

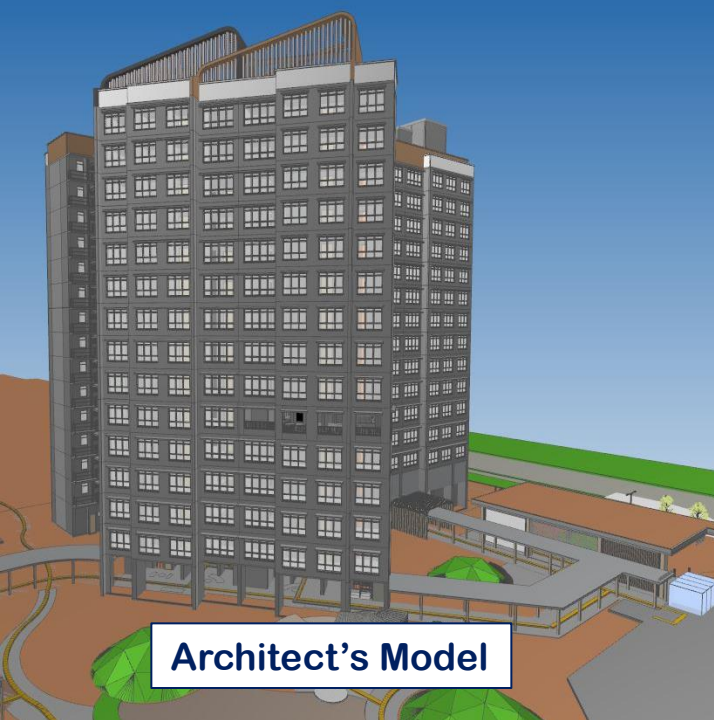
Insights to preparing for IFC-SG

Chung Yok May, BIM Manager, P&T Consultants Pte Ltd (Architectural)

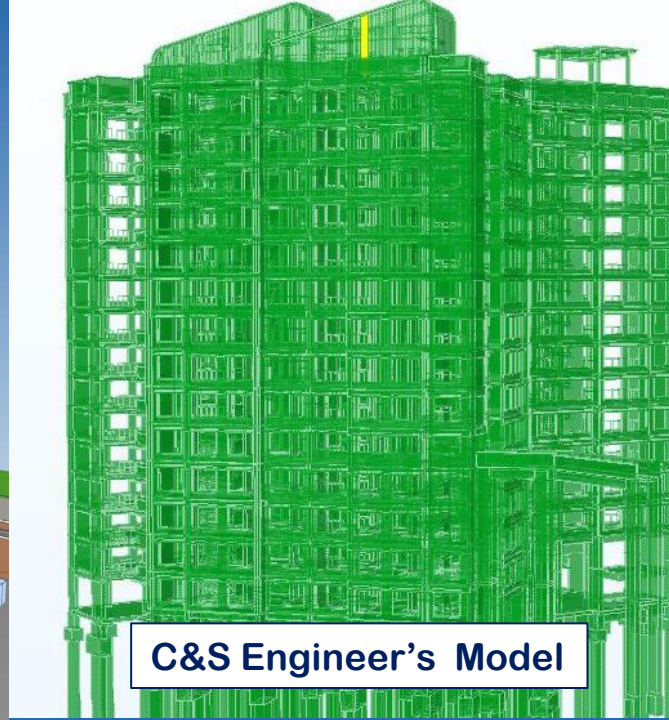
Ivy Tay, BIM Manager, P&T Consultants Pte Ltd (Structural)

Felix Batad, BIM Manager, United Project Consultants

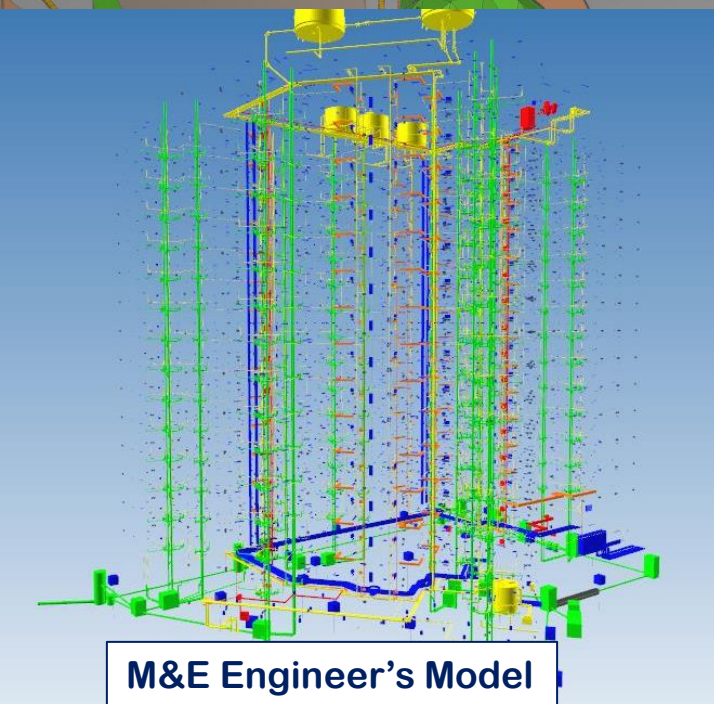
Background



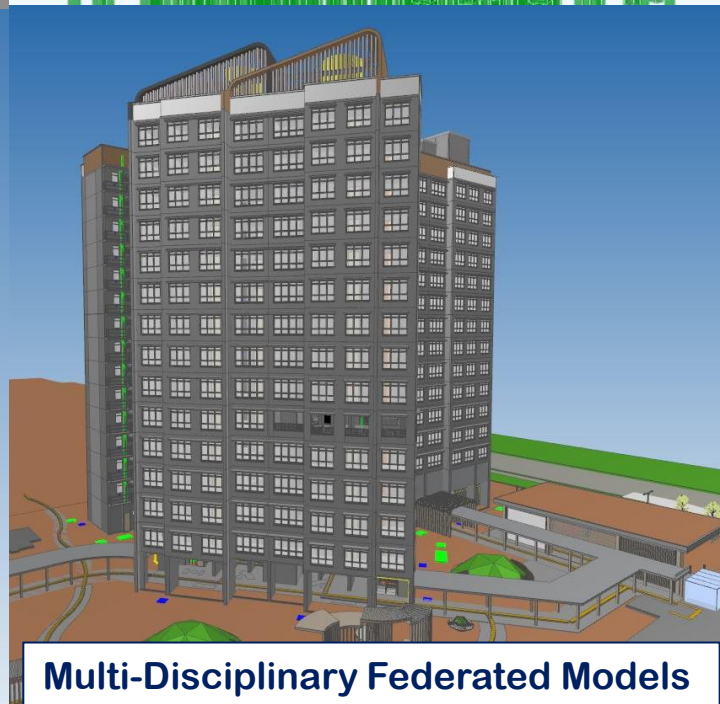
Architect's Model



C&S Engineer's Model



M&E Engineer's Model



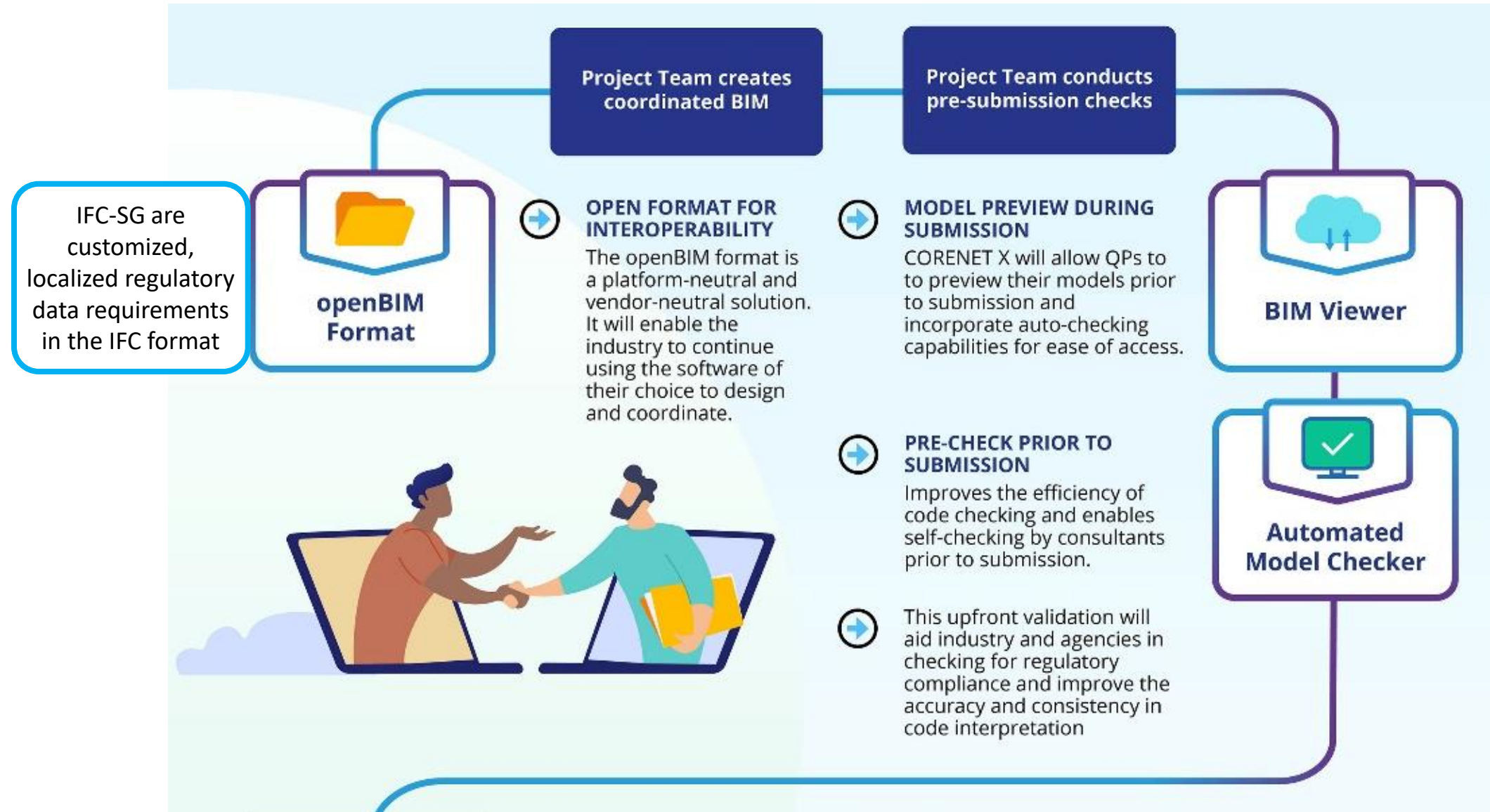
Multi-Disciplinary Federated Models

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



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

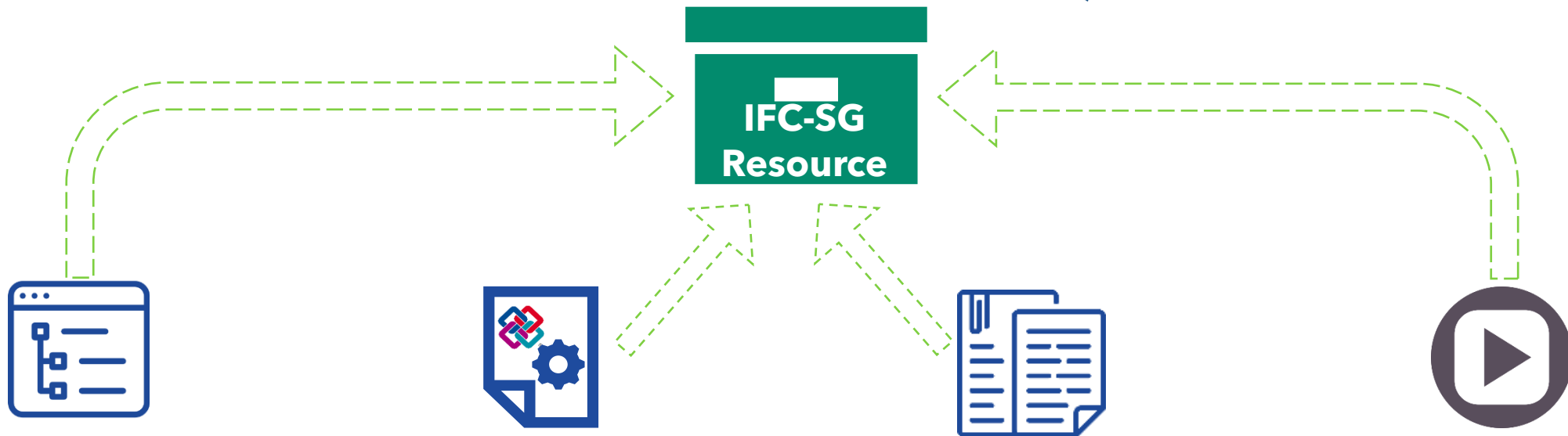
Today's Written Direction and comments from agencies are provided in a list to the QPs.

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

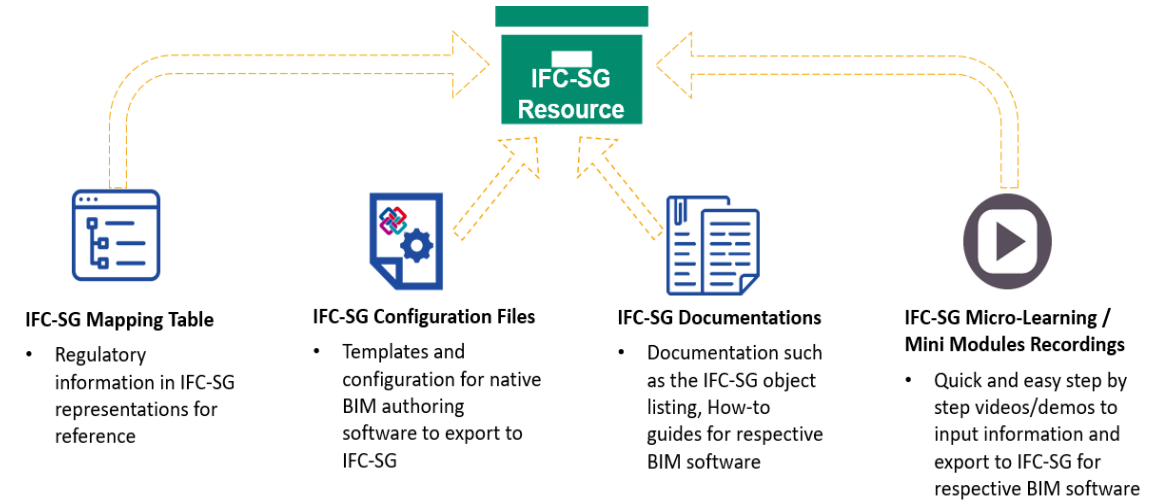
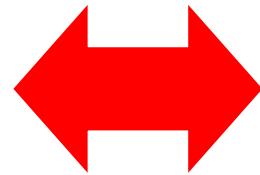
IFC-SG Micro-Learning / Mini Modules Recordings

- 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



Tips on reading the IFC-SG mapping



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

Tips on reading the IFC-SG mapping

2

Agency's Compliance

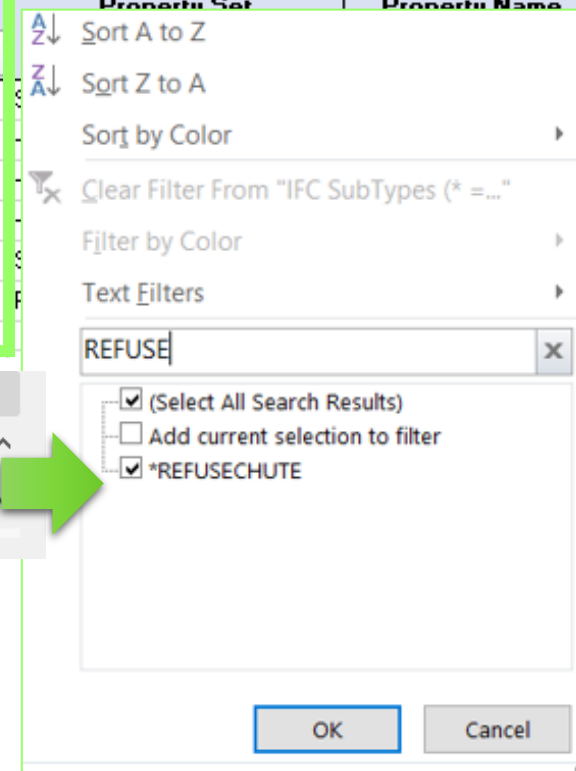
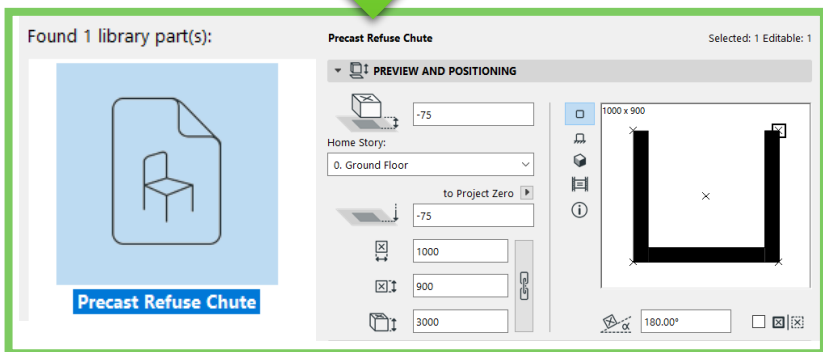
3

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")
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 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	LEVEL_SENSOR
408	NEA	Refuse Handling Equipment	Capacity	Mechanical Equipment	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.

CLASSIFICATION AND PROPERTIES

CLASSIFICATIONS

- ARCHICAD Classification - v 2.0 Refuse Chute
- IFC-SG - Spatial and External C... (Unclassified)

ID AND CATEGORIES

ID	FU - 002
Structural Function	Undefined
Position	Exterior

RENOVATION

Renovation Status	New
Show On Renovation Filter	All Relevant Filters

ARCHITECTURAL BUILDABILITY SCOPE (WALL SYSTEMS)

Interior - Furniture

Cancel OK

Search: refuse

Found 15 Classification(s):

- Classification
- Recyclables Refuse Chute Access Panel
- Recyclables Refuse Chute Hopper
- Refuse Bin
- Refuse Chamber
- Refuse Chute**
- Refuse Chute Access Panel
- Refuse Chute Hopper
- Refuse Chute_AREA_GFA
- Refuse Compactor
- Refuse Container
- Refuse Handling Equipment

Choose

IFC PROPERTIES

IFC Type	ifcWall
ARCHICAD IFC ID	342XVvHMjDHvRx\$Xvxmc0U
GlobalId (Attribute)	342XVvHMjDHvRx\$Xvxmc0U
Name (Attribute)	FU - 002
ObjectType (Attribute)	REFUSECHUTE
Tag (Attribute)	C40A17F6-456B-4D47-96FB-FE1E7BC2661E
PredefinedType (Attribute)	USERDEFINED
IsExternal (Pset_WallCommon)	FALSE

Manage IFC Properties

Interior - Furniture

Cancel OK

Assigned to relevant:
CLASSIFICATION

Verify the IFC Entities

Tips on reading the IFC-SG mapping

5

Identify SG Property set & name

IFC Project Manager

All Selected: 1 Editable: 1

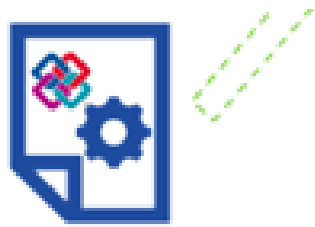
Name	Value	Type
GlobalId	1rRtEGKij6MgvOnS...	IfcGloballyUniqueId
<input checked="" type="checkbox"/> Name	New Building System	IfcLabel
<input type="checkbox"/> Description		IfcText
<input checked="" type="checkbox"/> ObjectType	REFUSECHUTE	IfcLabel
<input type="checkbox"/> PredefinedType		IfcBuildingSystemType
<input type="checkbox"/> LongName		IfcLabel
Pset_BuildingSystemCommon		
Pset_ServiceLifeFactors		
SGPset_BuildingSystem		
<input type="checkbox"/> Accreditation_MAS		IfcBoolean
<input type="checkbox"/> Accreditation_PAS		IfcBoolean
<input type="checkbox"/> BeltOrChainCount		IfcInteger
<input checked="" type="checkbox"/> ConstructionMethod	Precast	IfcLabel
<input type="checkbox"/> ElectromechanicalFrictionBrake		IfcBoolean
<input type="checkbox"/> EmergencyControlDevice		IfcBoolean
<input type="checkbox"/> LoadSideBrake		IfcBoolean
<input type="checkbox"/> MechanicalConnectionType		IfcLabel
<input type="checkbox"/> MechanizedCarParking_Type		IfcLabel
<input type="checkbox"/> OneWayCommunication		IfcBoolean
<input type="checkbox"/> SelfSustaining		IfcBoolean
<input type="checkbox"/> TwoWayCommunication		IfcBoolean

IFC SubTypes (' = USERDEFINED)	Property Set	Property Name	Property 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



Step 3) Archicad

✓ For merging with existing project template

- ✓ 1. Merge IFC-SG Classification to existing project template.xml
- ✓ 2. Import IFC-SG settings via IFC Translator.tpl

For new project starting off with fresh template

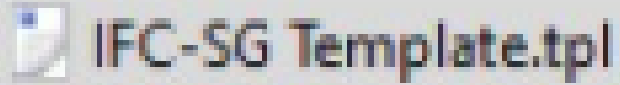
Changelog Archicad template.txt

✓ IFC-SG Template.tpl

Archicad IFC-SG How-To Guide - YouTube.url

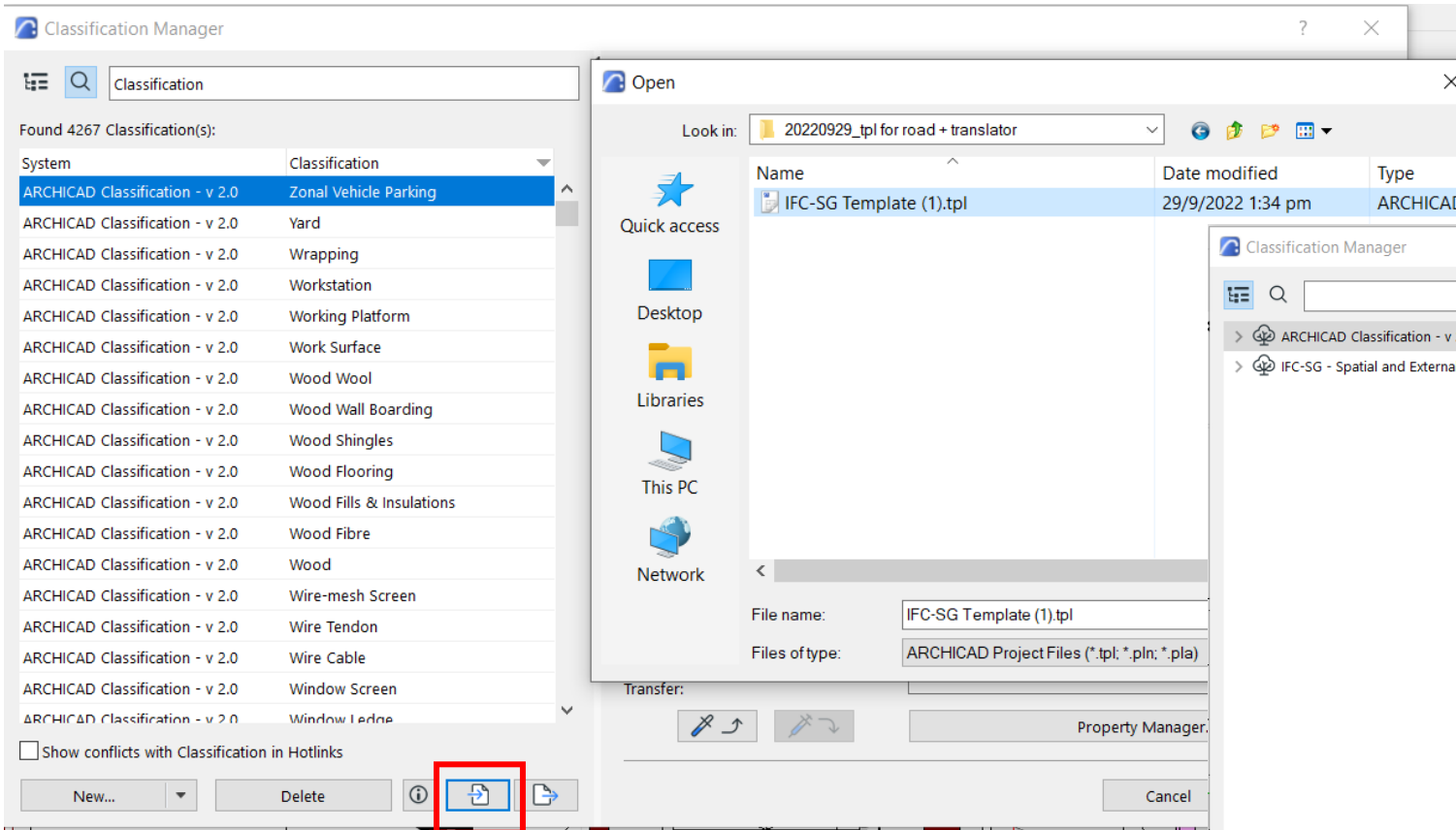
IFC-SG How to Guides (Archicad).pdf

Using the IFC-SG Template & Configuration Files

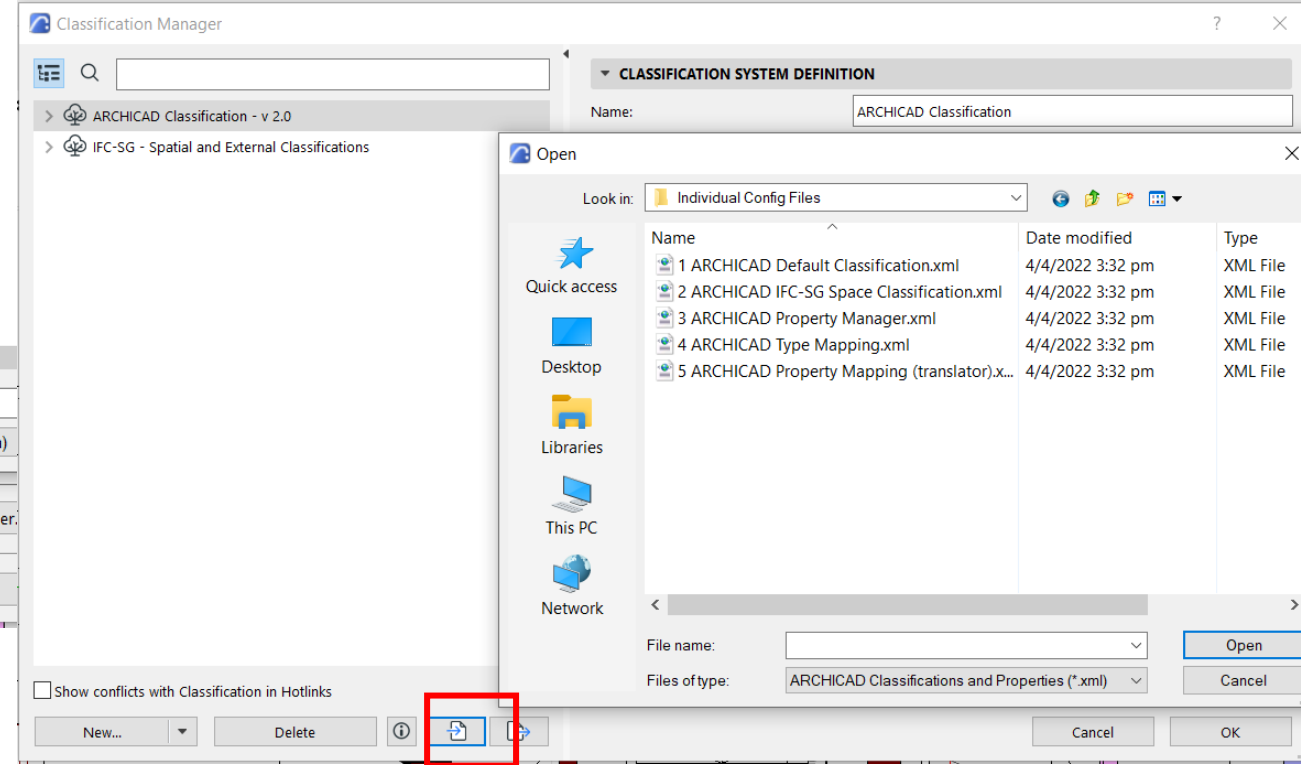


Import updated Template/Config files from resource kit to setup the project
For input of updated information, eg: Classification Manager

1. New IFC-SG Tpl (A25 users)



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



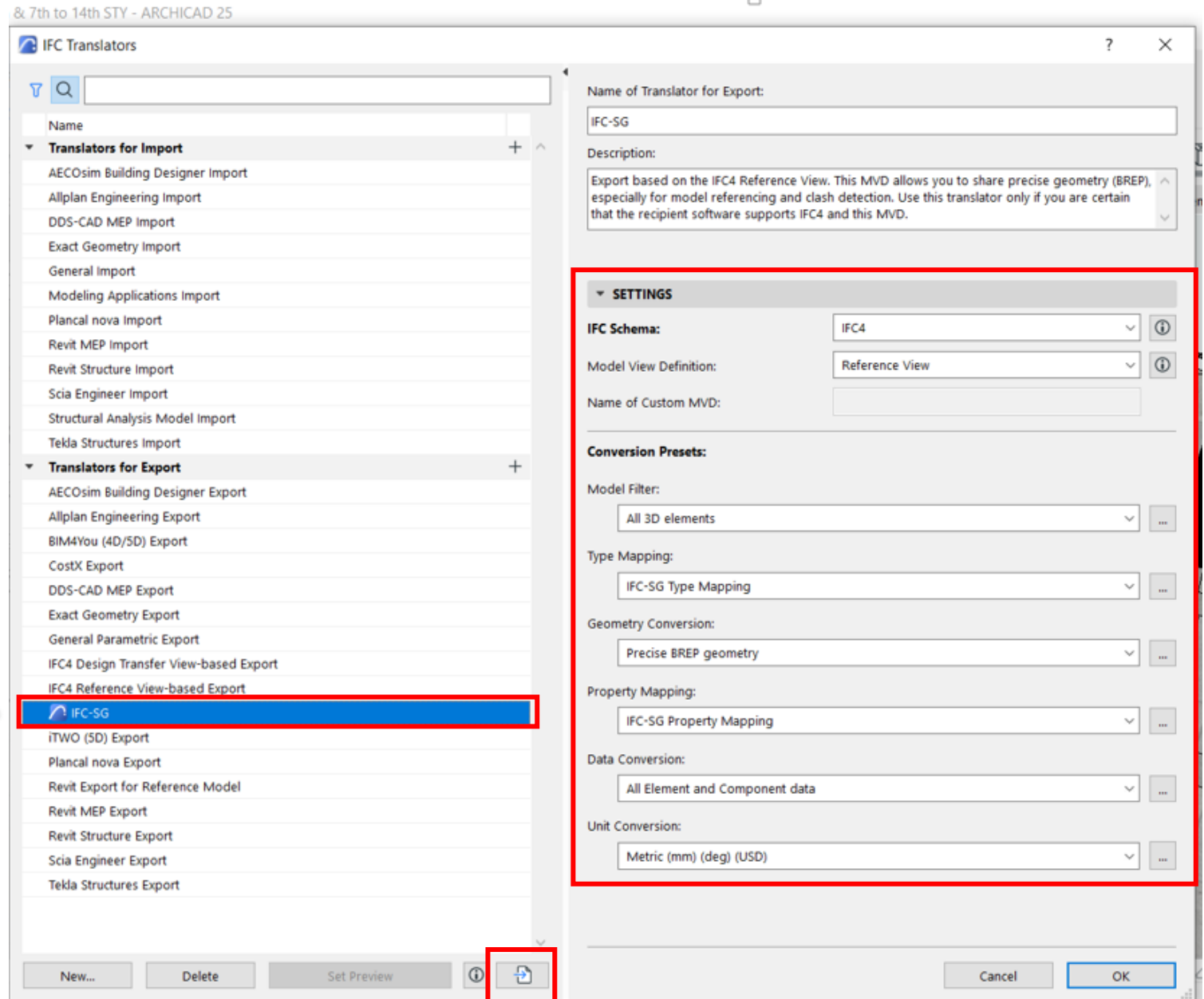
Using the IFC-SG Template & Configuration Files

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:

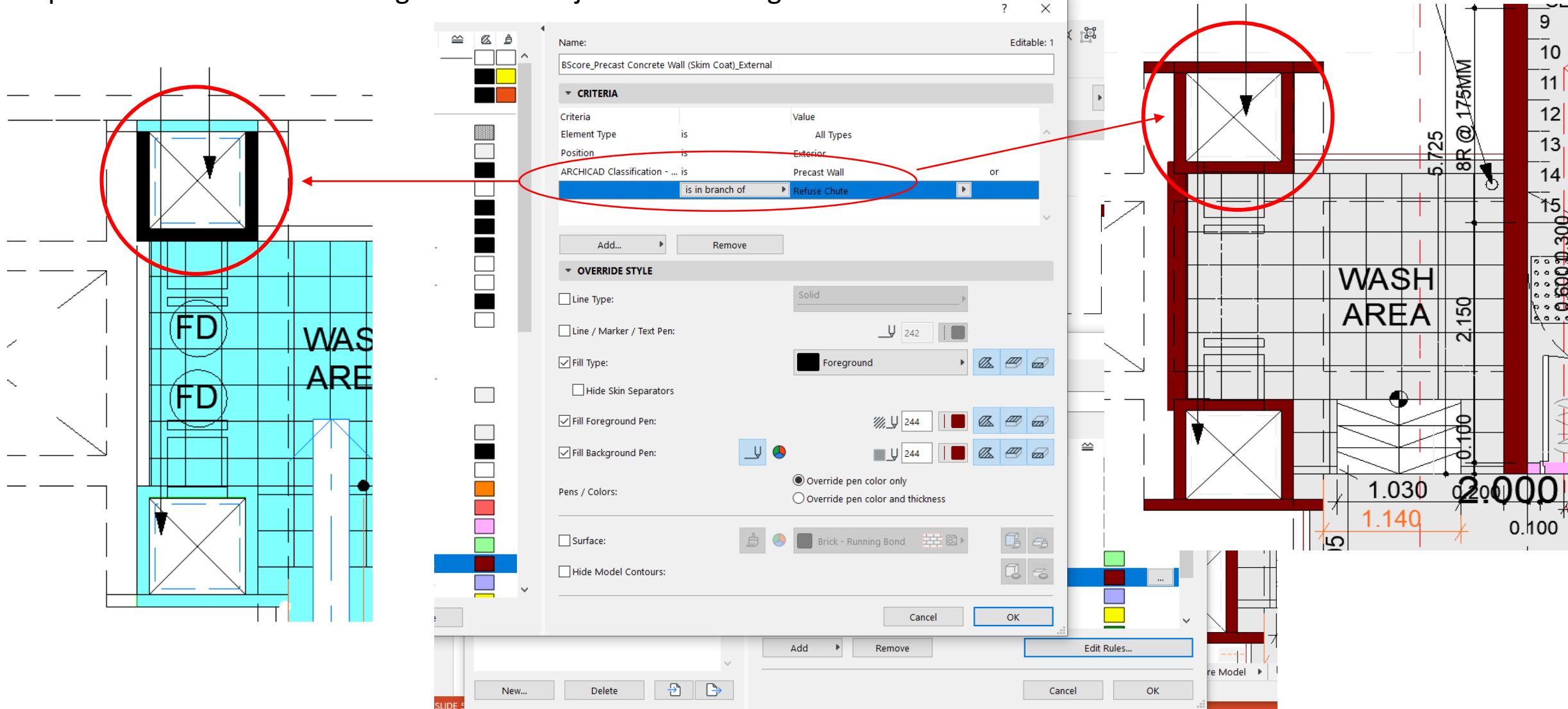
Import Updated Translator before export to IFC, using the correct Translator



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

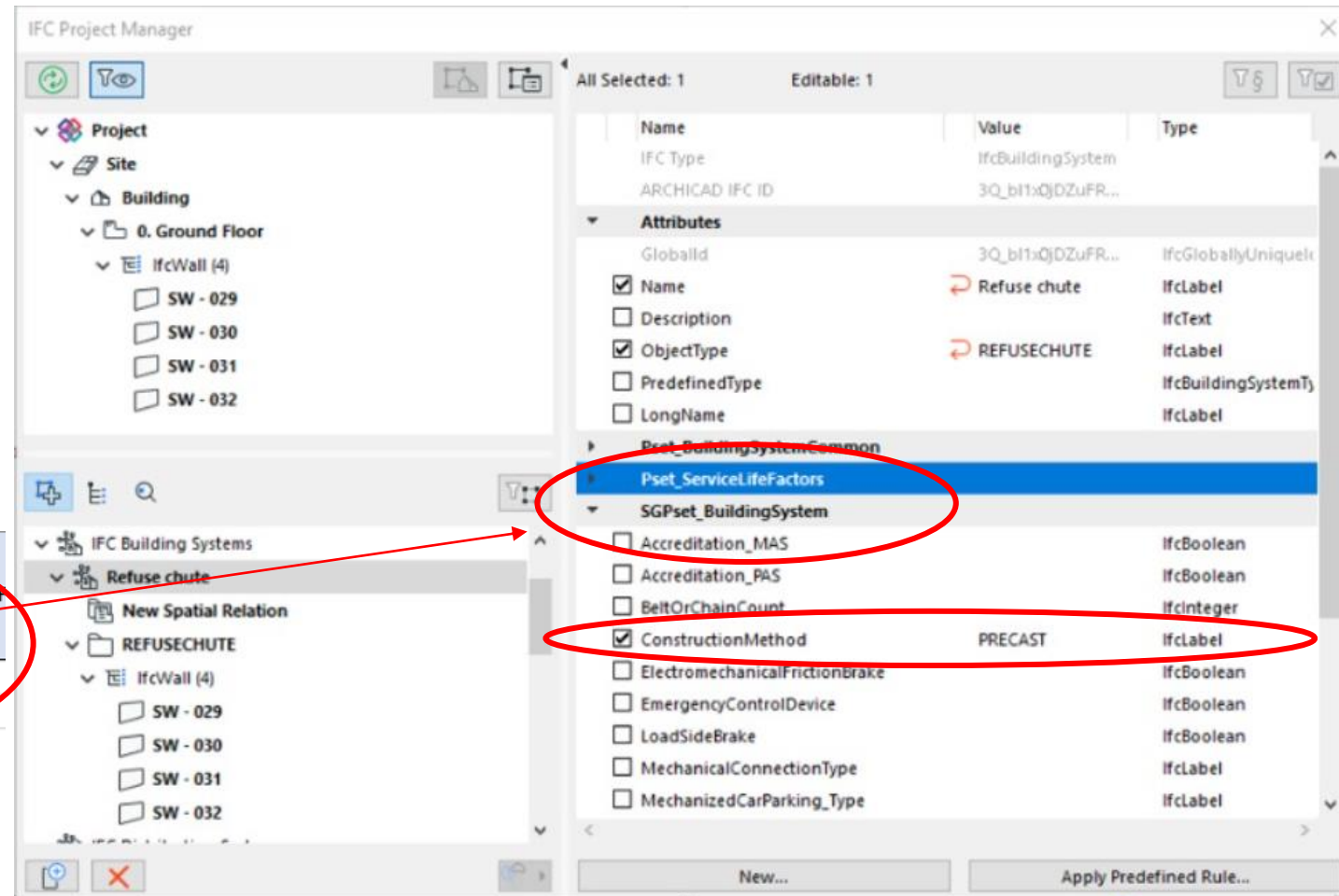


Preparing your model after adding the Archicad Configuration File

OBSERVATION:

2. Verify object/elements Properties

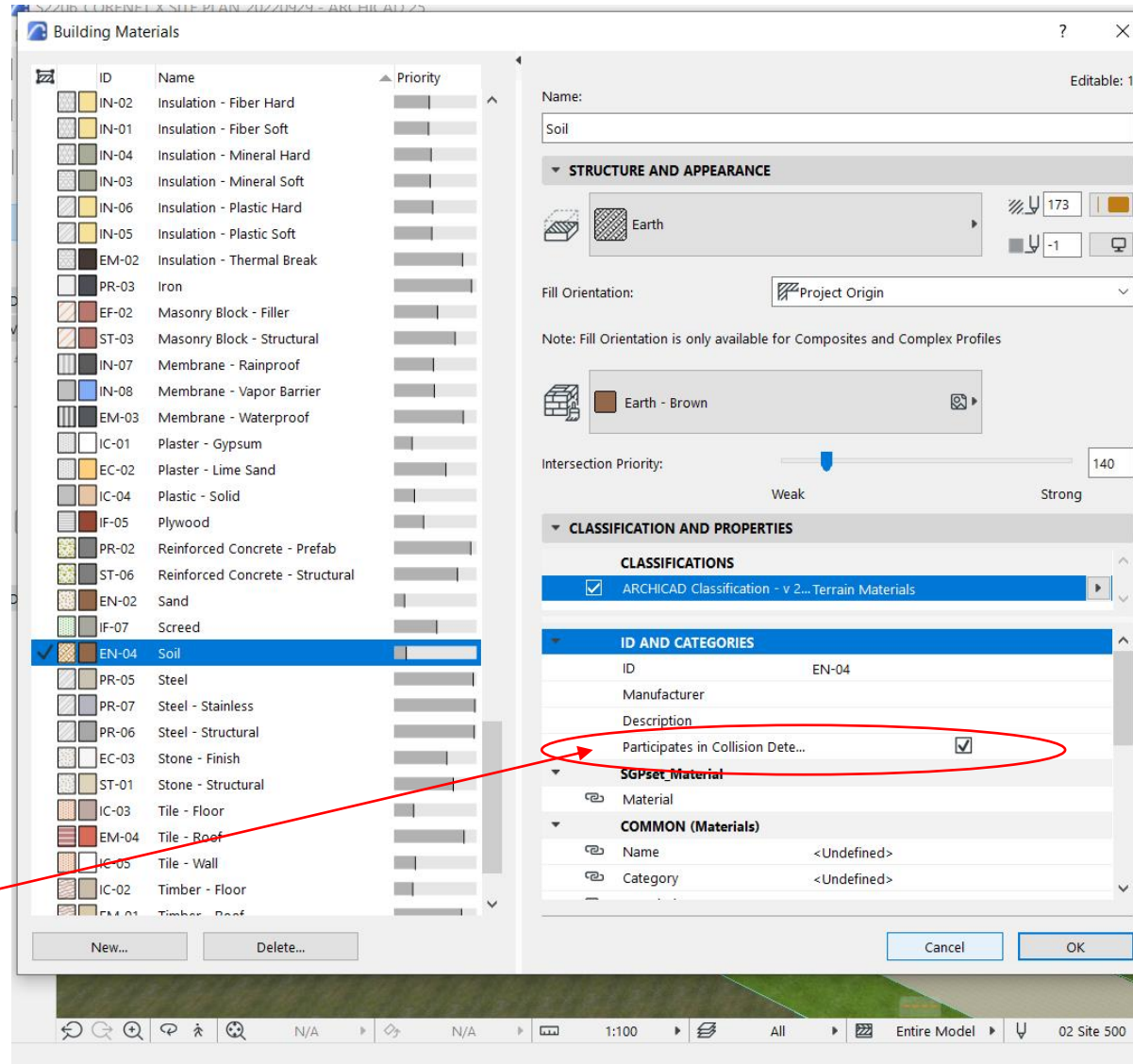
IFC4 Entities	IFC SubTypes (* = USERDEFINED)	Property Set	Property Name
IfcBuildingSystem	*REFUSECHUTE	SGPset_BuildingSystem	ConstructionMethod
IfcWall	*REFUSECHUTE	-	-



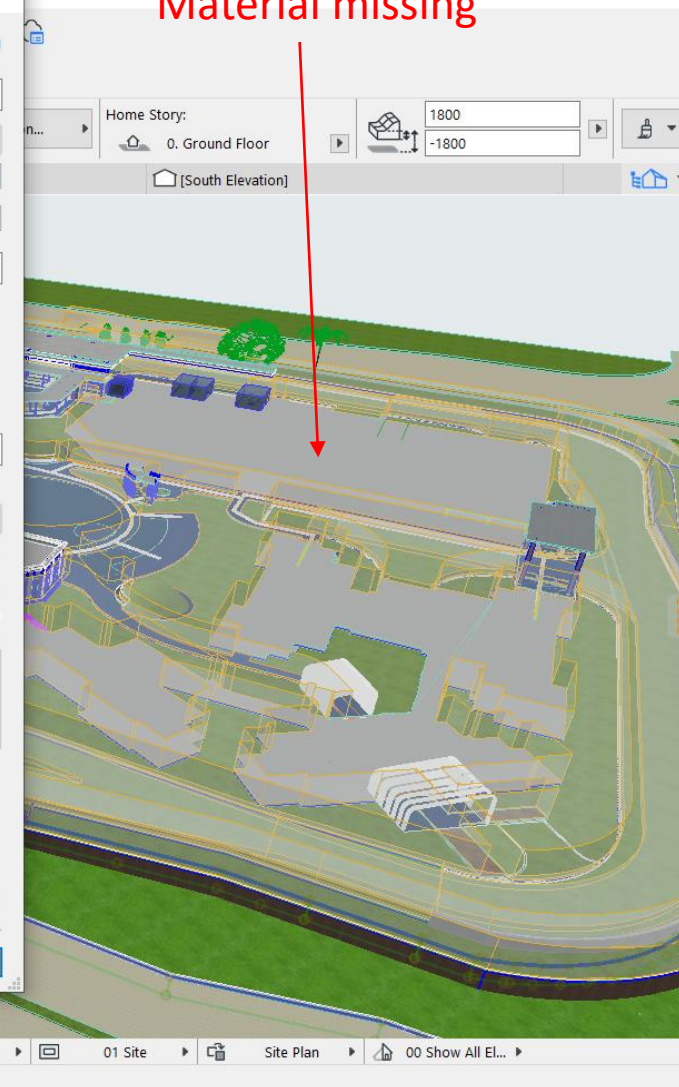
Preparing your model after adding the Archicad Configuration File

OBSERVATION:

3. Building Material missing in the Exported IFC



Material missing



Need to check the materials that are required to be included in the IFC

Innovation

Archicad drop down feature:
Eg: Architecture Buildability Score

The image shows the 'Wall Selection Settings' dialog box in Archicad. The left sidebar contains a tree view with categories: GEOMETRY AND POSITIONING, PROFILE OFFSET MODIFIERS, FLOOR PLAN AND SECTION, FLOOR PLAN DISPLAY, CUT SURFACES, MODEL, STRUCTURAL ANALYTICAL PAR, and CLASSIFICATION AND PROPERT. Under 'CLASSIFICATION AND PROPERT', there are two checked items: 'ARCHICAD Classification - v 2...' and 'IFC-SG - Spatial and External c...'. At the bottom of the sidebar, a red box highlights the 'ARCH | BUILDABILITY SCORE' category, which is expanded to show 'Description and LSI'. The main panel on the right lists various wall types with their associated values. A blue checkmark is visible next to 'Precast Concrete Wall with Skim Coat | 0.90'. The list includes sections for 'Mandatory Items', 'CW / Glass Partition / Drywall', 'Precast Concrete Wall', 'Lightweight Concrete Panel', 'Cast-In-Situ RC Wall', 'Precision Blockwall', and 'Brickwall / Blockwall'. The bottom of the dialog has a 'Set this value o' button.

Wall Type	Value
----- Mandatory Items -----	
Drywall Partition for Internal Dry Areas (Exclude Party Wall/Toilet Wall/Kitchen Wall)	1.00
Drywall Partition for Internal Dry Areas (Exclude Party Wall/Toilet Wall/Kitchen Wall) - undefined	
----- CW / Glass Partition / Drywall -----	
Curtain Wall / Full Height Glass Partition	1.00
Prefabricated Railing	1.00
Drywall Partition with Skim Coat	1.00
Drywall Partition with Skim Coat - undefined	
Drywall Partition with Tile/Stone Finishes	0.90
Drywall Partition with Tile/Stone Finishes - undefined	
----- Precast Concrete Wall -----	
Precast Concrete Wall Off-form (External Walls and Columns only)	1.00
<input checked="" type="checkbox"/> Precast Concrete Wall with Skim Coat	0.90
Precast Concrete Wall with Plastering, Tile/Stone Finishes	0.60
----- Lightweight Concrete Panel -----	
Lightweight Concrete Panel with Skim Coat	0.85
Lightweight Concrete Panel with Plastering, Tile/Stone Finishes	0.55
----- Cast-In-Situ RC Wall -----	
Cast-In-Situ RC Wall Off-form (External Walls and Columns only)	0.95
Cast-In-Situ RC Wall with Skim Coat	0.80
Cast-In-Situ RC Wall with Plastering, Tile/Stone Finishes	0.55
----- Precision Blockwall -----	
Precision Blockwall with Skim Coat	0.30
Precision Blockwall with Plastering, Tile/Stone Finishes	0.10
----- Brickwall / Blockwall -----	
Brickwall/Blockwall with or without Plastering	-
Precast Concrete wall with Skim Coat	0.90

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

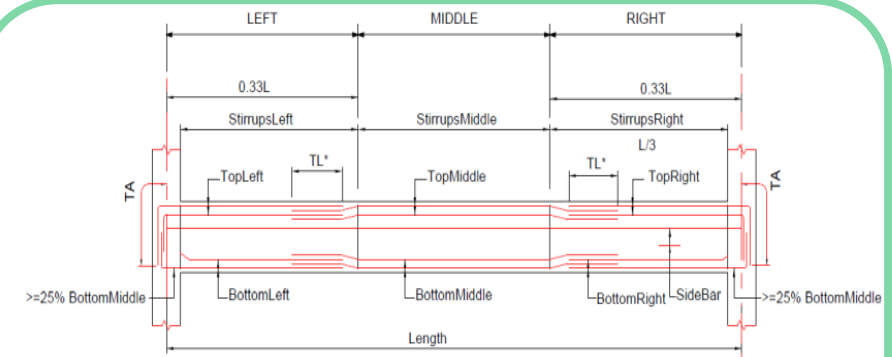
DRAFT

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

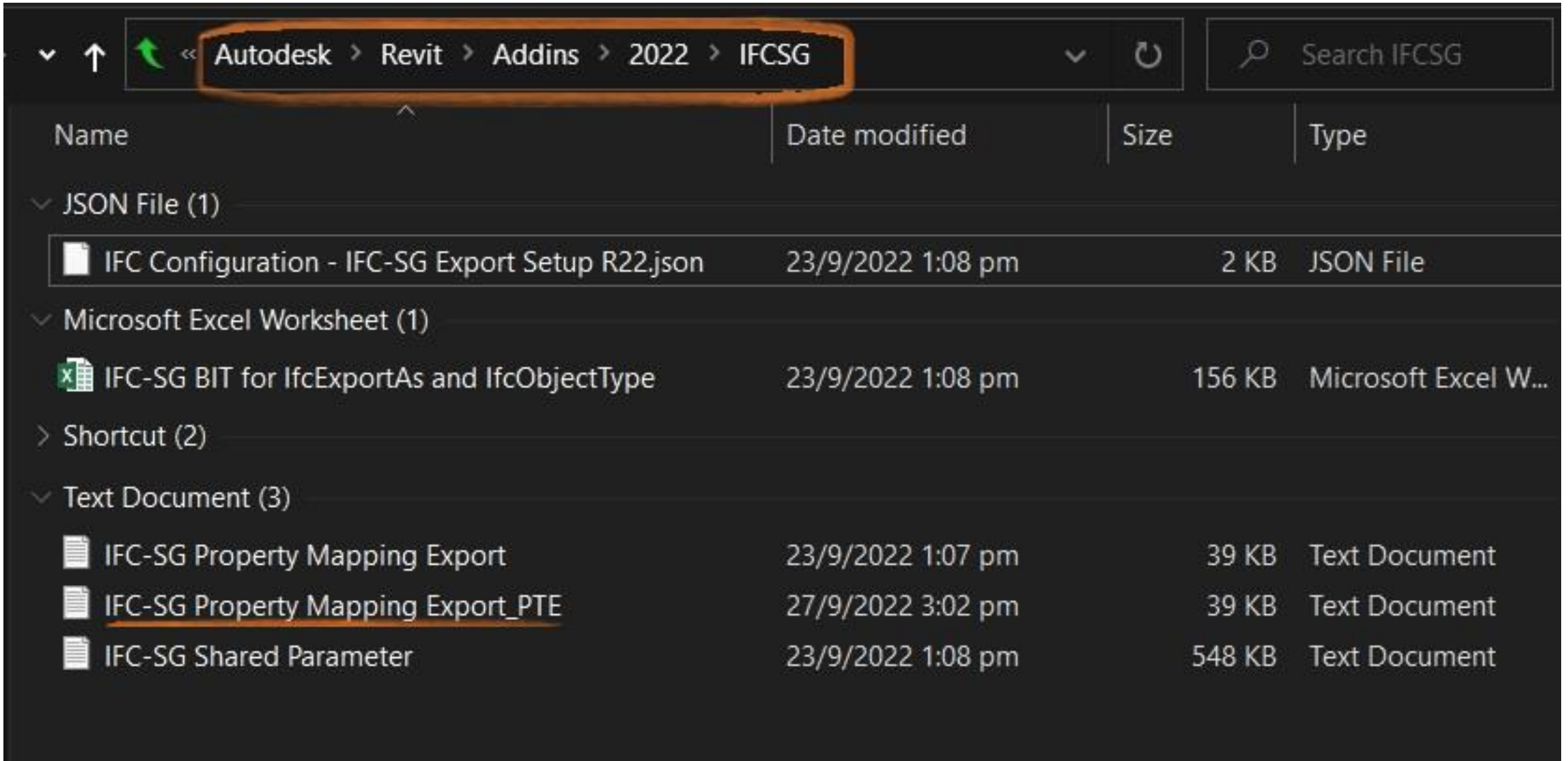


Changelog Revit Export.txt



IFC-SG Property Mapping Export.txt

Revit IFC-SG Setup Files



Autodesk > Revit > Addins > 2022 > IFCSG

Name	Date modified	Size	Type
JSON File (1)			
IFC Configuration - IFC-SG Export Setup R22.json	23/9/2022 1:08 pm	2 KB	JSON File
Microsoft Excel Worksheet (1)			
IFC-SG BIT for IfcExportAs and IfcObjectType	23/9/2022 1:08 pm	156 KB	Microsoft Excel W...
Shortcut (2)			
Text Document (3)			
IFC-SG Property Mapping Export	23/9/2022 1:07 pm	39 KB	Text Document
<u>IFC-SG Property Mapping Export_PTE</u>	27/9/2022 3:02 pm	39 KB	Text Document
IFC-SG Shared Parameter	23/9/2022 1:08 pm	548 KB	Text Document

IFC-SG Property Mapping Export

IFC-SG Property Mapping Export_PTE.txt

(modified from original)

**IN-HOUSE REVIT FAMILY
PARAMETERS**

REVIT BUILT-IN PARAMETERS

74				
75	PropertySet:	SGPset_BeamDimension	I	IfcBeam
76	Breadth	Length		
77	Depth	Length	BeamDepth	
78	Mark	Label		
79	MemberSection	label	Section Shape	
80	Width	Length	BeamWidth	
81				

813				
814	PropertySet:	SGPset_FootingDimension	I	IfcFooting
815	Breadth	Length		
816	Depth	Length	Foundation Thickness	
817	Width	Length		
818	Mark	Label		
819				

1861				
1862	PropertySet:	SGPset_WallDimension	I	IfcWall
1863	Height	Length		
1864	Length	Length		
1865	Mark	Label		
1866	Thickness	Length	Width	
1867	TypeMark	Label		
1868				

IFC-SG Property Mapping Export

IFC-SG Property Mapping Export_PTE.txt

(modified from original)

The screenshot shows a text comparison tool with two panes. The left pane, labeled 'NEW', contains the following text:

```
62 CharacteristicPTTendonStrength Label
63 Combustible Boolean
64 ConstructionMethod Label
65 ExternalReference Label
66 MechanicalConnectionType Label
67 PrestressForce Label
68 ReinforcementSteelGrade Label
69 SectionFabricationMethod Label
70 ReferTo2DDetail Boolean
71 ReferToDrawingNumber Label
72
73
74
75 PropertySet: SGPset_BeamDimension I IfcBeam
76 Breadth Length
77 Depth Length
78 Mark Label
79 MemberSection label
80 Width Length
81
82
83
84 PropertySet: SGPset_BeamReinforcement I IfcBeam
85 AsRequiredBottomLeft Label
```

The right pane, labeled 'EXISTING', contains the following text:

```
56 CharacteristicPTTendonStrength Label
57 Combustible Boolean
58 ConstructionMethod Label
59 MechanicalConnectionType Label
60 PrestressForce Label
61 ReinforcementSteelGrade Label
62 SectionFabricationMethod Label
63
64
65
66 PropertySet: SGPset_BeamDimension I IfcBeam
67 Depth Length BeamDepth
68 Height Length
69 Length Length
70 Mark Label
71 MemberSection label Section Shape
72 Width Length BeamWidth
73
74
75
76 PropertySet: SGPset_BeamReinforcement I Beam
77 AsRequiredBottomLeft Label
```

<https://text-compare.com/>

IFC-SG Element Classification

IFC-SG BIT for IfcExportAs and IfcObjectType.xlsx

IFC-SG BIT for IfcExportAs and IfcObjectType - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do...

B1 IFC-SG ObjectType

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
8	IFC-SG Identified Component	IFC-SG ObjectType
9	IfcBuildingElement	IfcBuildingElement
10	IfcAlarm	IfcAlarm
11	Home Fire Alarm Device	HOMEFIREALARMDEVICE
12	Visual Indicator	VISUALINDICATOR
13	IfcAudioVisualAppliance	IfcAudioVisualAppliance
14	Loudspeaker	LOUDSPEAKER
15	IfcBeam	IfcBeam
16	PT Beam	PRESTRESSED_BEAM

filter by beam category for IfcObjectType parameter

beam

- (Select All Search Results)
- Add current selection to filter
- BEAMFACADEWALL
- IfcBeam
- PRESTRESSED_BEAM

OK Cancel

IfcObjectType

IFC-SG BIT for IfcExportAs and IfcObjectType - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do...

B2 IFC Class Mappings 4.1

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
8	IFC Class Mappings 4.1	Version 4 Addendum 1
9	A	IfcBuildingElement
10	A1	IfcBeam
11	A1.1	IfcBeamType.BEAM
12	A1.2	IfcBeamType.JOIST
13	A1.3	IfcBeamType.HOLLOWCORE
14	A1.4	IfcBeamType.LINTEL
15	A1.5	IfcBeamType.SPANDREL
16	A1.6	IfcBeamType.T_TBEAM
17	A1.7	IfcBeamType.USERDEFINED
18	A1.8	IfcBeamType.NOTDEFINED
19	A2	IfcBuildingElementProxy
20	A2.1	IfcBuildingElementProxyType.PROVISIONAL
21	A2.2	IfcBuildingElementProxyType.USERDEFINED
22	A2.3	IfcBuildingElementProxyType.NOTDEFINED
23	A2.4	IfcBuildingElementProxyType.PROVISIONAL
24	A2.5	IfcBuildingElementProxyType.USERDEFINED
25	A2.6	IfcBuildingElementProxyType.NOTDEFINED
26	A3	IfcChimney
27	A3.1	IfcChimneyType.USERDEFINED

filter Beam category for IfcExportAs parameter

beam

- (Select All Search Results)
- Add current selection to filter
- IfcBeam
- IfcBeamType.BEAM
- IfcBeamType.HOLLOWCORE
- IfcBeamType.JOIST
- IfcBeamType.LINTEL
- IfcBeamType.NOTDEFINED
- IfcBeamType.SPANDREL
- IfcBeamType.T_TBEAM
- IfcBeamType.USERDEFINED
- IfcBuildingElementProxy
- IfcCooledBeamType.USERDEFINED
- IfcElementAssemblyType.BEAM_GRID
- IfcFootingType.FOOTING_BEAM

OK Cancel

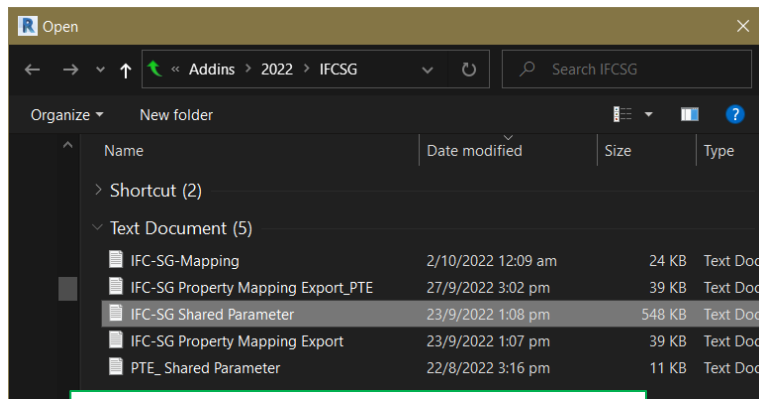
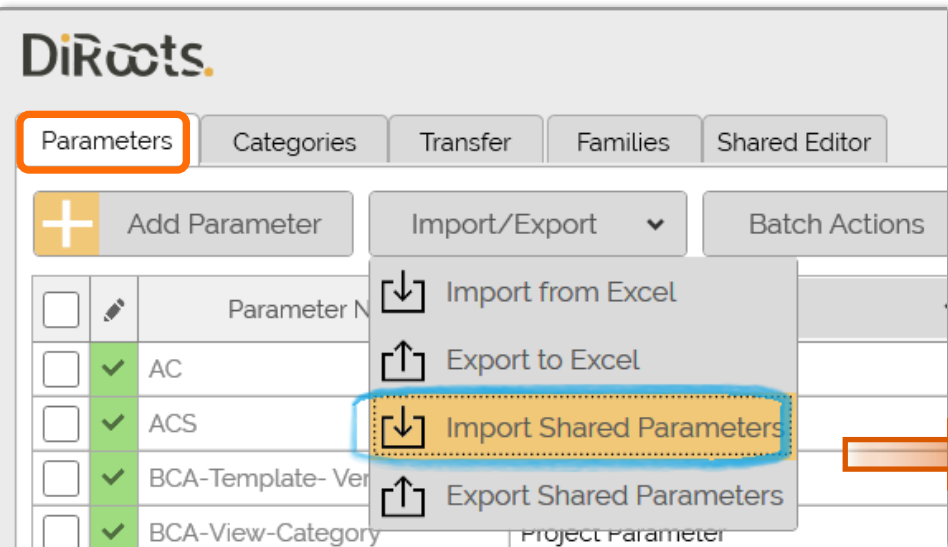
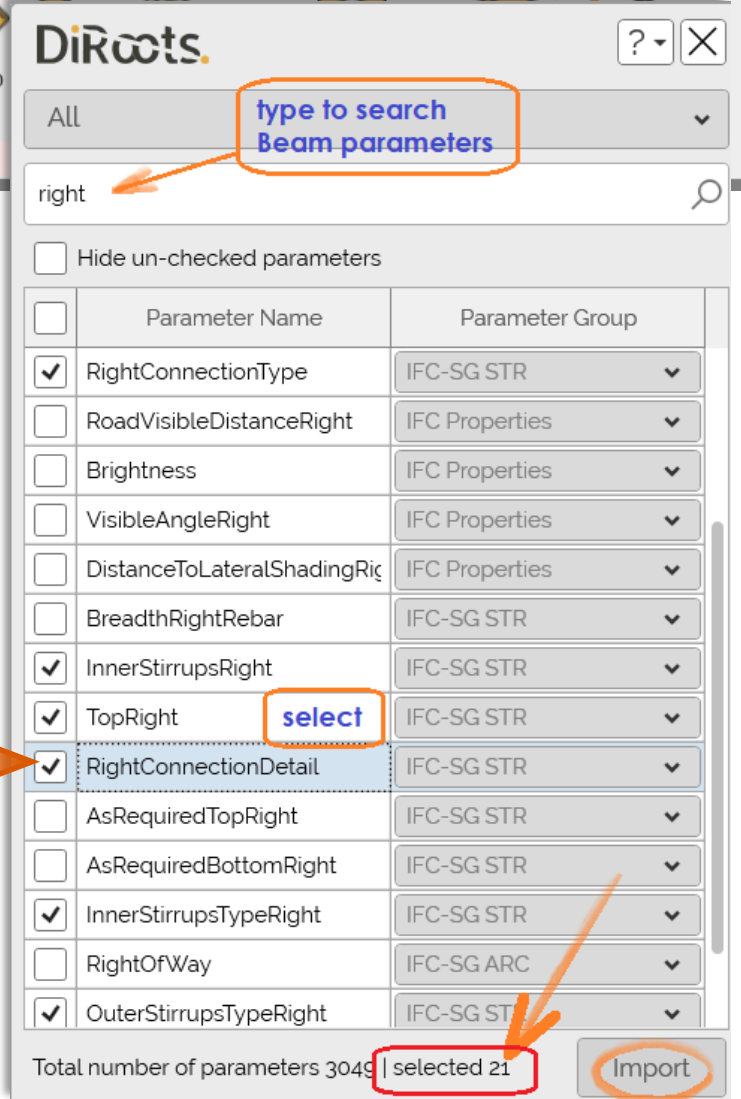
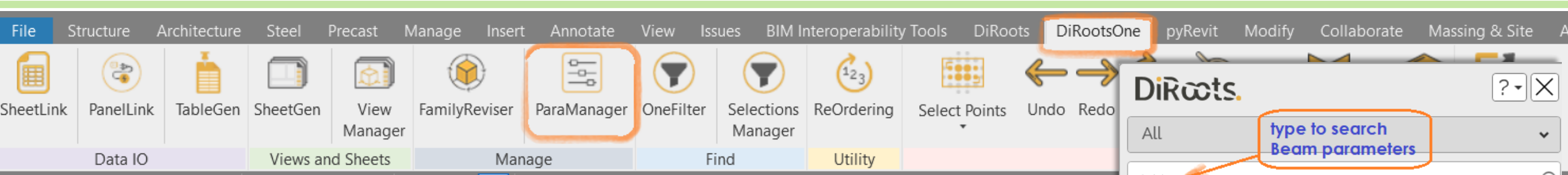
IfcExportAs

STRUCTURAL IFC-SG MODEL FOR SUBMISSION



Excel

IMPORTING IFC-SG Shared Parameter

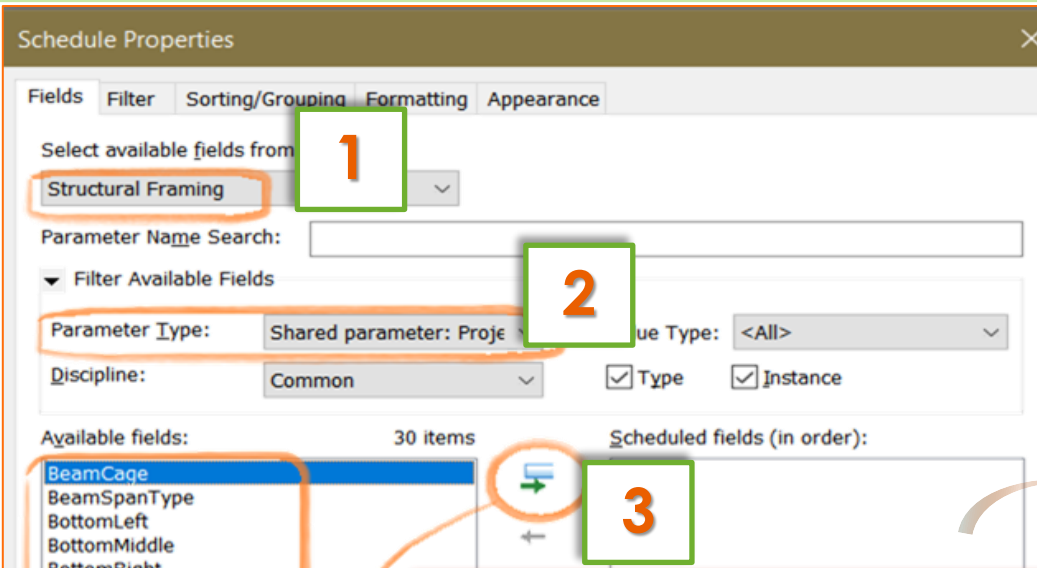


BROWSE TO SELECT & OPEN THE IFC-SG SHARED PARAMETER FILE

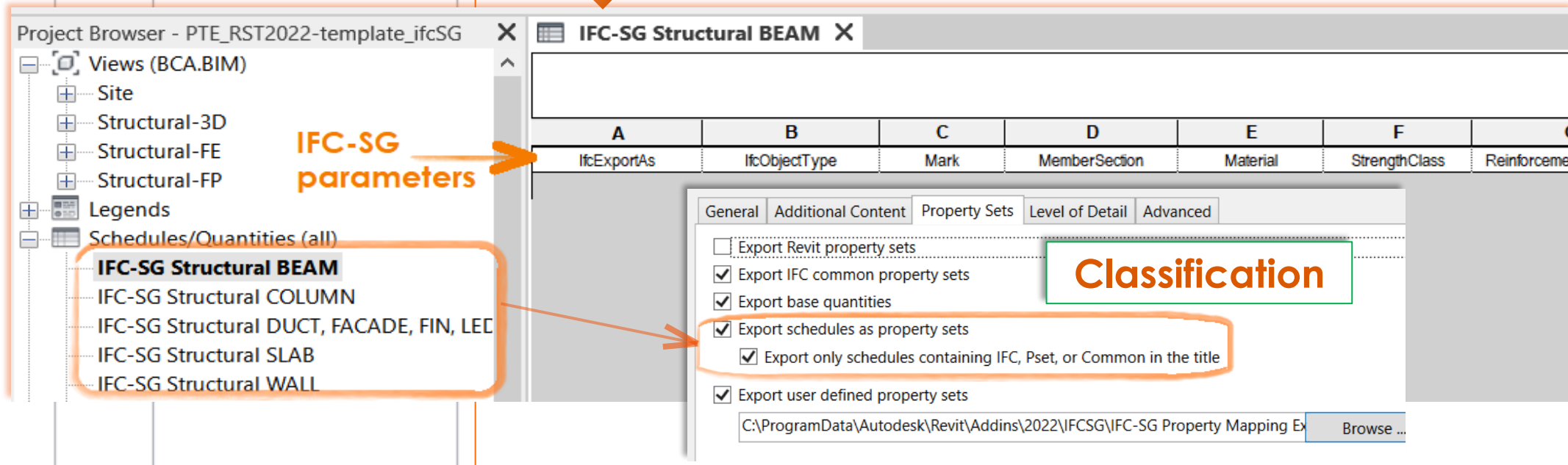
<https://diroots.com/tutorials/dirootsone/paramanager-revit-add-in-tutorials/>

<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

MemberSection

Material

StrengthClass

ReinforcementSteelGrade

SteelGrade

SteelFabricationMet

Schedule Properties

Fields Filter Sorting/Grouping Formatting Appearance

Fields:

- Family and Type
- IfcExportAs
- IfcObjectType
- Mark
- PTE_MEMBER ID PREFIX
- PTE_MEMBER ID
- PTE_MEMBER ID SUFFIX
- Type
- Section Shape
- Material
- StrengthClass
- ReinforcementSt
- SteelGrade
- SteelFabricationMethod
- ConstructionMethod
- BeamSpanType
- TopLeft
- TopMiddle
- TopRight
- BottomLeft
- BottomMiddle
- BottomRight
- OuterStirrupsLeft
- InnerStirrupsLeft
- OuterStirrupsTypeLeft
- InnerStirrupsTypeLeft
- OuterStirrupsMiddle
- InnerStirrupsMiddle
- OuterStirrupsTypeMiddle
- InnerStirrupsTypeMiddle
- OuterStirrupsRight
- InnerStirrupsRight
- OuterStirrupsTypeRight
- InnerStirrupsTypeRight
- BeamCage
- SideBar
- LeftConnectionType
- LeftConnectionDetail
- RightConnectionType
- RightConnectionDetail

Heading: MemberSection

Heading orientation: Horizontal

Alignment: Center

Field Format...

Conditional Format...

Hidden field

Show conditional format on sheets

No calculation

Multiple values indication

- Use project settings
- Display as <varies>

BUILT-IN Parameter

IFC-SG Parameter

Schedule Properties

Fields Filter Sorting/Grouping Formatting Appearance

Select available fields from: Structural Framing

Parameter Name Search:

Filter Available Fields

Available fields: 81 items

Scheduled fields (in order):

- Family and Type
- IfcExportAs
- IfcObjectType
- Mark
- PTE_MEMBER ID PREFIX
- PTE_MEMBER ID
- PTE_MEMBER ID SUFFIX
- Type
- Section Shape
- Material
- StrengthClass
- ReinforcementSteelGrade
- SteelGrade
- SteelFabricationMethod
- ConstructionMethod
- BeamSpanType
- TopLeft
- TopMiddle
- TopRight
- BottomLeft
- BottomMiddle
- BottomRight
- OuterStirrupsLeft
- InnerStirrupsLeft
- OuterStirrupsTypeLeft
- InnerStirrupsTypeLeft
- OuterStirrupsMiddle
- InnerStirrupsMiddle
- OuterStirrupsTypeMiddle
- InnerStirrupsTypeMiddle
- OuterStirrupsRight
- InnerStirrupsRight
- OuterStirrupsTypeRight
- InnerStirrupsTypeRight
- BeamCage
- SideBar
- LeftConnectionType
- LeftConnectionDetail
- RightConnectionType
- RightConnectionDetail

Combine Parameters

Select two or more parameters to combine their values. The values for combined parameters are read-only in schedules.

Parameter Type: Structural Framing

Combined Parameter: Mark

Schedule Parameters:

Name	Prefix	Sample	Suffix	Separator
PTE_MEMBER ID PREFIX		PTE_MEM		
PTE_MEMBER ID		PTE_MEM		
PTE_MEMBER ID SUFFIX		PTE_MEM		

Combined Parameter:

Preview of value: PTE_MEMBER ID PREFIXPTE_MEMBER IDPTE_MEMBER ID SUF

OK Cancel

IN-HOUSE Parameter

IFC-SG Parameter

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

Project Browser - SE1411_S1_875B_FDN

Views (BCA.BIM)

- Structural-3D
- Structural-FE
 - Elevation: ST_FE_East Elevation
 - Elevation: ST_FE_North Elevation
 - Elevation: ST_FE_South Elevation
 - Elevation: ST_FE_West Elevation
- Structural-FP
- Legends
- Schedules/Quantities (all)
 - IFC Structural BORED-PILE Schedule**
 - IFC Structural PILE CAP Schedule
 - WORKING_Structural BORED-PILE Schedule
 - WORKING_Structural PILE CAP Schedule

IFC Structural BORED-PILE Sched...

A	B	C	D	E	F	G	H	I	J	K	L	M	N
IfcExportAs	IfcObjectType	PileGroupMark	Mark	Diameter	BoreholeRef	Material	StrengthClass	ReinforcementSteelGrade	ConstructionMethod	PileType	Length	HeadLevel	ToeLevel
IfcPileType.BORED	IfcPileType	G1	P1E	1000	BH3	Concrete	C32/40	500	Bored Pile	CIS	24300	10.75	-13.55
IfcPileType.BORED	IfcPileType	G2	P1C	800	BH3	Concrete	C32/40	500	Bored Pile	CIS	20500	10.35	-10.15
IfcPileType.BORED	IfcPileType	G2	P2C	800	BH3	Concrete	C32/40	500	Bored Pile	CIS	20500	10.35	-10.15
IfcPileType.BORED	IfcPileType	G3	P1C	800	BH3	Concrete	C32/40	500	Bored Pile	CIS	20500	10.35	-10.15
IfcPileType.BORED	IfcPileType	G3	P2C	800	BH3	Concrete	C32/40	500	Bored Pile	CIS	20500	10.35	-10.15
IfcPileType.BORED	IfcPileType	G4	P1E	1000	BH3	Concrete	C32/40	500	Bored Pile	CIS	24300	10.75	-13.55
IfcPileType.BORED	IfcPileType	G5	P1E	1000	BH3	Concrete	C32/40	500	Bored Pile	CIS	24300	10.75	-13.55
IfcPileType.BORED	IfcPileType	G6	P1C	800	BH3	Concrete	C32/40	500	Bored Pile	CIS	20500	10.35	-10.15
IfcPileType.BORED	IfcPileType	G6	P2C	800	BH3	Concrete	C32/40	500	Bored Pile	CIS	20500	10.35	-10.15
IfcPileType.BORED	IfcPileType	G7	P1C	800	BH3	Concrete	C32/40	500	Bored Pile	CIS	20500	10.35	-10.15

Project Browser - SE1411_S1_875B_...

Views (BCA.BIM)

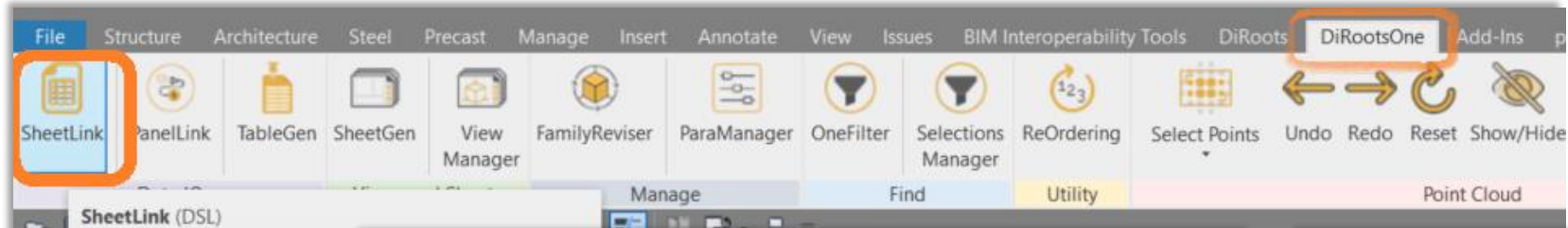
- Structural-3D
- Structural-FE
- Structural-FP
- Structural-FX
- Legends
- Schedules/Quantities (all)
 - IFC Structural BEAM**
 - IFC Structural COLUMN
 - IFC Structural DUCT, FACADE
 - IFC Structural SLAB
 - IFC Structural WALL

IFC Structural BEAM

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
IfcExportAs	IfcObjectType	Mark	Width x Depth	MemberSection	Material	StrengthClass	ReinforcementSteelGrade	ConstructionMethod	BeamSpanType	TopLeft	TopMiddle	TopRight	BottomLeft	BottomMiddle
IfcBeamType.BEAM	IfcBeamType	PT401	(300x500)	Rectangle	Concrete	C32/40	500	PC	SINGLE	3H16	3H16	3H16	3H20	3H20
IfcBeamType.BEAM	IfcBeamType	PT401	(300x500)	Rectangle	Concrete	C32/40	500	PC	SINGLE	3H16	3H16	3H16	3H20	3H20
IfcBeamType.BEAM	IfcBeamType	PT402	(300x500)	Rectangle	Concrete	C32/40	500	PC	SINGLE	3H16	3H16	3H16	3H25	3H25
IfcBeamType.BEAM	IfcBeamType	PT402	(300x500)	Rectangle	Concrete	C32/40	500	PC	SINGLE	3H16	3H16	3H16	3H25	3H25
IfcBeamType.BEAM	IfcBeamType	PT403	(300x500)	Rectangle	Concrete	C32/40	500	PC	SINGLE	3H20	3H20	3H20	3H20	3H20
IfcBeamType.BEAM	IfcBeamType	PT403	(300x500)	Rectangle	Concrete	C32/40	500	PC	SINGLE	3H20	3H20	3H20	3H20	3H20
IfcBeamType.BEAM	IfcBeamType	PT405	(250x480)	Rectangle	Concrete	C32/40	500	PBU	SINGLE	2H20	2H20	2H20	2H25+2H20	2H25+2H20
IfcBeamType.BEAM	IfcBeamType	PT405	(250x480)	Rectangle	Concrete	C32/40	500	PBU	SINGLE	2H20	2H20	2H20	2H25+2H20	2H25+2H20

-  [Automatic] DEFAULT PARAMETER VALUES - ADDED INTO REVIT FAMILY (RFA)
-  [Manual] PROJECT SPECIFIC PARAMETER VALUES - IMPORTED FROM EXCEL

IFC-SG Workflow



The DiRoots SheetLink 111.0 application window is shown. It features a 'Select Schedules' list on the left with 'IFC-SG Structural BEAM' selected. A 'Parameters' list on the right shows 'Instance.Type.Read-only'. An 'Export Options' dialog is open, with 'Open Excel File After Export' checked. The dialog has 'Export to Google' and 'Export to Excel' buttons. At the bottom, there are 'Reset', 'Preview/Edit', 'Import', and 'Export' buttons.

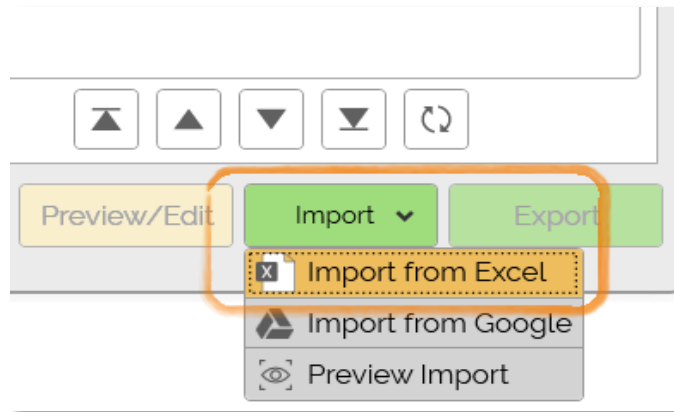
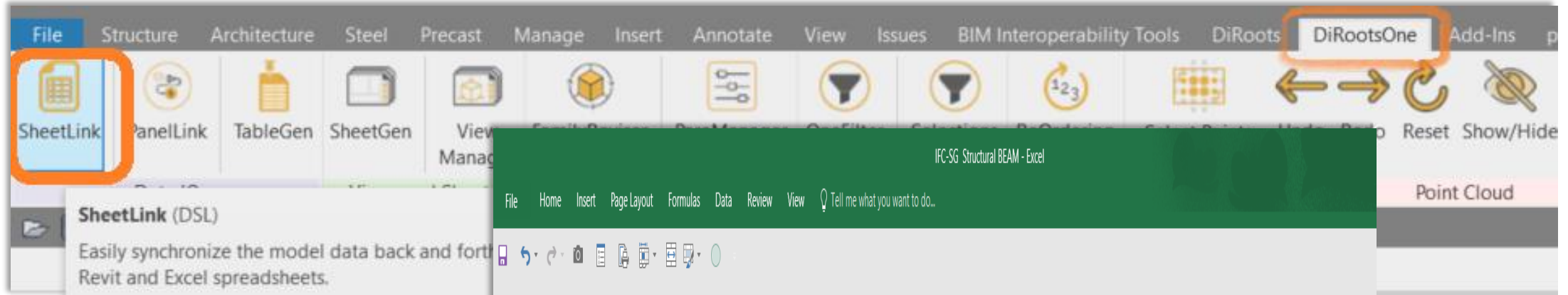
USE DIROOTS-SHEETLINK EXPORT IFC-SG SCHEDULES TO EXCEL

The Excel spreadsheet displays a table of IFC-SG Structural BEAM data. The table has columns for Instance, IFC Object Type, Width x Depth, Member Section, Material, Strength Class, Reinforcement Steel Grade, Steel Grade, Steel Fabrication Method, Construction Method, Beam Span Type, Top Left, Top Middle, Top Right, Bottom Left, and Bottom Middle. The data rows show various beam instances with their respective parameters.

Instance	IFC Object Type	Width x Depth	Member Section	Material	Strength Class	Reinforcement Steel Grade	Steel Grade	Steel Fabrication Method	Construction Method	Beam Span Type	Top Left	Top Middle	Top Right	Bottom Left	Bottom Middle
23	IFCBeamType.BEAM	PLT1	(200x400)	Rectangle	Concrete	C30/40	500		PC						
24	IFCBeamType.BEAM	PLT2	(200x400)	Rectangle	Concrete	C30/40	500		PC						
25	IFCBeamType.BEAM	PLT8	(200x450)	Rectangle	Concrete	C30/40	500		PC						
26	IFCBeamType.BEAM	PLT18	(250x450)	Rectangle	Concrete	C30/40	500		PC						
27	IFCBeamType.BEAM	PLT10	(200x450)	Rectangle	Concrete	C30/40	500		PC						
28	IFCBeamType.BEAM	PLT16	(200x450)	Rectangle	Concrete	C30/40	500		PC						
29	IFCBeamType.BEAM	PLT11	(200x450)	Rectangle	Concrete	C30/40	500		PC						
30	IFCBeamType.BEAM	PLT22	(250x450)	Rectangle	Concrete	C30/40	500		PC						
31	IFCBeamType.BEAM	PT401	(300x500)	Rectangle	Concrete	C30/40	500		PC						
32	IFCBeamType.BEAM	PT401	(300x500)	Rectangle	Concrete	C30/40	500		PC						
33	IFCBeamType.BEAM	PT402	(300x500)	Rectangle	Concrete	C30/40	500		PC						
34	IFCBeamType.BEAM	PT402	(300x500)	Rectangle	Concrete	C30/40	500		PC						
35	IFCBeamType.BEAM	PT403	(300x500)	Rectangle	Concrete	C30/40	500		PC						
36	IFCBeamType.BEAM	PT403	(300x500)	Rectangle	Concrete	C30/40	500		PC						
37	IFCBeamType.BEAM	PT405	(250x400)	Rectangle	Concrete	C30/40	500		PBU						
38	IFCBeamType.BEAM	PT405	(250x400)	Rectangle	Concrete	C30/40	500		PBU						
39	IFCBeamType.BEAM	PT406	(250x300)	Rectangle	Concrete	C30/40	500		PBU						
40	IFCBeamType.BEAM	PT406	(250x300)	Rectangle	Concrete	C30/40	500		PBU						
41	IFCBeamType.BEAM	PT409	(250x500)	Rectangle	Concrete	C30/40	500		PC						
42	IFCBeamType.BEAM	PT409	(250x500)	Rectangle	Concrete	C30/40	500		PC						
43	IFCBeamType.BEAM	PT413	(250x600)	Rectangle	Concrete	C30/40	500		PC						

FORWARD EXCEL TO DESIGN ENGINEER FOR INPUT

IFC-SG Workflow



**USE DIROOTS-SHEETLINK
IMPORT EXCEL FROM DESIGN ENGINEER**

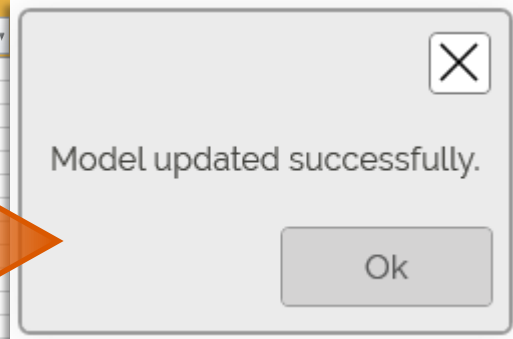
IFC-SG Structural BEAM - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do...

AI : X ✓ fx {"UniquelId":d97ad69e-5de7-4cf9-9adf}

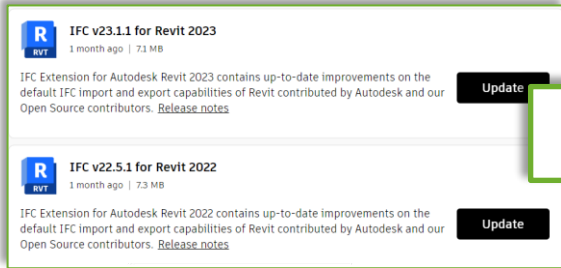
ConstructionMethod	BeamSpanType	TopLeft	TopMiddle	TopRight	BottomLeft	BottomMiddle	BottomRight	OuterStirrupsLeft	InnerStirrupsLeft	OuterStirrupsTypeLeft	InnerStirrupsTypeLeft	OuterStirrupsMiddle	InnerStirrupsMiddle	OuterStirrupsTypeMiddle	InnerStirrupsTypeMiddle
String	String	String	String	String	String	String	String	String	String	String	String	String	String	String	String
Instance	Instance	Instance	Instance	Instance	Instance	Instance	Instance	Instance	Instance	Instance	Instance	Instance	Instance	Instance	Instance
2	CIS	SINGLE	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20
3	CIS	SINGLE	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20
4	CIS	SINGLE	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20
5	CIS	SINGLE	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20
6	CIS	SINGLE	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20
7	CIS	SINGLE	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20
8	CIS	SINGLE	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20	10x20
9	CIS	SINGLE	2x16	2x16	2x16	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
10	CIS	SINGLE	2x16	2x16	2x16	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
11	CIS	SINGLE	2x16	2x16	2x16	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
12	CIS	SINGLE	2x16	2x16	2x16	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
13	CIS	SINGLE	2x25	2x25	2x25	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
14	CIS	END	2x25-2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
15	CIS	SINGLE	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
16	CIS	SINGLE	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
17	CIS	SINGLE	2x25-2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
18	CIS	SINGLE	2x25	2x25	2x25	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
19	CIS	SINGLE	2x25	2x25	2x25	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
20	CIS	SINGLE	2x25	2x25	2x25	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20	2x20
21	CIS	SINGLE	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25
22	CIS	SINGLE	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25
23	PC	SINGLE	2x16	2x16	2x16	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25	2x25

**SCHEDULE UPDATED
WITH IFC-SG PARAMETER VALUES**

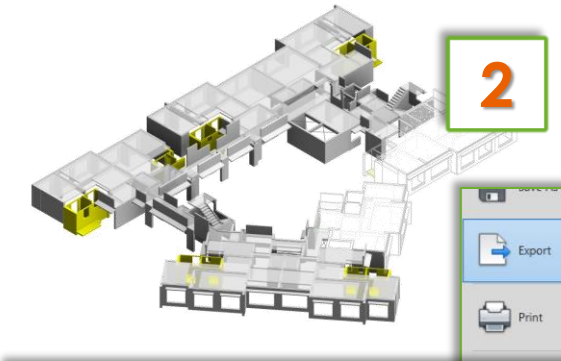


REVIT EXPORT TO IFC-SG MODEL

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



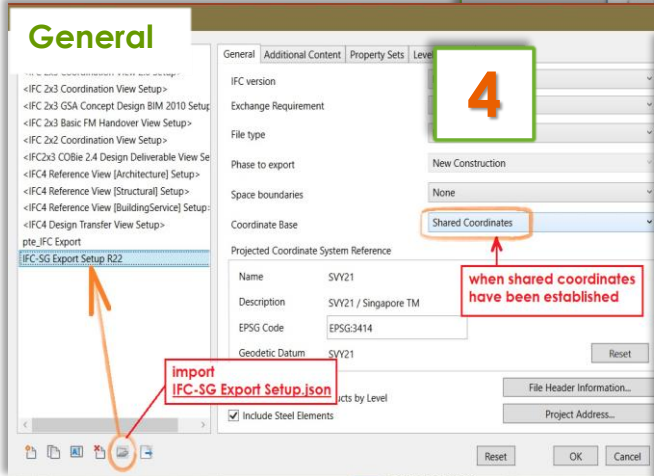
1



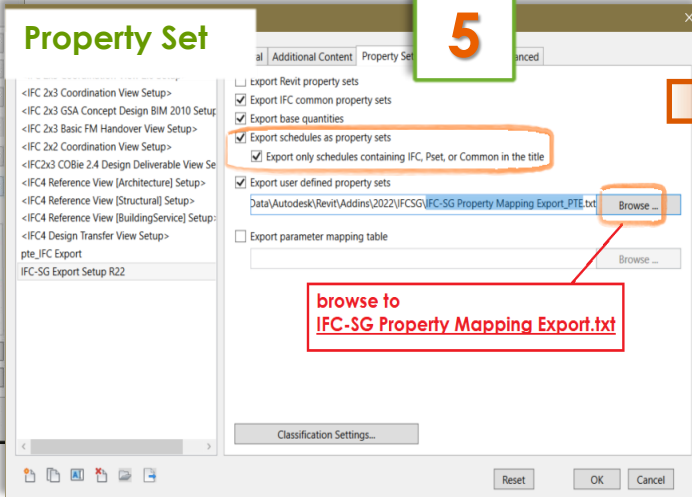
2



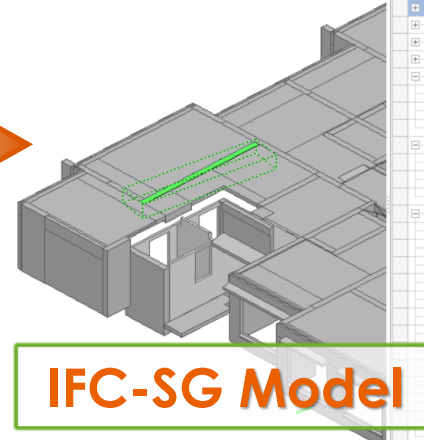
3



4



5



IFC-SG Model

IFC-SG Structural BEAM (Schedule)

Type	Active	Name
IFC-SG Structural BEAM		
Pset_BeamCommon		
Pset_EnvironmentalImpactIndicators		
SGPset_Beam		
SGPset_BeamDimension		
SGPset_BeamReinforcement		
SGPset_ConcreteElementGeneral		
SGPset_Material		

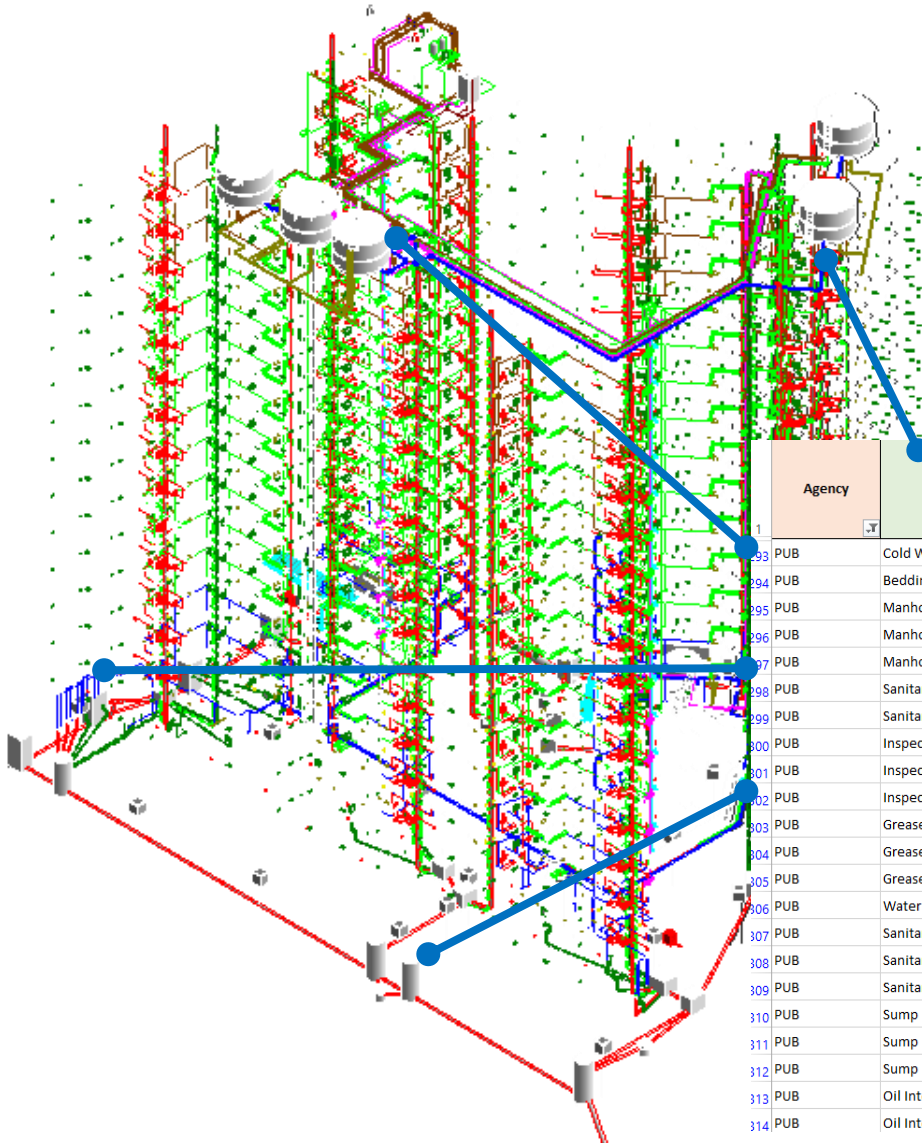
Name	Value
BeamSpanType	SINGLE
BottomLeft	2H25+2H20
BottomMiddle	2H25+2H20
BottomRight	2H25+2H20
ConstructionMethod	CIS
IfcObjectType	IfcBeamType
Mark	
Material	Concrete
MemberSection	31
OuterStirrupsLeft	S115
OuterStirrupsMiddle	S120
OuterStirrupsRight	S115
OuterStirrupsTypeLeft	U-Links
OuterStirrupsTypeMiddle	U-Links
OuterStirrupsTypeRight	U-Links
ReinforcementSteelGrade	500
StrengthClass	C32/40
TopLeft	2H20
TopMiddle	2H20
TopRight	2H20
Width x Depth	(250x500)



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
PUB	Cold Water System	-	Piping Systems	MEP System	PLU	IfcDistributionSystem	*DOMESTICCOLDWATER	-	-
PUB	Bedding	Type	Generic Models	Model Element	ARC	IfcGeographicElement	*FOUNDATION	SGPset_GeographicElement	BeddingType
PUB	Manhole	Length	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	MANHOLE	SGPset_DistributionChamberElementDimension	Length
PUB	Manhole	Width	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	MANHOLE	SGPset_DistributionChamberElementDimension	Width
PUB	Manhole	Depth	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	MANHOLE	SGPset_DistributionChamberElementDimension	Depth
PUB	Sanitary System	-	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	-	-
PUB	Sanitary System	-	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	-	-
PUB	Inspection Chamber	Length	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	INSPECTIONCHAMBER	SGPset_DistributionChamberElementDimension	Length
PUB	Inspection Chamber	Width	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	INSPECTIONCHAMBER	SGPset_DistributionChamberElementDimension	Width
PUB	Inspection Chamber	Depth	Plumbing Fixtures	Flow Equipment	PLU	IfcDistributionChamberElement	INSPECTIONCHAMBER	SGPset_DistributionChamberElementDimension	Depth
PUB	Grease Trap	Height	Plumbing Fixtures	Flow Equipment	PLU	IfcInterceptor	GREASE	SGPset_InterceptorDimension	Height
PUB	Grease Trap	Width	Plumbing Fixtures	Flow Equipment	PLU	IfcInterceptor	GREASE	SGPset_InterceptorDimension	Width
PUB	Grease Trap	Length	Plumbing Fixtures	Flow Equipment	PLU	IfcInterceptor	GREASE	SGPset_InterceptorDimension	Length
PUB	Water Closet	-	Plumbing Fixtures	Pipe Flow Terminal	PLU	IfcSanitaryTerminal	*WATERCLOSET	-	-
PUB	Sanitary System	Gradient	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	SGPset_SystemDimension	Gradient
PUB	Sanitary System	Length	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	SGPset_SystemDimension	Length
PUB	Sanitary System	Diameter	Piping Systems	MEP System	PLU	IfcDistributionSystem	*SANITARY	SGPset_SystemDimension	Diameter
PUB	Sump Pump	Standby Pump	Mechanical Equipment	Flow Equipment	PLU	IfcPump	SUMPPUMP	SGPset_Pump	Standby
PUB	Sump Pump	Duty	Mechanical Equipment	Flow Equipment	PLU	IfcPump	SUMPPUMP	SGPset_Pump	Duty
PUB	Sump Pump	Capacity	Mechanical Equipment	Flow Equipment	PLU	IfcPump	SUMPPUMP	SGPset_Pump	Capacity
PUB	Oil Interceptor	Height	Plumbing Fixtures	Flow Equipment	PLU	IfcInterceptor	OIL	SGPset_InterceptorDimension	Height
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



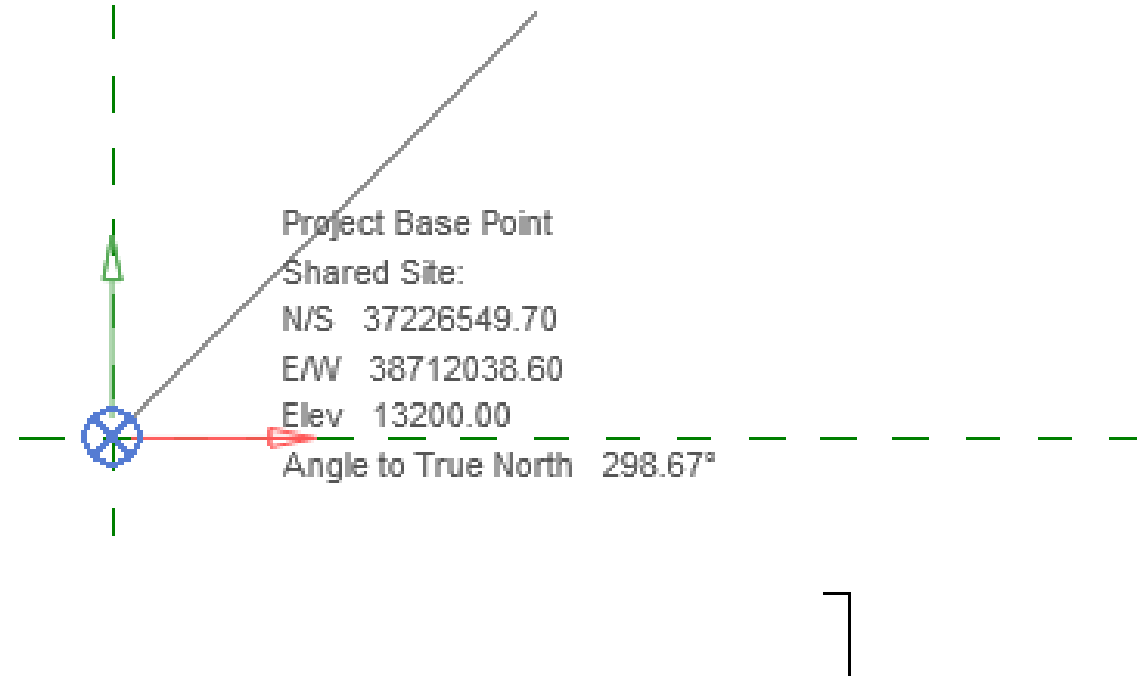
IFC-SG Property Mapping Export.txt

Preparing your model for the Revit Configuration File

WORKFLOW

1. Set your model into the agreed coordinates.

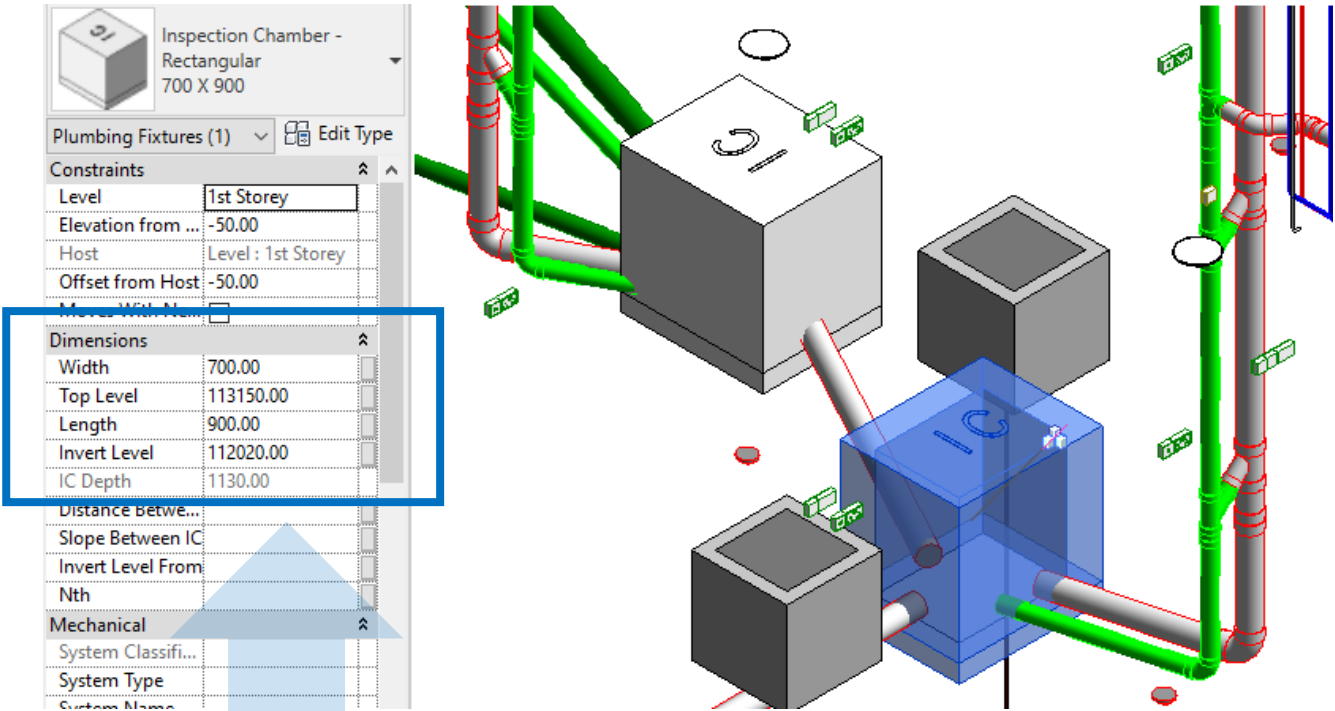
- To place the M&E model into the correct location with Architecture and Structure models.



Preparing your model before adding the Revit Configuration File

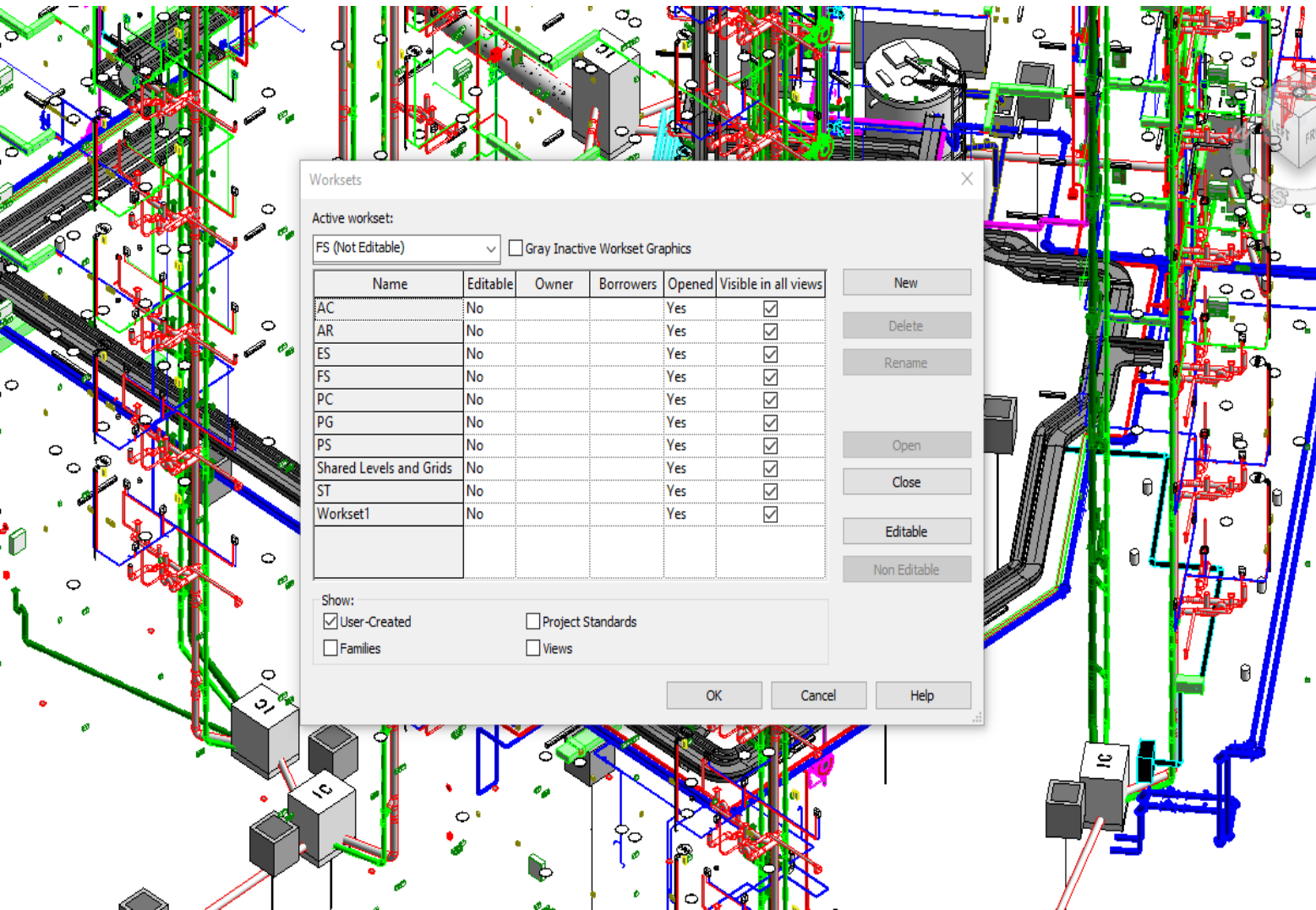
2. Identify the IFC properties to be tagged into each element of your model.

- 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



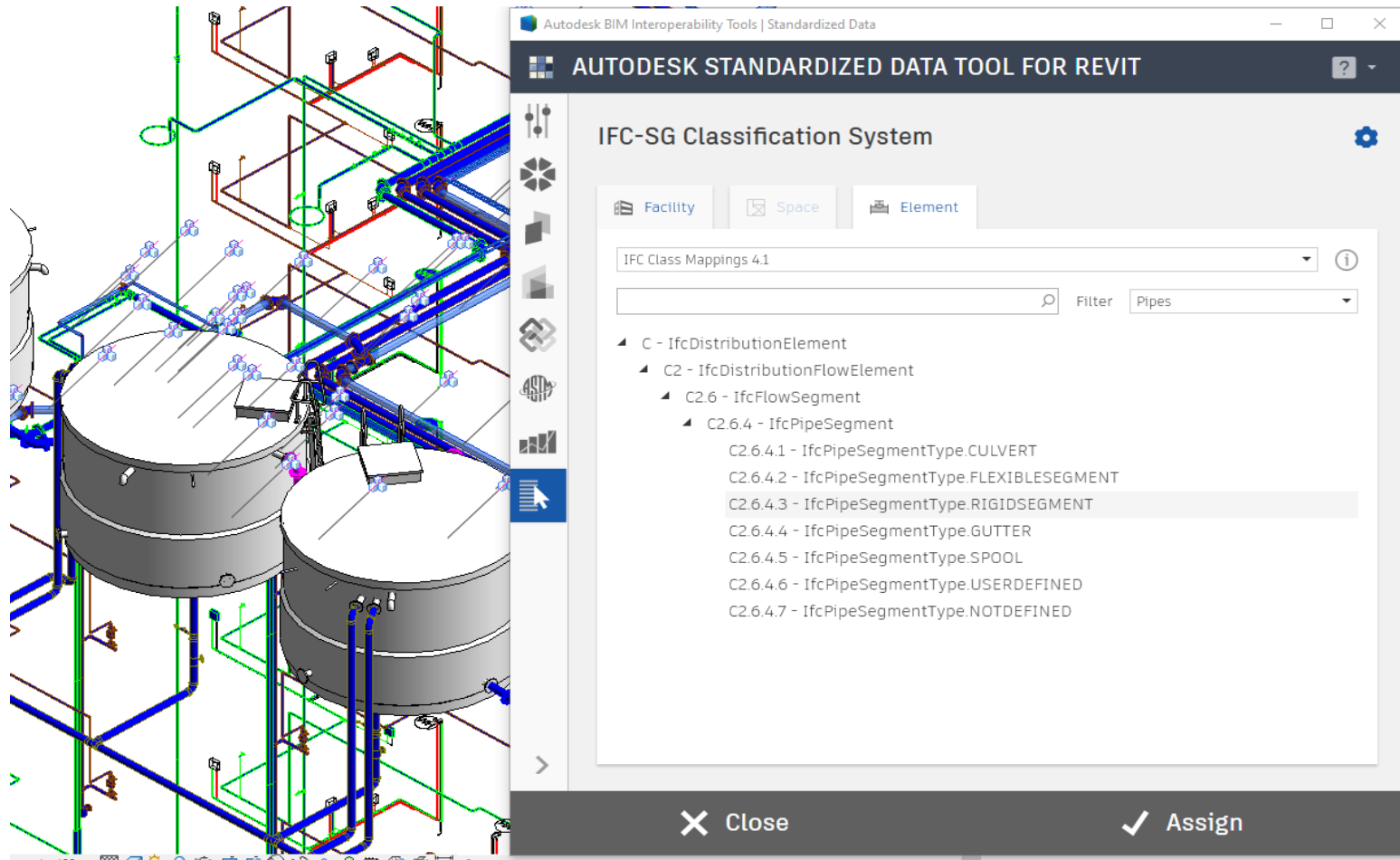
3. Set the Revit Workset.

- 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

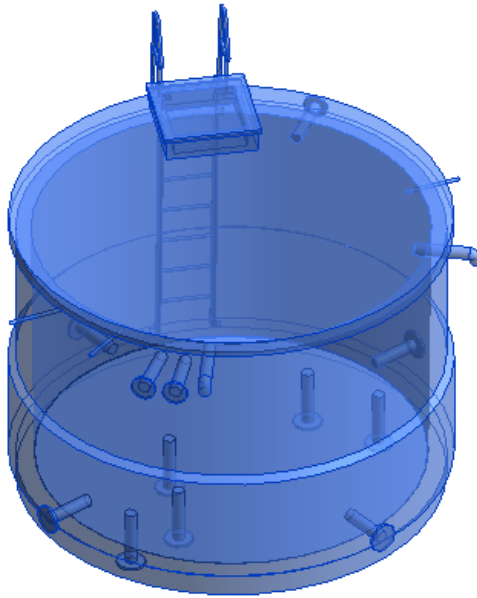
4. IFC-SG Mapping.

- **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
Tank Capacity	11.300 m ³
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

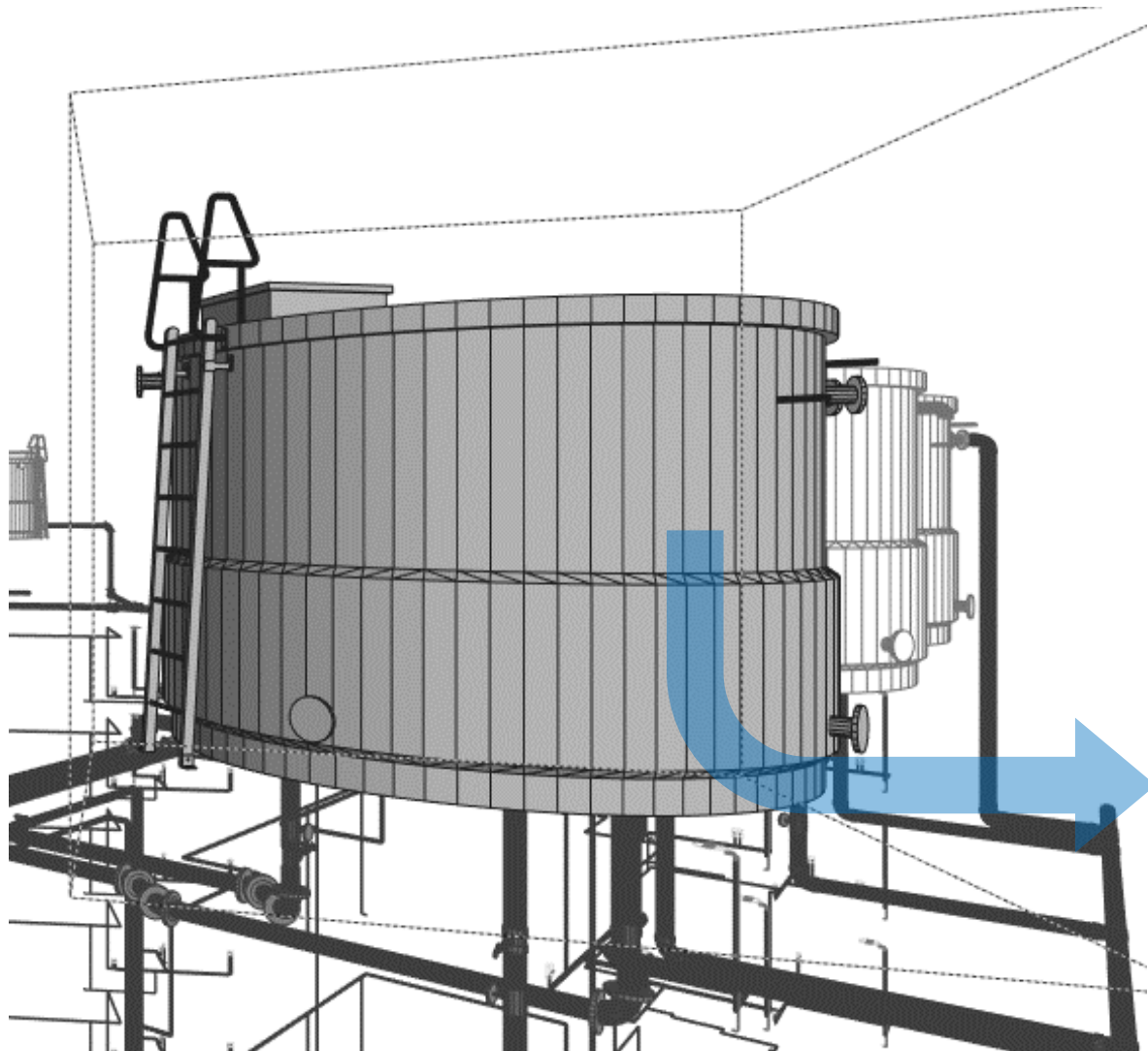
StorageDuration Label
TradeEffluent Boolean
VerticalLifeline Boolean
CX Properties
Company Properties
Capacity Volume Tank Capacity
Material Label Tank Material

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

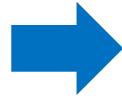


Properties			
	Name	Value	Unit
Element Specific			
Guid		05DX8w8AL1be0z0dKHwvvp	
IfcEntity		IfcTank	
Name		UPC-PC_Standard Water Storage Tank:Water Tank - Default:2376892	
ObjectType		UPC-PC_Standard Water Storage Tank:Water Tank - Default	
PredefinedType		STORAGE	
Tag		2376892	
Pset_EnvironmentalImpactIndicators			
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

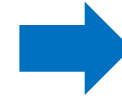
Upgrading the current MEP Template into Corenet X Template

- 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:

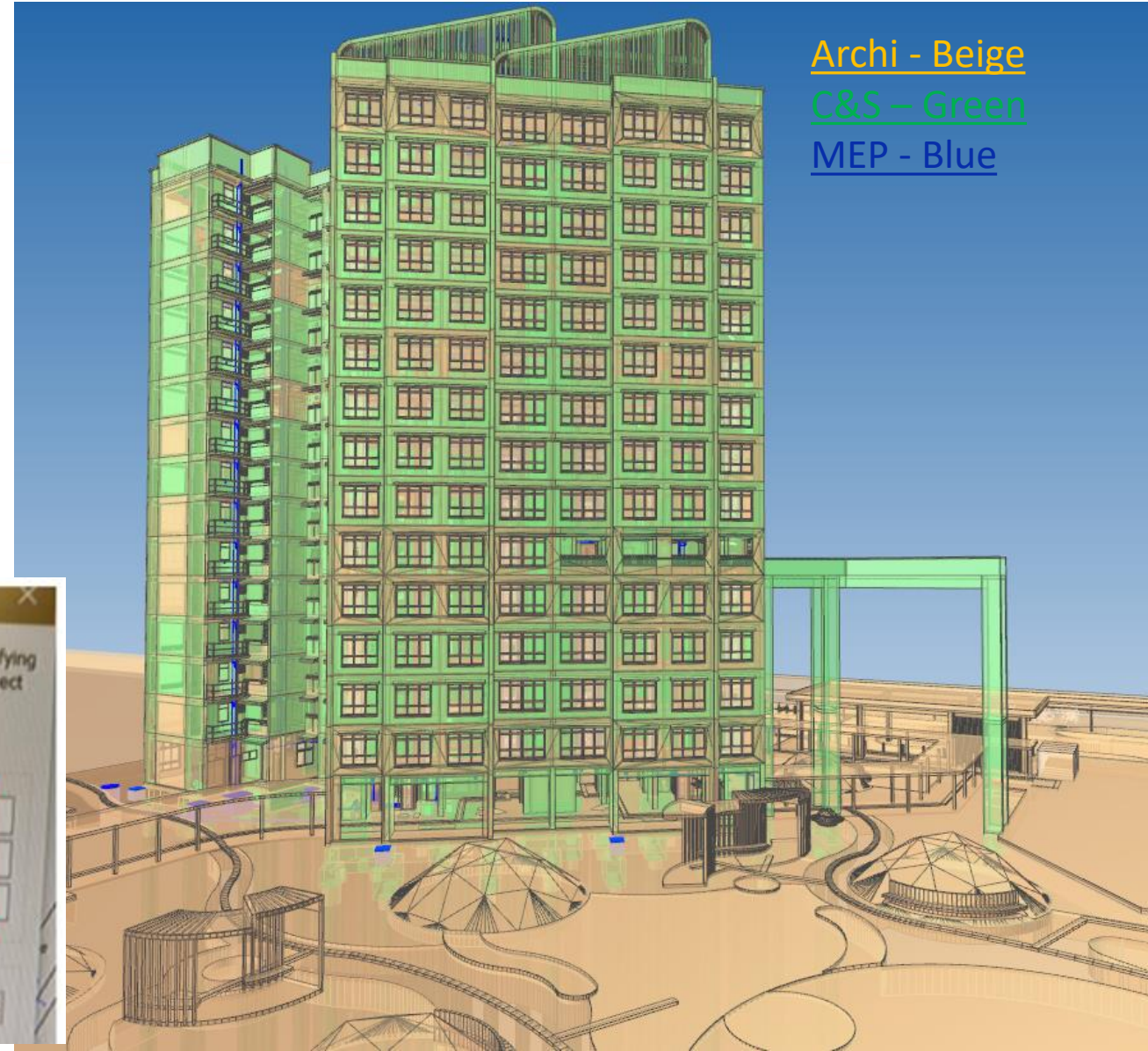
- Through CORENET X community of practice, we have feedback to Autodesk to enable export of federated IFC
- **Autodesk shared that this is part of the Revit Roadmap and will be included progressively in early 2023**

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.

Model Positioning (eg: Archicad & Revit) before submission

Archi - Beige
C&S – Green
MEP - Blue



Location Settings

PROJECT LOCATION

Project Name: CORENET X SIMULATION Edit...

Site Full Address: Edit...

Latitude: 47° 33' 34.9488" N

Longitude: 19° 3' 17.2044" E

Time Zone (UTC): (UTC+08:00) Kuala Lumpur, Singapore

Altitude (Sea Level): 13.20 m

Show in Google Maps...

SURVEY POINT

Symbol Type:

POSITION

Easting: -38712039

Northing: -37226550

Elevation: -13200

GEOREFERENCING PARAMETERS FOR IFC

Projected CRS Name

Description

Geodetic Datum

Vertical Datum

Map Projection

Map Zone

PROJECT NORTH

Cancel

Revit input

Relocate this project in Shared Coordinates by specifying known values at the point you selected. Current project will move relative to globally positioned links.

New Coordinates

North/South: 37226549.7

East/West: 38712038.6

Elevation: 13200.0

Angle from Project North to True North

61° 19' 36" East

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.



BIMcollab ZOOM (free version): 1-S2206_CORENET X_20220908

File View Navigate My view Validate Sectioning Extra Help

Navigation Smart views Clashes Lists Issues

Offline

- ▶ CX-MEP_ELECTRICAL SYSTEM
- ▶ CX-MEP_FIRE PROTECTION SYSTEM
- ▶ CX-MEP_GAS SYSTEM
- ▶ CX-MEP_PLUMBING SYSTEM
- ▶ CX-MEP_SANITARY SYSTEM
- ▶ S2206_CORENET X_20220908
- ▶ TP N8C32A-SE1411_S1_875B_20220819

Free mode Buy now

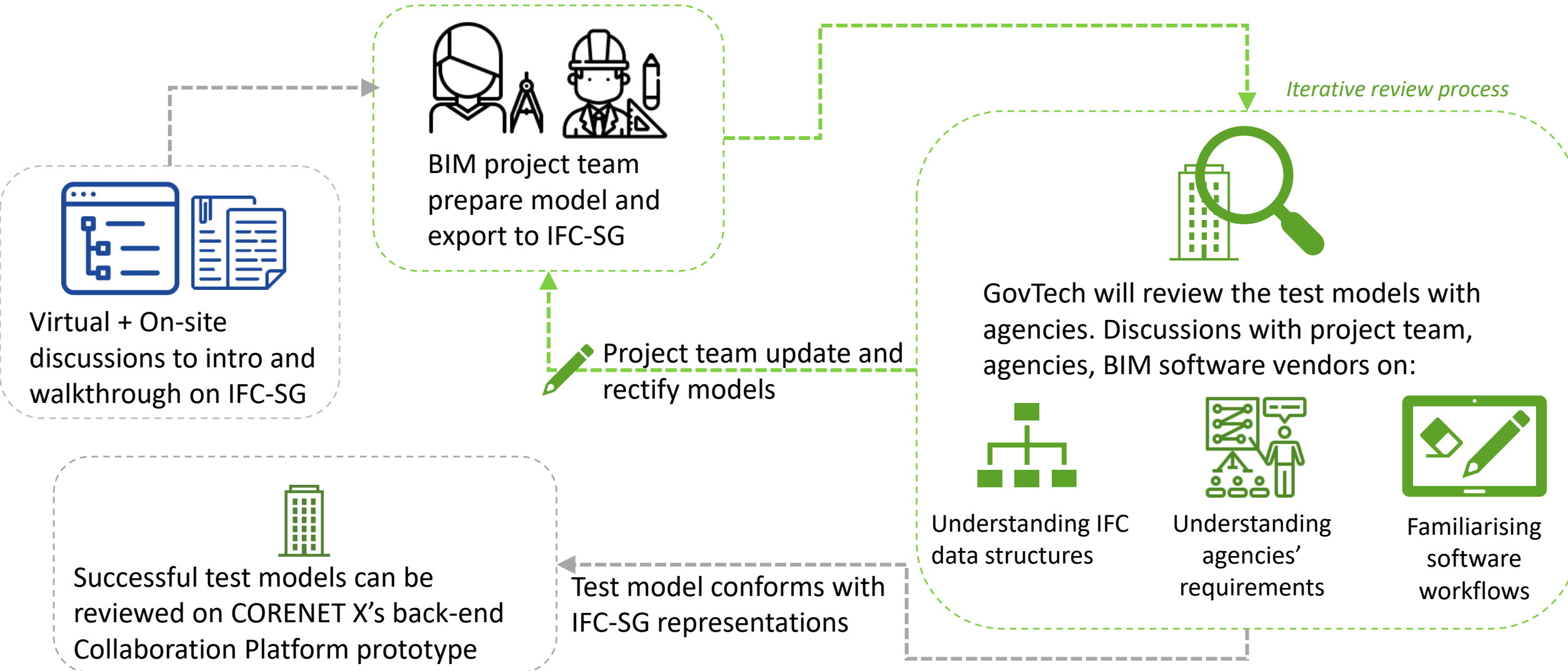
My view: 0 Selected: 0

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	2RIqypT93P6SWFcXEsmI7				
ARCHICAD Classification v 2.0					

Multi-Disciplinary Federated Models

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



THANK YOU
