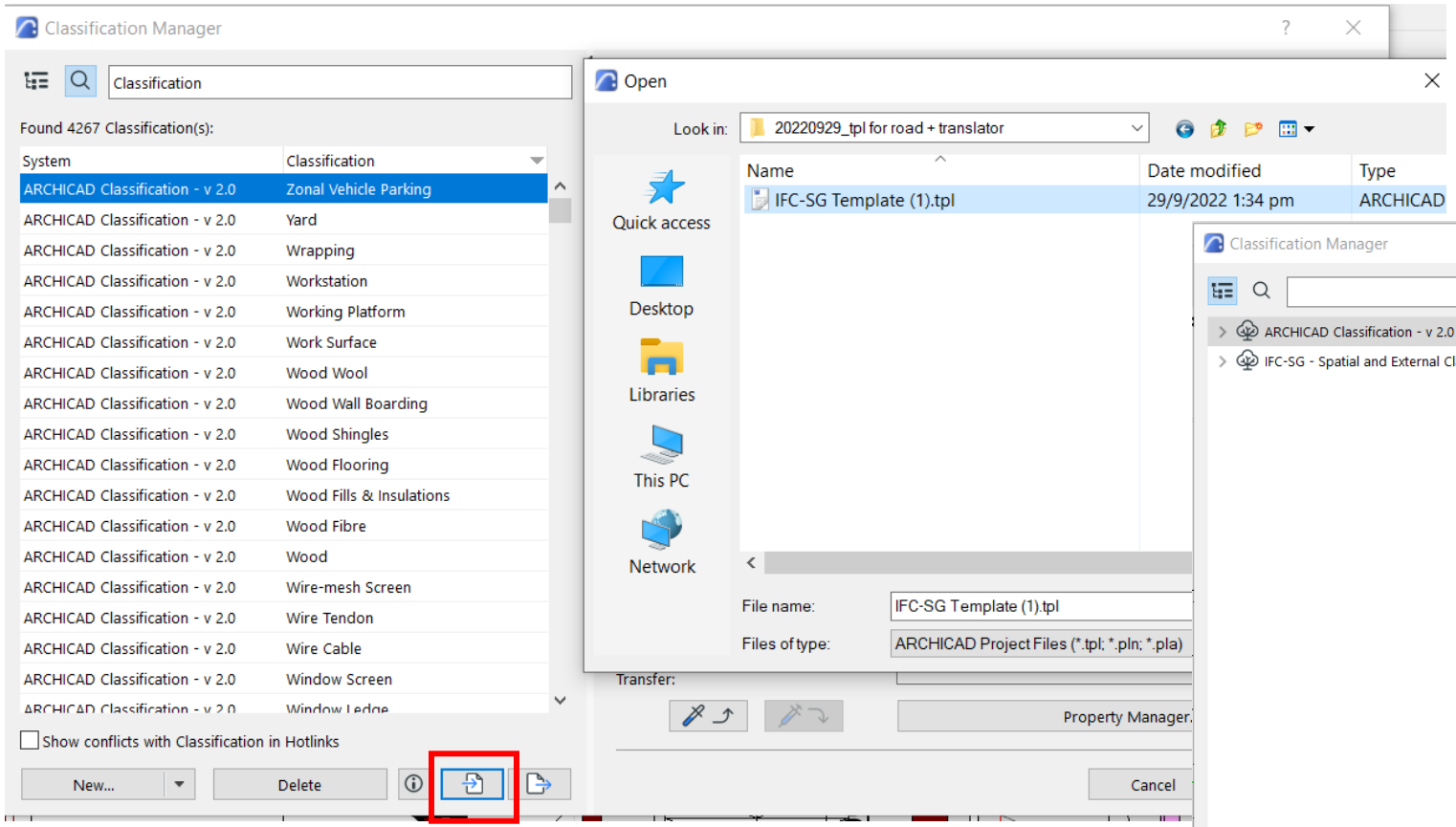


Using the IFC-SG Template & Configuration Files

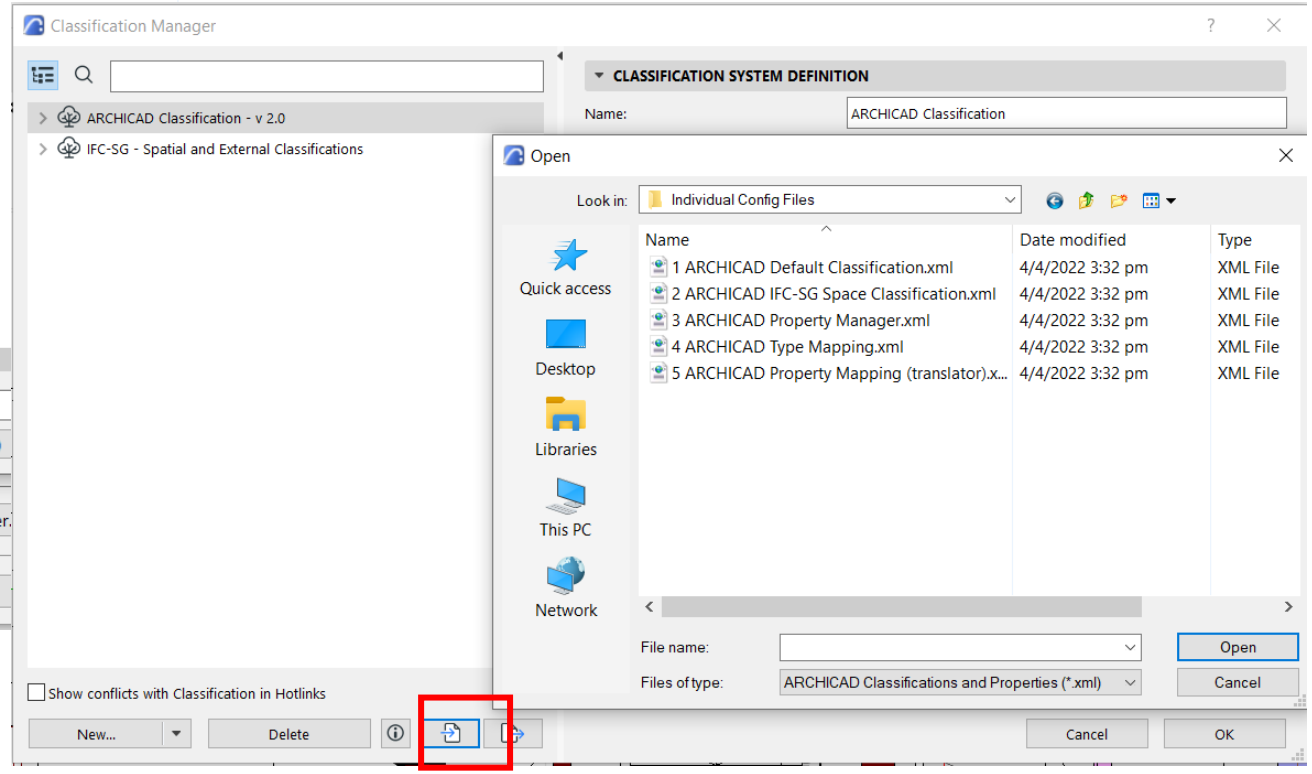
IFC-SG Template.tpl

Import updated Template/Config files from resource kit to setup the project
For input of updated information, eg: Classification Manager

1. New IFC-SG Tpl (A25 users)



2. New Config file (users of A24 and lower version)



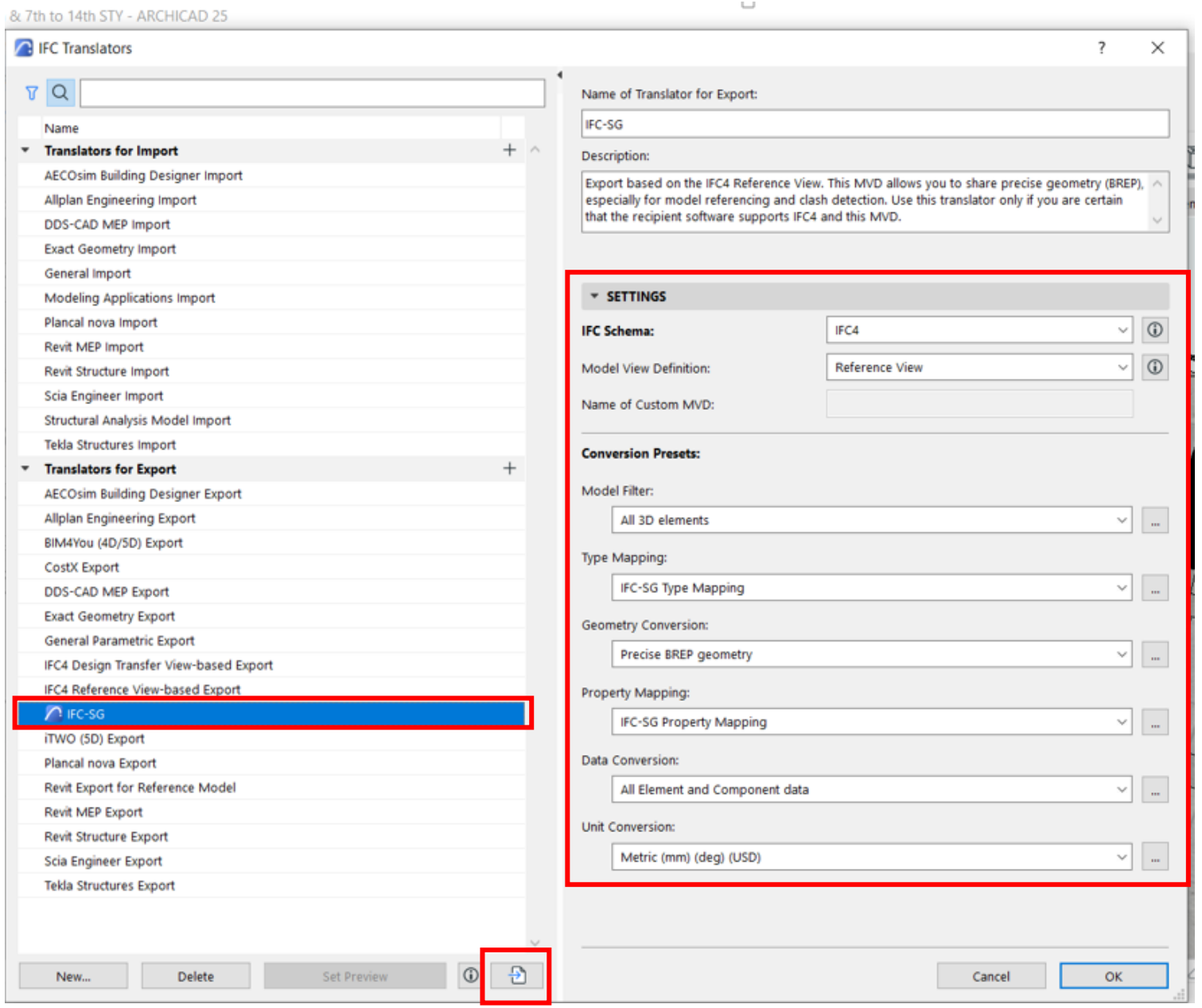
Using the IFC-SG Template & Configuration Files

IFC-SG Template.tpl

3. New Translator

Import updated Template/Config files from resource kit to setup the project
For input of updated information, eg:

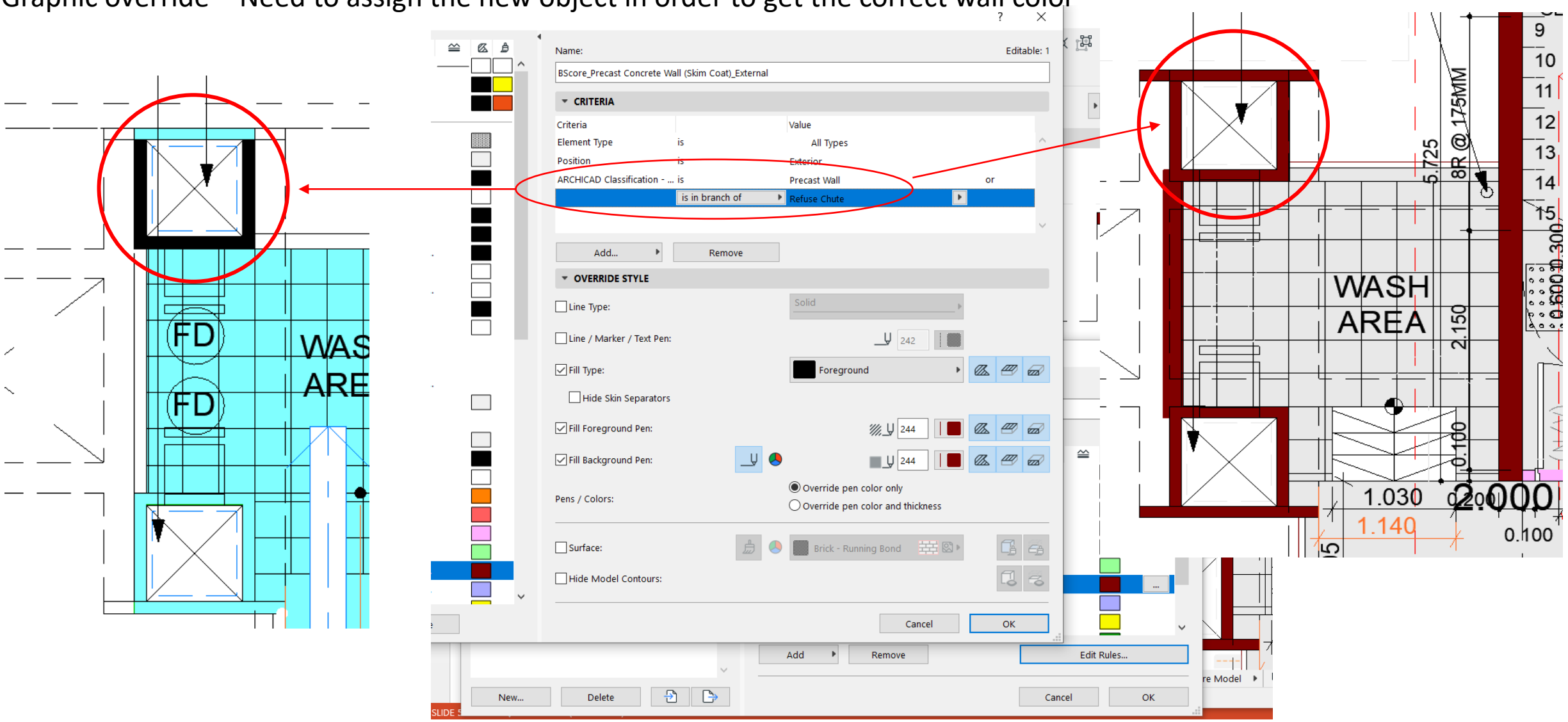
Import Updated Translator before export to IFC, using the correct Translator



Preparing your model after adding the Archicad Configuration File

OBSERVATION:

1. Graphic override – Need to assign the new object in order to get the correct wall color

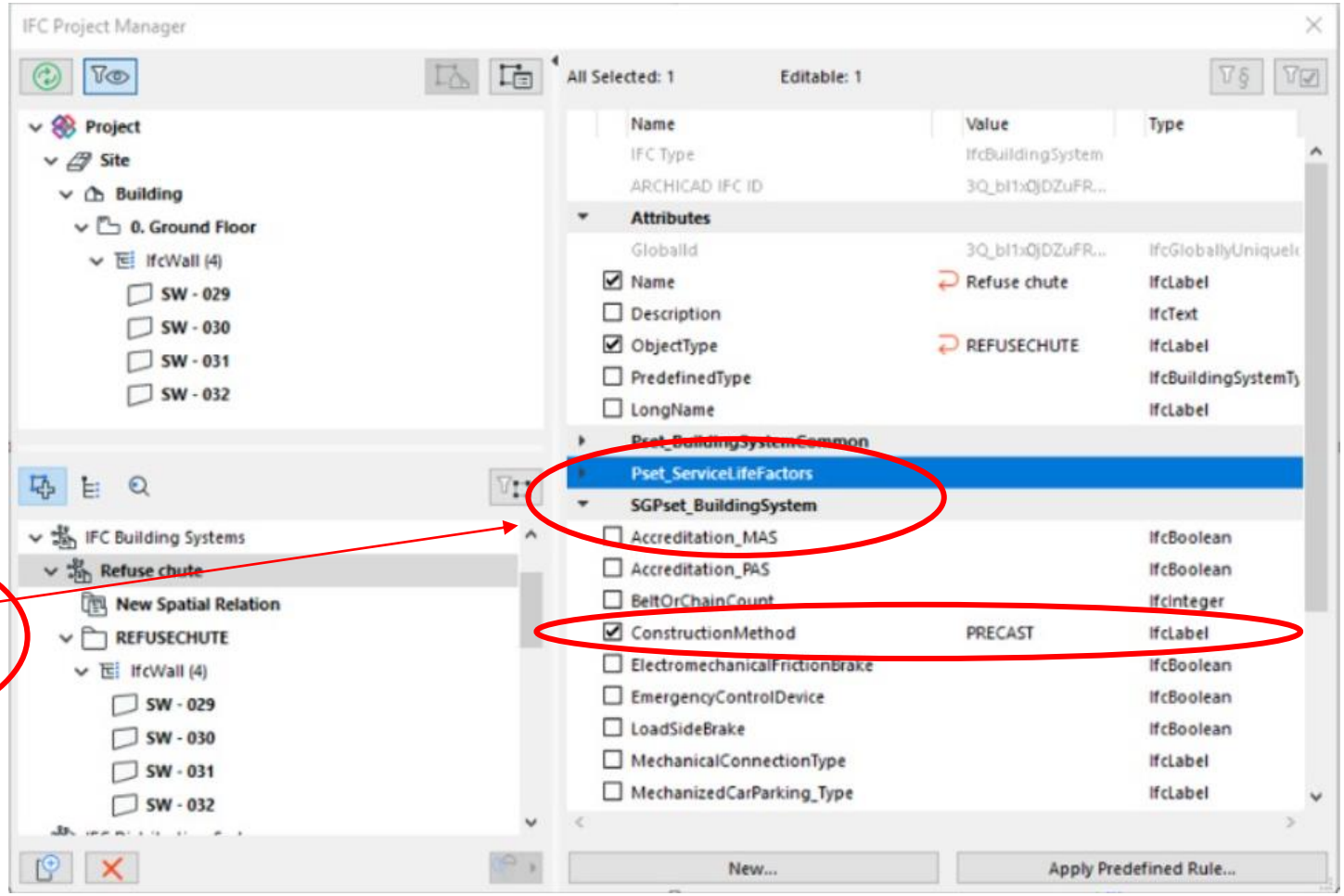


Preparing your model after adding the Archicad Configuration File

OBSERVATION:

2. Verify object/elements Properties

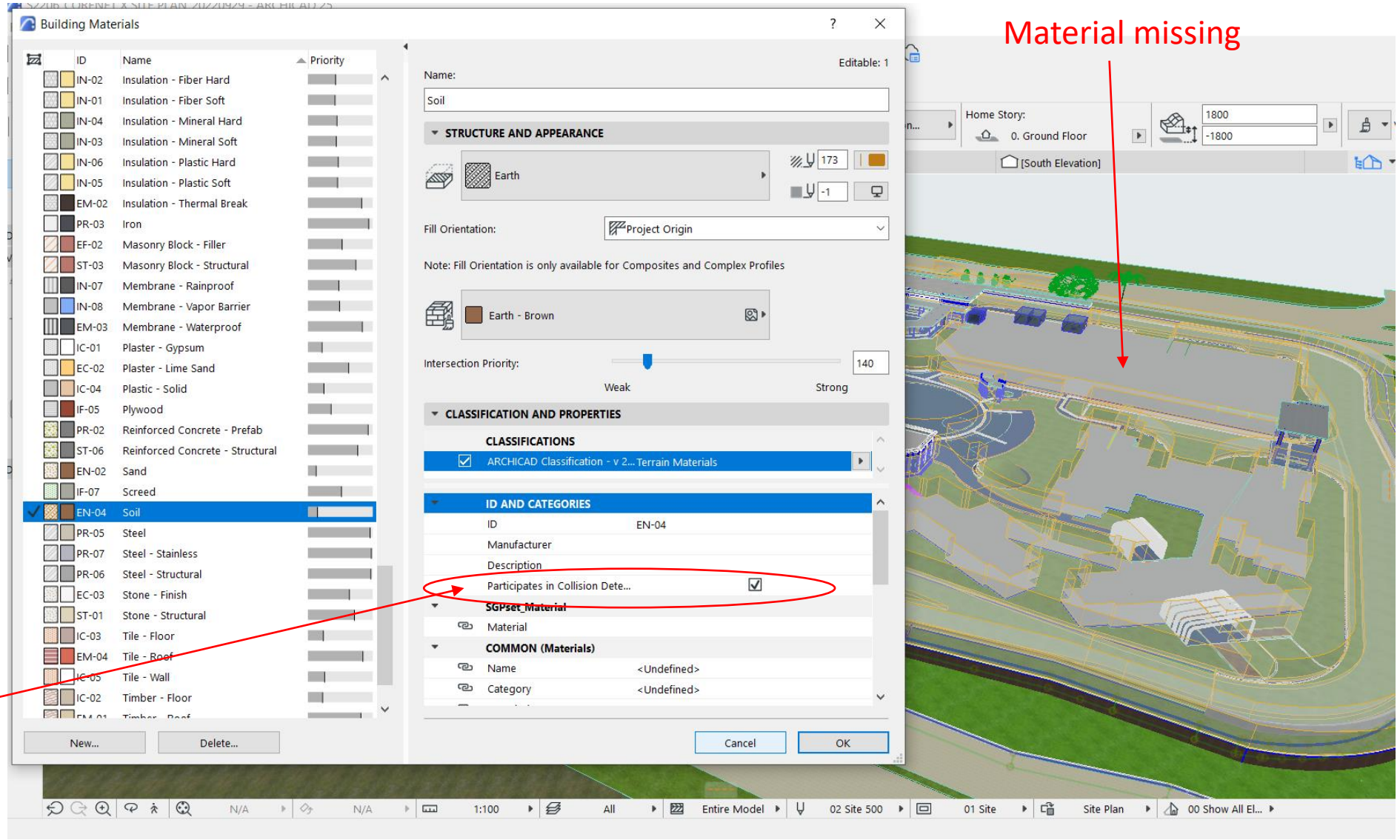
IFC4 Entities	IFC SubTypes (* = USERDEFINED)	Property Set	Property Name	
IfcBuildingSystem	*REFUSECHUTE	SGPset_BuildingSystem	ConstructionMethod	-
IfcWall	*REFUSECHUTE	-	-	-



Preparing your model after adding the Archicad Configuration File

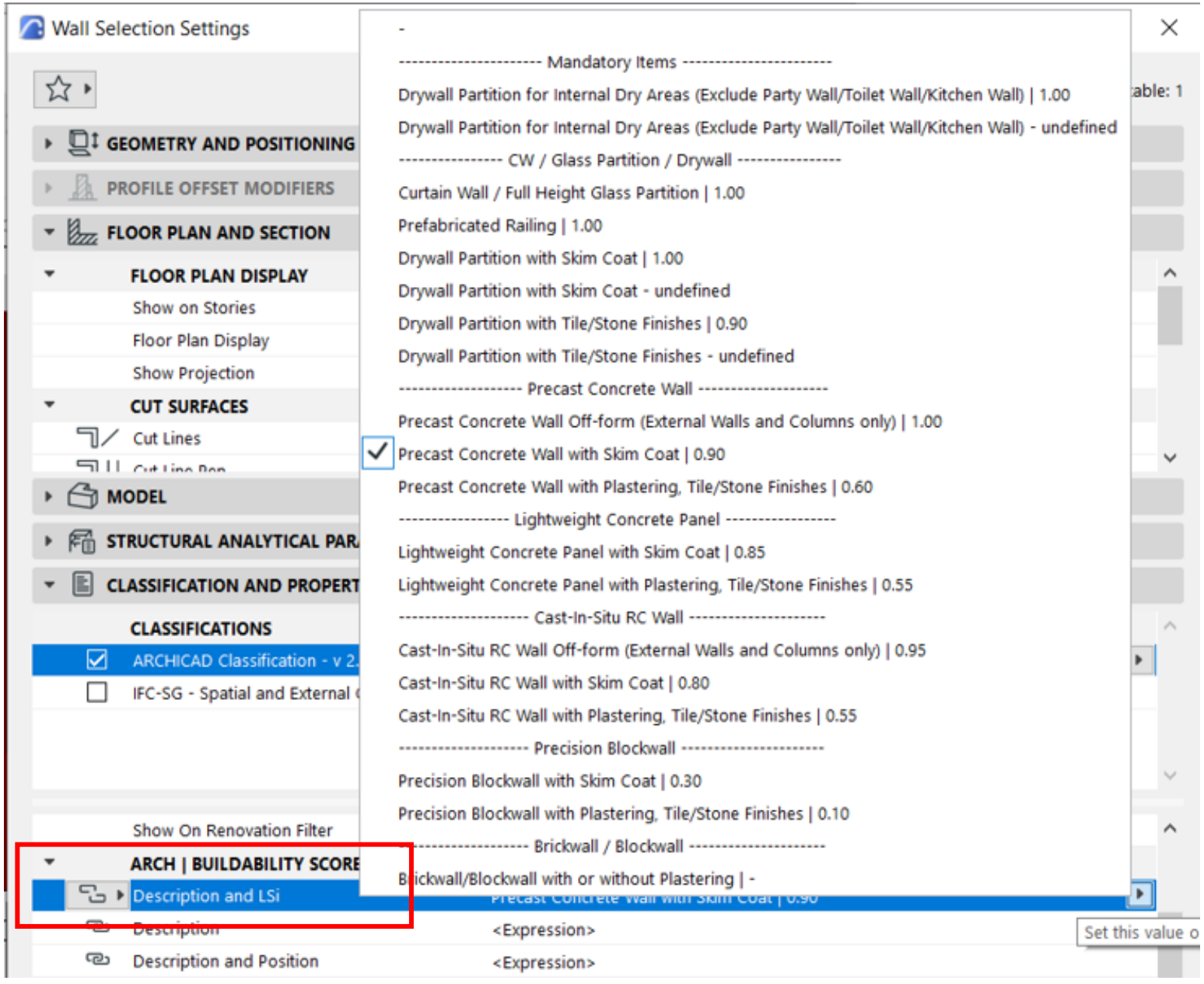
OBSERVATION:

3. Building Material missing in the Exported IFC



Innovation

Archicad drop down feature:
Eg: Architecture Buildability Score



Using IFC Viewer for Model Review

Published model to IFC 4 (IFC-SG Translator) for Multi-disciplines' Model exchange.

*Archicad (AC) user finding:

- "direct publish / save IFC from a Central file with multiple links"
  e.g. binding of models is not needed and not time consuming in AC workflow

- Default setting with Classification been made to be similar to IFC-SG Structure. The required information has been pre-set in the template.

  eg: Classification to be assigned and is conforming to the IFC-SG output when exported.
  User just needs to classify the objects correctly following the IFC-SG Excel template.

IFGSG – user findings

- Inter-disciplinary model coordination will need to be brought forward at the Design stage in order to ensure all the discipline models are geo-referenced “to agreed real world coordinates” among consultants before submission, i.e. federated models by all stakeholders need to be virtually reviewed from the Design stage.
- Instead of previously presenting agency information by annotation or text in 2D sheets, the information is now embedded within the 3D components in the model.
- Although IFC-SG / Corenet X workflow will require longer modelling processes to enrich the elements with parametric data at earlier design stages, Authorities’ approvals and replies can be synchronized and we anticipate the processing time will be shortened.
- There is a learning curve to IFC-SG, but once we are used to the workflow, it will be useful for the Industry as it “**unites**” the model elements’ information across the Authorities.
- By embedding 3D elements with data, models provide more value to the downstream stakeholders, who can extract information instantly from the model. This helps multi-disciplinary coordination and collaboration processes.

C&S BIM Manager’s Perspective

IFC-SG pre-defined Structural Parameters

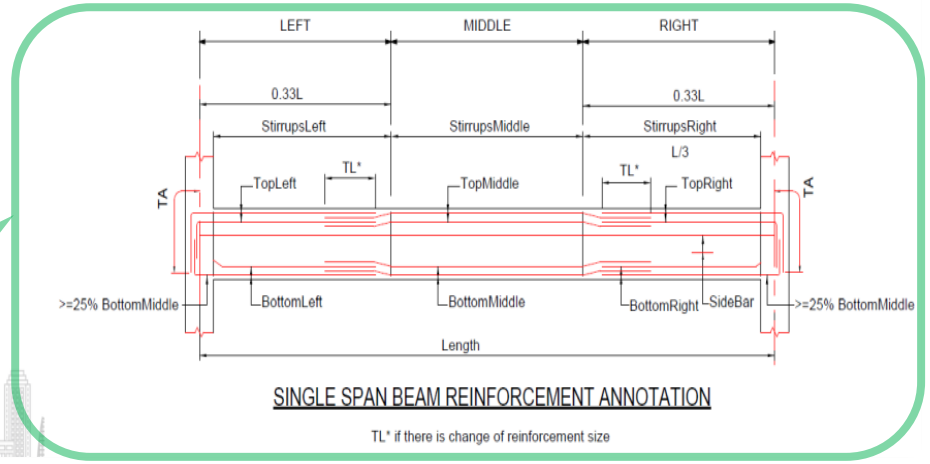
IFC-SG pre-define structural parameters DRAFT

Beam elements

S/N	IFC-SG parameters	IFC-SG_PropertySet	Property type	Input limitation	Examples
10	ConstructionMethod	SGPset_Beam	Label	Yes	CIS / PC / PT
11	BeamSpanType	SGPset_Beam	Label	Yes	Single / End / Interior / Cantilever
12	TopLeft	SGPset_BeamReinforcement	Label	Yes	3H32+3H25
13	TopMiddle	SGPset_BeamReinforcement	Label	Yes	3H25
14	TopRight	SGPset_BeamReinforcement	Label	Yes	3H32+3H25
15	BottomLeft	SGPset_BeamReinforcement	Label	Yes	3H25
16	BottomMiddle	SGPset_BeamReinforcement	Label	Yes	3H32+3H25+3H20
17	BottomRight	SGPset_BeamReinforcement	Label	Yes	3H25
18	OuterStirrupsLeft	SGPset_BeamReinforcement	Label	Yes	H13-300
19	InnerStirrupsLeft	SGPset_BeamReinforcement	Label	Yes	H13-300
36	ReferTo2DDetail	SGPset_Beam	Boolean	Yes	TRUE/FALSE

- Definition of IFC-SG structural parameters

1. Text format of TopLeft, TopMiddle, TopRight, BottomLeft, BottomMiddle & BottomRight:
   - Use '+' for more than 1 layer of reinforcement: BottomMiddle = 5H32+2H20
2. Text format of StirrupsLeft, StirrupsMiddle & StirrupsRight:
   - Use '+' for more than 1 layer of reinforcement : StirrupsLeft = H10-100+H8-100



SINGLE SPAN BEAM REINFORCEMENT ANNOTATION

TL* if there is change of reinforcement size

Revit IFC-SG Setup Files

IFC-SG Resource Kit

Step 3) Revit

01) Setting up Revit Tool

- Changelog (Setting Up Revit Tool).txt
- IFC-SG BIT for IfcExportAs and IfcObjectType.xlsx
- IFC-SG Shared Parameter.txt

- IFC-SG How to Guides _(Revit)_Final.pdf
- Revit IFC-SG How-to Guide - YouTube.url
- revit-ifc-open-bim-manual-en (1).pdf

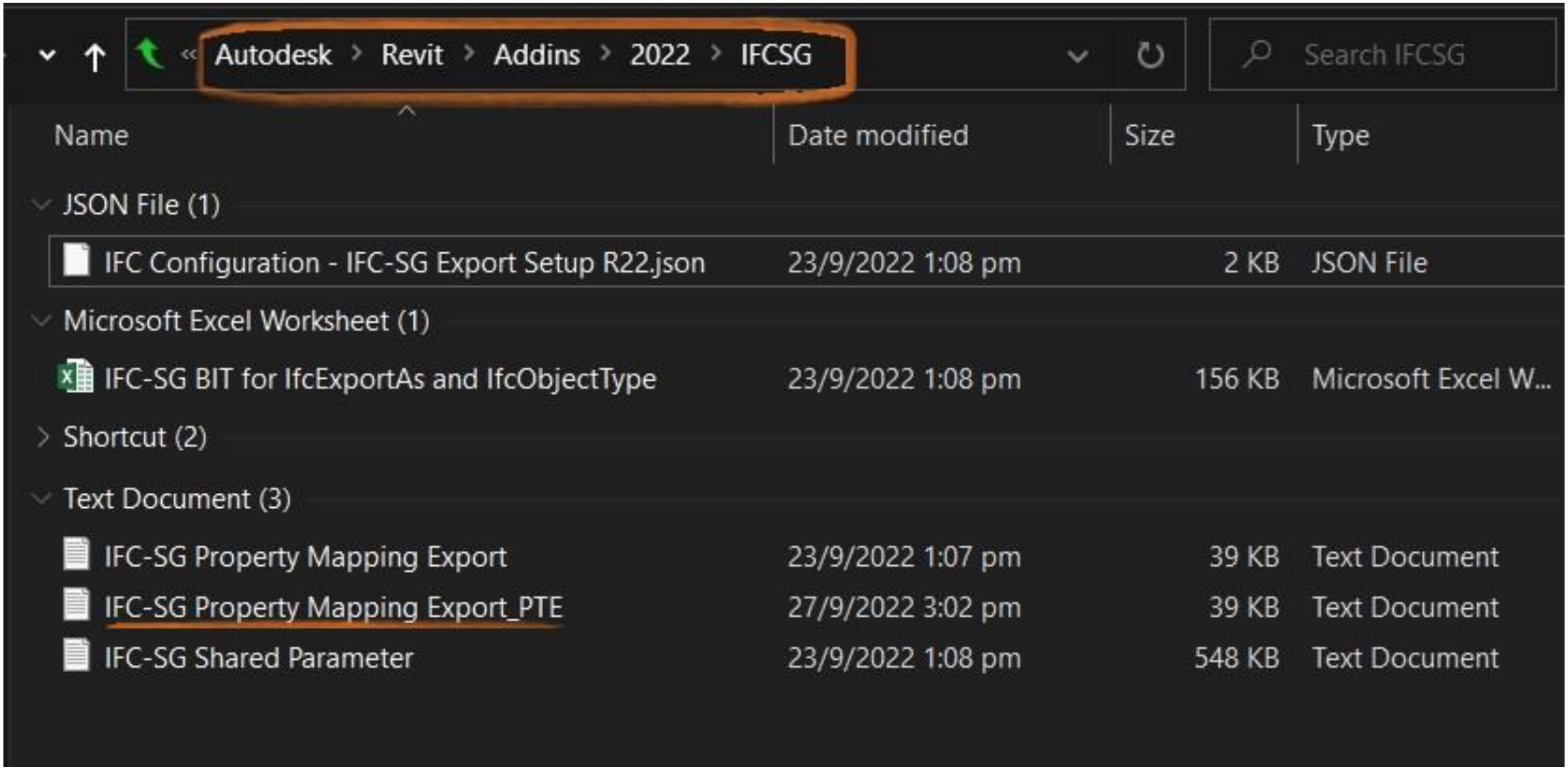
02) Exporting information to IFC

Revit IFC Exporter Json Files

- IFC Configuration - IFC-SG Export Setup R20.json
- IFC Configuration - IFC-SG Export Setup R21.json
- IFC Configuration - IFC-SG Export Setup R22.json

- Changelog Revit Export.txt
- IFC-SG Property Mapping Export.txt

Revit IFC-SG Setup Files



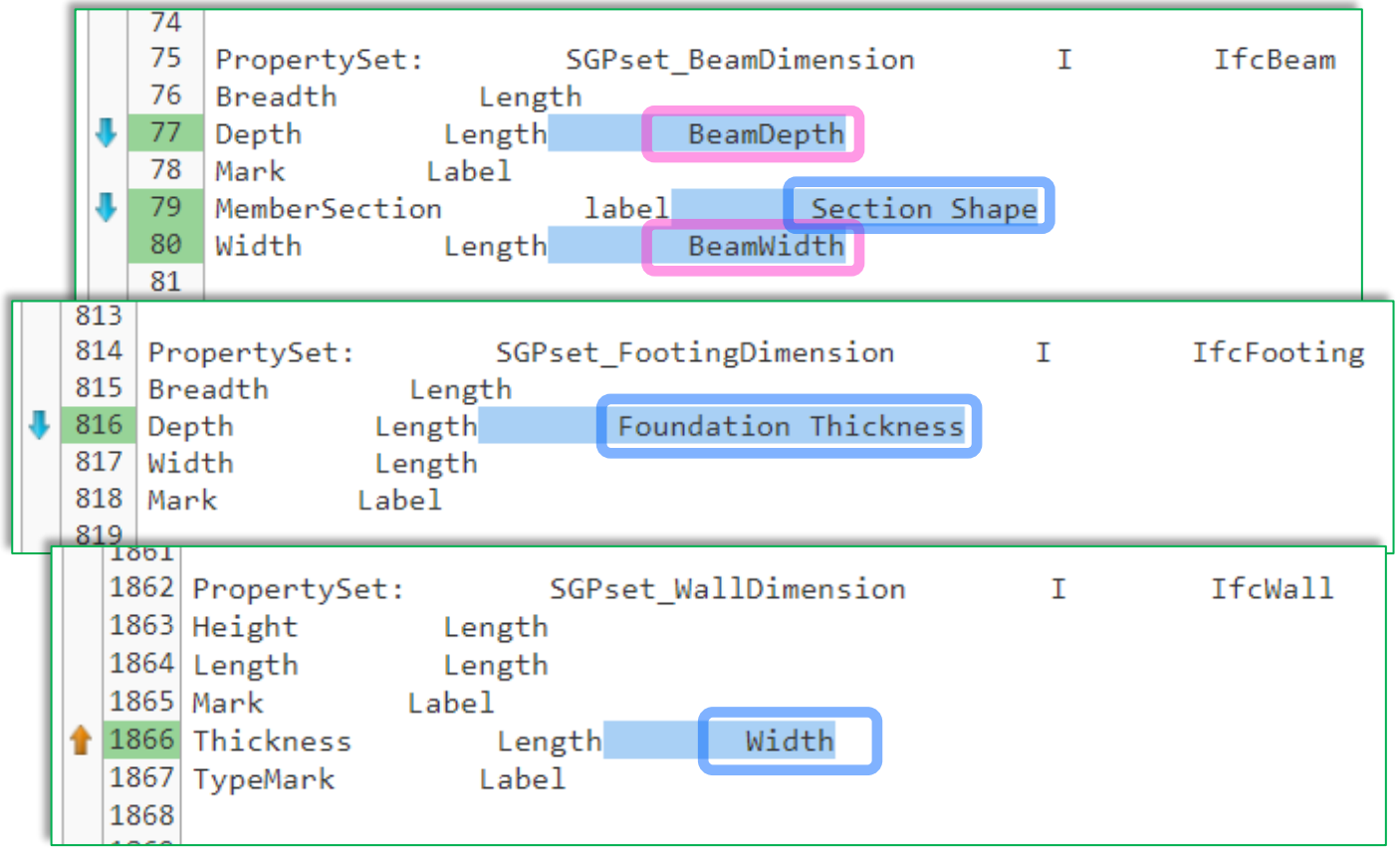
IFC-SG Property Mapping Export

IFC-SG Property Mapping Export_PTE.txt

(modified from original)

IN-HOUSE REVIT FAMILY PARAMETERS

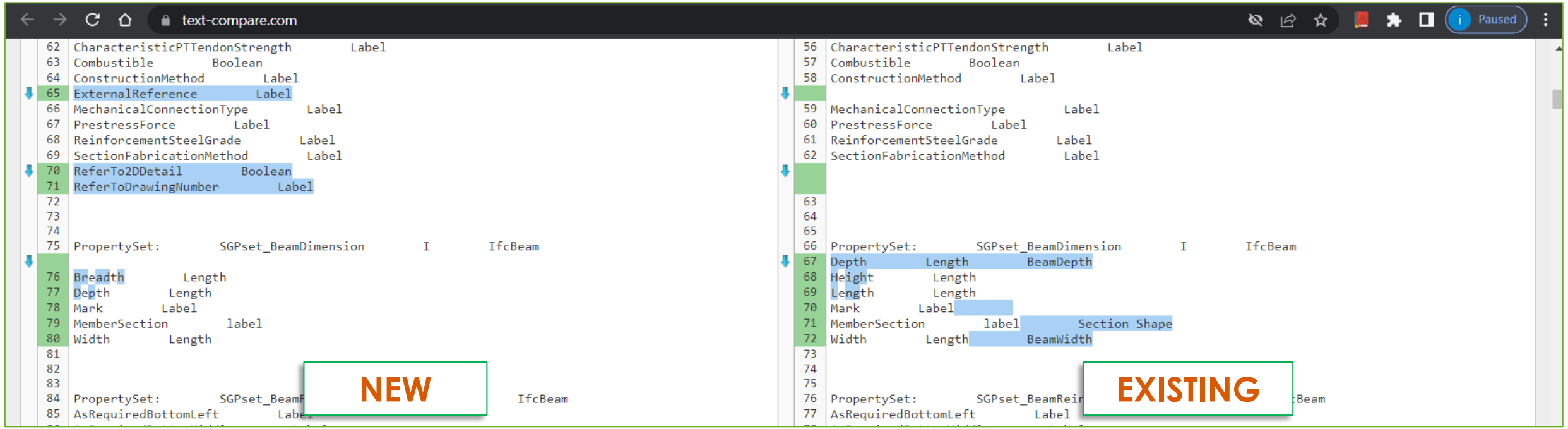
REVIT BUILT-IN PARAMETERS



IFC-SG Property Mapping Export

IFC-SG Property Mapping Export_PTE.txt

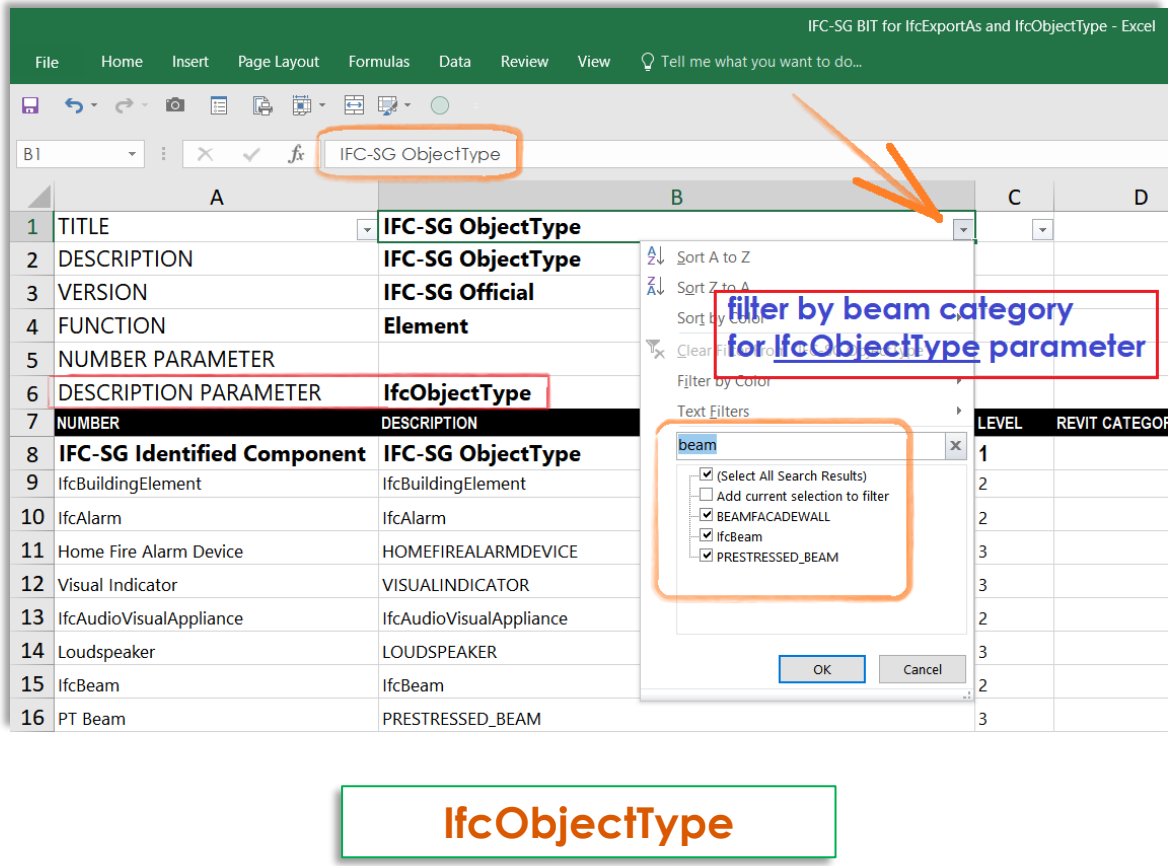
(modified from original)



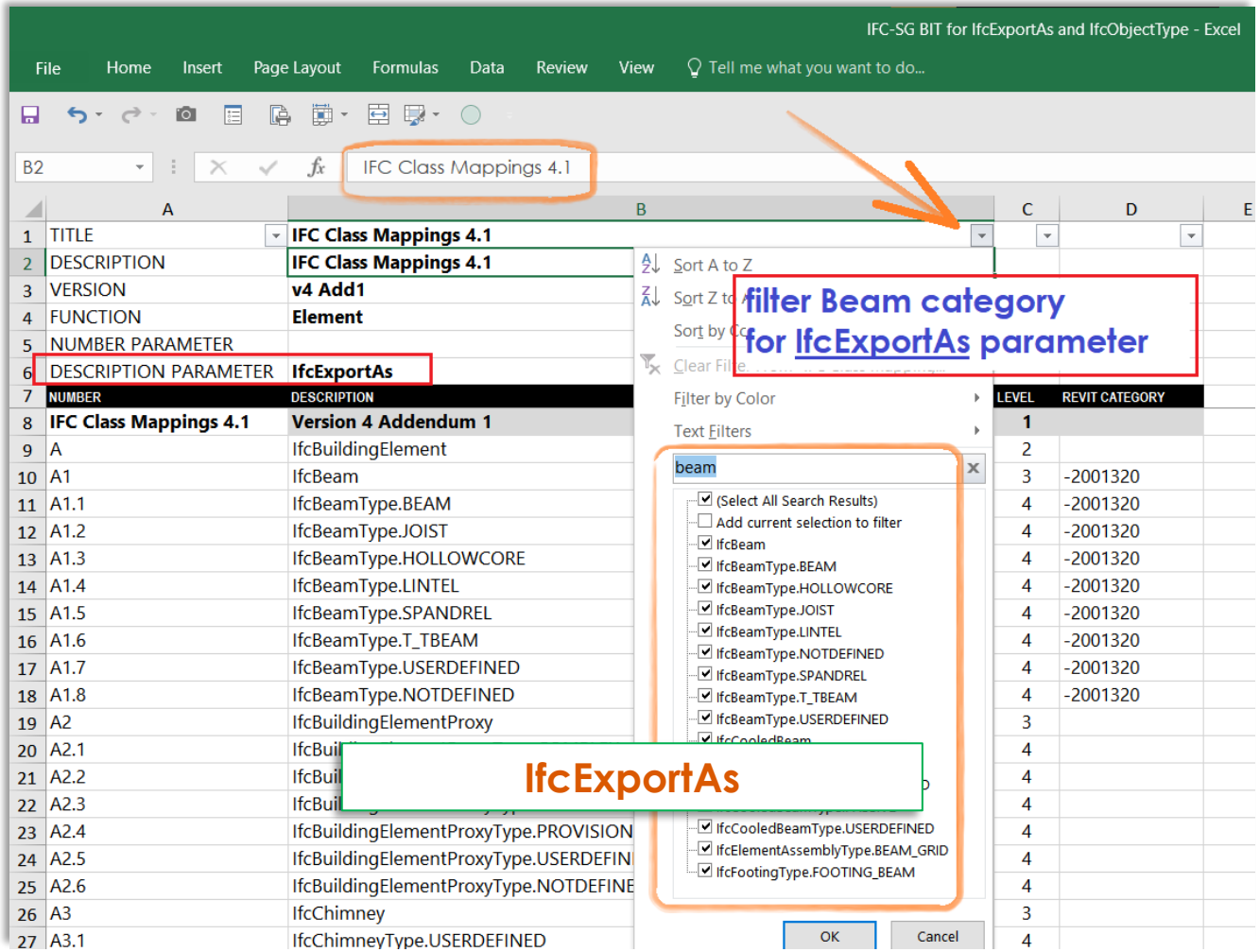
https://text-compare.com/

IFC-SG Element Classification

IFC-SG BIT for IfcExportAs and IfcObjectType.xlsx



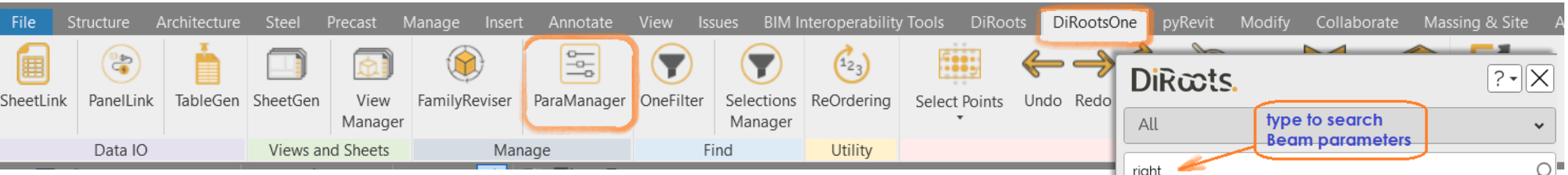
	A	B	C	D
1	TITLE	**IFC-SG ObjectType**		
2	DESCRIPTION	**IFC-SG ObjectType**		
3	VERSION	**IFC-SG Official**		
4	FUNCTION	**Element**		
5	NUMBER PARAMETER			
6	DESCRIPTION PARAMETER	**IfcObjectType**		
7	NUMBER	DESCRIPTION	LEVEL	REVIT CATEGOR
8	**IFC-SG Identified Component**	**IFC-SG ObjectType**	1	
9	IfcBuildingElement	IfcBuildingElement	2	
10	IfcAlarm	IfcAlarm	2	
11	Home Fire Alarm Device	HOMEFIREALARMDEVICE	3	
12	Visual Indicator	VISUALINDICATOR	3	
13	IfcAudioVisualAppliance	IfcAudioVisualAppliance	2	
14	Loudspeaker	LOUDSPEAKER	3	
15	IfcBeam	IfcBeam	2	
16	PT Beam	PRESTRESSED_BEAM	3	

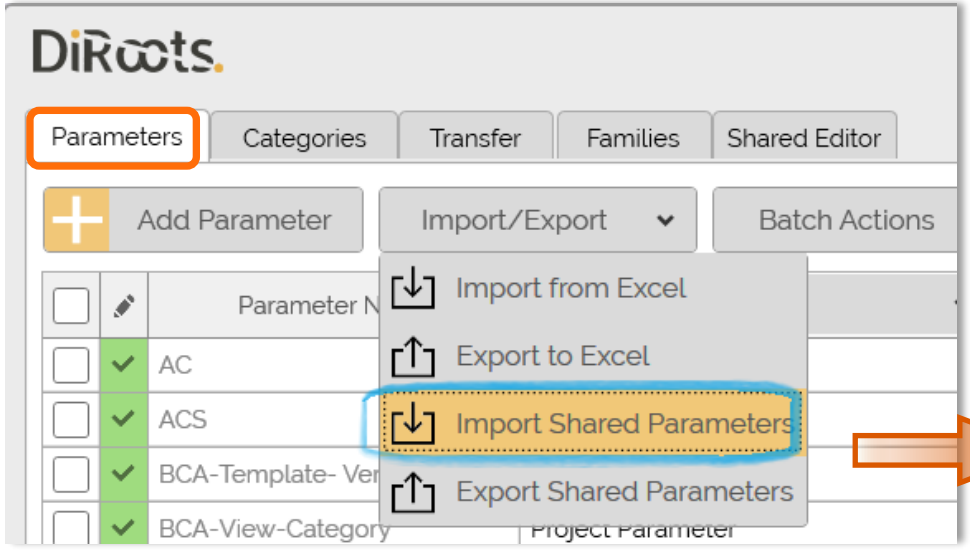


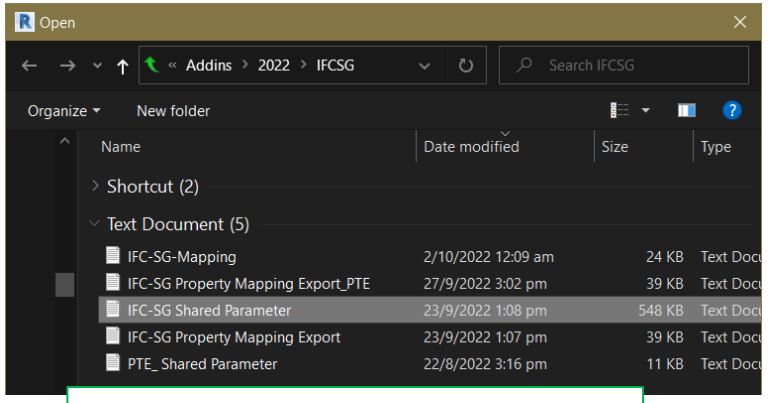
	A	B	C	D	E
1	TITLE	**IFC Class Mappings 4.1**			
2	DESCRIPTION	**IFC Class Mappings 4.1**			
3	VERSION	**v4 Add1**			
4	FUNCTION	**Element**			
5	NUMBER PARAMETER				
6	DESCRIPTION PARAMETER	**IfcExportAs**			
7	NUMBER	DESCRIPTION	LEVEL	REVIT CATEGORY	
8	**IFC Class Mappings 4.1**	**Version 4 Addendum 1**	1		
9	A	IfcBuildingElement	2		
10	A1	IfcBeam	3	-2001320	
11	A1.1	IfcBeamType.BEAM	4	-2001320	
12	A1.2	IfcBeamType.JOIST	4	-2001320	
13	A1.3	IfcBeamType.HOLLOWCORE	4	-2001320	
14	A1.4	IfcBeamType.LINTEL	4	-2001320	
15	A1.5	IfcBeamType.SPANDREL	4	-2001320	
16	A1.6	IfcBeamType.T_TBEAM	4	-2001320	
17	A1.7	IfcBeamType.USERDEFINED	4	-2001320	
18	A1.8	IfcBeamType.NOTDEFINED	4	-2001320	
19	A2	IfcBuildingElementProxy	3		
20	A2.1	IfcBui	4		
21	A2.2	IfcBui	4		
22	A2.3	IfcBui	4		
23	A2.4	IfcBuildingElementProxyType.PROVISION	4		
24	A2.5	IfcBuildingElementProxyType.USERDEFIN	4		
25	A2.6	IfcBuildingElementProxyType.NOTDEFINE	4		
26	A3	IfcChimney	3		
27	A3.1	IfcChimneyType.USERDEFINED	4		

STRUCTURAL IFC-SG MODEL FOR SUBMISSION

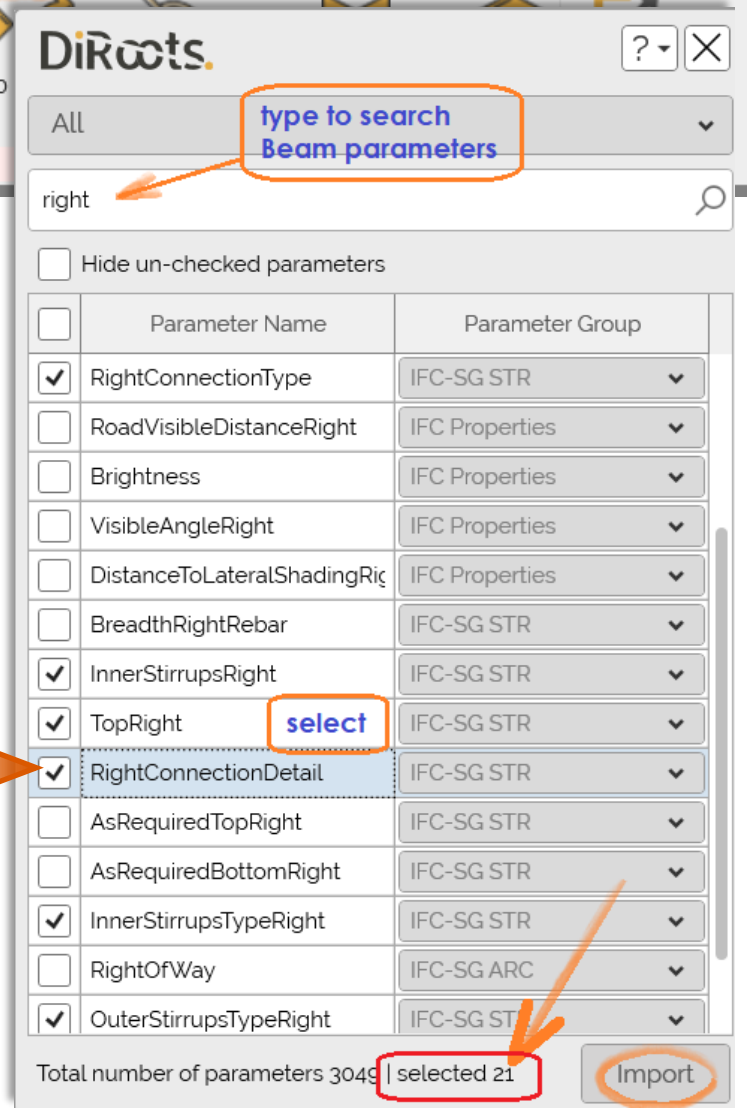
IMPORTING IFC-SG Shared Parameter







BROWSE TO SELECT & OPEN THE IFC-SG SHARED PARAMETER FILE

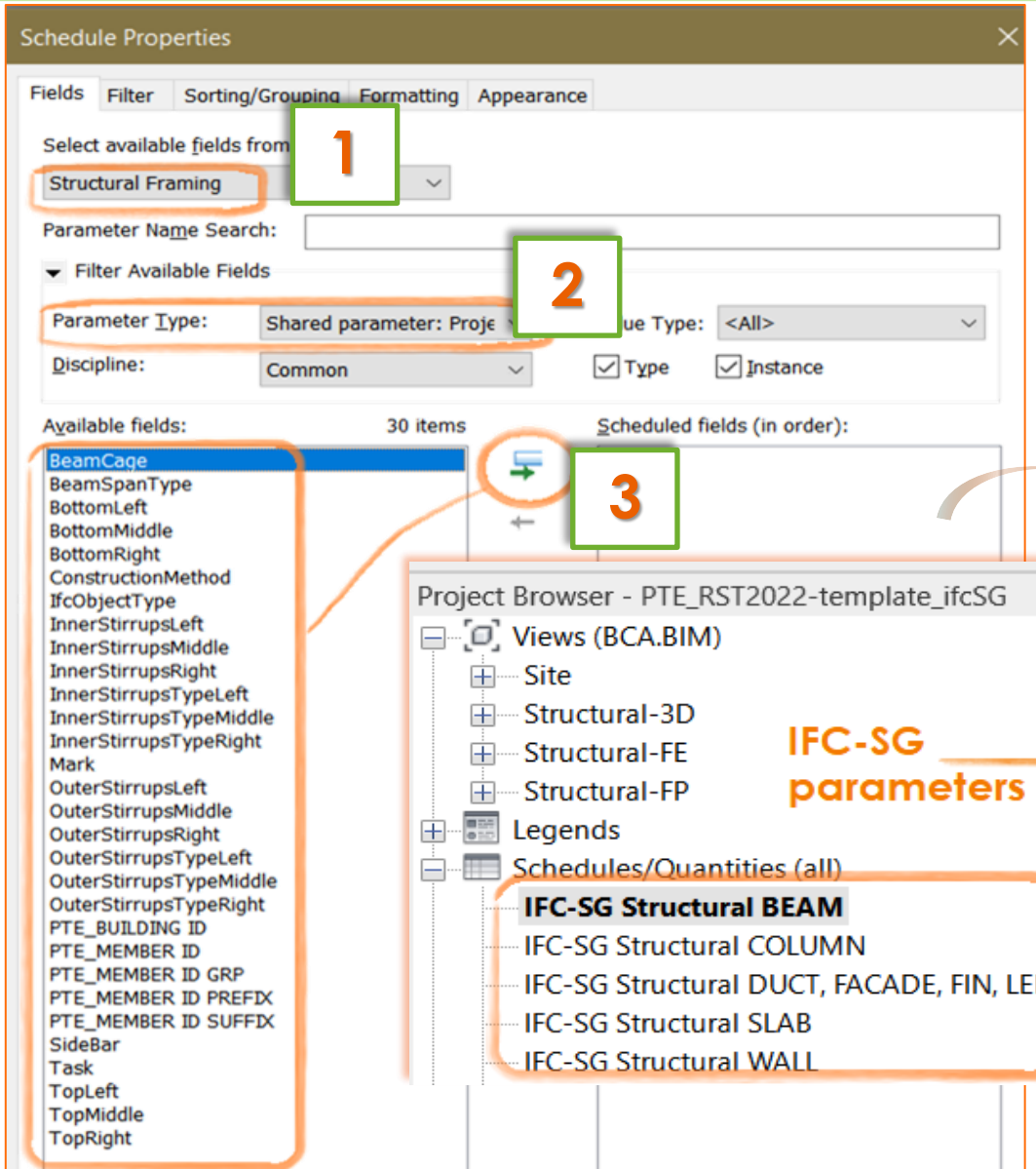


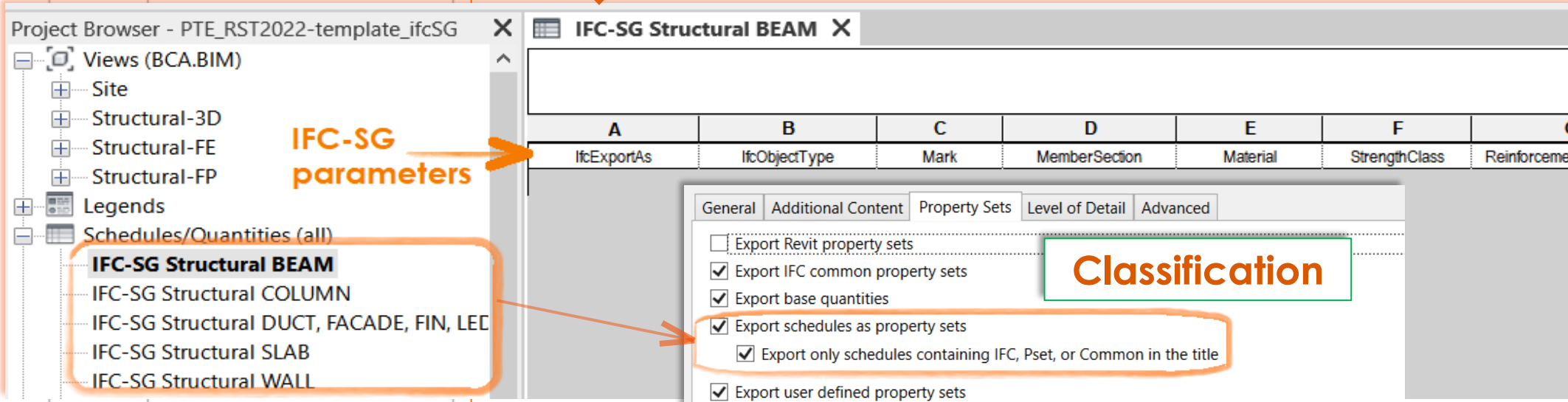
https://diroots.com/tutorials/dirootsone/paramanager-revit-add-in-tutorials/

https://diroots.com/tutorials/dirootsone/familyreviser-revit-add-in-tutorials/

Preparing Schedules to include IFC-SG and In-House parameters into an organized manner

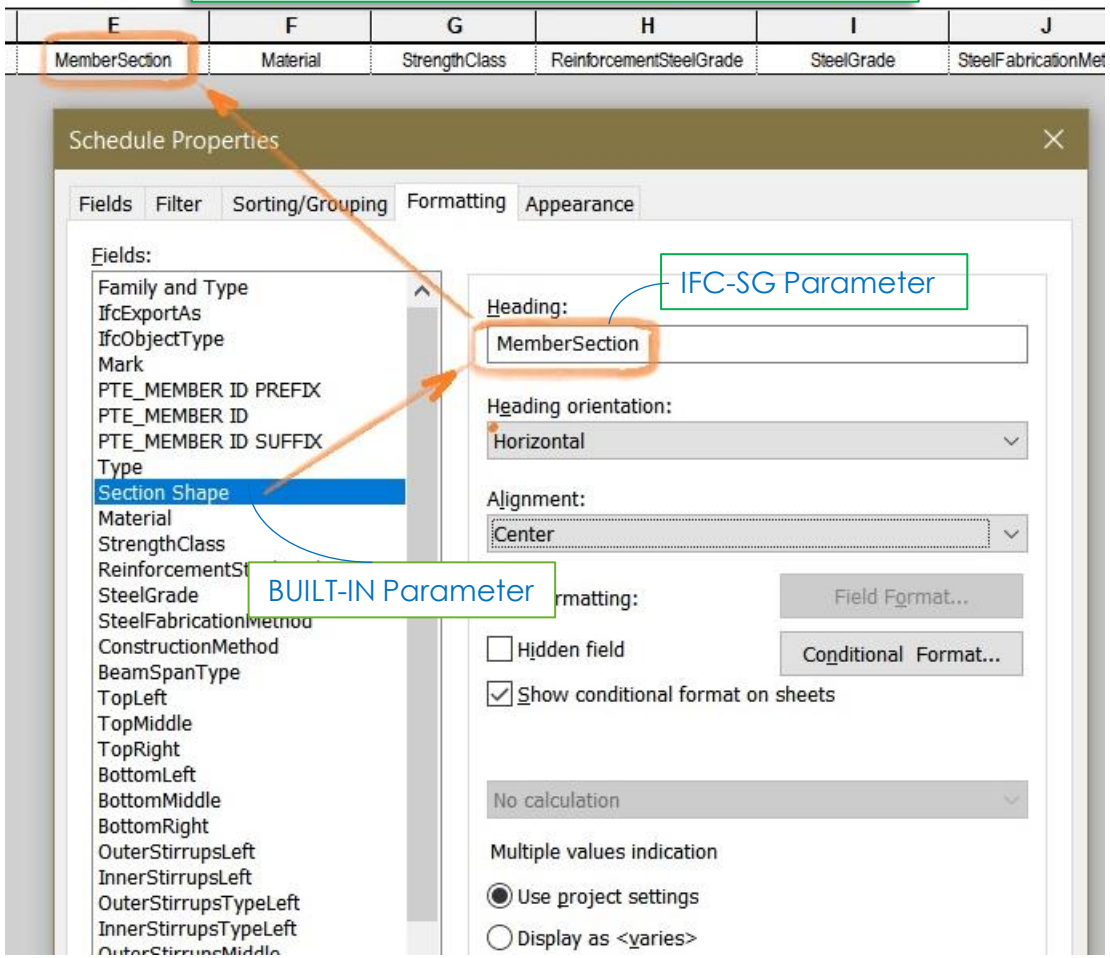
1. CREATE STRUCTURAL FRAMING SCHEDULE
2. SELECT SHARED PARAMETER: PROJECT
3. TRANSFER ALL AVAILABLE FIELDS ONTO SCHEDULED FIELDS
4. IFC-SG STRUCTURAL BEAM IS DONE



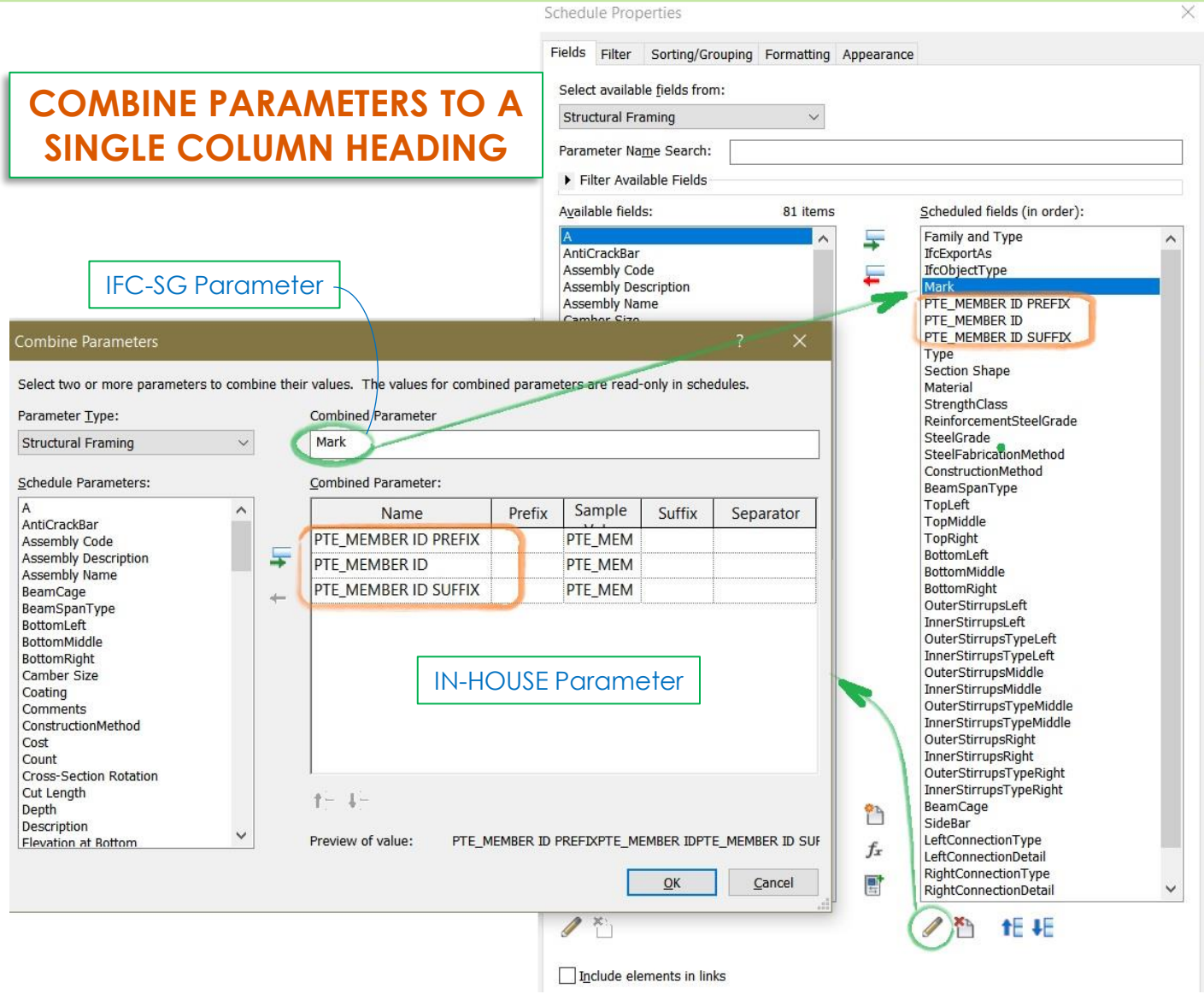


Organize Internal Parameters to Align with BCA's Format

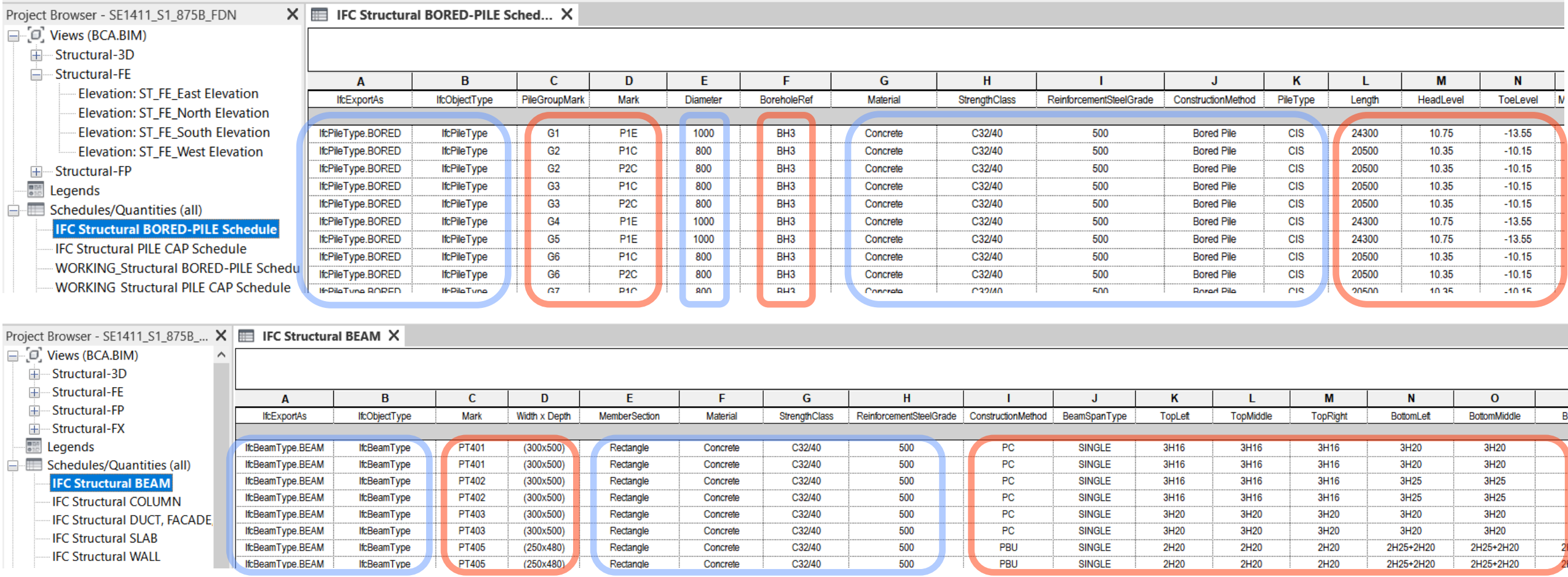
SCHEDULE HEADING REFORMAT TO IFC-SG PARAMETER



COMBINE PARAMETERS TO A SINGLE COLUMN HEADING



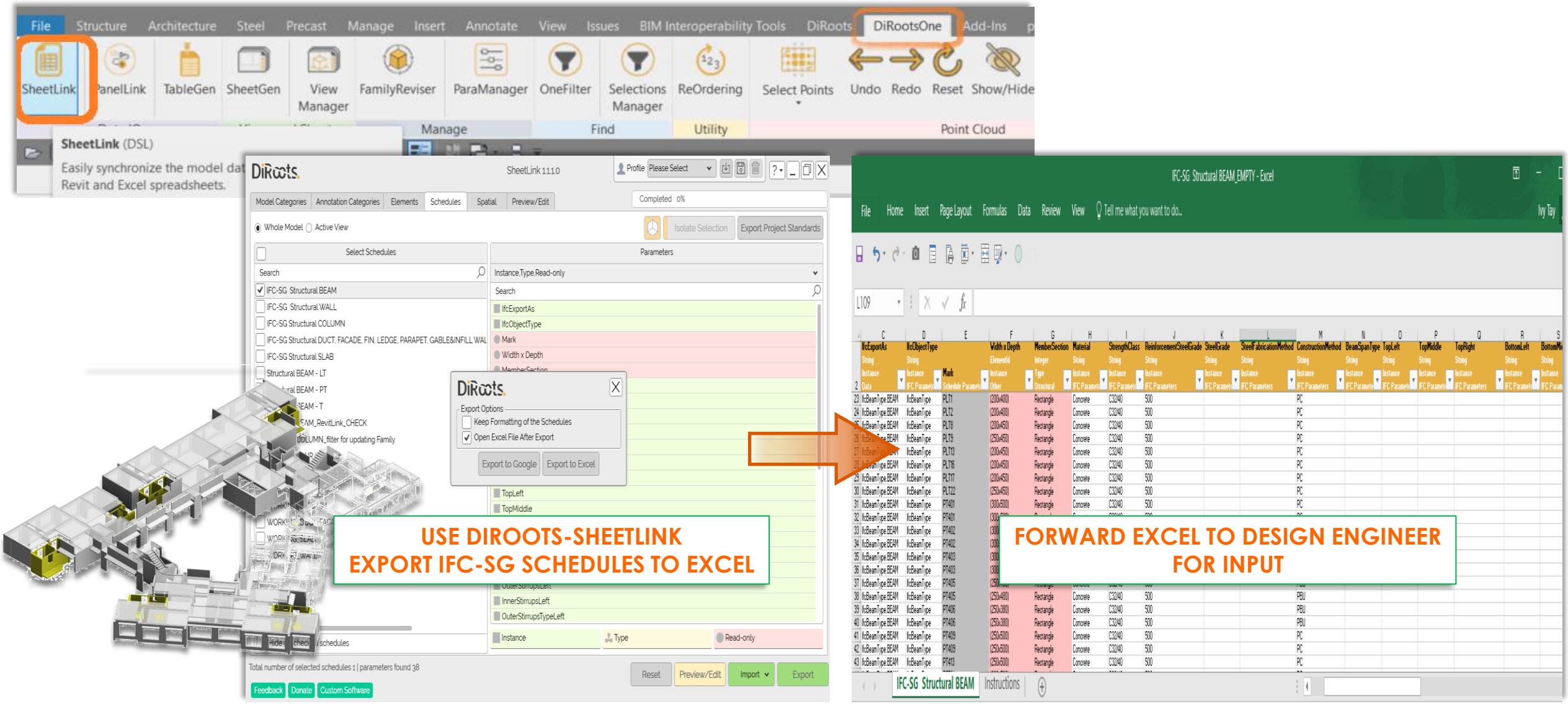
Overview of parameters populated by Revit families + Information from imported Excel



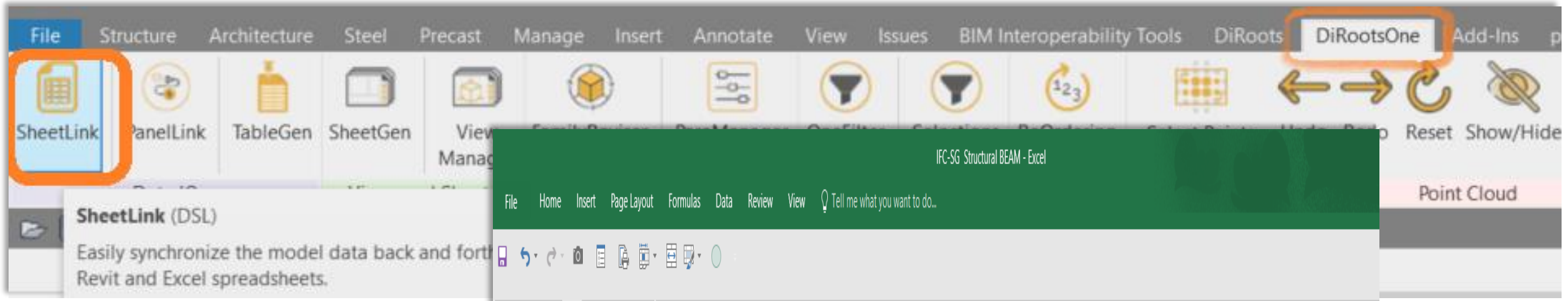
[Automatic] DEFAULT PARAMETER VALUES - ADDED INTO REVIT FAMILY (RFA)

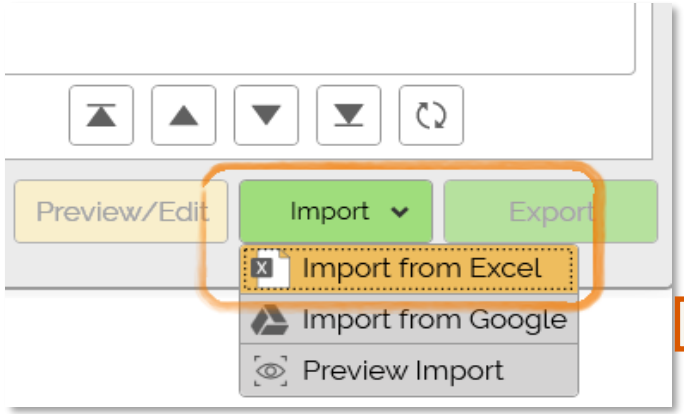
[Manual] PROJECT SPECIFIC PARAMETER VALUES – IMPORTED FROM EXCEL

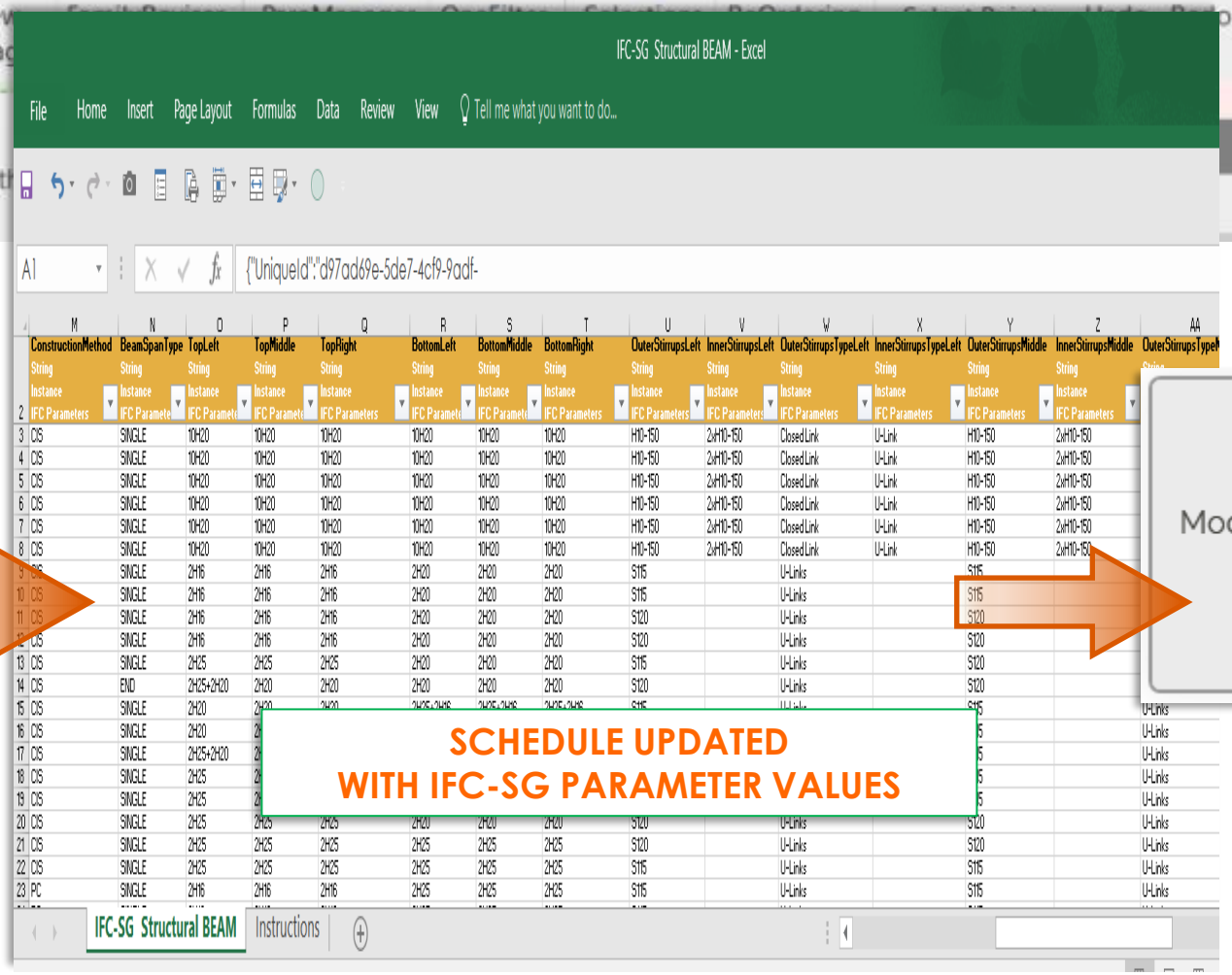
IFC-SG Workflow

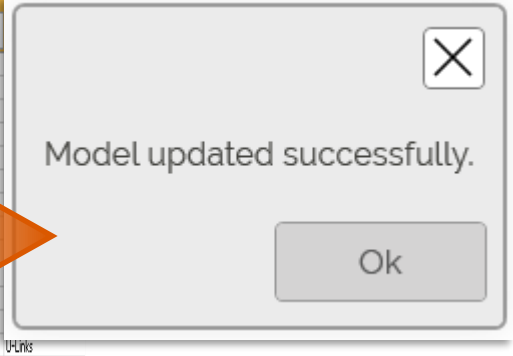


IFC-SG Workflow





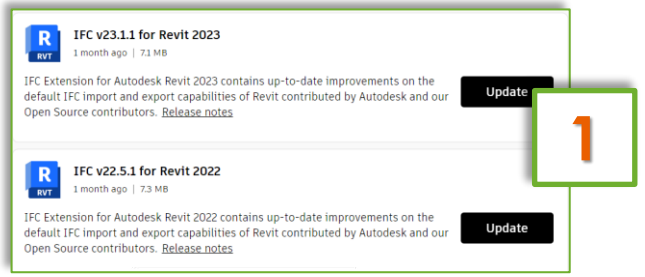




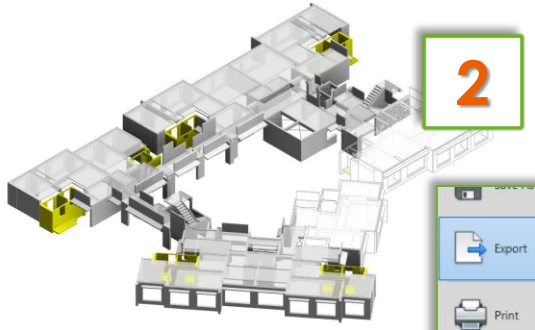
USE DIROOTS-SHEETLINK
IMPORT EXCEL FROM DESIGN ENGINEER

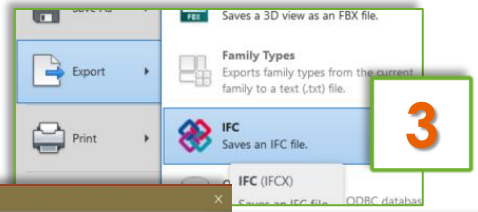
SCHEDULE UPDATED
WITH IFC-SG PARAMETER VALUES

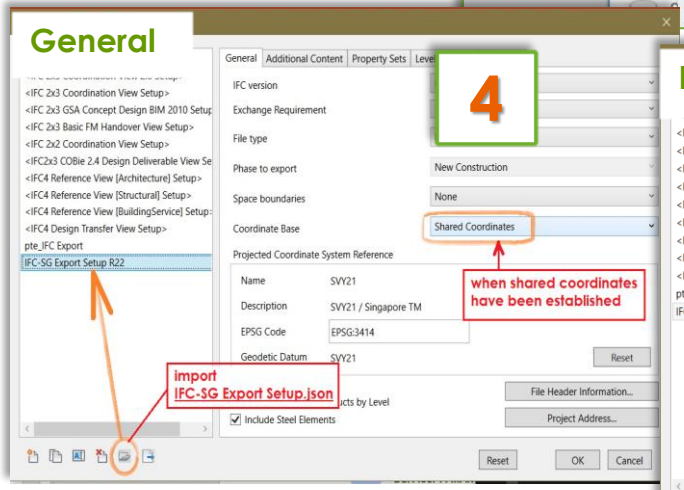
REVIT EXPORT TO IFC-SG MODEL

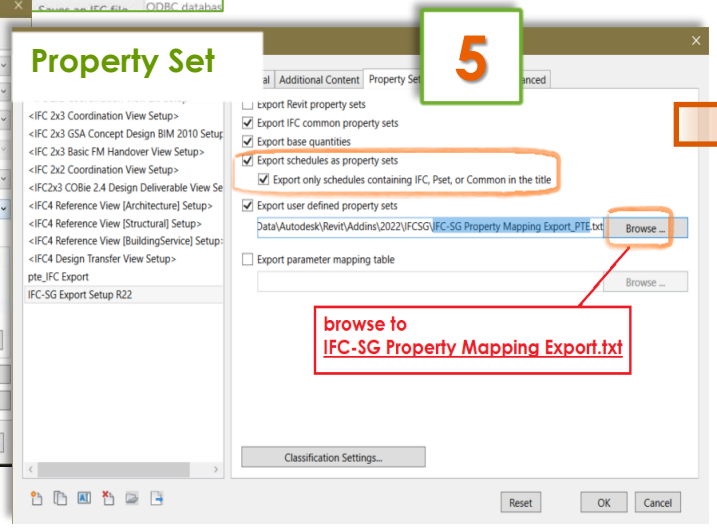


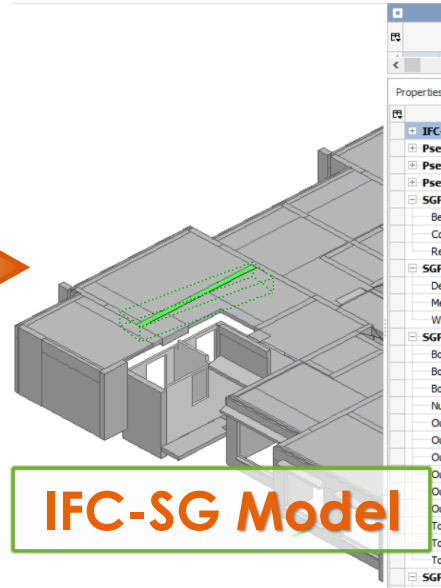
1. Install latest Revit IFC extension for up-to-date improvements
2. Activate 3D View for export
3. File > Export > IFC
4. Import IFC-SG Export Setup R22.json
5. Browse to select IFC-SG Property Mapping Export.txt

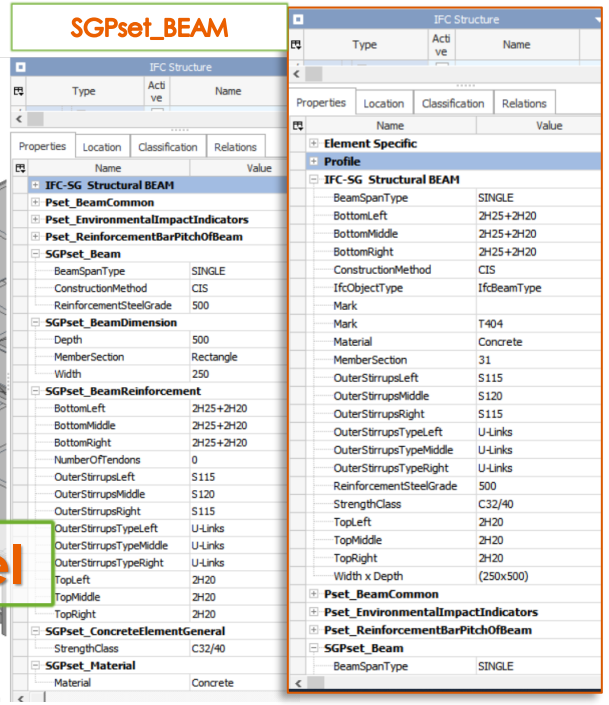






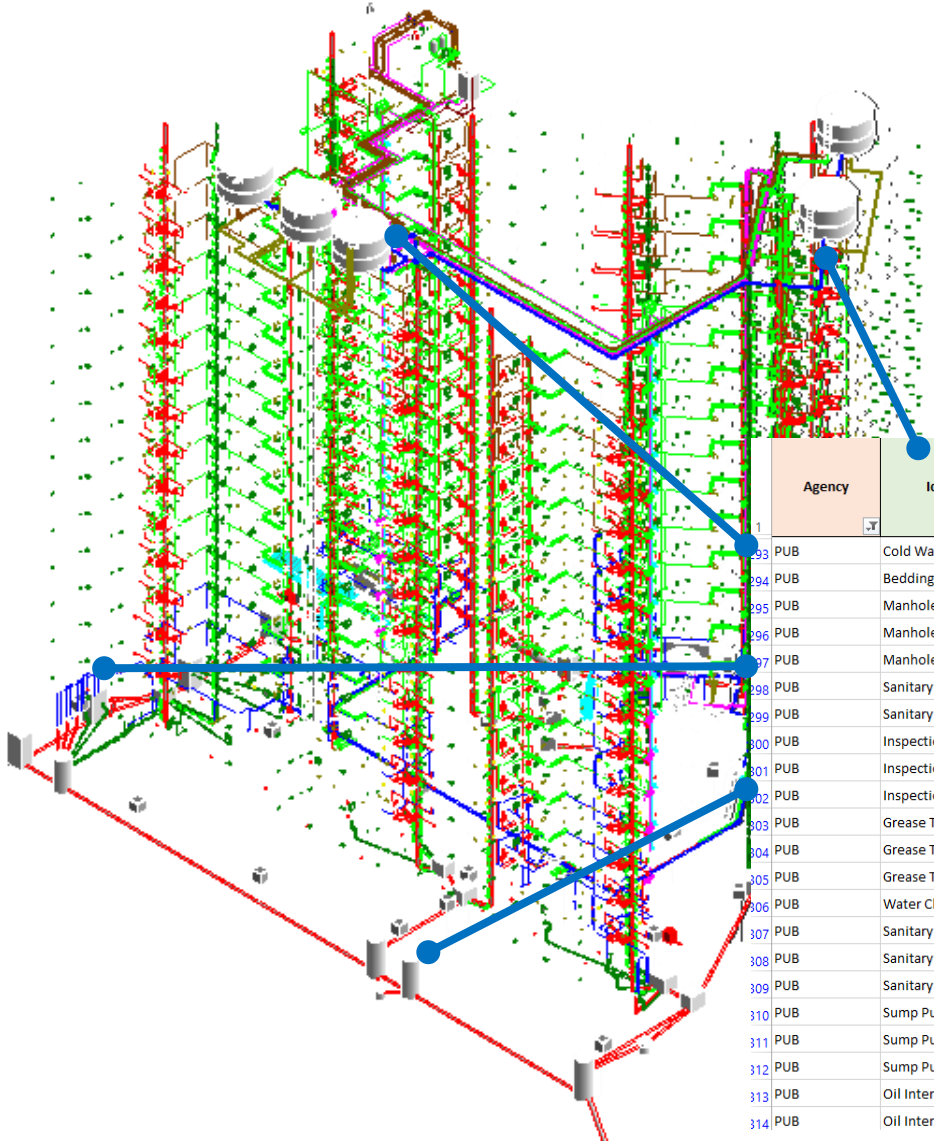






M&E BIM Manager’s Perspective

Tips on reading the IFC-SG mapping



1. Know the element and its category
2. What system it belongs to?
3. What are the IFC Parameters that need to map into it?
4. To what Agency it will be submitted?

	Agency	Identified Component	Identified parameters	Revit Representation	Archicad Representation	Domain	IFC4 Entities	IFC SubTypes (* = USERDEFINED)	Property Set	Property Name
293	PUB	Cold Water System	-	Piping Systems	MEP System	PLU	IfcDistributionSystem	*DOMESTICCOLDWATER	-	-
294	PUB	Bedding	Type	Generic Models	Model Element	ARC	IfcGeographicElement	*FOUNDATION	SGPset_GeographicElement	BeddingType
295	PUB	Manhole	Length	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	MANHOLE	SGPset_DistributionChamberElementDimension	Length
296	PUB	Manhole	Width	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	MANHOLE	SGPset_DistributionChamberElementDimension	Width
297	PUB	Manhole	Depth	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	MANHOLE	SGPset_DistributionChamberElementDimension	Depth
298	PUB	Sanitary System	-	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	-	-
299	PUB	Sanitary System	-	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	-	-
300	PUB	Inspection Chamber	Length	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	INSPECTIONCHAMBER	SGPset_DistributionChamberElementDimension	Length
301	PUB	Inspection Chamber	Width	Plumbing Fixtures	F				SGPset_DistributionChamberElementDimension	Width
302	PUB	Inspection Chamber	Depth	Plumbing Fixtures	F				SGPset_DistributionChamberElementDimension	Depth
303	PUB	Grease Trap	Height	Plumbing Fixtures	F				SGPset_InterceptorDimension	Height
304	PUB	Grease Trap	Width	Plumbing Fixtures	F				SGPset_InterceptorDimension	Width
305	PUB	Grease Trap	Length	Plumbing Fixtures	Flow Equipment	PLU	IfcInterceptor	GREASE	SGPset_InterceptorDimension	Length
306	PUB	Water Closet	-	Plumbing Fixtures	Pipe Flow Termina	PLU	IfcSanitaryTerminal	*WATERCLOSET	-	-
307	PUB	Sanitary System	Gradient	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	SGPset_SystemDimension	Gradient
308	PUB	Sanitary System	Length	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	SGPset_SystemDimension	Length
309	PUB	Sanitary System	Diameter	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	SGPset_SystemDimension	Diameter
310	PUB	Sump Pump	Standby Pump	Mechanical Equipment	Flow Equipment	PLU	IfcPump	SUMPPUMP	SGPset_Pump	Standby
311	PUB	Sump Pump	Duty	Mechanical Equipment	Flow Equipment	PLU	IfcPump	SUMPPUMP	SGPset_Pump	Duty
312	PUB	Sump Pump	Capacity	Mechanical Equipment	Flow Equipment	PLU	IfcPump	SUMPPUMP	SGPset_Pump	Capacity
313	PUB	Oil Interceptor	Height	Plumbing Fixtures	Flow Equipment	PLU	IfcInterceptor	OIL	SGPset_InterceptorDimension	Height
314	PUB	Oil Interceptor	Width	Plumbing Fixtures	Flow Equipment	PLU	IfcInterceptor	OIL	SGPset_InterceptorDimension	Width

IFC-SG mapping

Preparing your model for the Revit Configuration File

IFC-SG Resource Kit

Step 3) Revit

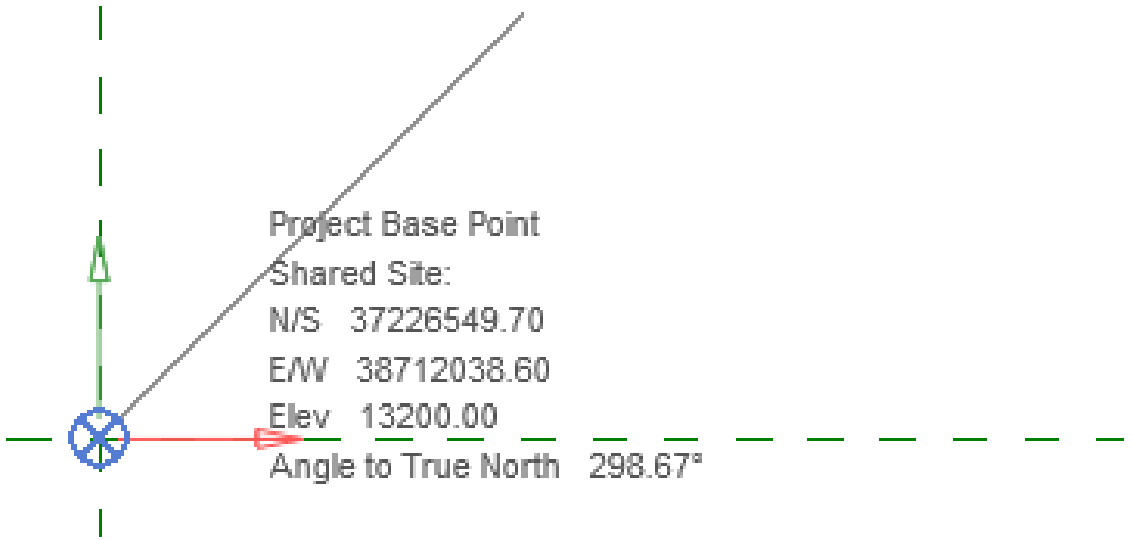
- 01) Setting up Revit Tool
  - Changelog (Setting Up Revit Tool).txt
  - IFC-SG BIT for IfcExportAs and IfcObjectType.xlsx
  - IFC-SG Shared Parameter.txt
- IFC-SG How to Guides _(Revit)_Final.pdf
- Revit IFC-SG How-to Guide - YouTube.url
- revit-ifc-open-bim-manual-en (1).pdf
- 02) Exporting information to IFC
  - Revit IFC Exporter Json Files
    - IFC Configuration - IFC-SG Export Setup R20.json
    - IFC Configuration - IFC-SG Export Setup R21.json
    - IFC Configuration - IFC-SG Export Setup R22.json
  - Changelog Revit Export.txt
  - IFC-SG Property Mapping Export.txt

Preparing your model for the Revit Configuration File

WORKFLOW

1. Set your model into the agreed coordinates.

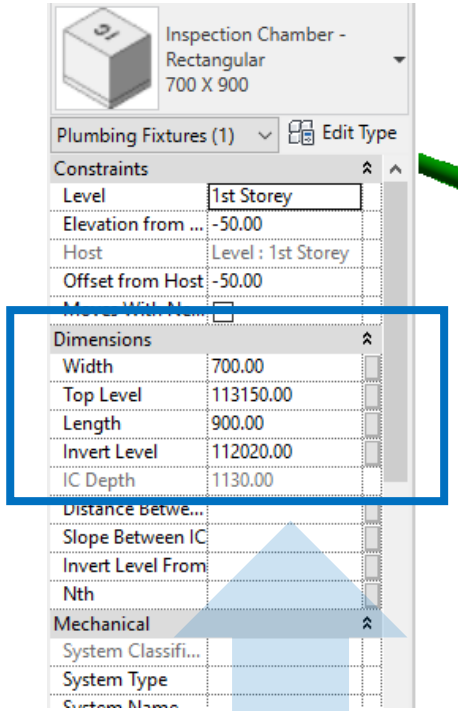
- To place the M&E model into the correct location with Architecture and Structure models.

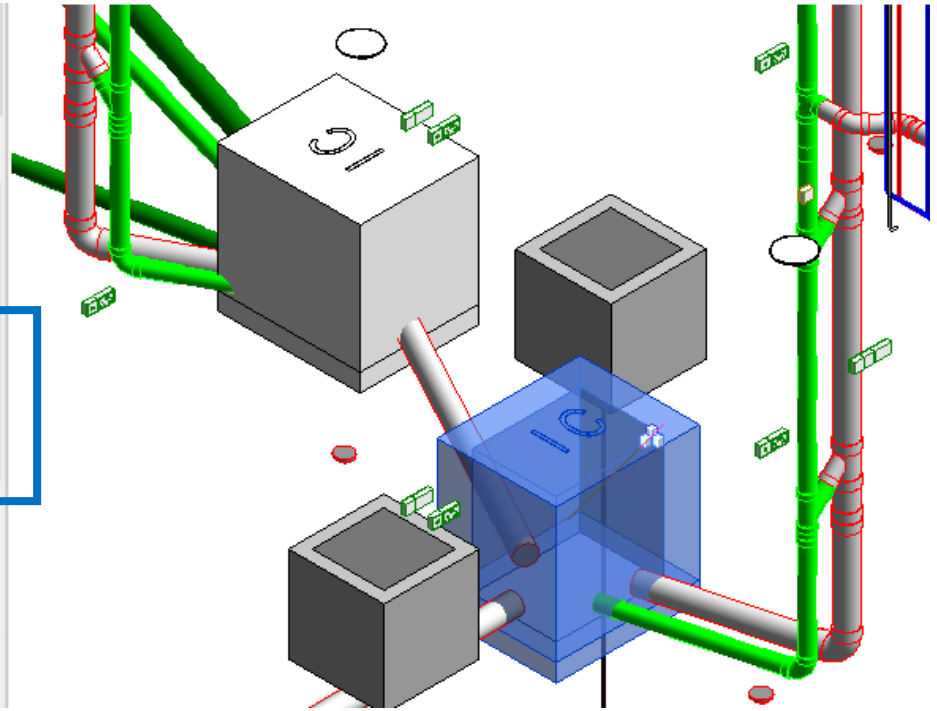


Preparing your model before adding the Revit Configuration File

2. Identify the IFC properties to be tagged into each element of your model.

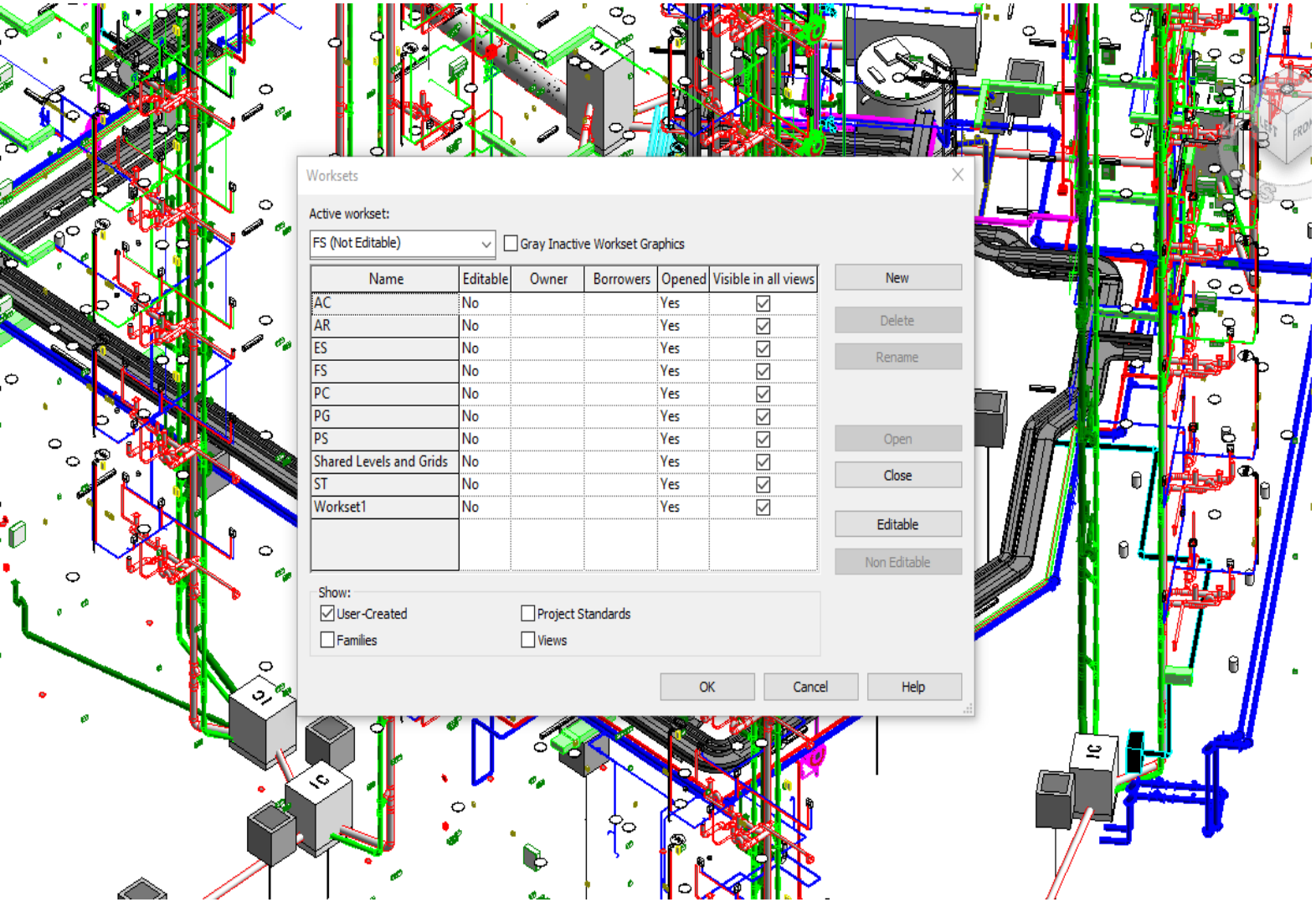
- Element's properties can be assigned while modeling.





	Agency	Identified Component	Domain	IFC4 Entities	IFC SubTypes (* = USERDEFINED)	Property Set	Property Name	Property Value	Property Unit	IFC4 Material Set
293	PUB	Cold Water System	PLU	IfcDistributionSystem	*DOMESTICCOLDWATER	-	-	-	-	-
294	PUB	Bedding	ARC	IfcGeographicElement	*FOUNDATION	SGPset_GeographicElement	BeddingType	-	-	-
295	PUB	Manhole	PLU	IfcDistributionChamberElement	MANHOLE	SGPset_DistributionChamberElementDimension	Length	-	mm	-
296	PUB	Manhole	PLU	IfcDistributionChamberElement	MANHOLE	SGPset_DistributionChamberElementDimension	Width	-	mm	-
297	PUB	Manhole	PLU	IfcDistributionChamberElement	MANHOLE	SGPset_DistributionChamberElementDimension	Depth	-	mm	-

Preparing your model before adding the Revit Configuration File



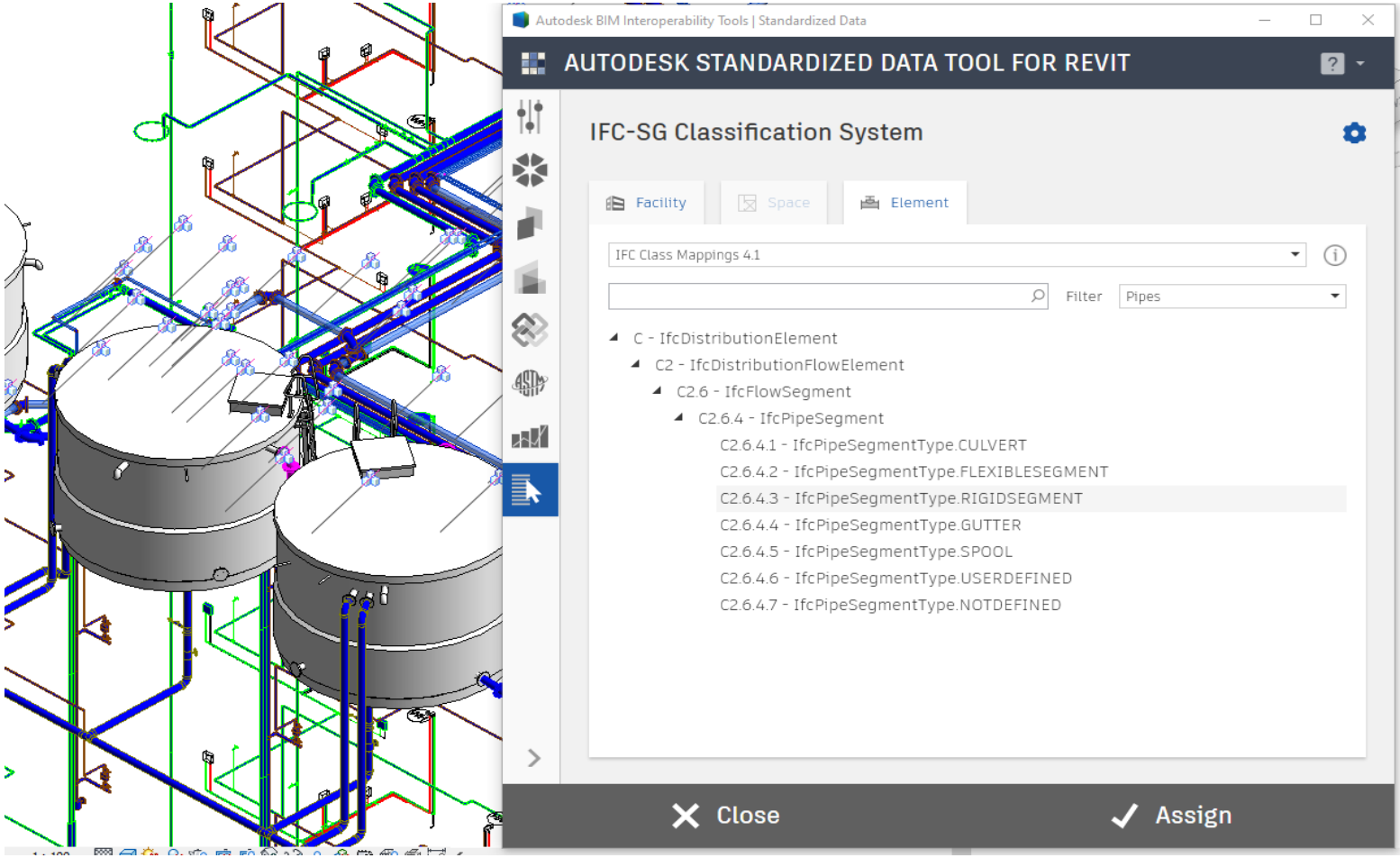
3. Set the Revit Workset.

- To easily select the elements during IFC-SG Parameters mapping.
- To filter the views per Agency Submission.
- To reduce time when Exporting model in IFC format.
- To easily navigate when modeling and model auditing.

Preparing your model before adding the Revit Configuration File

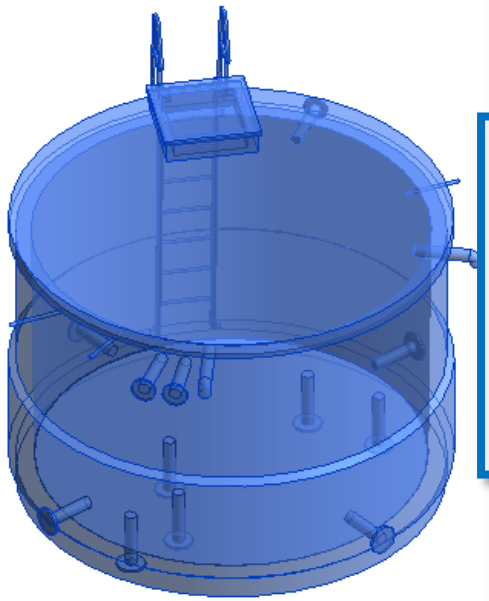
4. IFC-SG Mapping.

- **Use BIM Interoperability Tools to assign IFC parameters**
- To avoid misspelled IFC parameters(misspelled parameters will not be exported).
- More faster than manual parameter key-in.
- Elements will be exported into correct IFC category.



Editing the Configuration File to Adapt In-house Company Properties into Configuration

Revit Library



Type Properties

Family: UPC-PC_Standard Water Storage Tank — Load...

Type: Water Tank - Default — Duplicate...

Rename...

Type Parameters

Parameter	Value
IFC Parameters	
Tank Capacity	11.300 m³
Tank Diameter	3600.00
Tank Fire Rating	2 Hr
Tank Height	2545.00
Tank Material	Concrete
Tank Thickness	200.00
Type IfcGUID	05DX8w8AL1be0z0dKHx2Rh
Classification.Uniclass.EF.Numb	
Classification.Uniclass.EF.Descri	
Classification.Uniclass.Pr.Numb	
Classification.Uniclass.Pr.Descrip	
Classification.Uniclass.Ss.Numb	
Classification.Uniclass.Ss.Descrip	

What do these properties do?

<< Preview | OK | Cancel | Apply

Configuration File

SGPset_IFC SG_CONSOLIDATED_B1-B4_v13 - Notepad

File Edit Format View Help

```
StorageDuration Label
TradeEffluent   Boolean
VerticalLifeline        Boolean
```

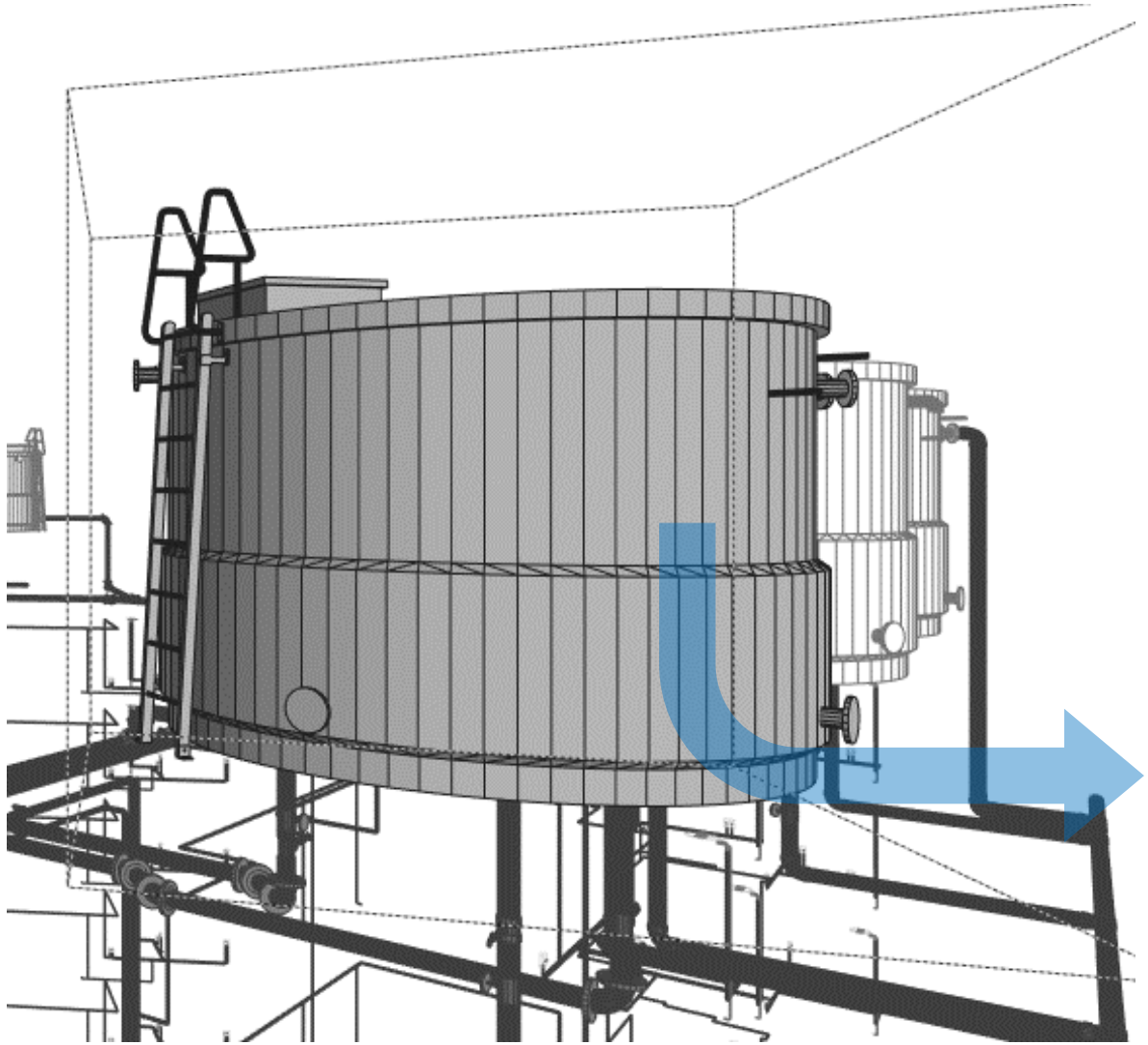
CX Properties | **Company Properties**

```
Capacity        Volume  Tank Capacity
Material        Label   Tank Material
```

```
PropertySet:    SGPset_TankDimension    I       IfcTank
Diameter        Length  Tank Diameter
Height  Length  Tank Height
Length  Length
Thickness       Length  Tank Thickness
Width   Length  Tank Width
```

Editing the Configuration File to Adapt In-house Company Properties into Configuration

IFC Model



		Building Storey	LOWER ROOF
		Plumbing/Drainage	
√		IfcTank	UPC-PC_Standard Wa...
		IfcTank	UPC-PC_Standard Wa...

Properties | Location | Classification | Relations

Name	Value	Unit
Element Specific		
Guid	05DX8w8AL1be0z0dKHwvvp	
IfcEntity	IfcTank	
Name	UPC-PC_Standard Water Storage Tank:Water Tank - Default:2376892	
ObjectType	UPC-PC_Standard Water Storage Tank:Water Tank - Default	
PredefinedType	STORAGE	
Tag	2376892	
Pset_EnvironmentalImpactIndicators		
Reference	Water Tank - Default	
Pset_TankTypeCommon		
Reference	Water Tank - Default	
SGPset_Tank		
Capacity	11.3	m3
IsPotable	Yes	
SGPset_TankDimension		
Diameter	3 600	mm
Height	2 545	mm
Thickness	200	mm

Tips to Prepare Models for Future Submission

Upgrading the current MEP Template into Corenet X Template

- Study the existing object properties.
- Know the properties that needs to be edited in-line with the IFC Configurator

Pull out the common properties and assign as the object type properties.

- To avoid re-entering of properties.
- To avoid Duplication of property when exported into IFC.

Map the existing object library properties into configuration file.

- One time process
- Can be used into the future projects
- Eliminate double works and errors
- Standard IFC exports for all you projects

Top 3 Most Common Challenges, and Solutions

Challenge 1

Accidentally spelling IFC wrongly

e.g.

✓ IfcTank

✘ IfcTang

Implications:

Missing data in IFC

- IFC properties cannot be exported
- Existing in-house properties not mapped properly (to wrong IFC properties), thus also can't be exported

Solution:

Avoid manual typing where possible

- Use BIM Interoperability Tool, select from drop down list
- Copy Paste the information from IFC-SG Industry Mapping (.XLS file from GovTech)

Top 3 Most Common Challenges, and Solutions

Challenge 2

Forgetting to update IFC after changes / modifications to model

Implications:

Missing data in IFC

- IFC properties cannot be exported
- Existing in-house properties not mapped properly (to wrong IFC properties), thus also can't be exported

Solution:

Check mapping

- Redo the mapping
- Use Schedule to cross check if all M&E Elements were tagged properly.

Avoid manual typing where possible

- Use BIM Interoperability Tool, select from drop down list
- Copy Paste the information from IFC-SG Industry Mapping (.XLS file from GovTech)

Top 3 Most Common Challenges, and Solutions

Challenge 3

Cannot export Revit linked files to a federated IFC (model with multiple link files)

e.g. MEP sub-discipline models

Implications:

Missing data in IFC

- Assigned systems will be lost
- IFC properties cannot be exported
- Existing in-house properties not mapped properly (to wrong IFC properties), thus also can't be exported

Solution:

Today:

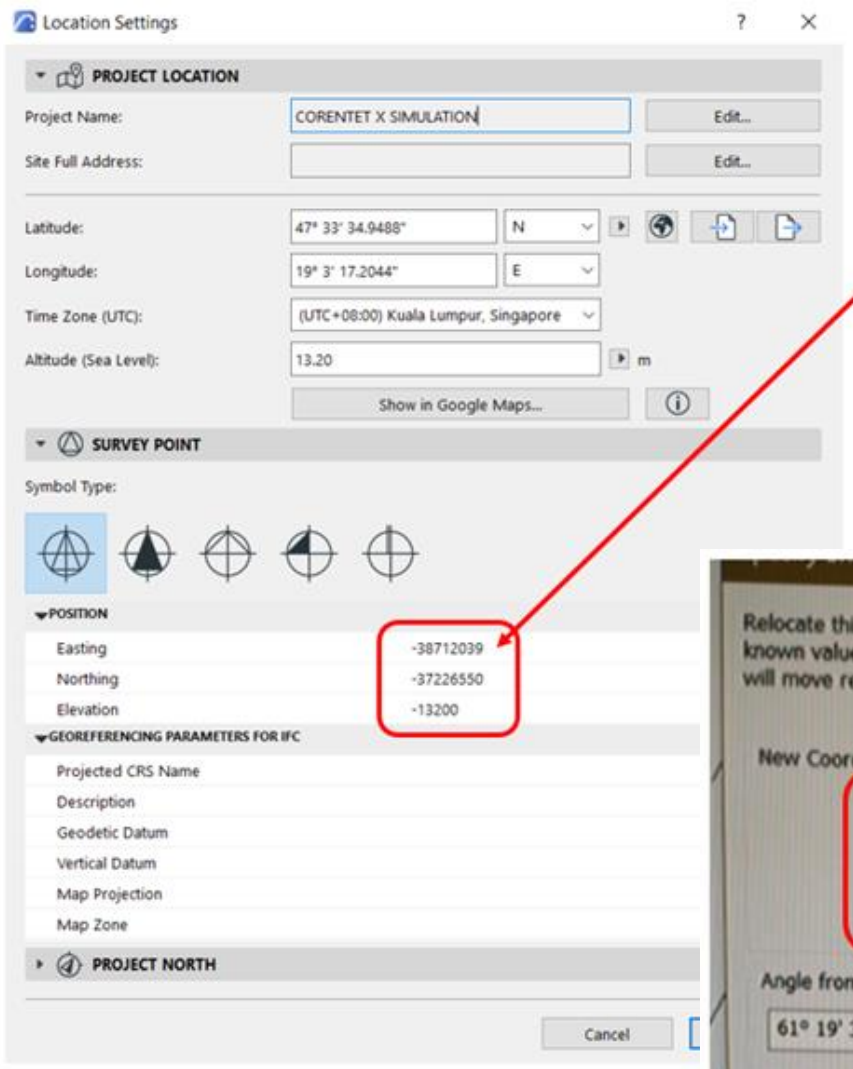
- Tag information after binding models
- Use Group Models instead of Binding
- Avoid binding if possible (i.e. export linked files one by one)

Future:

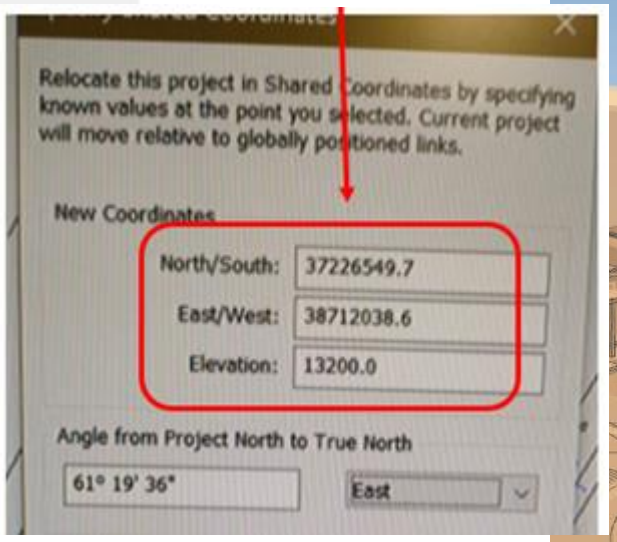
- Through CORENET X community of practice, we have feedback to Autodesk to enable export of federated IFC
- **Autodesk shared that this is part of the Revit Roadmap and will be included progressively in early 2023**

Coordinated 3 Discipline Models

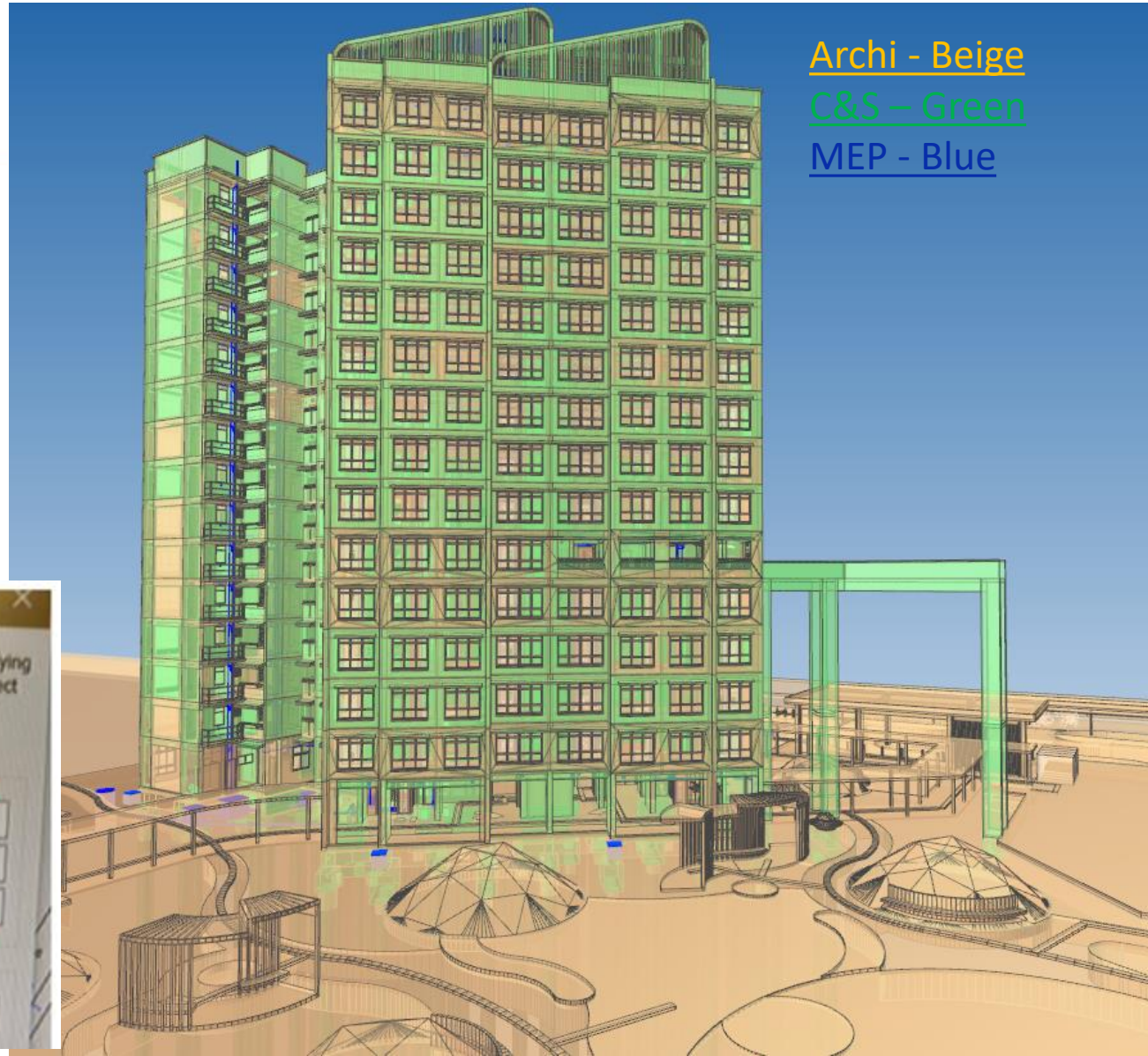
Point to Note: Enter the values with a "-" as we are setting the position of the survey stone from the project.



Revit input



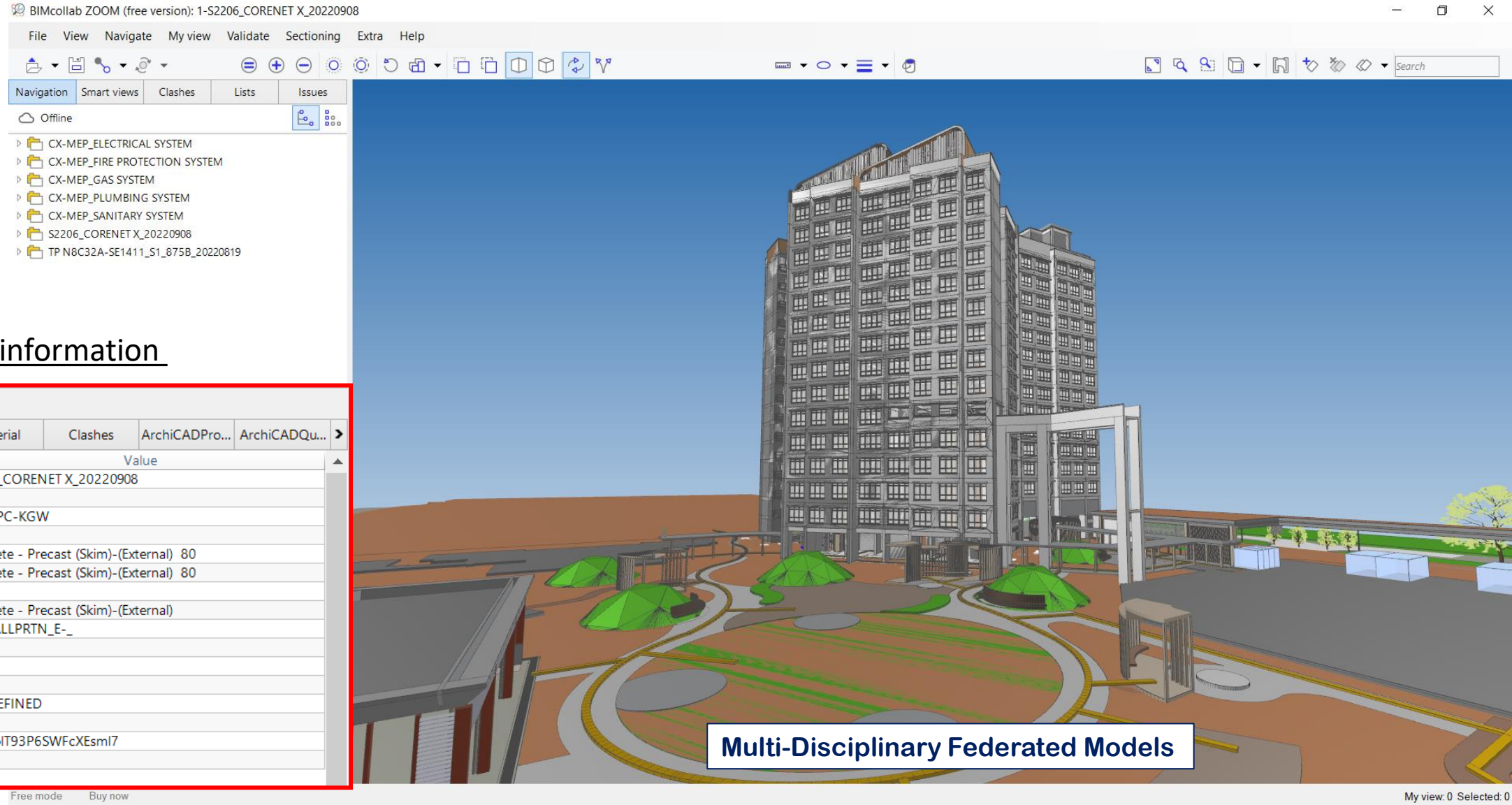
Model Positioning (eg: Archicad & Revit) before submission



Using an IFC Viewer for Model Review

Consultants IFC models review:

Tools used to ensure Model positioning or Model information e.g. view in BIM Collab or BIM Vision (64 bits) or Tekla BIMsight.



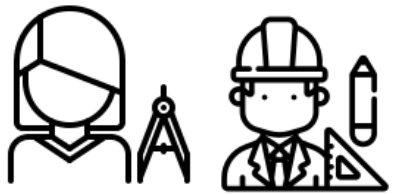
Model element's information

Wall

Summary	Location	Material	Clashes	ArchiCADPro...	ArchiCADQu...

Property	Value
Model	S2206_CORENET X_20220908
Prefix	
Name	PTA - PC-KGW
Phase	
Type	Concrete - Precast (Skim)-(External) 80
Type Name	Concrete - Precast (Skim)-(External) 80
Description	
Material Name	Concrete - Precast (Skim)-(External)
Layer	A-_WALLPRTN_E-_
Is External	False
Load Bearing	False
IFC Element	IfcWall
Predefined Type	NOTDEFINED
Tag	
GUID	2RIqyplT93P6SWFcXEsml7
ARCHICAD Classification v 2.0	

GovTech, Agencies and BIM Software Vendors will Support Multi-disciplinary Project Teams who are interested to practise IFC-SG in sandbox projects



BIM project team prepare model and export to IFC-SG

Iterative review process

GovTech will review the test models with agencies. Discussions with project team, agencies, BIM software vendors on:

Understanding IFC data structures

Understanding agencies' requirements

Familiarising software workflows

Test model conforms with IFC-SG representations

Project team update and rectify models

Virtual + On-site discussions to intro and walkthrough on IFC-SG

Successful test models can be reviewed on CORENET X's back-end Collaboration Platform prototype

THANK YOU