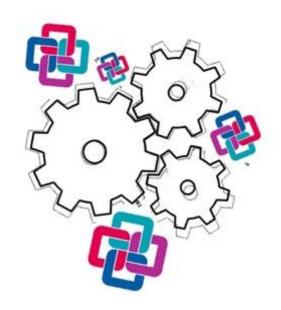


ISPRS EuroSDR GeoBIM benchmark¹ 2019

Task 1 – The **support for IFC** within BIM (and other) software

Results of the tests delivered by participants



1

¹ https://3d.bk.tudelft.nl/projects/geobim-benchmark/

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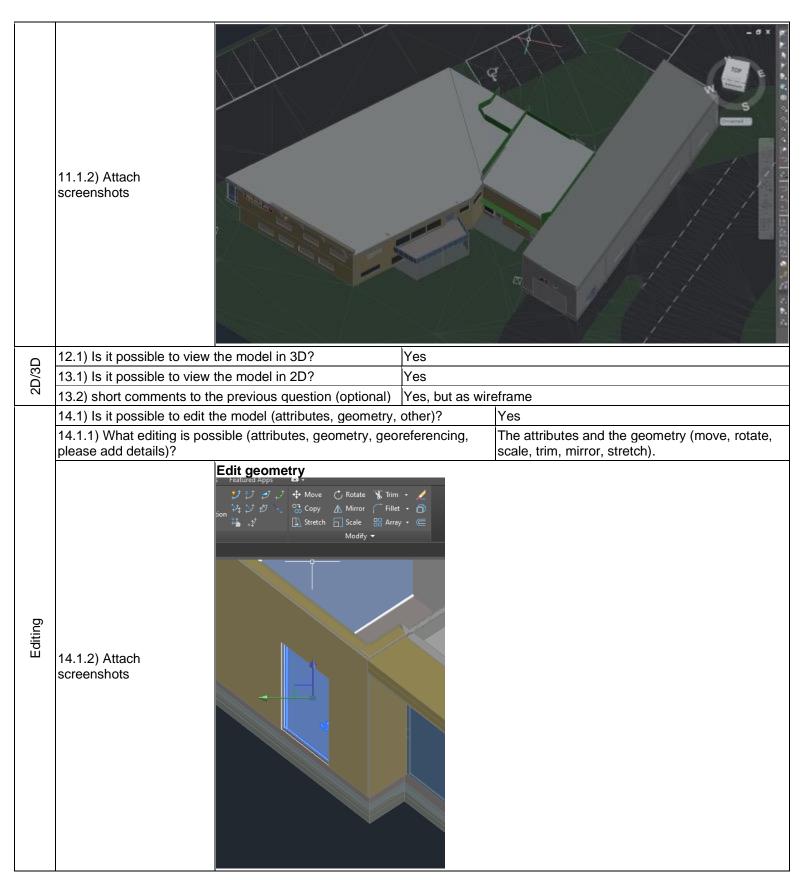
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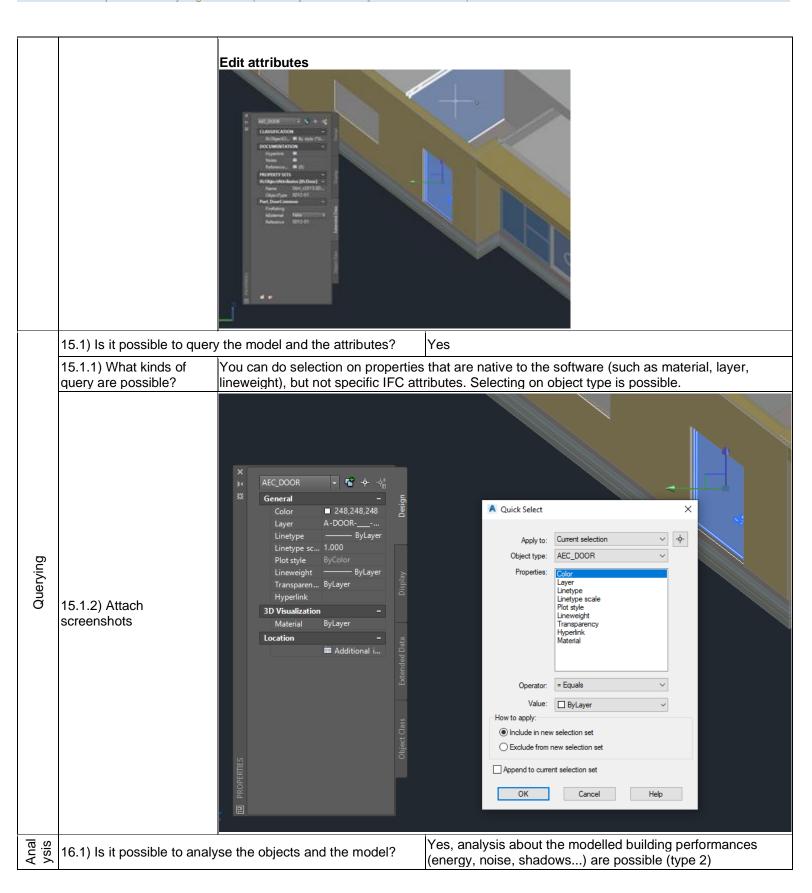
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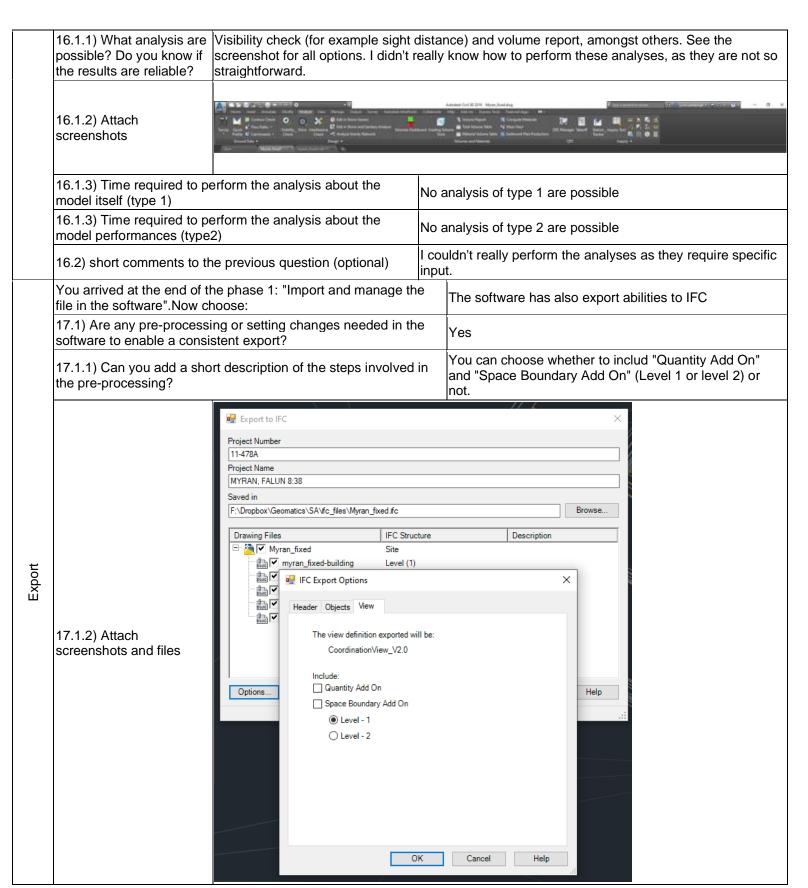
Auto	uesk Civil 3D										
are	Software Name [version]	Civil 3D [2019]		Software house Autodesk							
Software	Proprietary or ope	en source software	e?	Kind of software							
S	proprietary										
uter	Model and year	Operating system	CPU	GPU	Memory (RAM)	Hard drive capacity	Hard drive free space				
Computer	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ 3.20GHz	AMD Radeon HD 7800 Series	8 GB	120 GB	20 GB				
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC export certification status	Export certification date	Export certification program					
Ce	not certified			not certified							
			Test	with Myran.ifc							
	How long does it the model	take, approximate	ly, to:Import (and	visualise if the so	ftware allows it)	1-5 minutes					
, e	How long does it	take, approximate	ly, to:Zoom into the	he model to see m	ore detail	it's almost immed	diate				
nanc	How long does it	take, approximate	ly, to:Pan the mo	del		it's almost immediate					
Performance	How long does it	take, approximate	ly, to:Rotate the r	model		it's almost immediate					
Pe	How long does it	take, approximate	ly, to:Query an ol	oject		less than a minute					
	How long does it through a relation		ly, to:Inspect the	objects linked to th	ne queried one	the software does not allow this					
		l (projected) coord vare's coordinate i		account when loca?	ating the N	No					
	2.1.1) Where is the the software?	ne origin of the mo	del coordinate re	ference system as	imported in A	At the blue reference point					
Georeferencing	2.1.2) Attach scre		×		Type a comand		0.000, 0.000, 3500.000 MO				
	2.1.3) What is the measure is used to			projection and wha		ght-handed coord es as unit of mea					

	2.1.4) Attach screenshots	33 + Trans & summer	62759.466, 45255.114, 0,000 MODEL ## ## - 1 CS - 1 - 2 FF - 2 R
	3.1) Are the "real-world" elevation values (heights) con locating the model in the software (z)?		No
<u>+</u>	3.1.1) What is the elevation value of the origin of the mocoordinate reference system as imported in the softwar		0
Height	3.1.2) Attach screenshots		See figure from 2.1.2
Ĭ	3.1.3) What is the height reference system?		Local in mm
	3.1.4) Attach screenshots		See figure from 2.1.2
	3.2) short comments to the previous question (optional) The height of the representation height of 0.	eference point	itself is 3500mm, but everything around it has a
Orien	4.1) Is the model oriented correctly with respect to the true North?	Yes	
	4.2) short comments to the previous question (optional)	The angle is	48 degrees, similarly to to example on the data page.
Prop ortio	5.1) Does the model maintain its correct dimensions and proportions?	Yes	
<u>د</u> د ≝	6.1) Is the eventual translation consistent with the IFC of	definitions?	Yes
Hier arch	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software information	does not have the necessary tools to determine this
Attri bute	8.1) Are the attributes present in the IFC entities retained and consistent?	Yes	
Relati onshi	9.1) Are the relationships between the objects retained?	The software information	does not have the necessary tools to determine this
Geo	10.1) Is geometry read correctly?	Yes	
8 E	11.1) Did the normals change?	No	

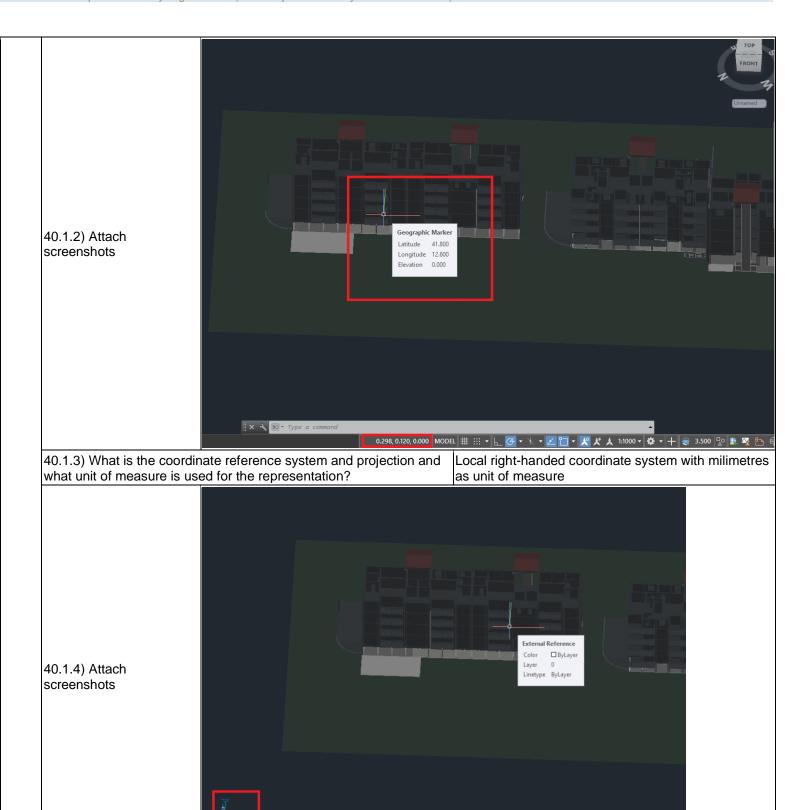




RIM



18.1) Is it possible to choose the IFC model view definition (MVD) to be used when exporting the data?							
	18.2) short comments to the previous question (optional) It will automate definition.				tically use the CoordinationView_V2.0 view		
	19) How long does it take for the data to be exported t	to IFC?	?	1-5 m	ninutes		
	19) How long does it take for the data to be exported t	to IFC?	?	1-5 m	ninutes		
Test with UpTown.ifc							
Performan ce	How long does it take, approximately, to:Import (and visualise if the software allows it) the model it crashes without completing the operation						
Perfo	Please report on any errors the software gives when importing the file.	No err	ors, but	trying	ying to do anything will make the software freeze		
	Test wit	h Sav	vigliano	.ifc			
	How long does it take, approximately, to:Import (and v software allows it) the model	/isualis	e if the	1-	5 minutes		
ool	How long does it take, approximately, to:Zoom into the more detail	e mode	el to see	it's	s almost immediate		
ттаг	How long does it take, approximately, to:Pan the mod	el		it's	s almost immediate		
Performance	How long does it take, approximately, to:Rotate the m	odel		it's	s almost immediate		
₫.	How long does it take, approximately, to:Query an obj	ect		it's	s almost immediate		
	How long does it take, approximately, to:Inspect the o the queried one through a relationship	bjects	linked to	th	e software does not allow this		
eorefere ncing	40.1) Are the world (projected) coordinates taken into locating the model in the software's coordinate referer				No		
Geor	40.1.1) Where is the origin of the model coordinate relimported in the software?	ference	e system	as	At the blue reference point		



11.827, 4.142, 0.000 MODEL ## :::: 🔻 🕒 🧭 🔻 🔭 🖊 🕍 🙏 1:1000 🔻

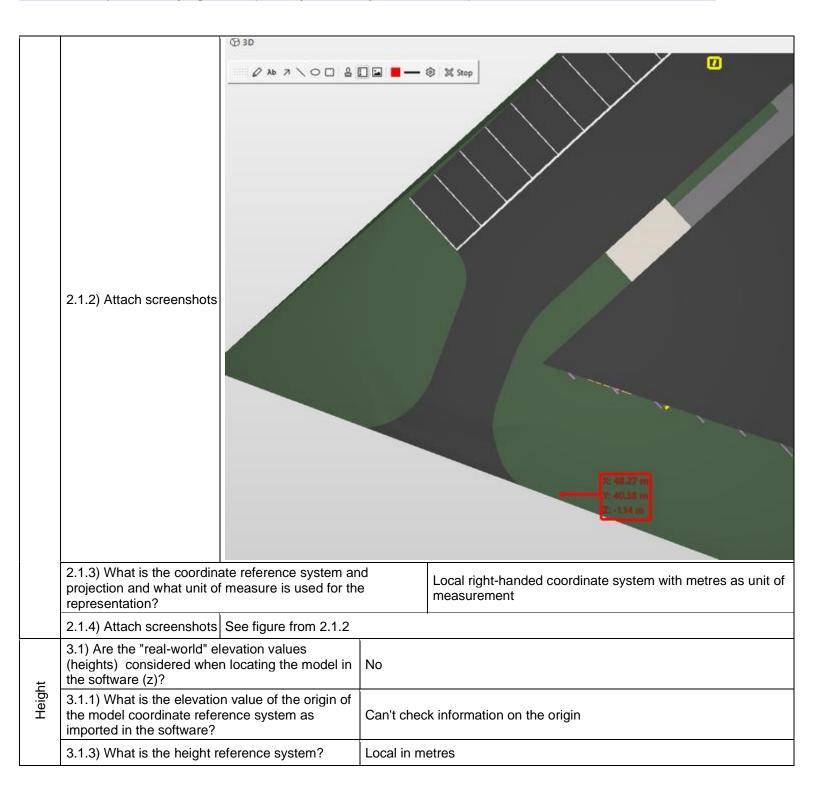
						1			
	41.1) Are the "real-world" (software (z)?	elevation values (heig	ghts) consider	ed when locating the n	nodel in the	No			
	41.1.1) What is the elevati imported in the software?	1.1.1) What is the elevation value of the origin of the model coordinate reference system as apported in the software?							
Height	41.1.2) Attach screenshots		Cinographic Marker Callingle U.SSII Engelsche U.SSII Elecation 0.000	opropiet. Monters Inches 41 July Spinster 41 July Table 42 July					
	41.1.3) What is the height	reference system?		Local in millimetres					
	41.1.4) Attach screenshots	S		See figure from 41.1.2					
	41.2) short comments to the previous question	You can't see that it	s, but the whole coord	inate system	is and it was also shown				
	(optional)	for Myran_fixed.							
U			ct to the true N	lorth?	Yes				
O	(optional)	d correctly with respec			Yes Yes				
<u>с</u> г ((optional) 42.1) Is the model oriented	d correctly with respending the correct with respending the correct dimer	nsions and pro	portions?					
⊩ O {	(optional) 42.1) Is the model oriented 43.1) Does the model main	d correctly with respect ntain its correct dimer lation consistent with	nsions and pro the IFC definit	portions? ions?	Yes Yes	ecessary tools to determine			
Hier IF Parch C r	(optional) 42.1) Is the model oriented 43.1) Does the model main 44.1) Is the eventual trans	d correctly with respect ntain its correct dimer lation consistent with relationships consiste	nsions and pro the IFC definit nt with the	portions? ions? The software does no	Yes Yes	ecessary tools to determine			
Attri Hier IF P	(optional) 42.1) Is the model oriented 43.1) Does the model main 44.1) Is the eventual trans 45.1) Are the hierarchical of the hierarchy? 46.1) Are the attributes pre	d correctly with respect ntain its correct dimer lation consistent with relationships consister esent in the IFC entitions is between the	nsions and pro the IFC definit ent with the es retained	portions? ions? The software does not this information	Yes Yes of have the ne	·			
Hier IF P	(optional) 42.1) Is the model oriented 43.1) Does the model main 44.1) Is the eventual trans 45.1) Are the hierarchical of the life in the	d correctly with respective to the correct dimer distribution consistent with relationships consister esent in the IFC entities between the	the IFC definitent with the es retained The software of information	portions? ions? The software does not this information Yes	Yes Yes thave the ne	·			
Relationsh Attri Hier IF P pute arch C r	(optional) 42.1) Is the model oriented 43.1) Does the model main 44.1) Is the eventual trans 45.1) Are the hierarchical of IFC hierarchy? 46.1) Are the attributes present consistent? 47.1) Are the relationships objects retained? 47.2) short comments to the	d correctly with respect notain its correct dimer lation consistent with relationships consister esent in the IFC entities between the	the IFC definitent with the es retained The software of information	portions? ions? The software does not this information Yes does not have the necessity	Yes Yes thave the ne	·			
G Relationsh Attri Hier IF P	(optional) 42.1) Is the model oriented 43.1) Does the model main 44.1) Is the eventual trans 45.1) Are the hierarchical of IFC hierarchy? 46.1) Are the attributes present consistent? 47.1) Are the relationships objects retained? 47.2) short comments to the (optional)	d correctly with respect notain its correct dimer plation consistent with relationships consistent essent in the IFC entities between the the previous question trectly?	nsions and pro the IFC definitent with the es retained The software of information The storey relation	portions? ions? The software does not this information Yes does not have the necessity	Yes Yes thave the ne	·			

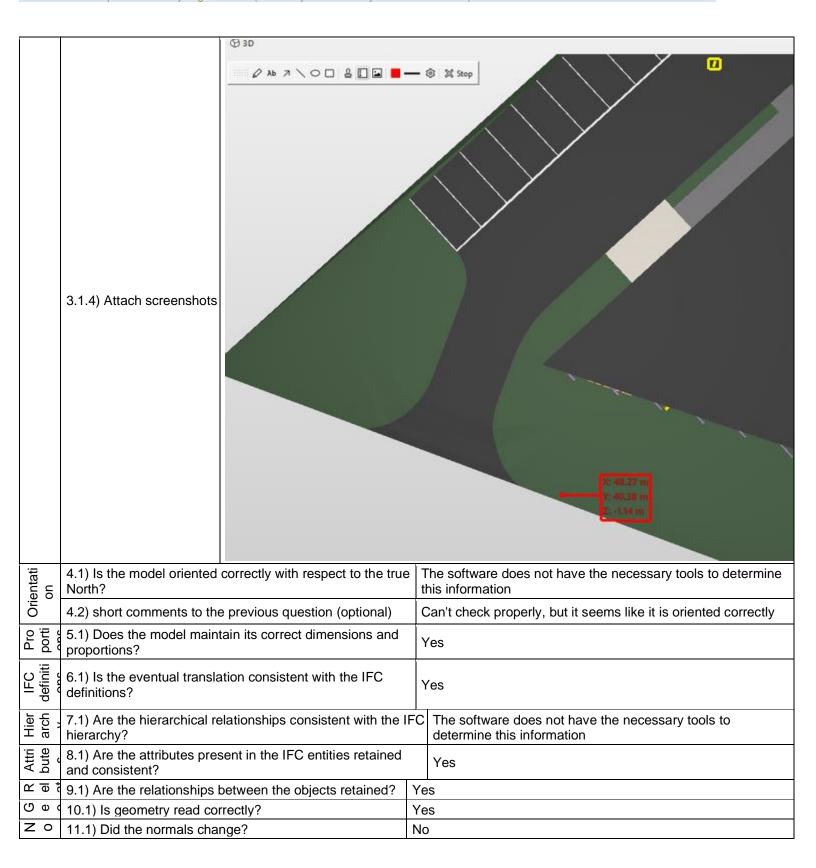
	49.1.2) Attach screenshots		
	50.1) Is it possible to view the model in 3D?		
2D/3D	51.1) Is it possible to view the model in 2D?	Yes	
	51.2) short comments to th	ne previous question (optional)	As 2D wireframe
Export	You arrived at the end of the software". Now choose:	ne phase 1: "Import and manage the file in the	The software has also export abilities to IFC
Ě	55) How long does it take t	for the data to be exported to IFC?	1-5 minutes

Proprietary software
BIM
Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use the software)

Solibri Office

are	Software Name [version]	Solibri Office 19 10 3 51 1 Soliv			ware house						
Software	Proprietary or open source software? Kind of s			software							
S	proprietary BIM										
Computer	Model and year	Operating system	CPU	GPU		Memory (RAM) Hard		Hard drive free space			
Com	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ AMD Ra 3.20GHz HD 7800		18728		120 GB	20 GB			
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC expo certificati status		Export certification date	Export certification program				
Ce	not certified			not certif	ied						
			Test	with Myı	yran.ifc						
d)	How long does it if the software all		ely, to:Import (and	visualise	less than a minute						
anc	How long does it	take, approximate	ely, to:Pan the mo	del	it's almost immediate						
Performance	How long does it	take, approximate	ely, to:Rotate the r	nodel	it's almost immediate						
Perf	How long does it	take, approximate	ely, to:Query an ol	oject	it's almost immediate						
		take, approximate ried one through a	ely, to:Inspect the relationship	objects	the software does not allow this						
	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?				unt No						
Georef erenci		ne origin of the mo	odel coordinate re	ierence	allow to	etermine it properly pick coordinates or I likely to be at the	outside the mod	el footprint. It is			





	11.1.2) Attach screenshots		
2D/3D	12.1) Is it possible to view	the model in 3D?	Yes
	13.1) Is it possible to view	the model in 2D?	No
Editi	14.1) Is it possible to edit to other)?	the model (attributes, geometry,	No
Q ue	15.1) Is it possible to quer	y the model and the attributes?	No
Analysis	16.1) Is it possible to analyse the objects and the model?	Yes, analysis about the model val are possible (type 1)	idity and features (geometry, semantics, schema validity)
Ana	16.1.1) What analysis are possible? Do you know if the results are reliable?	You can check the validity of the r about the options. There are differ rulesets.	model on specific criteria. See the screenshot for an idea rent rulesets that can be chosen, and you can also use custom

	② CHECKING ☐ 🚣 👑 ③ ☑ Check Model ▼ 📑 Rep	port [
	Ruleset - Checked Model	· ~
	▼ MEP models and Architectural model	
	▼ 🚱 Building Services and Architectual Components	
	§ Building Services and Doors and Windows	ок
	§ Building Services and Beams and Columns (Insulations Not Included)	ОК
	§ Building Services and Other Construction Components (Insulations Not	ОК
	§ Building Services and Furniture and Other Objects	ОК
	§ Insulations and Beams and Columns	ОК
	§ Insulations and Other Construction Components	ОК
	▼ ﴿ Distance between Components	
	§ Distance Between Columns/Beams and MEP components	_
	§ Distance Between Doors and MEP components	ОК
	§ Distance Between Windows and MEP components	OF
	▼ Spaces and MEP	
	§ Ventilation Room Has to Have Drainage	_
16.1.2) Attach	§ Electrical Rooms Should Not Include Pipes or Ducts	OI
screenshots	▼ MEP models and Structural model	
	▼ 1 Intersections between Building Services and Structural Components	
	§ Building Services and Beams and Columns (Insulations Not Included)	_
	§ Building Services and Other Construction Components (Insulations Not	_
	§ Insulations and Beams and Columns	_
	§ Insulations and Other Construction Components	_
	▼ [6] Distance between Components	
	§ Distance Between Columns/Beams and MEP components	_
	§ Distance Between Walls and MEP components	_
	▼ ∮ Allowed Intersections In Beams	
	§ Allowed Beam and Ducts/Pipes Intersections	OF
	§ Allowed Beam and Cable Carrier Intersections	_
	▼ 🧐 Structural versus Architectural Models	
	▼ Openings in Structural Model	
	§ Doors and Windows Shouldn't Intersect with Structural Components	ОК
	S Curtain Walls Shouldn't Intersect with Structural Components	ОК

Ruleset - Checked Model	Ø	8	\blacksquare	Δ	Δ	7 X	~	
§ Location of Openings Should Be Same							ОК	^
§ Components in front of Doors and Windows							ОК	
▼ 🗿 Structural Components Fit in Architectural Ones								
§ Walls							_	
§ Slabs							_	
§ Columns							_	
§ Beams							_	
§ Other Components							_	
▼ 👂 Architectural Components Are Filled								
§ Walls to be Filled by Structural Components Should Be Classified			\blacksquare		Δ			
§ Walls							_	
§ Slabs							_	
§ Columns							_	
§ Beams							_	
▼ ⑤ BIM Validation - Architectural								
▼ 19 Model Structure Check								
§ Model Hierarchy								
§ Building Floors								
§ Doors and Windows								
§ Door Opening Direction Definition								
§ Unique GUID values								
§ Amount of Site Instances								
§ Amount of Doors or Windows in Openings								
§ If Decomposed Object has Geometry Defined, Its Parts Should Not Have								
§ If Parts of Decomposed Object have Geometry Defined, the Decompose								
§ Material of Decomposed Objects Should Only Be defined in Part Level								
§ Openings in Complex Walls Shouls be Related to Wall, Not Parts								
▼ 19 Component Check								
► 👰 Component Dimensions								
§ Floor Heights								
▼ 🗐 Clearance								
•								~

Proprietary software
BIM
Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use the software)

Ruleset - Checked Model	6	3	Ħ	Δ	Δ	7 ×	~
▼ [9] Clearance							^
§ Clearance in Front of Windows							
§ Clearance in Front of Doors							
§ Clearance Above Suspended Ceilings							
§ Free Area in Front of Fixed Furnishing							
▼ Deficiency Detection	Т						
§ Required Components							
§ Unallocated Areas	Т						
► 🖲 Components Below and Above							
§ Revolving Doors Must Have Swinging Door Next to It							
§ Slabs must be Guarded against Falling							
▼ BIM Validation - Structural							
▼ Model Structure Check							
§ Model Structure							
§ Unique GUID values							
§ Amount of Site Instances							
§ If Decomposed Object has Geometry Defined, Its Parts Should Not H	eve						
§ If Parts of Decomposed Object have Geometry Defined, the Decomposed	ose						
§ Material of Decomposed Objects Should Only Be defined in Part Leve	ı						
§ Openings in Complex Walls Shouls be Related to Wall, Not Parts							
▼ 🛐 Components and Construction Types							
► 🧐 Component Dimensions							
§ High Walls Have Must Be Thick Enough							
§ Construction Types Must Be from Agreed List							
► § Wall Opening Check - Structural							
► § Wall Opening Check - Prefabricated Concrete							
▼ 🗐 Deficiency Detection							
§ Required Components							
► 🗐 Components Below and Above							
§ Slabs must be Guarded against Falling							
			-				

Proprietary software
BIM
Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use the software)

Ruleset - Checked Model	⊗ ⊗ ⊞ △ △ × ∨
▼ 🗐 Intersections Between Architectural Components	^
▼ Intersections - Same Kind of Components	
§ Wall - Wall Intersections	
§ Slab - Slab Intersections	
§ Roof - Roof Intersections	
§ Beam - Beam Intersections	
§ Column - Column Intersections	
§ Door - Door Intersections	
§ Window - Window Intersections	
§ Stair - Stair Intersections	
§ Suspended Ceiling - Suspended Ceiling Intersections	
§ Railing - Railing Intersections	
§ Ramp - Ramp Intersections	
▼ 🚯 Intersections - Different Kind of Components	
§ Door Intersections	
§ Window Intersections	
§ Column Intersections	
§ Beam Intersections	
§ Stair Intersections	
§ Railing Intersections	
§ Suspended Ceiling Intersections	
§ Wall Intersections	
§ Slab Intersections	
§ Roof Intersections	
▼ 👂 Intersections of Furniture and Other Objects	
§ Object Intersections	
§ Doors/Windows and Objects	
§ Objects and Other Components	

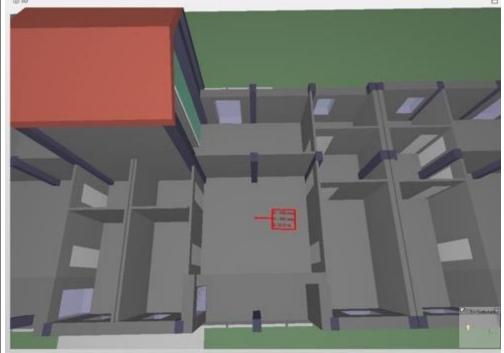
	▼ 🚯 Intersections Between Structural Components					
▼ [Intersections - Same Kind of Components						
		§ Wall - Wall Intersections				
		S Slab - Slab Intersection				
		§ Roof - Roof Intersect				
		§ Beam - Beam Interse	ctions			
		§ Column - Column In	ntersec	tions		
		§ Footing - Footing Int	tersect	ions		
		§ Pile - Pile Intersection	ns			
		§ Plate - Plate Intersect	tions			
		§ Assembly - Assembly	y Inter	sections		
		§ Object - Object Inter	section	ns		
		▼ [§ Intersections - Different	Kind o	f Components		
		§ Wall Intersections				
		§ Slab Intersections				
		§ Roof Intersections				
		§ Beam Intersections				
		§ Column Intersection	s			
		§ Footing Intersections	s			
		§ Pile Intersections				
		§ Plate Intersections				
		§ Assembly Intersectio	ns			
		§ Object Intersections			~	
	16.1.3) Time required to pe model itself (type 1)	rform the analysis about the	less than a minute			
	16.1.3) Time required to permodel performances (type2)	erform the analysis about the 2)	No analysis of type 2 are possible			
	16.2) short comments to the	e previous question (optiona	al) The analysis time is based on checking all the validity criteria			
		Test wit	th U	pTown.ifc	ŀ	
	How long does it take, appr the model to see more deta	•	it's	almost immediate		
90	How long does it take, approximately, to:Pan the model		it's almost immediate			
Performance	How long does it take, approximately, to:Rotate the model			it's almost immediate		
Perfo	How long does it take, approximately, to:Query an object			it's almost immediate		
	How long does it take, approximately, to:Inspect the			it's almost immediate		
Pro porti	·					

IFC defi	25.1) Is the eventual translation consistent with the IFC definitions?	Yes		
Hier arch	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools to determine this information		
Attri bute	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes		
<u>e</u> 2	28.1) Are the relationships between the objects retained	ed? Yes		
Ge	29.1) Is geometry read correctly?	Yes		
	30.1) Did the normals change?	No		
Normals Normals	30.1.2) Attach screenshots			
Ö	31.1) Is it possible to view the model in 3D?	Yes		
2D/3D	32.1) Is it possible to view the model in 2D?	No		
	35.2) short comments to the previous question (option	hal) However, the validity check takes longer (about 5 minutes)		
Exp	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose: The software cannot export to IFC, therefore skip the place the file in the software".Now choose:			
Test with Savigliano.ifc				
How long does it take, approximately, to:Zoom into the model to see more detail it's almost immediate				

How long does it take, approximately, to:Rotate the model	it's almost immediate			
How long does it take, approximately, to:Query an object	it's almost immediate			
How long does it take, approximately, to:Inspect the objects linked to t through a relationship	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship			
40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	No			
40.1.1) Where is the origin of the model coordinate reference system as imported in the software?	It's at the blue refe	erence point		
@ 10				

Georeferencing

40.1.2) Attach screenshots



40.1.3) What is the coordinate reference system and projection | Local right-handed coordinate system with metres as unit and what unit of measure is used for the representation?

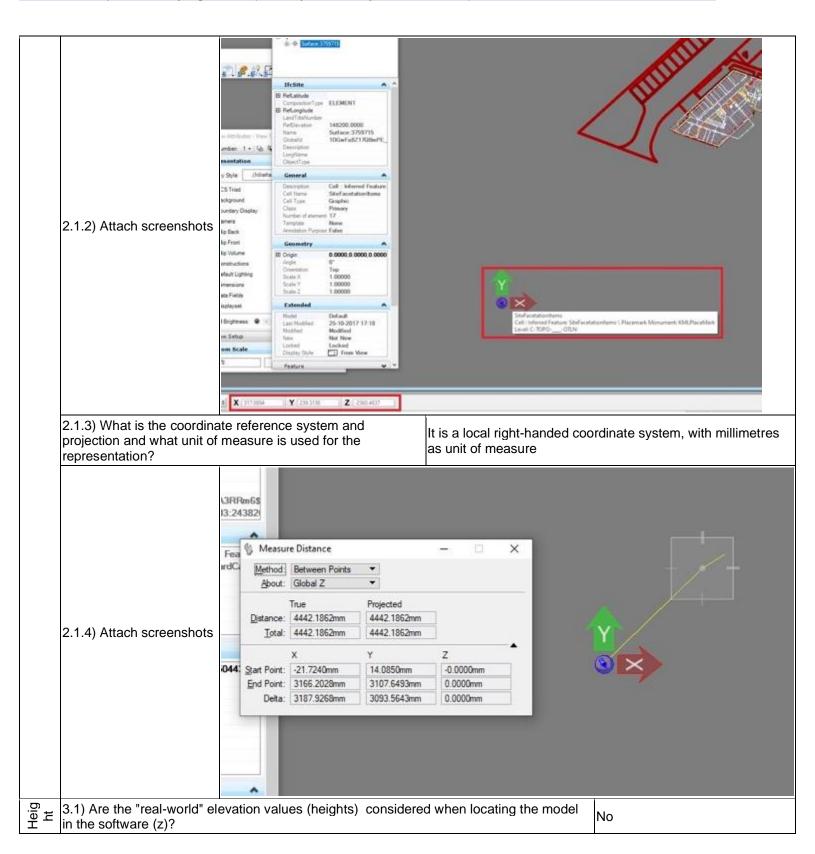
of measure

	40.1.4) Attach screenshots			STATE PASING DOMESTICS OF THE	
	when locating the model in		No		
Height		on value of the origin of the model em as imported in the software?	0		
Ĭ	41.1.2) Attach screenshots	S	See	figure from 40.1.4	
-	41.1.3) What is the height		Loca	al in metres	
	41.1.4) Attach screenshots	S	See	figure from 40.1.4	
Orientation	42.1) Is the model oriented correctly with respect to the true North?	Yes			
Orier	42.2) short comments to the previous question (optional)	Yes, based on the coordinates along the picture in the data description)	ne bot	bottom part of the model (as shown in the example	
Pro porti	43.1) Does the model main proportions?	ntain its correct dimensions and	Yes		
— ш (44.1) Is the eventual trans	lation consistent with the IFC definitions	?	Yes	
Hier arch	45.1) Are the hierarchical hierarchy?	relationships consistent with the IFC		The software does not have the necessary tools to determine this information	
Attri	46.1) Are the attributes preconsistent?	esent in the IFC entities retained and		Yes	
R P t	47.1) Are the relationships	between the objects retained?		Yes	
(D) (a) (48.1) Is geometry read cor	rrectly?		Yes	
Zo	49.1) Did the normals char	nge?	No		

	49.1.2) Attach screenshots			
٥	49.2) short comments to the previous question (optional)		Visually the normals seem correct	
2D/3D	50.1) Is it possible to view	the model in 3D?	Yes	
	51.1) Is it possible to view	the model in 2D?	No	
Exp	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:		The software cannot export to IFC, therefore skip the phase 2	

Bentley Map Enterprise

are	Software Name [version] Bentley Map Enterprise [V8i SELECTseries 10]		Software	Software house					
Software	Proprietary or open source software?		Kind of	Kind of software					
S				GIS					
uter	Model and year Operating system CPU G		GPU		Memory (RAM)		Hard drive capacity	Hard drive free space	
Computer	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ 3.20GHz	AMD Ra		IX (i B		120 GB	20 GB
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC exp certificate status		Export certification date		Export certification program	
Cel	not certified			not certi	not certified				
			Test	with My	yran.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model						than a minute		
Performance	How long does it	take, approximate	ly, to:Zoom into th	ne model	to see m	ore detail	it's almost immediate		
form	How long does it	take, approximate	ly, to:Pan the mod	del			it's almost immediate		
Per	How long does it take, approximately, to:Query an object						it's almost immediate		
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship						the	software does no	t allow this
efere ng	2.1) Are the world model in the softw				when loca	ating the	No		
Georefere ncing	model in the software's coordinate reference system? 2.1.1) Where is the origin of the model coordinate reference system as imported in the software? The origin is at the blue reference point.								



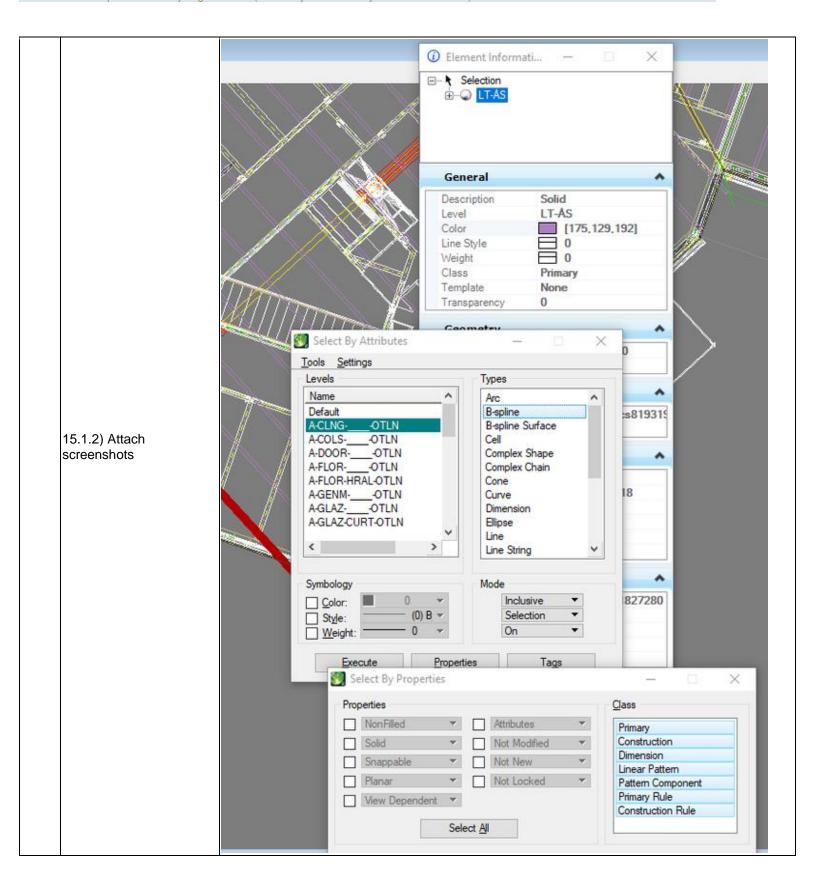
Bentley Map Enterprise V8i SELECTseries 10 - Windows 10 Home Proprietary software GIS Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use the software)

	3.1.1) What is the elevation value of the origin of the model coordas imported in the software?	tem 0	
	3.1.2) Attach screenshots	See figure from 2.1.4	
	3.1.3) What is the height reference system?		It's just local, in millimetres
	3.1.4) Attach screenshots		See figure from 2.1.4
Ori ent	4.1) Is the model oriented correctly with respect to the true North	Yes	
Pro por	5.1) Does the model maintain its correct dimensions and proport	Yes	
	6.1) Is the eventual translation consistent with the IFC definitions?	,	
Semantics	7.1) Are the hierarchical relationships consistent with the IFC hierarchy? The software does not determine this information.		not have the necessary tools to mation
Ser	8.1) Are the attributes present in the IFC entities retained and co	No	
	8.1.1) What changes / inconsistencies / errors / other issues wer	The properties shown in the data description are not there.	

GIS



Relati onshi	9.1) Are the relationships	between the ob	pjects retained?	The software does not have the necessary tools to determine this information		
	10.1) Is geometry read correctly?		Yes			
	11.1) Did the normals change?		No			
	Setup: Draft		nts: Untitled Environment: Untitle	d - 🗆 ×		
		③ ③ ♣ · (* * * * * * * * * * * * * * * * * * *		
Geometry Normals	11.1.2) Attach screenshots		Color & Alpha	Rendered in 23s with Setup: Draft at 1024 x 557		
2D/3D	12.1) Is it possible to view the model in 3D?		D?	Yes		
2D	13.1) Is it possible to view the model in 2D?			No		
Editi	14.1) Is it possible to edit other)?	the model (attri	butes, geometry,	No		
Queryin g	15.1) Is it possible to quer	ry the model an	d the attributes?	Yes		
) Que	15.1.1) What kinds of query are possible?		?	You can select objects based on some attributes		



	16.1) Is it possible to analyse the objects and the mode	el?	No
Analysis	16.1.3) Time required to perform the analysis about the itself (type 1)	No analysis of type 1 are possible	
Ar	16.1.3) Time required to perform the analysis about the performances (type2)	No analysis of type 2 are possible	
Export	You arrived at the end of the phase 1: "Import and mar file in the software".Now choose:	•	The software cannot export to IFC, therefore skip the phase 2
	Test wi	th UpTowi	n.ifc
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it crashes v	vithout completing the operation
	Test with	n Savigliar	no.ifc
	How long does it take, approximately, to:Import (and visoftware allows it) the model	sualise if the	1-5 minutes
) eoc	How long does it take, approximately, to:Zoom into the more detail	it's almost immediate	
rmar	How long does it take, approximately, to:Pan the mode	it's almost immediate	
Performance	How long does it take, approximately, to:Rotate the mo	it's almost immediate	
"	How long does it take, approximately, to:Query an obje	it's almost immediate	
	How long does it take, approximately, to:Inspect the obthe queried one through a relationship	the software does not allow this	
	40.1) Are the world (projected) coordinates taken into a when locating the model in the software's coordinate resystem?		No
	40.1.1) Where is the origin of the model coordinate refessystem as imported in the software?	The origin is at the blue reference point.	
Georeferencing	40.1.2) Attach screenshots	\$ (mass) \$ (mass)	End and technologies Cid. (Hebrerd Fedure Sed acrtefonberra Placeman Manumore & M. Broadsen Level C - 8240

Height

software (z)?

imported in the software?

Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use the software)

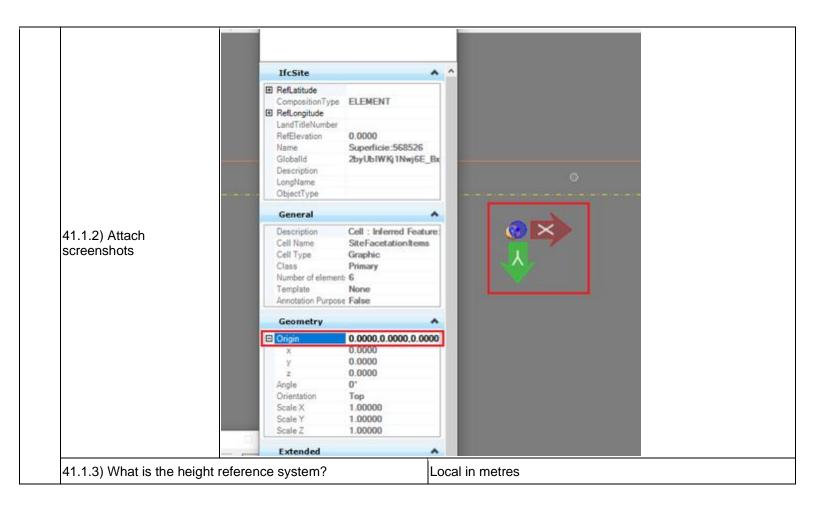
40.1.3) What is the coordinate reference system and projection and what unit of measure is used for It is a local right-handed coordinate system, with metres as unit of measure the representation? 40.1.4) Attach screenshots Total: 44.7033n

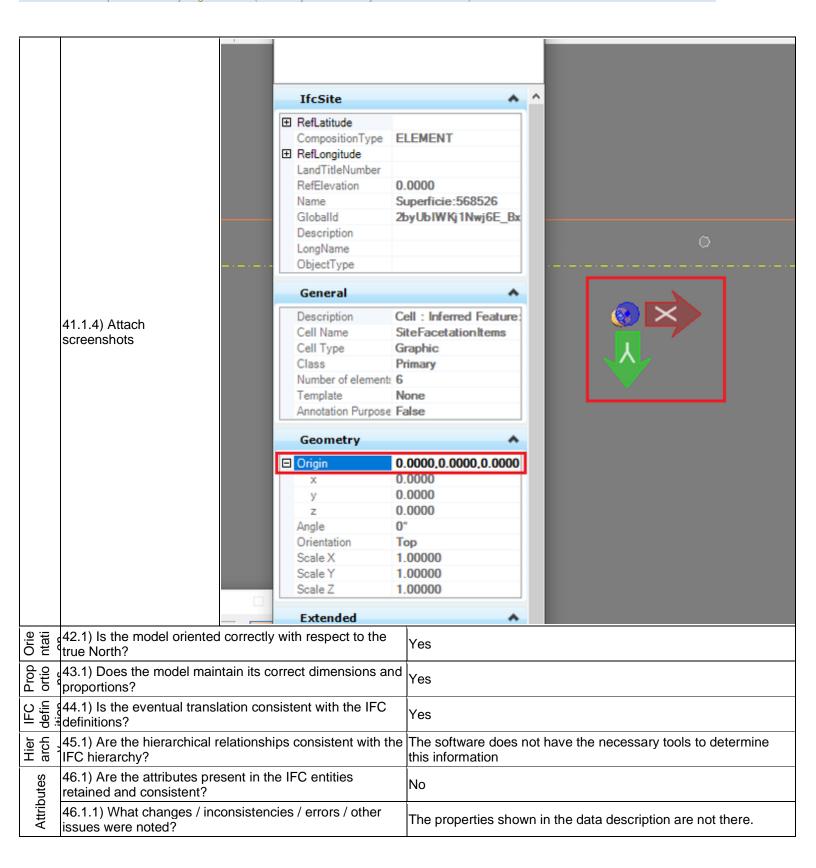
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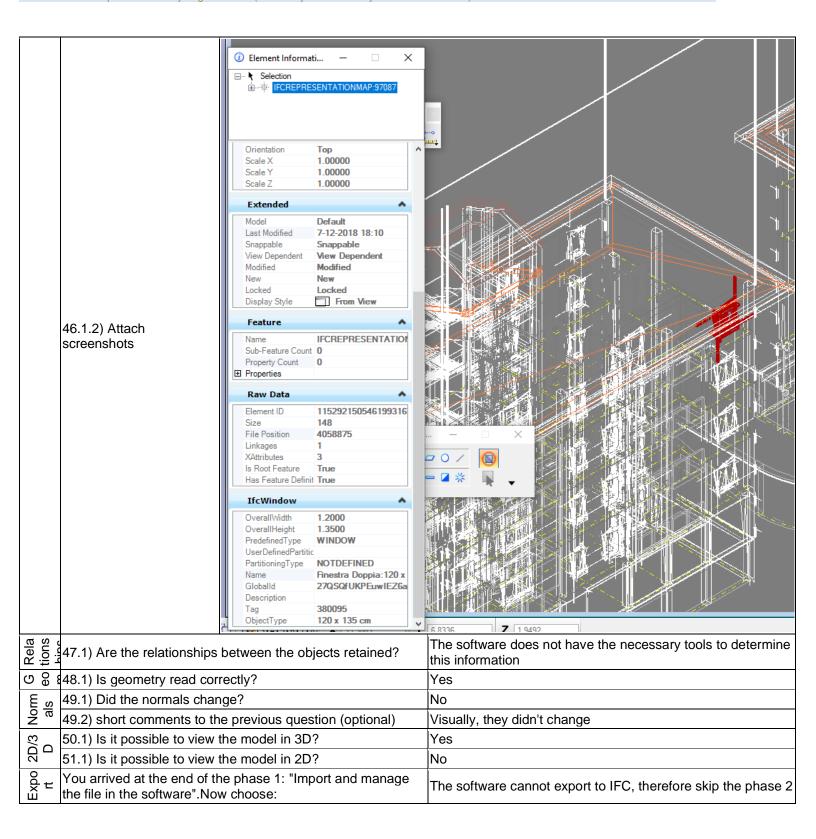
41.1) Are the "real-world" elevation values (heights) considered when locating the model in the No

41.1.1) What is the elevation value of the origin of the model coordinate reference system as

CIC

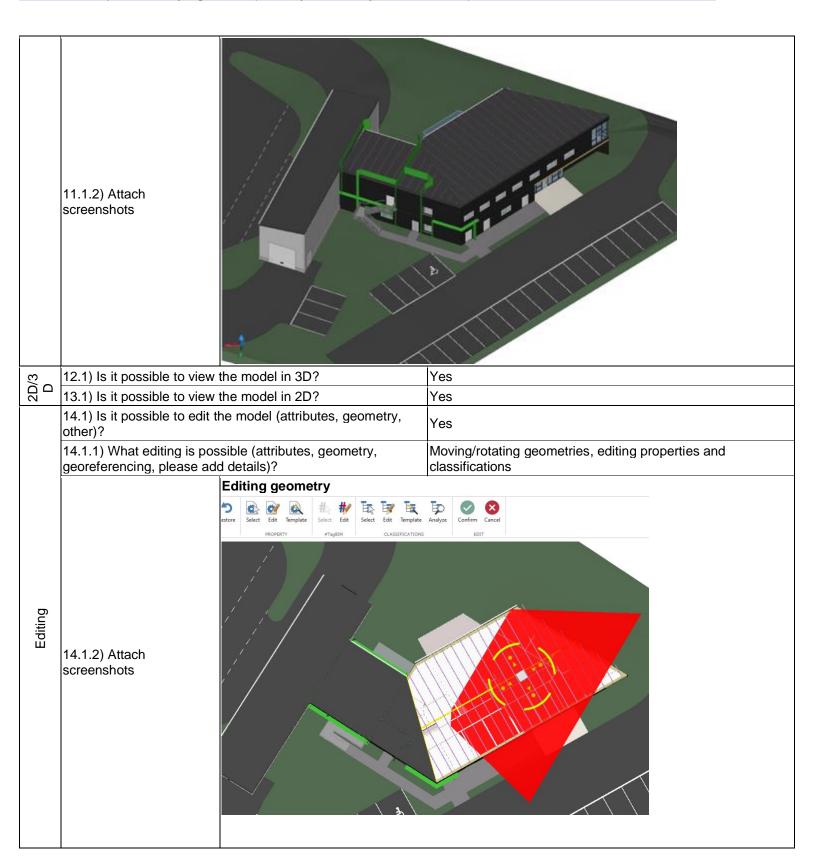


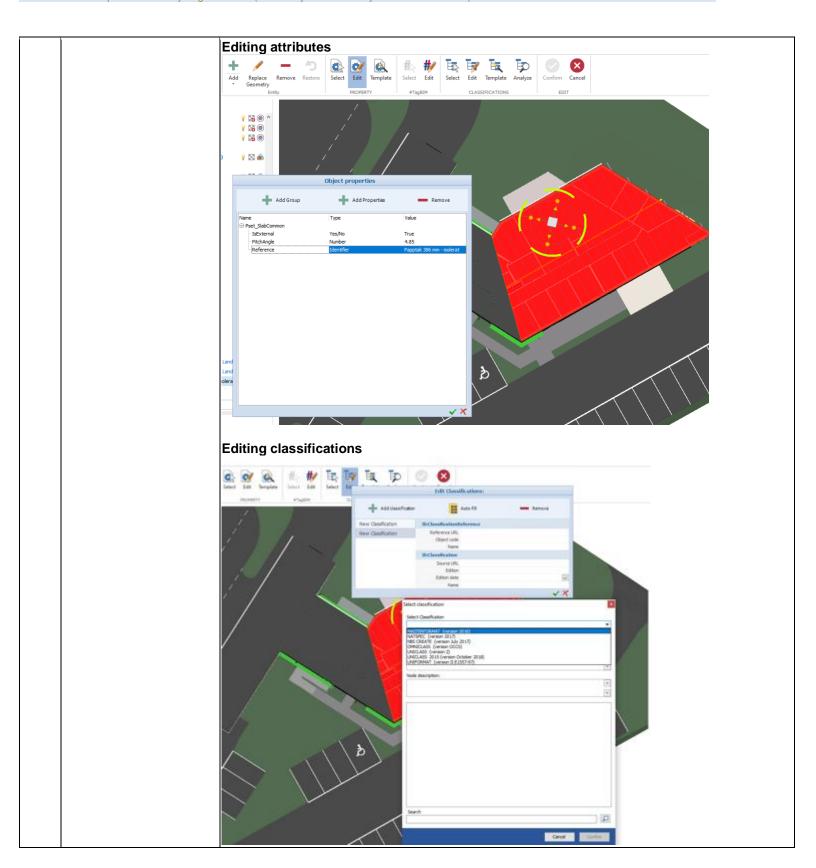


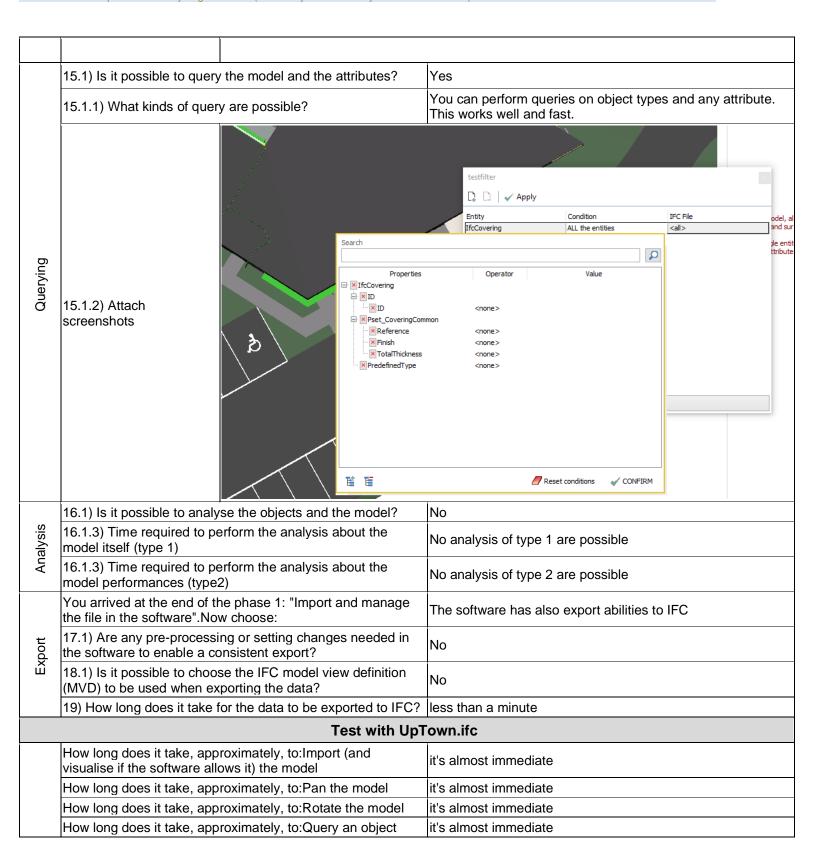


ACCA usBIM.viewer+

ā	Software Name [version] usBIM.viewer+ [v.8.00d]			Software	e house ACCA				
Software	Proprietary or ope	en source softwar	re?	Kind of	Kind of software				
SS	proprietary			BIM					
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
\sim	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ 3.20GHz	AMD Ra		8 GB	120 GB	20 GB	
Certification	IFC import certification status	Import certification date	Import certification program	certification		Export certification date	Export certification program		
Certi	certified in (date)	2018-01-27	CV 2.0	not certi	fied				
Test with My					ran.ifc			·	
	How long does it visualise if the so		ely, to:Import (and ne model		less than a minute				
ınce	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate				
Performance	How long does it take, approximately, to:Pan the model				it's almost immediate				
erfc	How long does it take, approximately, to:Rotate the model					st immediate			
"	How long does it take, approximately, to:Query an object How long does it take, approximately, to:Inspect the objects				it's almo	st immediate			
	linked to the quer			objects	the software does not allow this				
Georef erenci				The software does not have the necessary tools to check this information					
Hei	3.1) Are the "real- considered when		values (heights) el in the software ((z)?	The software does not have the necessary tools for checking it				
	4.1) Is the model North?	oriented correctly	with respect to th	e true	Yes				
	6.1) Is the eventu definitions?	al translation con	sistent with the IF	С	Yes				
Hier arch	ਰ ਨੂੰ 7.1) Are the hierarchical relationships consistent with the IFC hierarchy?			The software does not have the necessary tools to determine this information					
	 			ined	Yes				
Rel atio	9.1) Are the relati	onships between	the objects retained	ed?	The software does not have the necessary tools to determine this information			ry tools to	
(D) (a) (d)	10.1) Is geometry	read correctly?			Yes				
Z o ·	z o -11.1) Did the normals change?			No					





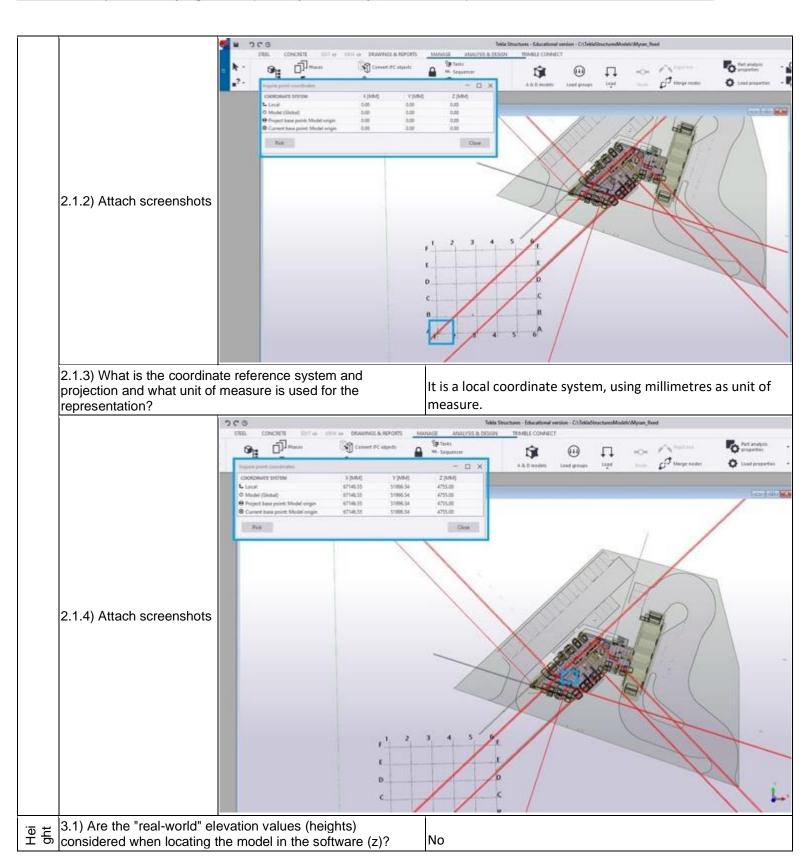


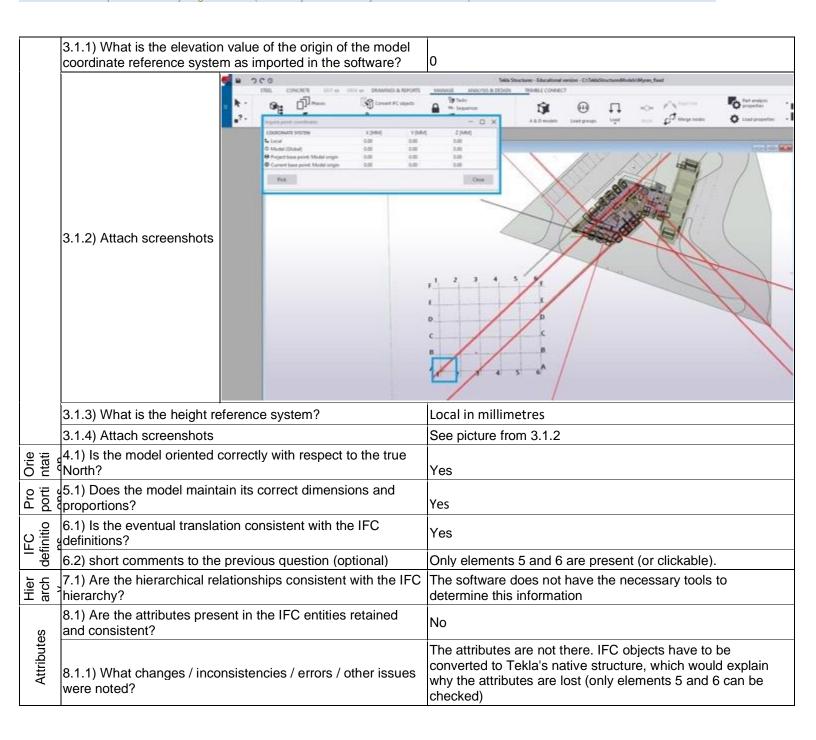
		roximately, to:Inspect the objects Element 3) through a relationship	the software does not allow this		
o E g		ntain its correct dimensions and	Yes		
	25.1) Is the eventual transl definitions?	ation consistent with the IFC	Yes		
	26.1) Are the hierarchical r IFC hierarchy?	elationships consistent with the	The software does not have the necessary tools to determine this information		
	27.1) Are the attributes pre and consistent?	sent in the IFC entities retained	Yes		
Rel atio	28.1) Are the relationships	between the objects retained?	The software does not have the necessary tools to determine this information		
G e	29.1) Is geometry read cor	rectly?	Yes		
	30.1) Did the normals char	nge?	No		
	30.1.2) Attach screenshots	111			
Ω	31.1) Is it possible to view	the model in 3D?	Yes		
(2)	32.1) Is it possible to view		Yes		

Ţ	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities to IFC			
Export	36) How long does it take for the data to be exported to IFC?	less than a minute			
	36) How long does it take for the data to be exported to IFC?	less than a minute			
	Test with Savigliano.ifc				
Per for	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it crashes without completing the operation			

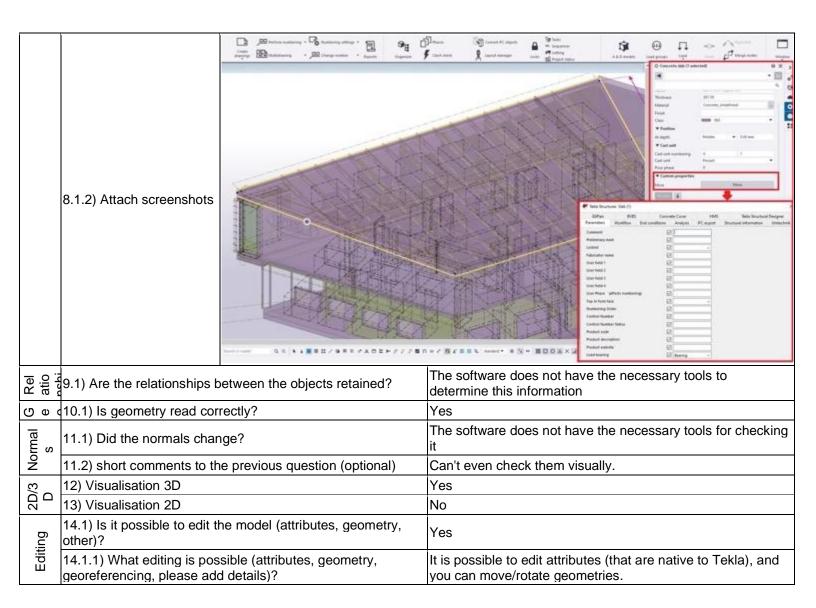
Tekla Structures

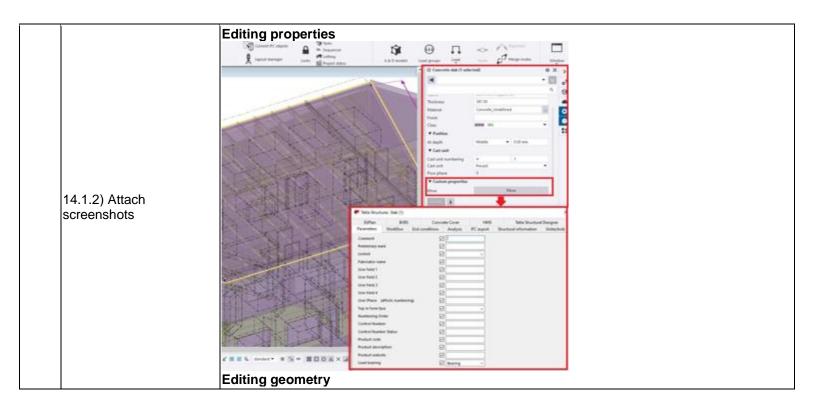
ē	Software Name [version] Tekla Structures [2019 Service Pack 1]			Software	re house			
Software	Proprietary or open source software?			Kind of	software			
Ň	proprietary			BIM				
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ 3.20GHz	AMD Radeon HD 7800 Series		8 GB	120 GB	20 GB
Certification	IFC import certification status	Import certification date	Import certification program	certification		Export certification date	Export certification program	
Certif	certified in (date)	2013-10-09	CV 2.0	certified in (date)		2013-06-12	CV2.0-Struct	
			Test	with My	ran.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				less than a minute			
	How long does it take, approximately, to:Zoom into the model to see more detail			it's almost immediate				
nce	How long does it take, approximately, to:Pan the model			it's almost immediate				
Performance	How long does it	take, approximat	ely, to:Rotate the r	model	it's almost immediate			
Perfo	How long does it take, approximately, to:Query an object			it's almost immediate				
	How long does it linked to the quer		ely, to:Inspect the a relationship	objects	the software does not allow this			
	Please report on any errors the software gives when importing the file.				You have to convert it to Tekla's own structure first. It couldn't convert quite many objects.			
Georeferenci ng		model in the sof	dinates taken into tware's coordinate		No			
Geore	2.1.1) Where is the origin of the model coordinate reference system as imported in the software?			The origin is at the reference point.				





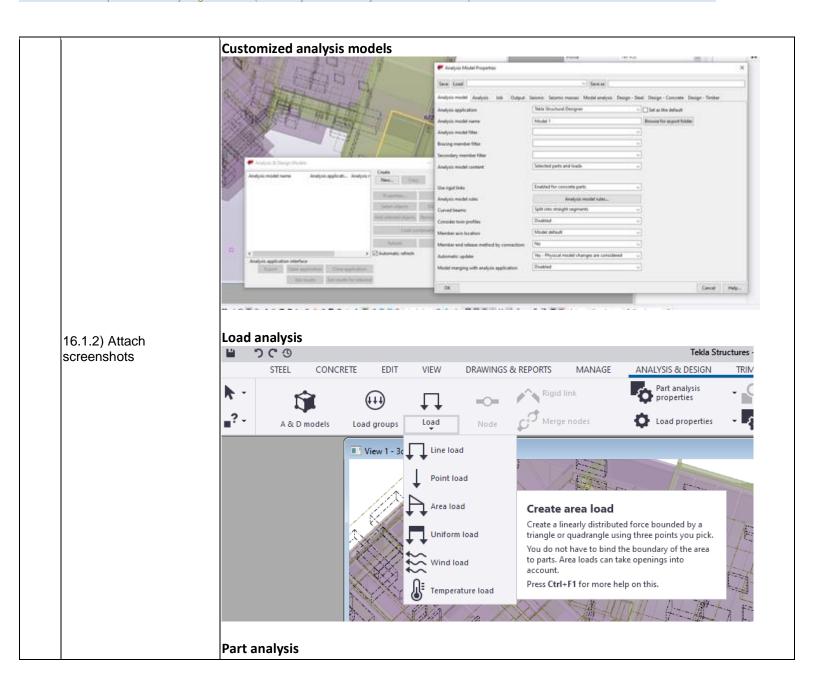
RIM





	Meanur person pe			
Q ue	15.1) Is it possible to query the model and the attributes?	No		
Sis	16.1) Is it possible to analyse the objects and the model?	Yes, analysis about the modelled building performances (energy, noise, shadows) are possible (type 2)		
	16.1.1) What analysis are possible? Do you know if the results are reliable?	You can do load analysis, part analysis, and customized analysis. However, I don't know how they would work and can't properly test them.		

RIM

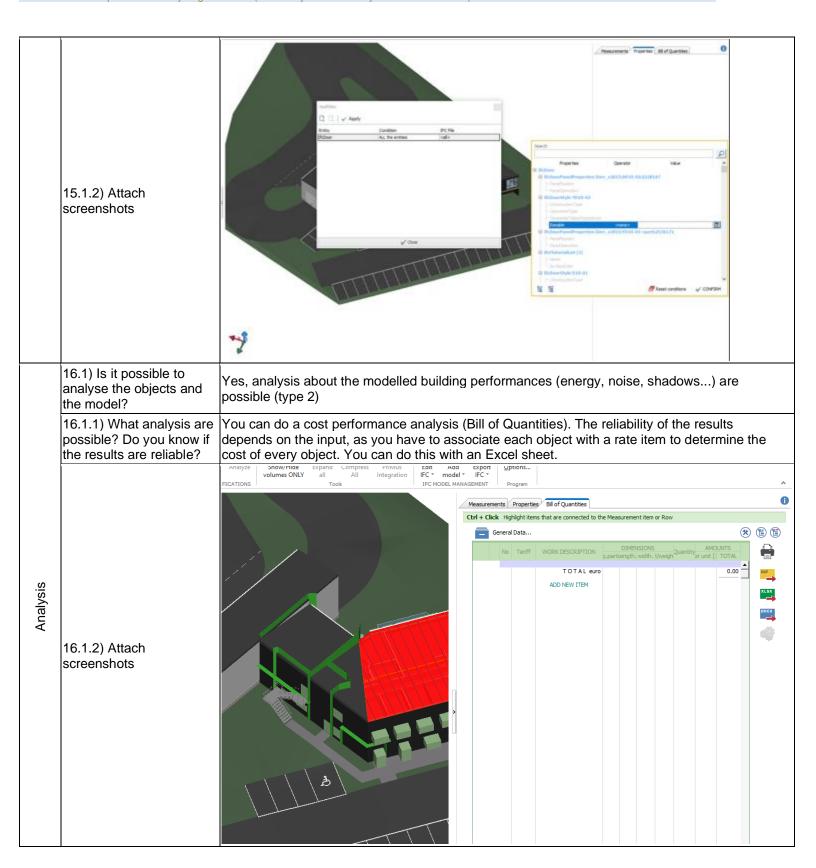


l I	VIEW DRAWINGS & REPORTS MANAGE	ANALYSIS & DESIGN TRIMBLE CONNECT				
	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	Part analysis Preset editing of Flade numbers. Nemes mainten				
	Load Node De Merge nadel	Orthogonal beam Reel column				
	Market Ma	Twin profile Contour plate				
		Pad footing				
	XXX XXX XXX	Strip footing Concrete column Concrete beam				
		oncrete beam Slab Panel				
	16.1.3) Time required to perform the analysis about the model itself (type 1)	No analysis of type 1 are possible				
	16.1.3) Time required to perform the analysis about the model performances (type2)	it's almost immediate				
	16.2) short comments to the previous question (optional)	Even though I can't properly test the analyses, they seem to be performed very quickly.				
	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC				
	17.1) Are any pre-processing or setting changes needed in the software to enable a consistent export?	No				
Export	18.1) Is it possible to choose the IFC model view definition (MVD) to be used when exporting the data?	Yes				
Ä	18.1.1) Which ones are available?	Coordination view (1.0 and 2.0), steel fabrication view, surface geometry (if this is a view)				
	18.1.2) Is it possible to add a customised MVD to be used for exporting IFC?	No				
	19) How long does it take for the data to be exported to IFC?	it's almost immediate				
	Test with UpT	own.ifc				
	How long does it take, approximately, to: Import (and visualise if the software allows it) the model	it crashes without completing the operation				
	Test with Saviç	gliano.ifc				
Perf orm	How long does it take, approximately, to: Import (and visualise if the software allows it) the model	it crashes without completing the operation				

ACCA PriMus-IFC

ē	Software Name [version] PriMus-IFC [BIM 2(b) (64 bit)]			Software	are house ACCA				
Software	Proprietary or open source software?			Kind of s	Kind of software				
Š	proprietary			BIM					
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ 3.20GHz	AMD Ra		8 GB	120 GB	20 GB	
Certification	IFC import certification status	Import certification date	Import certification program	IFC expectations and status		Export certification date	Export certification program		
Certi	certified in (date)	2018-01-27	CV 2.0	not certi	fied				
Test with My				ran.ifc	1		1		
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				less tha	n a minute			
Performance	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate				
ırma	How long does it take, approximately, to:Pan the model					st immediate			
erfc	How long does it take, approximately, to:Rotate the model					st immediate			
	How long does it take, approximately, to:Query an object				it's almo	st immediate			
	linked to the quer	ried one through	•	•	the software does not allow this				
Georef erenci		e model in the so	rdinates taken into ftware's coordinate		The software does not have the necessary tools to check this information				
Hei ght	3.1) Are the "real considered when		values (heights) del in the software ((z)?	The software does not have the necessary tools for checking it				
Orie ntati	4.1) Is the model North?	oriented correctl	y with respect to th	e true	Yes				
	o 문 성5.1) Does the model maintain its correct dimensions and			and	Yes				
이 등 년6.1) Is the eventual translation consistent with the IFC 보호 đefinitions?			С	Yes					
Hier	ਰੂ ਰੂ (7.1) Are the hierarchical relationships consistent with the IFC hierarchy?			The software does not have the necessary tools to determine this information					
Attri bute	अ.1) Are the attributes present in the IFC entities retained and consistent?			Yes					
Rel	9.1) Are the relati	ionships betweer	n the objects retain	ed?		ware does not ha ne this informatior		ry tools to	
(J) (D) (d)	10.1) Is geometry	read correctly?			Yes				

	11.1) Did the normals change?	No			
	11.1.1) What changes / inconsistencies / errors / other issues were noted?	They didn't change (visually)			
	11.1.2) Attach screenshots				
(3D	12.1) Is it possible to view the model in 3D?	Yes			
2D/3D	13.1) Is it possible to view the model in 2D?	Yes			
	14.1) Is it possible to edit the model (attributes, geometry, other)?				
yin	15.1) Is it possible to query the model and the attributes?	Yes			
Queryin g	15.1.1) What kinds of query are possible?	You can perform queries on object types and any attribute. This works well and fast.			



ACCA PriMus-IFC BIM 2(b) (64 bit) - Windows 10 Home

Proprietary software

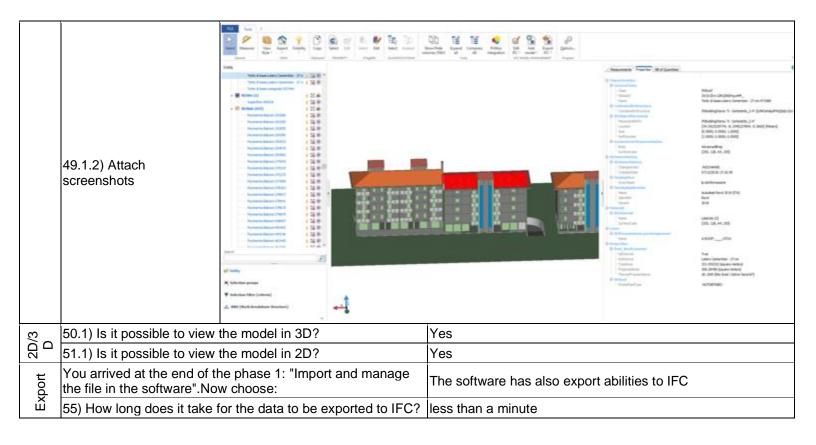
BIM

Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use the software)

	16.1.3) Time required to p model itself (type 1)	erform the analysis about the	No analysis of type 1 are possible			
	16.2) short comments to the	he previous question (optional)	I can't assess this, because I don't have any suitable input data.			
	You arrived at the end of t the file in the software".No	he phase 1: "Import and manage ow choose:	The software has also export abilities to IFC			
	17.1) Are any pre-process the software to enable a co	ing or setting changes needed in onsistent export?	Yes			
	17.1.1) Can you add a sho in the pre-processing?	ort description of the steps involve	d You have to choose between adding additional properties or not			
Export	17.1.2) Attach screenshots and files	cpand Compress PriMus Integration IFC IFC	<u> </u>			
		ose the IFC model view definition	No			
	(MVD) to be used when ex	xporting the data? for the data to be exported to IFC	? less than a minute			
	i, i i i i i i i i i i i i i i i i i i	Test with U				
	How long does it take, app	proximately, to:Import (and	it crashes without completing the operation			

	Test with Savigliano.ifc					
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	less than a minute				
Φ	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate				
Performance	How long does it take, approximately, to:Pan the model	it's almost immediate				
Ĕ	How long does it take, approximately, to:Rotate the model	it's almost immediate				
erfc	How long does it take, approximately, to:Query an object	it's almost immediate				
۵	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	the software does not allow this				
	39) Attach screenshots regarding the eventually reported errors.					
	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	The software does not have the necessary tools to check this information				
	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	The software does not have the necessary tools for checking it				
	42.1) Is the model oriented correctly with respect to the true North?	Yes				
	43.1) Does the model maintain its correct dimensions and proportions?	Yes				
IFC defi	44.1) Is the eventual translation consistent with the IFC definitions?	Yes				
Hier	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools to determine this information				
Attri bute	46.1) Are the attributes present in the IFC entities retained and consistent?	Yes				
oi: S	47.1) Are the relationships between the objects retained?	Yes				
Relatio nships	47.2) short comments to the previous question (optional)	It seems like they are retained, but I could only find many "IfcRelConnectsPathElements" relations.				
(J) (a) (d)	48.1) Is geometry read correctly?	Yes				
la l	49.1) Did the normals change?	No				
Normal s	49.1.1) What changes / inconsistencies / errors / other issues were noted?	I haven't noticed anything off.				

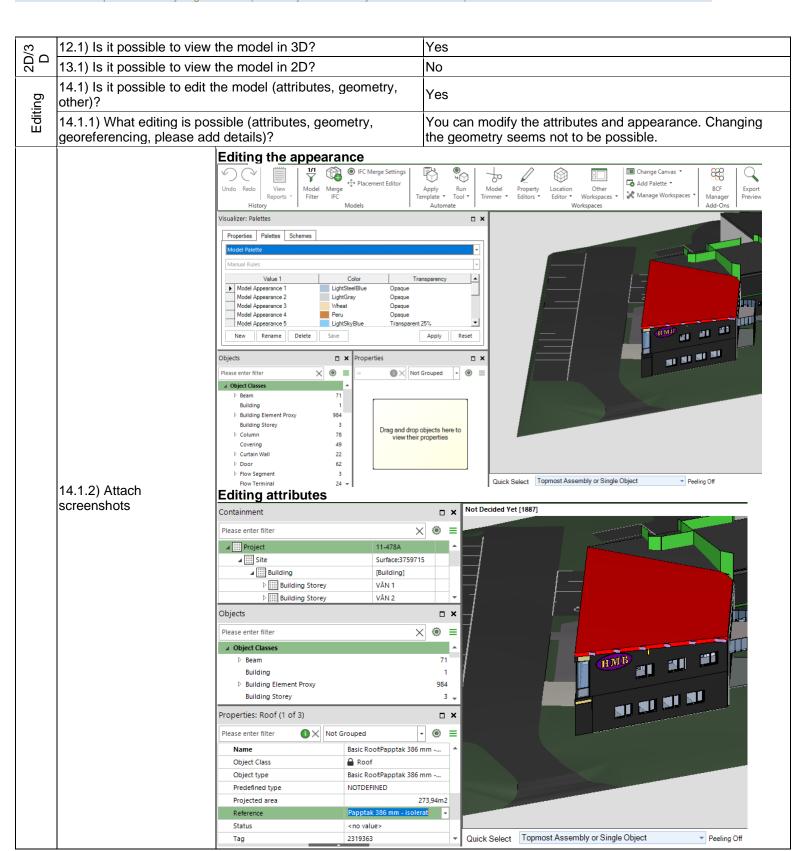
BIM



Simplebim

<u>r</u> e	Software Name [version]	Simplebim [8.0]		Software	re house				
Software	Proprietary or ope	en source software	e?	Kind of s	software				
Š	proprietary BIN			ВІМ					
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ 3.20GHz	AMD Ra		8 GB	120 GB	20 GB	
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC expo certificat status		Export certification date	Export certification program		
Cer	not certified			not certi	fied				
			Test	with My	ran.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				less thar	n a minute			
Performance	How long does it model to see mor		ly, to:Zoom into th	ne	it's almost immediate				
Jrma	How long does it		-		it's almost immediate				
erfc	How long does it	,	· ·			st immediate			
	How long does it			_	it's almo	st immediate			
		take, approximate ied one through a		objects	the software does not allow this				
Georef	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?				The software does not have the necessary tools to check this information				
Hei	3.1) Are the "real- considered when			(z)?	The software does not have the necessary tools for checking it				
	4.1) Is the model North?	oriented correctly	with respect to th	e true	The software does not have the necessary tools to determine this information				
	5.1) Does the moproportions?	del maintain its co	rrect dimensions	and	Yes				
				Yes					
Hier	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?				ware does not ha		ry tools to		
Attri bute	8.1) Are the attrib and consistent?	utes present in the	e IFC entities reta	ined	Yes				
Rel atio	9.1) Are the relati	onships between	the objects retaine	ed?	The software does not have the necessary tools to determine this information			ry tools to	
(D) (a)	10.1) Is geometry	read correctly?			Yes				
Z 0 :	11.1) Did the norr	mals change?			No				

RIM



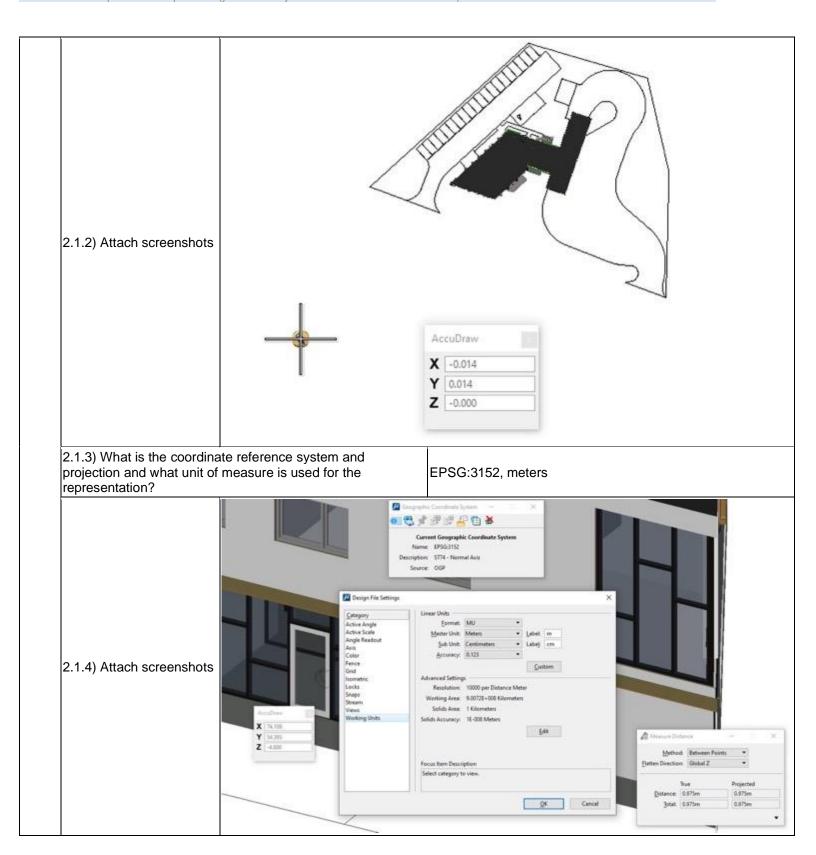
ne i	15.1) Is it possible to quer			No .		
	16.1) Is it possible to analyse the objects and the model?			No		
	16.1.1) What analysis are results are reliable?	16.1.1) What analysis are possible? Do you know if the results are reliable?			nless some functionalities in the as type 1 analysis. In that case, it	
		Possible type 1	analysis	•		
Analysis	16.1.2) Attach screenshots	A A A A A A A A A A A A A A A A A A A	add Geometry Tags adds the same tag to 3D of add Min and Max Elevation and Max Elevation and Space Access inds the relating space of auto-Assign Containment auto-assigns objects to be auto-Assign Containment auto-assigns objects to space of auto-Assign Containment auto-assigns objects to space Converter converts the parametric geometric grant auto-assigns objects to space Converter converts the parametric geometric grant auto-assigns objects to space auto-assigns objects to space auto-assigns objects to space auto-assigns objects auto-assigns object	bjects with identical geometry. Ion and Center Point Inun elevation and center point pro Dject for doors, windows and empty It: Building Storeys Iilding storeys based on their elevant: Spaces Iaces based on their position inside Ecometry of objects to brep geometry Inun elevation and center point pro Ionical strain and their position inside Ionical strain and building elemented Ionical strain and building elemented Ionical strain and Invalid GUIDs Iildi GUIDs with valid and unique on Iicate objects and excludes all founds Ionicated far away from the main mass Ionicated far away from the main far far away from the main far away from the main far away from the far away far away from the far away far	y openings and cre stion. e a space ry metry. sts s nes. d duplicates. ss of the model element parts	
	16.1.3) Time required to pomodel itself (type 1)	1.3) Time required to perform the analysis about the		No analyses of type 1 are possible		
	16.1.3) Time required to pomodel performances (type		sis about the	No analysis of type 2 are possible		
	You arrived at the end of t the file in the software".No		ort and manage	The software has also e	export abilities to IFC	

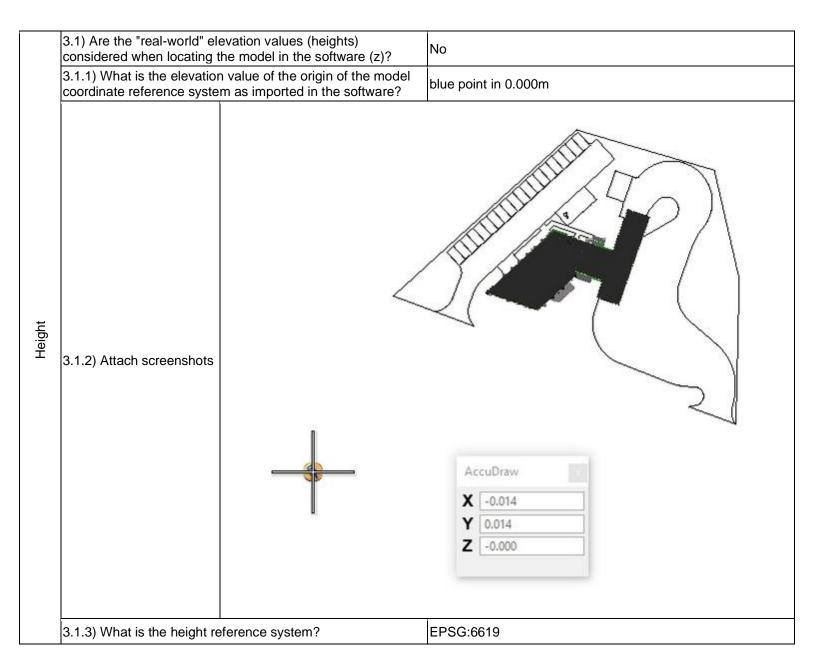
	18.1) Is it possible to choose the IFC model view definition (MVD) to be used when exporting the data?	No			
	19) How long does it take for the data to be exported to IFC?	less than a minute			
	Test with UpT	own.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	5-20 minutes			
φ	How long does it take, approximately, to:Pan the model	less than a minute			
anc	How long does it take, approximately, to:Rotate the model	less than a minute			
orm	How long does it take, approximately, to:Query an object	less than a minute			
Performance	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	the software does not allow this			
	Please report on any errors the software gives when importing the file.	No errors			
	24.1) Does the model maintain its correct dimensions and proportions?	Yes			
IFC defi	25.1) Is the eventual translation consistent with the IFC definitions?	Yes			
Hie	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools to determine this information			
utes	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes			
Attributes	27.2) short comments to the previous question (optional)	Yes, they are all retained, except for the attributes that had empty values			
Rel atio	28.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information			
O 0	29.1) Is geometry read correctly?	Yes			
Nor	30.1) Did the normals change?	Yes			
Žμ	30.2) short comments to the previous question (optional)	Yes, visually			
2D/3 D	31.1) Is it possible to view the model in 3D?	Yes			
	32.1) Is it possible to view the model in 2D?	No			
Q = 0	34.1.1) What kinds of query are possible?	No querying possible			
Export	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC			
ш	36) How long does it take for the data to be exported to IFC?	1-5 minutes			
	Test with Savigliano.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	less than a minute			
Performance	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate			
rform	How long does it take, approximately, to:Pan the model	it's almost immediate			
Pe	How long does it take, approximately, to:Rotate the model	it's almost immediate			
	How long does it take, approximately, to:Query an object	it's almost immediate			

	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	the software does not allow this	
	38) Please report on any errors the software gives when importing the file.	No errors	
	39) Attach screenshots regarding the eventually reported errors.		
	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	The software does not have the necessary tools to check this information	
	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	The software does not have the necessary tools for checking it	
Orie ntati	42.1) Is the model oriented correctly with respect to the true North?	The software does not have the necessary tools to determine this information	
	43.1) Does the model maintain its correct dimensions and proportions?	Yes	
	44.1) Is the eventual translation consistent with the IFC definitions?	Yes	
	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools to determine this information	
Attri bute	46.1) Are the attributes present in the IFC entities retained and consistent?	Yes	
Rel atio	47.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information	
ന ക	48.1) Is geometry read correctly?	Yes	
<u>8</u>	49.1) Did the normals change?	No	
		INO	
Normal	49.1.1) What changes / inconsistencies / errors / other issues were noted?	Visually, it seems like it hasn't changed.	
Norm S	49.1.1) What changes / inconsistencies / errors / other		
	49.1.1) What changes / inconsistencies / errors / other issues were noted?		
/3D	49.1.1) What changes / inconsistencies / errors / other issues were noted? 49.1.2) Attach screenshots	Visually, it seems like it hasn't changed.	
	49.1.1) What changes / inconsistencies / errors / other issues were noted? 49.1.2) Attach screenshots 50.1) Is it possible to view the model in 3D?	Visually, it seems like it hasn't changed. Yes	

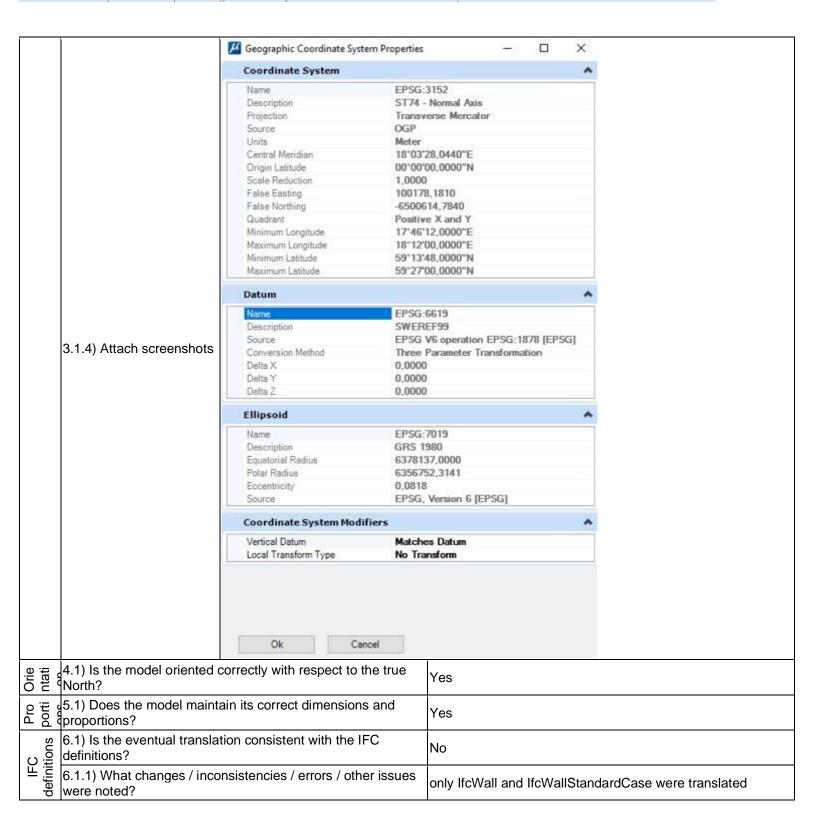
Bentley MicroStation + TerraSolid

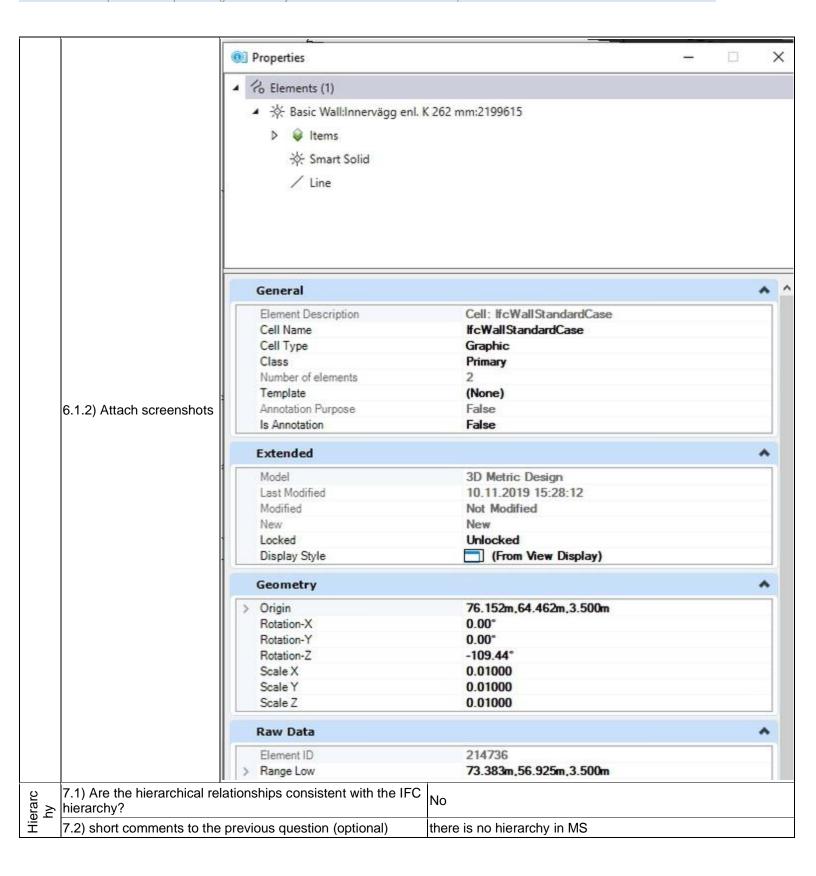
Software	Software Name [version] MicroStation + TerraSolid [MS Connect Edition 10.04.00.46 + TerraScan 19.004]		Software house		Bentley Systems				
	Proprietary or open source software?			Kind of	Kind of software				
	proprietary			CAD	CAD				
ıter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	Dell G5 15, 2018	Windows 10 Home	i7-8750H	NVIDIA GeForce GTX1060 6GB		32	461	22	
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC export certification status		Export certification date	Export certification program		
Cer	not certified			not certi	fied				
	Test with			with My	yran.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model			less than a minute					
	How long does it take, approximately, to:Zoom into the model to see more detail			it's almost immediate					
nce	How long does it take, approximately, to:Pan the model			it's almost immediate					
Performance	How long does it take, approximately, to:Rotate the model			it's almost immediate					
Perfc	How long does it take, approximately, to:Query an object			it's almost immediate					
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship			it's almost immediate					
	Please report on any errors the software gives when importing the file.			lack of errors					
Georeferenci ng	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?			No					
Geore	2.1.1) Where is the origin of the model coordinate reference system as imported in the software?			Blue point in almost 0,0,0					





CAD



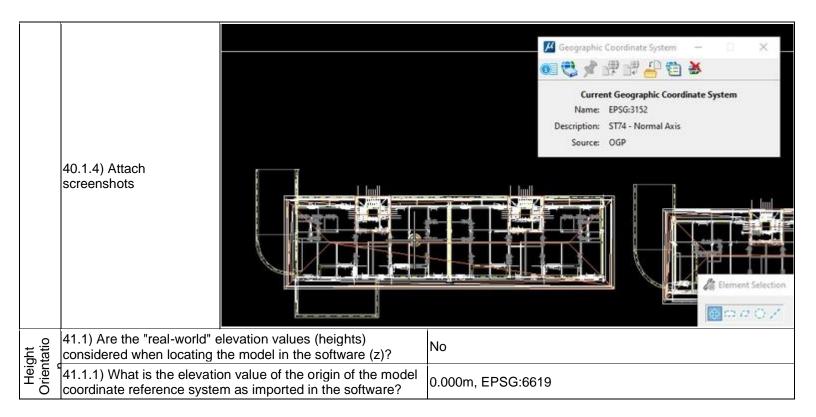


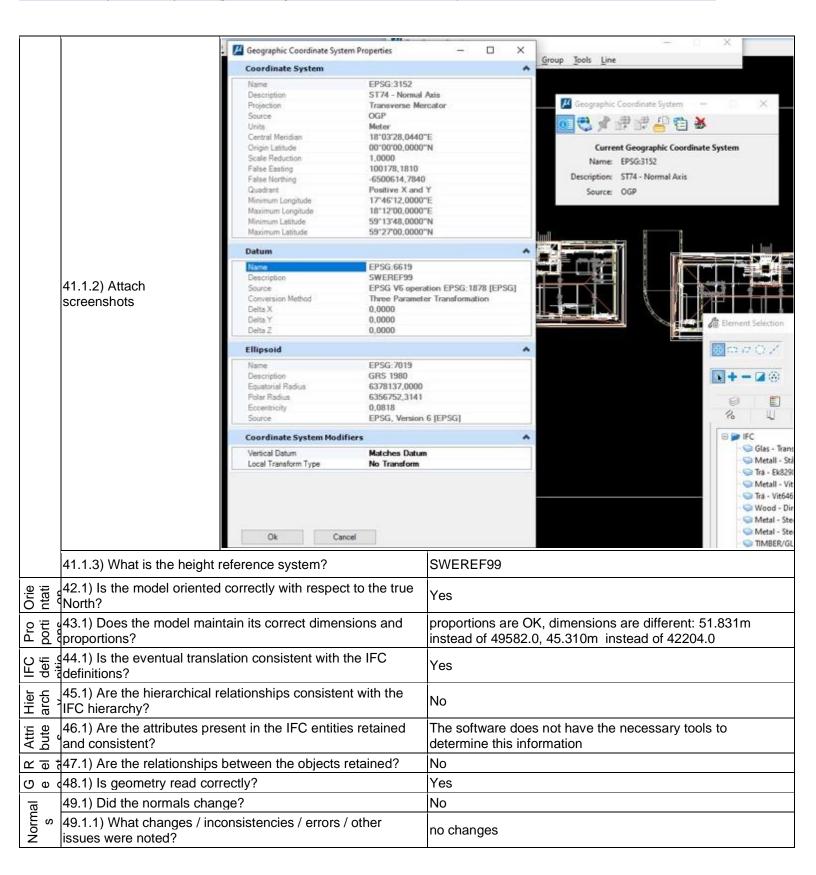
	8.1) Are the attributes present in the IFC entities retained and consistent?	No		
	8.1.1) What changes / inconsistencies / errors / other issues were noted?	there are no properties like IsExternal and so on, only Reference is assigned		
Attributes	8.1.2) Attach screenshots	Comment Content Cont		
≃ ভ চ	9.1) Are the relationships between the objects retained?	Yes		
() o ()	10.1) Is geometry read correctly?	Yes		
a	11.1) Did the normals change?	No		
Normal	11.1.1) What changes / inconsistencies / errors / other issues were noted?	no changes		
0/3	12.1) Is it possible to view the model in 3D?	Yes		
2D/3 D	13.1) Is it possible to view the model in 2D?	Yes		
Editing	14.1) Is it possible to edit the model (attributes, geometry, other)?	partially		
Edi	14.2) short comments to the previous question (optional)	moving, deleting and changing attributes in IfcClass are available, editing geometry not		
Ø = 0	15.1) Is it possible to query the model and the attributes?	No		
	16.1) Is it possible to analyse the objects and the model?	No		
Sis	16.1.1) What analysis are possible? Do you know if the results are reliable?	none		
Analysis	16.1.3) Time required to perform the analysis about the model itself (type 1)	No analysis of type 1 are possible		
	16.1.3) Time required to perform the analysis about the model performances (type2)	No analysis of type 2 are possible		
Exp	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot export to IFC, therefore skip the phase 2		

		Test with UpT	Town.ifc		
	How long does it take, approximately, to:Zoom into the model to see more detail		it's almost immediate		
	How long does it take, approximately, to:Pan the model		it's almost immediate		
	How long does it take, approximately, to:Rota	e the model	it's almost immediate		
	How long does it take, approximately, to:Quer	y an object	the software does not allow this		
	How long does it take, approximately, to:Inspelinked to the queried one (Element 3) through		the software does not allow this		
	Please report on any errors the software gives importing the file.	when	lack of errors, via File->Import import was unsuccessful at 18 min, via drag and drop import was successful after 106 sek		
= -	24.1) Does the model maintain its correct dim proportions?	ensions and	proportion are OK, dimensions are: 84365.5584 instead of 84171.9, 59210.4897 instead of 59349.0, 23000.0000 instead of 22958.2, 25829.3420 instead of 25018.0		
	24.2) short comments to the previous question	n (optional)	differences in dimensions are similar as in Myran model		
	25.1) Is the eventual translation consistent wit definitions?	h the IFC	Yes		
	26.1) Are the hierarchical relationships consis IFC hierarchy?	tent with the	No		
Hierarchy	26.1.2) Attach screenshots	Princey State County Street S	Plant		
At bu	27.1) Are the attributes present in the IFC entiand consistent?	ties retained	Yes		
י פי פ	29.1) Is geometry read correctly?		Yes No		
	30.1) Did the normals change?				

	32.1) Is it possible to view the model in 2D?	Yes		
Exp	You arrived at the end of the phase 1: "Import and mathe file in the software". Now choose:	The software cannot export to IFC, therefore skip the phase 2		
	Test with Savigliano.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	1-5 minutes		
	How long does it take, approximately, to:Zoom into the model to see more detail	e it's almost immediate		
	How long does it take, approximately, to:Pan the mod	el it's almost immediate		
	How long does it take, approximately, to:Rotate the m	odel it's almost immediate		
	How long does it take, approximately, to:Query an obj	ect the software does not allow this		
	How long does it take, approximately, to:Inspect the clinked to the queried one through a relationship	bjects the software does not allow this		
	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	No		
	40.1.1) Where is the origin of the model coordinate reference system as imported in the software?	X=-0.014m, Y=0.014		
Performance	40.1.2) Attach screenshots	AccuDraw X -0.014 Y 0.014 Z 0.000		
	40.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?	EPSG:3152, meters		

CAD





Bentley MicroStation + TerraSolid [MS Connect Edition 10.04.00.46 + TerraScan 19.004] - Windows 10 Home Proprietary software CAD Level of tester expertise: 3 - Expert user (you know very well the technical details and tricks)

/3		50.1) Is it possible to view the model in 3D?	Yes
2D,		51.1) Is it possible to view the model in 2D?	Yes
Exp	ort	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot export to IFC, therefore skip the phase 2

FME Desktop

Software	Software Name [version] FME Desktop [2019.2 build 19800]			Software house www.safe.			www.safe.cor	.com/downloads	
	Proprietary or open source software?			Kind of software					
	proprietary				Extract/	Extract/Transform/Load			
Computer	Model and year	ear Operating system		CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
	Dell Latitude 3400 x64 i7- 8586U 2019	i7-		x64 i7-8586U	GeForce MX130 NVidia		16	940	405
Certificatio n	IFC import certification status	Import certificate date	tion	Import certification program	IFC expectations of the certification of the certif		Export certification date	Export certification program	
Ce	not certified				not certi	fied			
				Test	with My	ran.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				less than a minute				
	How long does it take, approximately, to:Zoom into the model to see more detail			he	less than a minute				
	How long does it take, approximately, to:Pan the mod			del	it's almost immediate				
	How long does it take, approximately, to:Rotate the n				nodel it's almost immediate				
	How long does it take, approximately, to:Query an ob				oject it's almost immediate				
Performance	the objects linked to the		to locate needs to	elationships such as parent id are read when the dataset is initially read, so these can be used locate a parent feature using a filter query. Takes a few mouse clicks to do this and user eeds to copy the parent_id, select the IFC_Stair feature type, open the filter query, select lobalID and then paste the parent id value, so that's why it takes about a minute.					
	Please report on any errors the software gives when importing the file.			Varnings logged in Data Inspector Log while reading the dataset. Many of these are incidental and do not necessarily indicate an error or problem. The coordinate system was not found in the lataset, and some traits might have been dropped, though these are likely not significant. The varning included text as follows: "Worker 86976 > Coordinate system named FC_COORDSYS_0 does not exist. Worker 86976 > Last line repeated 25 times Worker 17736 > Error encountered while copying traits to generated solids. Some solid components may be missing traits, appearances, measures or attributes Error encountered while copying raits to generated solids. Some solid components may be missing traits, appearances, measures or attributes Worker 97736 > Last line repeated 4 times"					
Georeferencing	2.1) Are the world (projected) coordinates taken into a when locating the model in the software's coordinate reference system?								
	2.2) short comments to the previous question (18.06499999972222) to accurate. FME can use n			Latitude (59.33199999972223) and RefLongitude geolocate the model. In this dataset these values seem to be not very orthing and easting values as offsets to correct the georeferencing. Ilimeters, so we use a Scaler to scale to meters which is the default					

	Other		Other_ FME uses IfcSite RefElevation (148200 mm or 148.2m) when geolocating.				
tatio	4.1) Is the model oriented correctly with respect to the true North?			Yes			
Orientatio n	4.2) short comments to the previous question (optional)			Orientation looks the same in FME as in the GeoBIM website sample screenshots			
	5.1) Does the model maintain its correct dimensions and proportions?			Yes			
tions				n 2D. Data Inspector does not allow the measurement of e made in an FME Workspace using transformers (Zmax - teractively in Data Inspector.			
Proportions	5.2) short comments to the previous question (optional) of tra		Dimensions and proportions are correct in 2D. Data Inspector does not allow the measurement of dimensions in 3D. These measurements could be made in an FME Workspace using transformers (Zmax - Zmin etc), but there is no interface tool for doing this interactively in Data Inspector. Proportions appear correct in 3D. The spatial extents of an object appear in the bbox range shown for the selected object. This could be used to estimate 3D dimension.				
	6.1) Is the education definitions?		ation consistent with the IFC	Yes			
IFC definitions	6.2) short comments to the previous question (optional)		All significant properties and ids appear to be read correctly. Compared to the GeoBIM screenshots, there appear to be some properties that are not read, including OwnerHistory, ObjectPlacement, Representation. With the exception of OwnerHistory, most of these properties are really internal file references - specifically file line number references. Some of the relationship information looks quite different between FME and the tool screen shots shown on the Benchmark Myran.ifc data webpage. This is because FME resolves the relationships and inserts the parent ids.				
	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?						
Hierarchy	7.2) short counter the previous (optional)	omments to s question	Yes the relationships are maintained, both in terms of feature type and ifc_parent_id relationships. Some of the relationship information looks quite different between FME and the tool screen shots shown on the GeoBIM benchmark Myran.ifc dataset webpage. Most of the reference properties shown are really internal file references - specifically file line number references. FME does not display these internal properties but rather resolves these references and reads the associated parent ids, properties, geometries or appearances instead. For example, Element 1 has the following properties in the GeoBIM example screenshot: Has Associations (#923061), IsDefinedBy (#528514), ObjectPlacement (#926190), ContainedInStructure (#919402). Rather than display these line number references, FME resolves them to include the parent id such as ifc_parent_id: 2p1EsZz71B6BQESW\$gr9GJ for Element 1. For example, the attached screen shots show how the parent_id can be used to find the containedInStructure. Following the reference using filter features function in Data Inspector allows the user to find the opening that the door belongs to and then the wall that the opening belongs to.				
	Other Other_ Attributes that are found a OwnerHistory ObjectPlacement R			ree: Globalld, Name, ObjectType, Tag. Missing: epresentation			
	8.2) short comments to the previous question (optional) The properties and ids are read continuous formula in 7.1 above			rrectly except for internal file reference properties described			
Relati	(9.1) Are the relationships between the objects retained? Yes						

9.2) short comments to the previous question (optional)

Basic visual inspection for previous question. Screen shots show how parent objects such as containing walls can be found by following the parent id references.

10.1) Is geometry read correctly?

Yes

10.2) short comments to the previous question (optional)

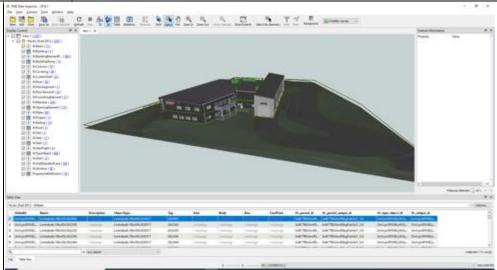
There are several different read modes in FME which can affect how geometries are grouped. The default mode for the FME IFC reader is relational mode. In this mode FME reads primary object properties as attributes. Object geometries and their properties are read as nested, named FME geometries and geometry traits. So for IFCDoor, the attributes store properties such as GlobalID, ifc_unique_id, Name, etc, and the geometry contains a combination of null and Body geometries. The null geometries store traits such as property sets, appearances and materials. Body geometries store multi-surfaces and solids as appropriate. In the case of IFCDoor, the combination of materials, appearances, properties and property sets are stored as an aggregate of null and body geometries with the geometry name = IfcDoor. For more info see: https://docs.safe.com/fme/html/FME_Desktop_Documentation/FME_ReadersWriters/ifc/IFC_reader.htm

11.1) Did the normals change?

No

11.1.1) What changes / inconsistencies / errors / other issues were noted?

No obvious differences were found between the way FME displayed the Myran dataset vs the GeoBIM website screenshots or Solibri viewer



11.1.2) Attach screenshots

Normals

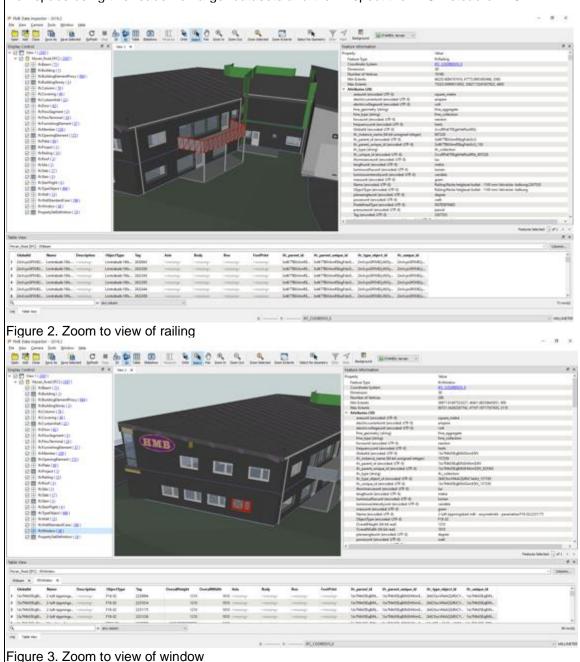
Fig. 1 FME Data Inspector show dataset full extents

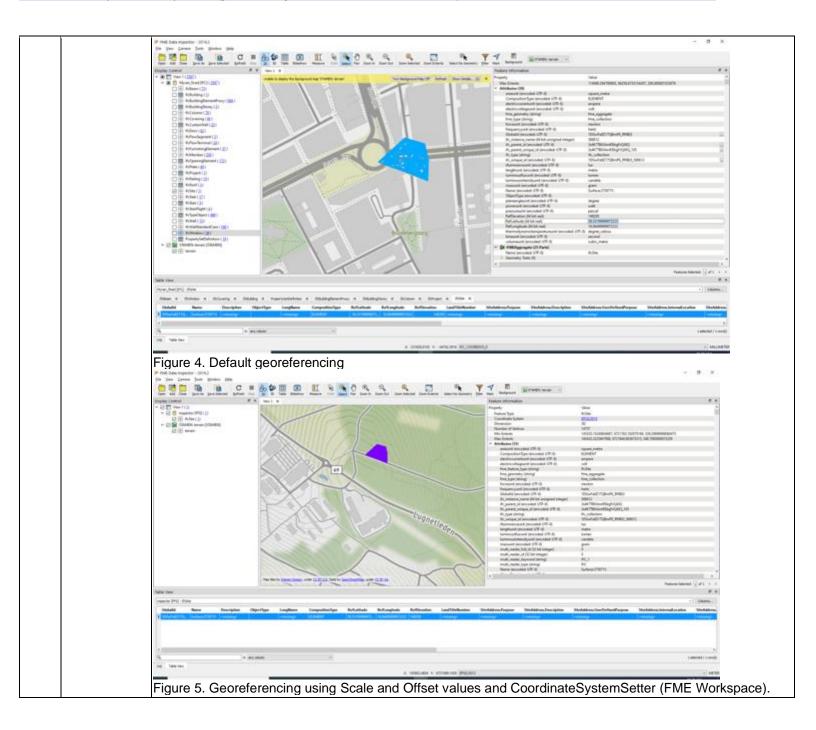


Fig. 2 FME Data Inspector alternate reader formats for IFC: 'Industry Foundation Class STEP/XML files (IFC)' and 'IFC with Data Views'

Note that FME has 2 different readers for reading data from the IFC format: 'Industry Foundation Class STEP/XML files (IFC)' and 'IFC with Data Views'. The IFC reader is the standard reader for IFC and preserves the data model and structure of IFC. This is the best format to use when writing or updating IFC.

The 'IFC with Data Views' is a consolidated data view version of the IFC reader / writer. It uses the standard IFC reader / writer under the hood but also builds data views that have all the geometry traits embedded in the geometry model such as PropertySets added to the feature attributes. This means you don't have to scroll through the nested geometry structure to inspect geometry sets but can see all the values together in the feature attributes. This also makes it a lot easier to map these values to new values such as for a translation to CityGML. This evolved from an earlier version of our Revit importer that imported from Revit via IFC before we had a native Revit reader. That is why it still has 'revit' as the short name. IFC with Data Views is the best reader to use for inspecting IFC data and for IFC to GIS workflows such as IFC to CityGML. Note that this format reader has more overhead than the standard reader, so it is advisable to create an IFC to FFS workspace using this reader for larger datasets and then inspect the FFS instead of IFC.





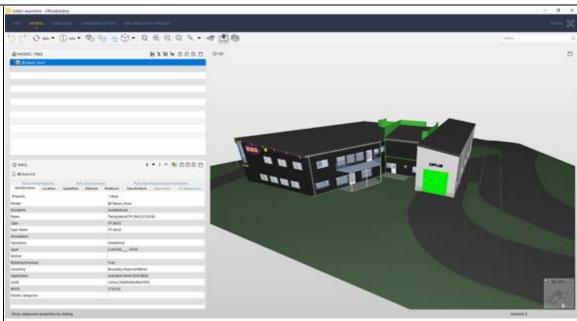


Figure 6. Comparison screenshot using Solibri

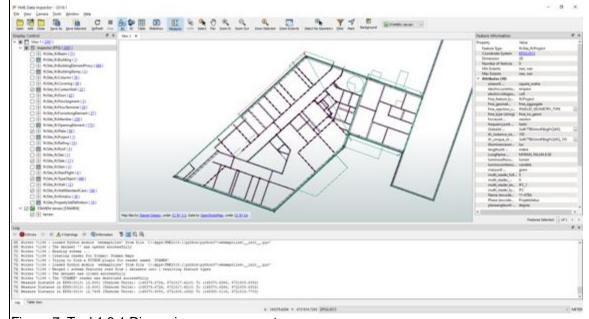
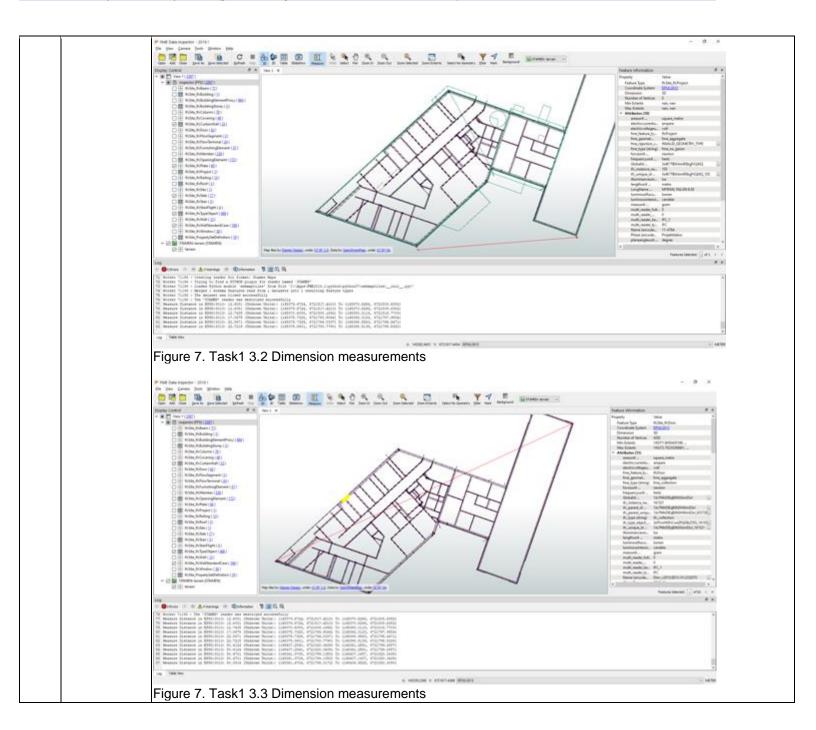
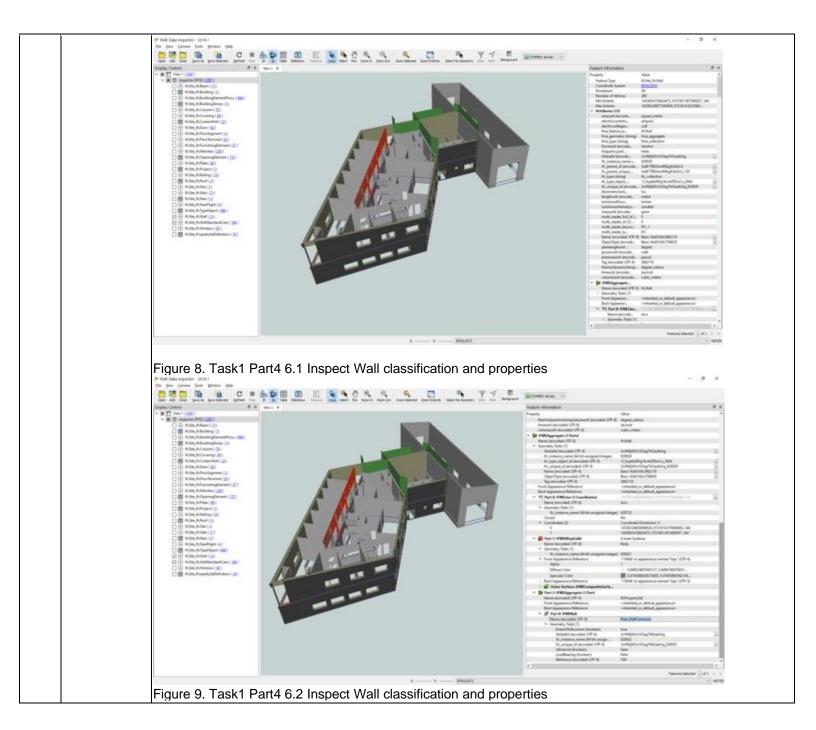


Figure 7. Task1 3.1 Dimension measurements

Extract/Transform/Load



Extract/Transform/Load



Extract/Transform/Load

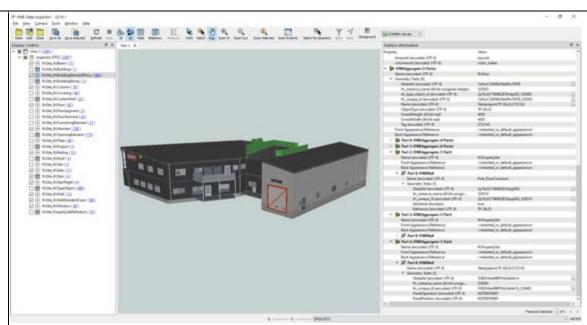


Figure 10. Task1 Part4 7.1 Inspect Wall classification and properties

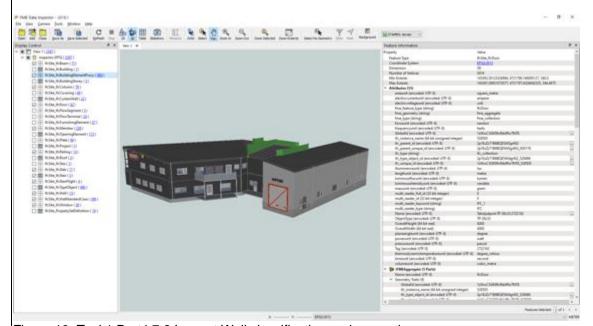


Figure 10. Task1 Part4 7.2 Inspect Wall classification and properties

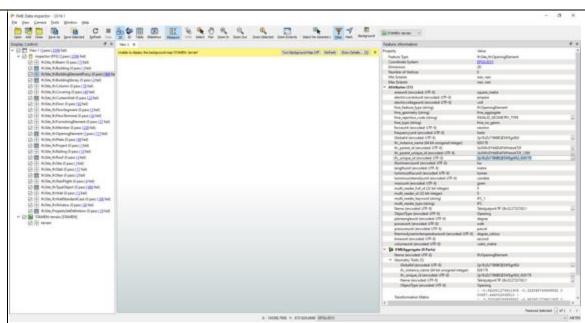


Figure 11. Task1 Part4 7.2 Use ifc_unique_parent_id from IFCDoor to find parent IfcOpeningElement with same ifc_unique_id

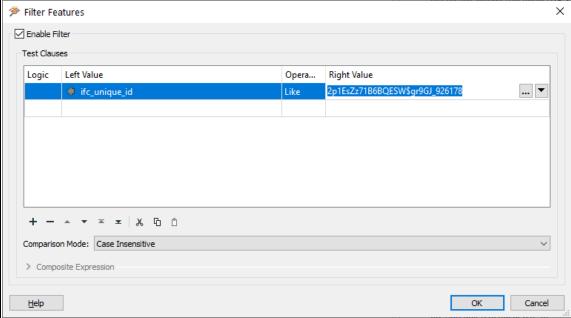


Figure 12. Task1 Part4 7.2 Use ifc_unique_parent_id from IFCDoor to find parent IfcOpeningElement with same ifc_unique_id – filter query.

Extract/Transform/Load

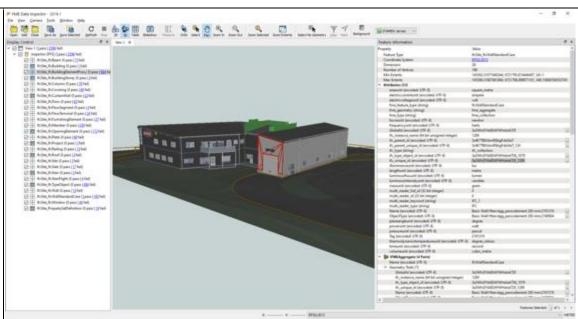


Figure 13. Task1 Part4 7.2 Use ifc_unique_parent_id from IFCDoor to find parent IfcOpeningElement with same ifc_unique_id – parent containing wall.

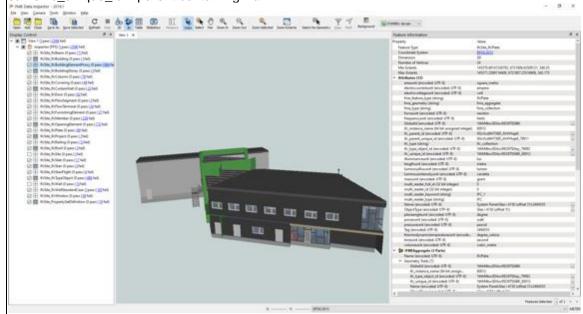
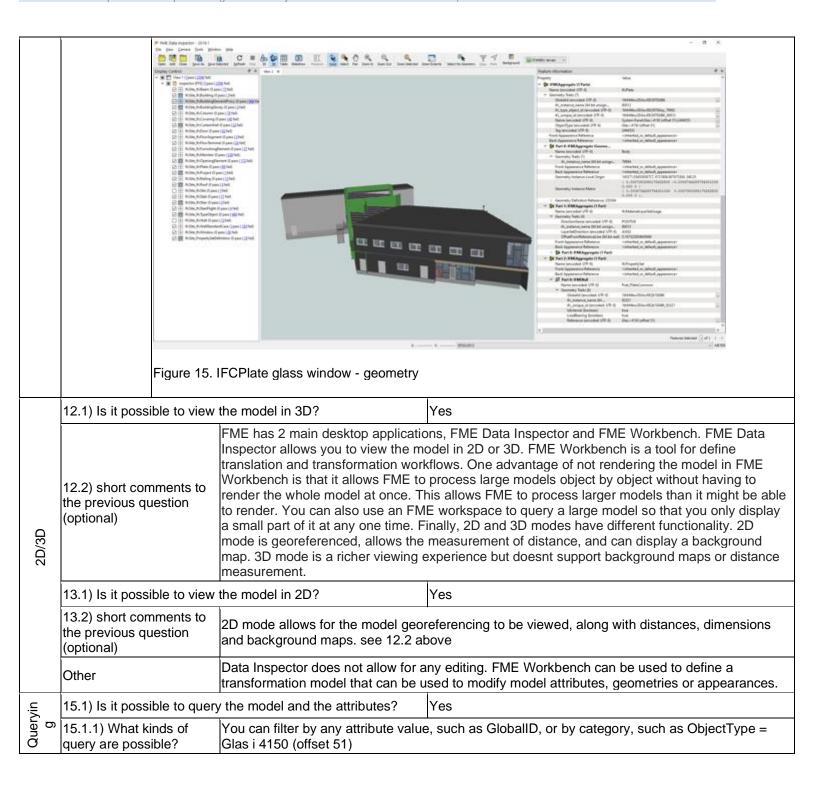
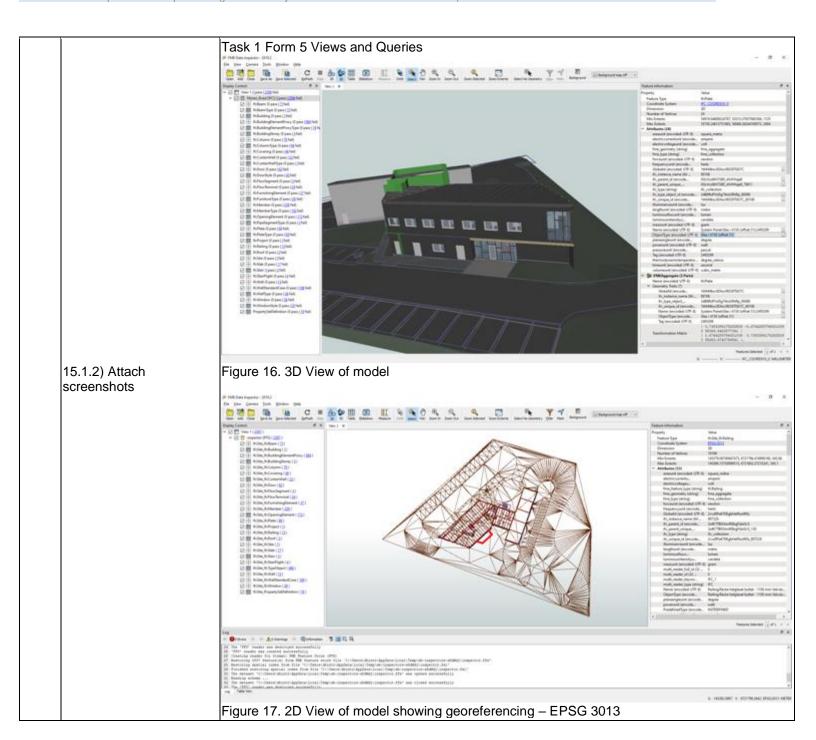
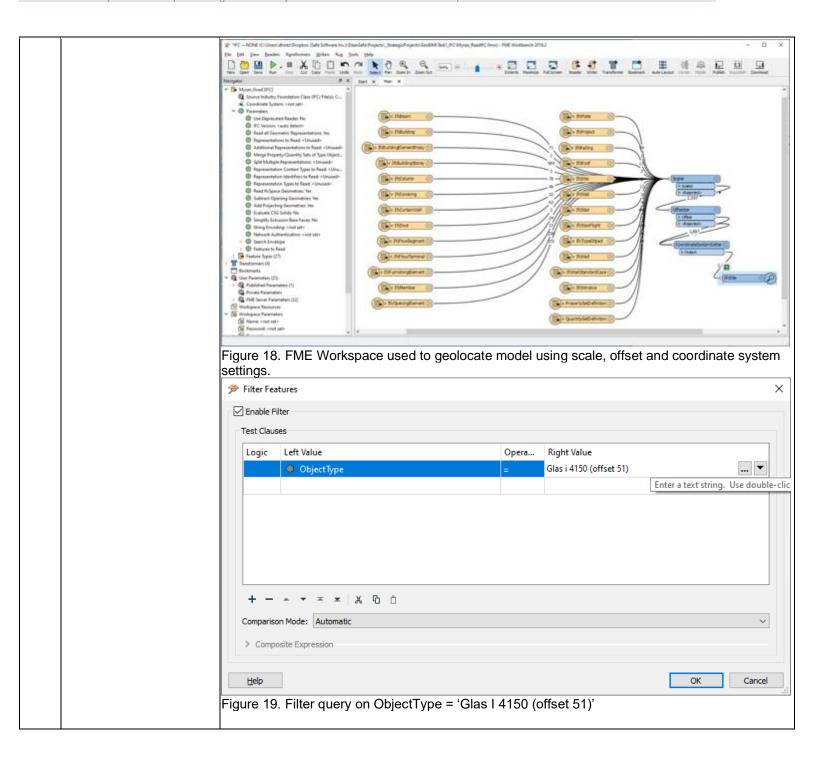


Figure 14. IFCPlate glass window - attributes



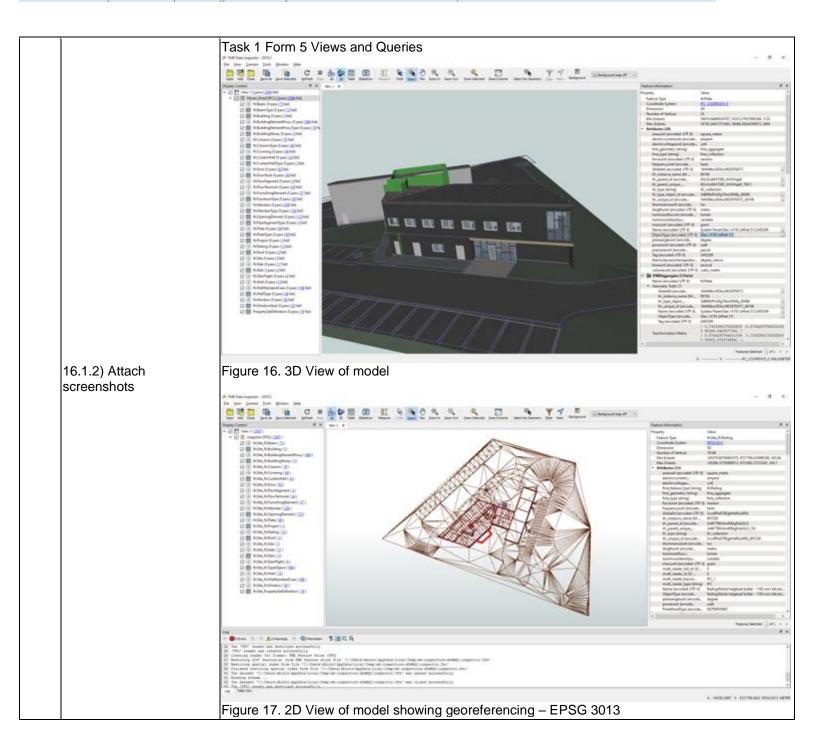


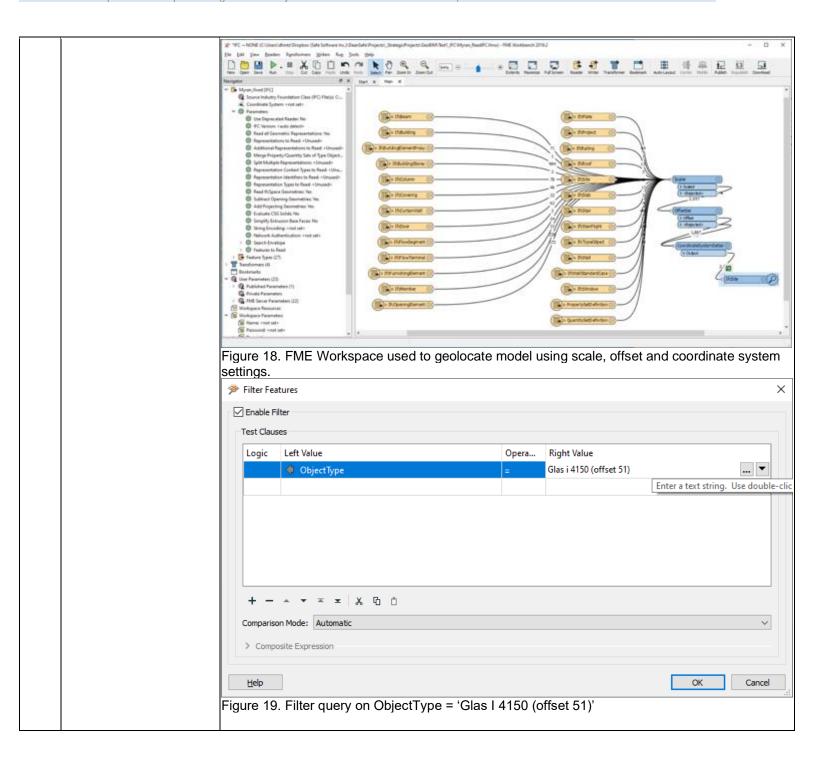
Extract/Transform/Load

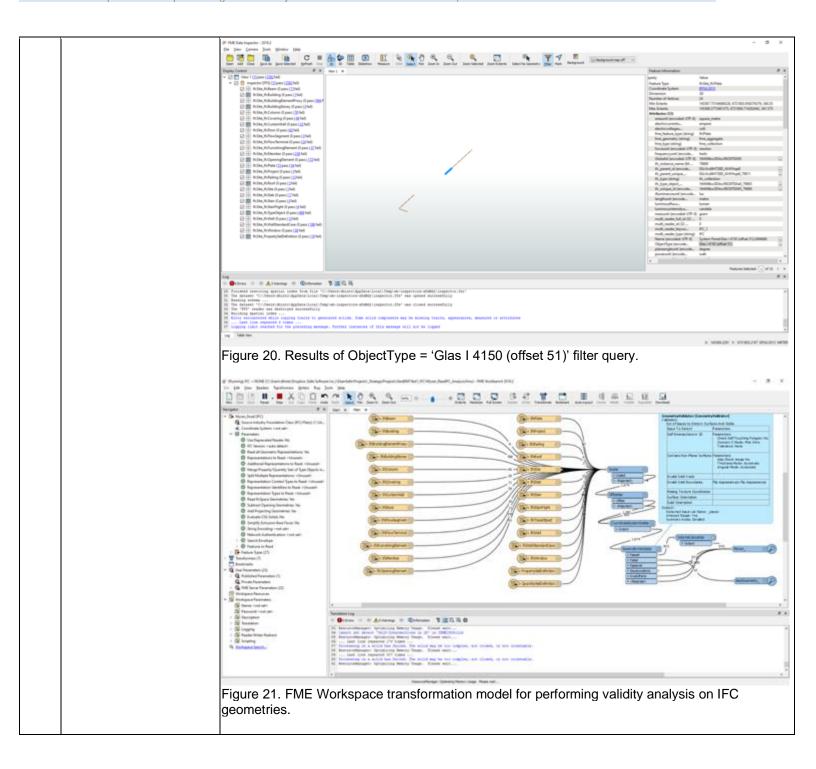


Extract/Transform/Load
Level of tester expertise: 3 - Expert user (you know very well the technical details and tricks)

		Proceedings Procedure Pr	Fortiers followed one yearly Trainers by Trainers (per Entlant, 1-10 to 1-1	Electric to		
		The first product of the process of	mode, swind (AU 2012). 2 mode, mode (AU 2012). 3 mode, mode (AU 2012). 4 mode, mode (AU 2012). 5 mode, mode (AU 2012). 5			
	15.2) short comments to the previous question (optional)	FME workbench allows users to create ETL or transformation workflows called FME workspaces. Workspaces can be used to automate changes or updates to individual model components or to the model as a whole. Transformations can also be used to convert the model to an alternate representation suitable for another format such as CityGML or 3DPDF				
	16.1) Is it possible to analyse the objects and the model?	Yes, both analysis about the model and its performances are possible (type 1 and 2)				
<	16.1.1) What analysis are possible? Do you know if the results are reliable?	Analysis of both model validity and performance are possible. However, typically domain experts are required to conduct performance analysis such as energy. FME has tools such as GeometryValidator, AttributeValidator, AreaCalculator, VolumeCalculator, Tester and many other transformers which can be used in combination to do model validity analysis. FME also supports slope and aspect analysis so this has been used to conduct analysis of solar photovoltalic potential. However, Safe Software does not provide out of the box solutions for either type of building analysis. Users can design their own workflows for this or share them via the FME Community and FME Hub.				







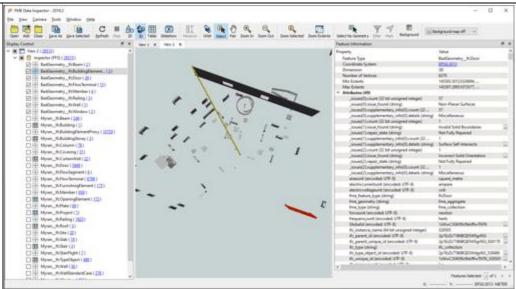
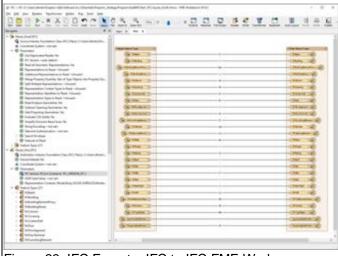


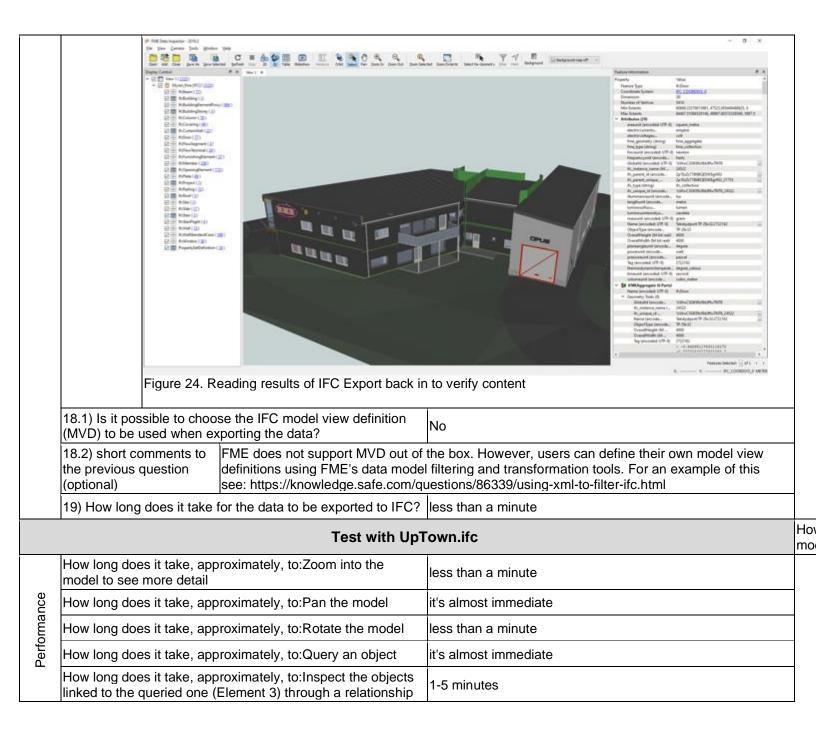
Figure 22. Results from transformation model for performing validity analysis on IFC geometries. Shows IFCDoor with invalid geometry including non-planar surfaces, invalid solid boundaries and self intersections

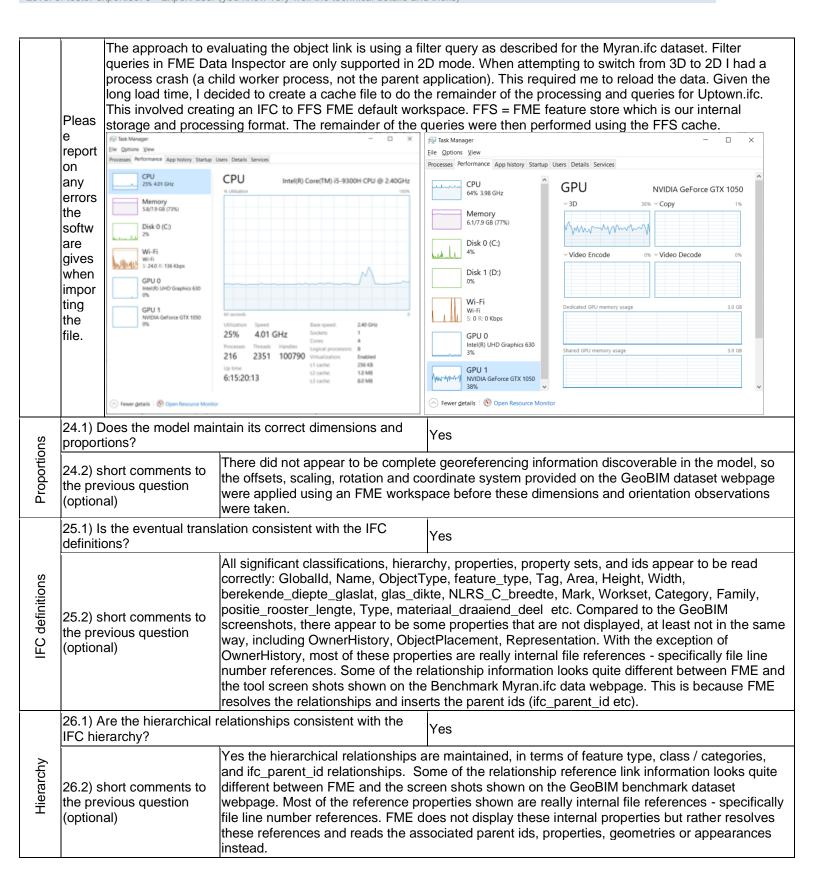
16.1.3) Time required to perform the analysis about the model itself (type 1)	1-5 minutes
16.1.3) Time required to perform the analysis about the model performances (type2)	1-5 minutes
16.2) short comments to the previous question (optional)	The time required depends on the size of the model and the type of analysis being performed.
You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC
17.1) Are any pre-processing or setting changes needed in the software to enable a consistent export?	No

No setting or pre-processing required. However, since the default IFC version is 4 on the writer, you need to set it to 2x3 if you want to keep it the same as the source for Myran_fixed.ifc

17.2) short comments to the previous question (optional)







	T		,			
Attribute s	27.1) Are the attributes pr and consistent?	esent in the IFC entities retained	Yes			
Attri	27.2) short comments to t	he previous question (optional)	as above			
Relatio nships	28.1) Are the relationship	s between the objects retained?	Yes			
Rela nsh	28.2) short comments to t	he previous question (optional)	as above			
	29.1) Is geometry read co	rrectly?	Yes			
Geometry	29.2) short comments to the previous question (optional)	There are several different read modes in FME which can affect how geometries are grouped. The default mode for the FME IFC reader is relational mode. In this mode FME reads primary object properties as attributes. Object geometries and their properties are read as nested, named FME geometries and geometry traits. Representations are stored in the geometry names. So for IFCDoor, the attributes store properties such as GlobalID, ifc_unique_id, Name, and the parent geometry is parent IFCDoor and contains a combination of pull and Body.				
	30.1) Did the normals cha	nge?	No			
	30.1.1) What changes / No obvious problems with normals were observed. If there were issues with normals, we would inconsistencies / errors / other issues were noted? No obvious problems with normals were observed. If there were issues with normals, we would expect to see differences in transparency, materials on the wrong side etc. Refer to screen shots for UpTown.ifc					
Normals	30.1.2) Attach screenshots	somewhat challenging since the p differently. What FME calls 'Attribu	Uptown.IFC dataset at full extents w, comparison with GeoBIM website screenshots can be roperties, relationships and attributes are displayed attes' seem to correspond to a lot of the relationship or e website (ids and classification). Also, for much of what			

GeoBIM calls 'attributes', with FME this information is stored as traits within the geometry aggregates (materials, property sets, appearances etc). The following screenshots simply page through all the attributes, geometries and traits available for the Elements in question using the Feature Information window in FME Data Inspector.

Please contact the author if there are any questions on how to interpret these results. Note that free demo licenses of FME are available for educational and research purposes, so that is always an option for anyone who wishes to test this for themselves from

https://www.safe.com/free-fme-licenses/

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Fig 2. Uptown Element 1 IfcSlab: Feature Information - Attributes (hierarchy: FeatureType, Globalld, Name, ObjectType)

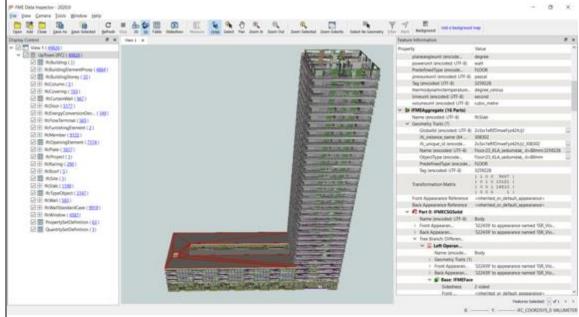
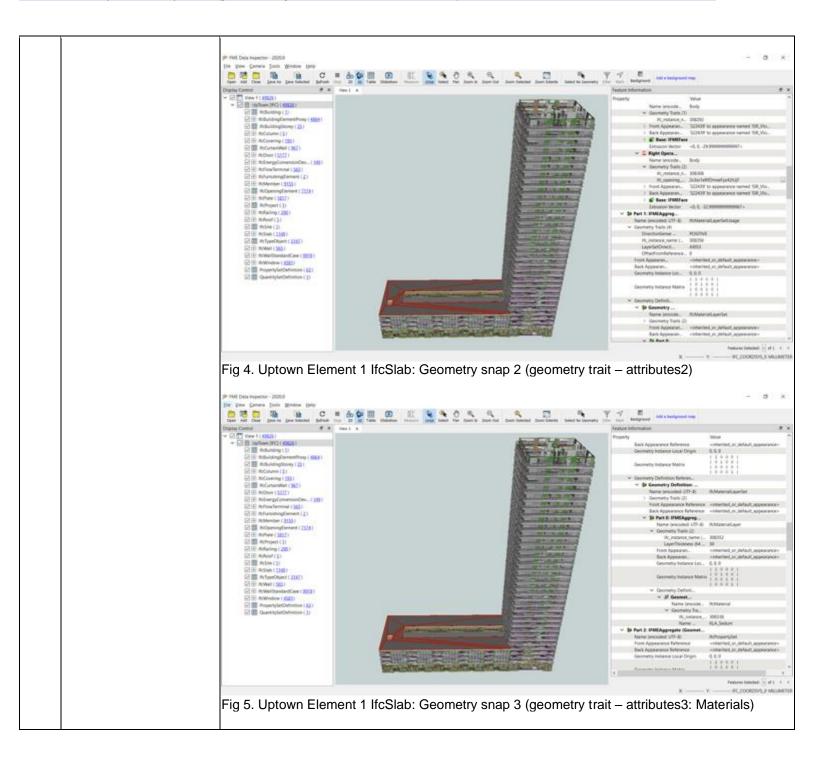


Fig 3. Uptown Element 1 IfcSlab: Feature Information - Geometry screenshot/snap 1 (geometry aggregate part 0 traits / attributes: Name, PredefinedType, Tag, ObjectType, ids)



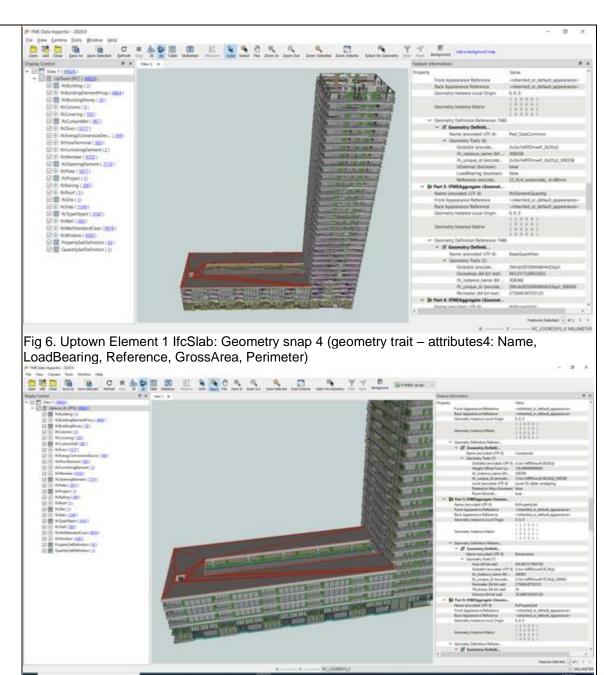
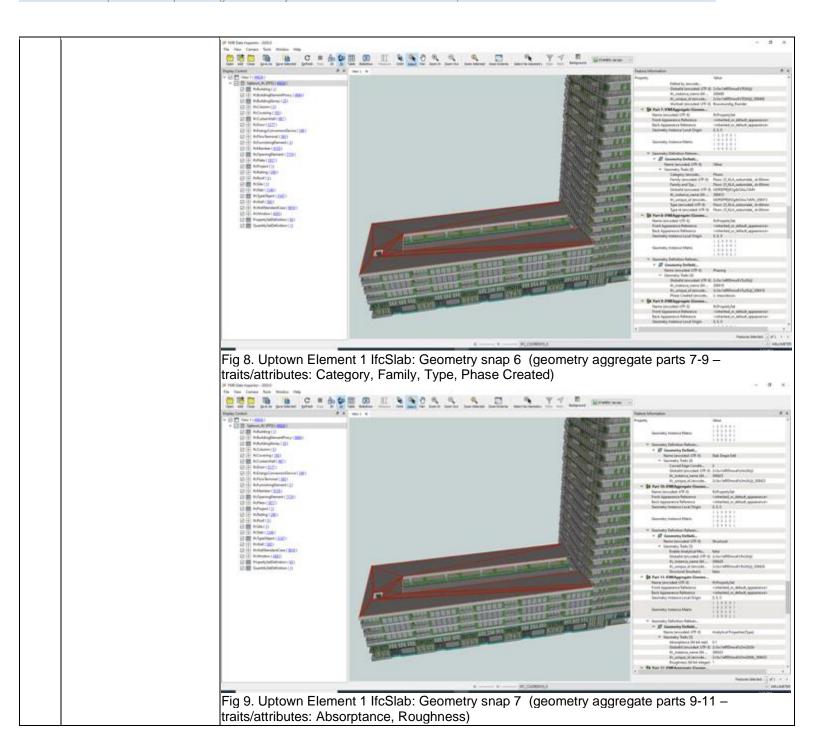


Fig 7. Uptown Element 1 IfcSlab: Geometry snap 5 (geometry aggregate parts 4-6 – traits/attributes: Height Offset, Level, Area, Volume, Perimeter, Thickness)



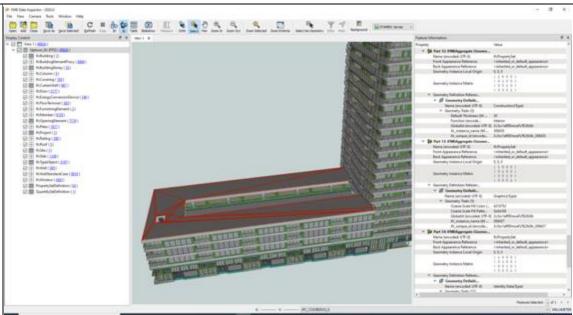


Fig 10. Uptown Element 1 IfcSlab: Geometry snap 8 (geometry aggregate parts 12-14 – traits/attributes: Default Thickness, Function, Appearances)

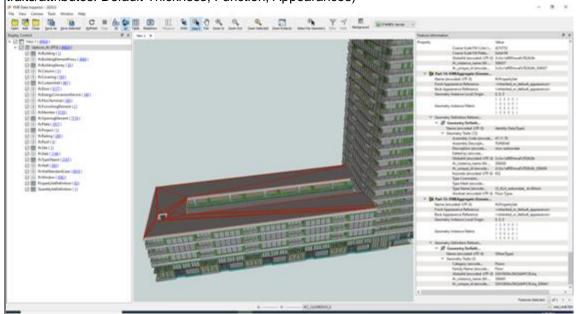
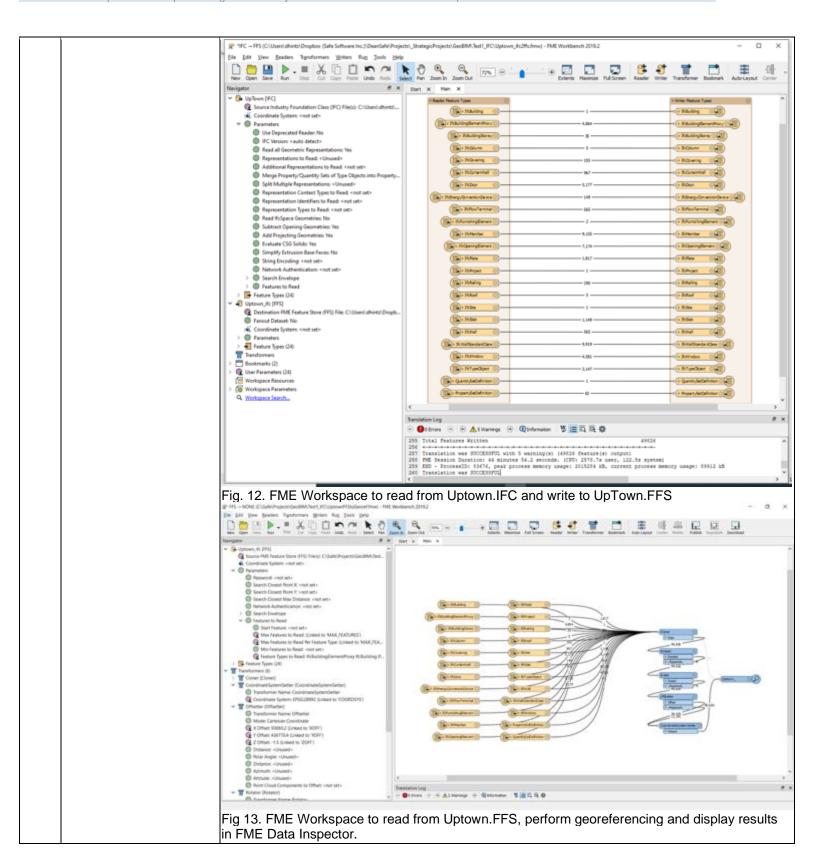
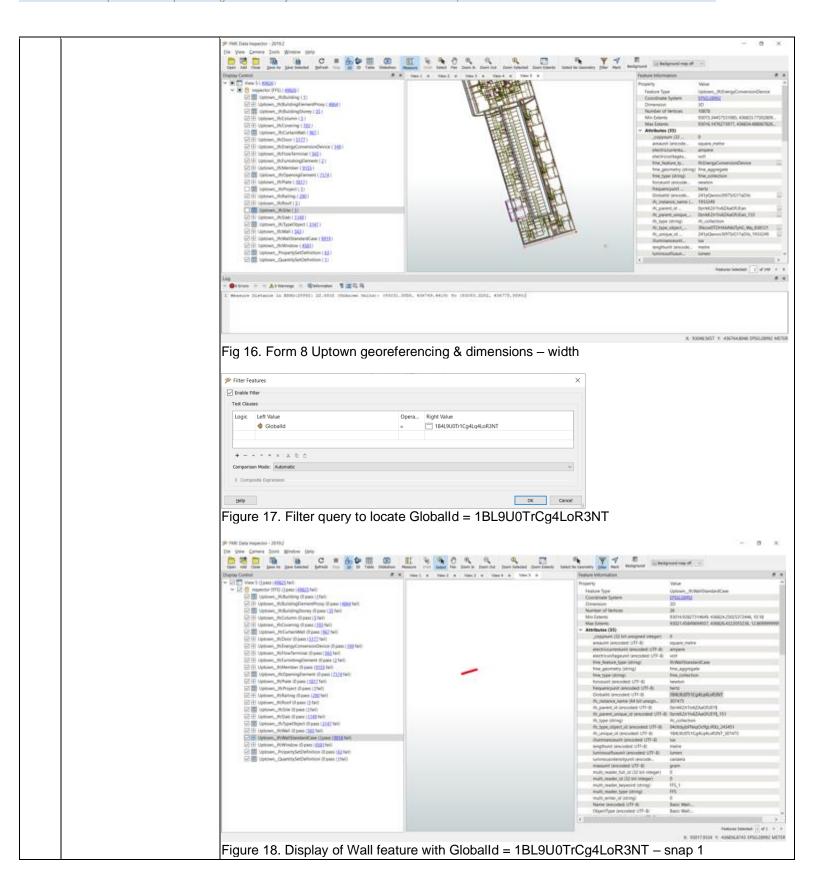


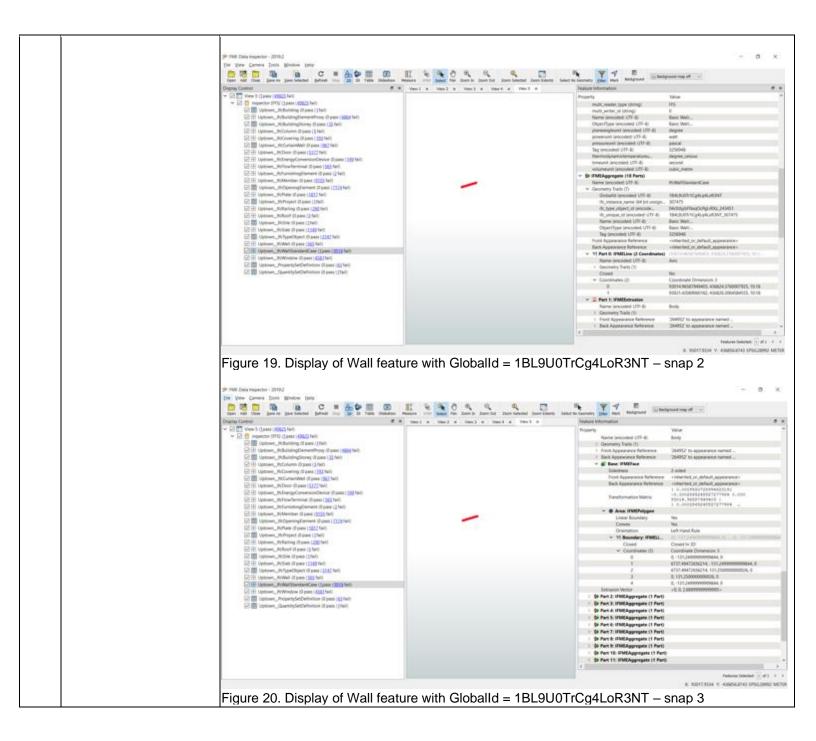
Fig 11. Uptown Element 1 IfcSlab: Geometry snap 9 (geometry aggregate parts 14-15 – traits/attributes: Assembly Code, Assembly Description, Type Name, Workset)

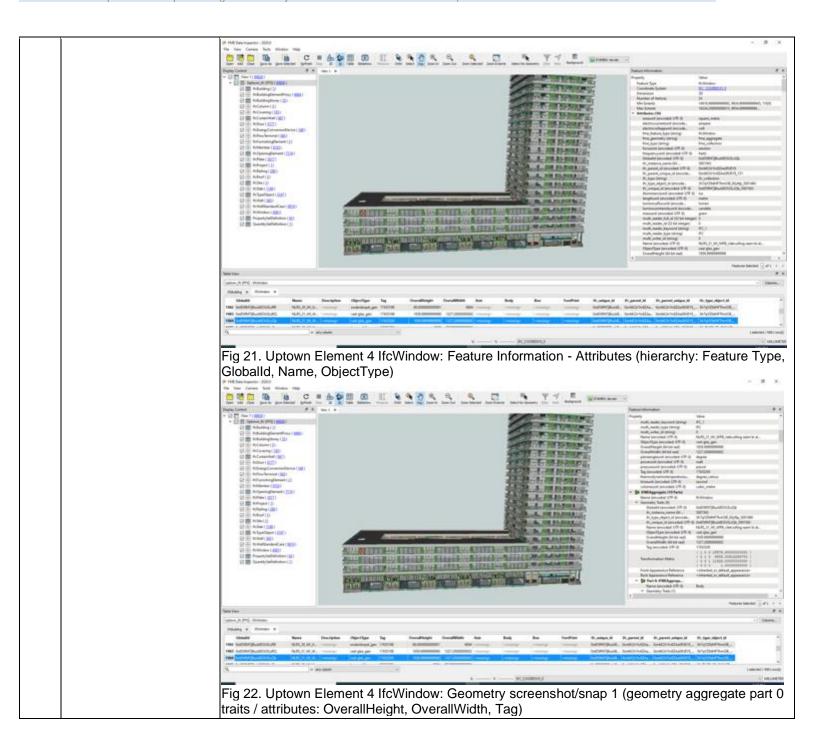
Given the relatively large size of the dataset, for the remainder of the IFC read tests, it was found to be more efficient to do the processing, inspection and queries for Uptown.ifc using an FME feature store cache called FFS - our internal storage and processing format. This involved creating an IFC to FFS default FME workspace. The FME Workspace was used to read from the Uptown.IFC source file and write to an FFS FME cache file. The remainder of the queries were then performed using the FFS cache (UpTown.FFS).











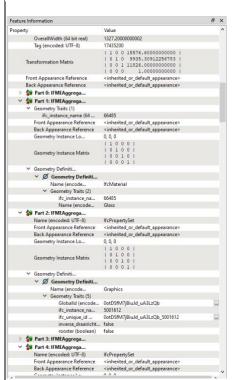


Fig 23. Uptown Element 4 IfcWindow: Geometry snap 2 (geometry aggregate parts 0-4 traits / attributes: Name, Appearances)

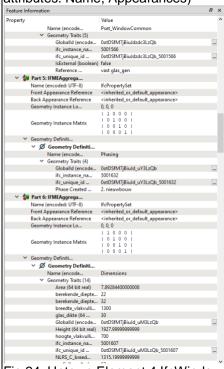


Fig 24. Uptown Element 4 IfcWindow: Geometry snap 3 (geometry aggregate parts 5-6 traits / attributes: Area, Height, Berekende_*, glas_dikte, hoogte_*)

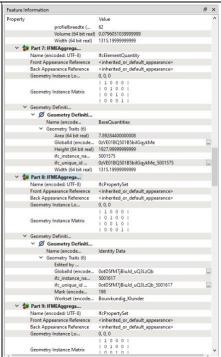


Fig 25. Uptown Element 4 IfcWindow: Geometry snap 4 (geometry aggregate parts 7-9 traits / attributes: Mark, Workset)

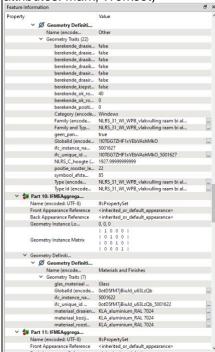


Fig 26. Uptown Element 4 IfcWindow: Geometry snap 5 (geometry aggregate parts 9-11 traits / attributes: berekende_*, Category, Family, NLRS_C_Hoogte*, positive_rooster*, Type, glas_materiaal)

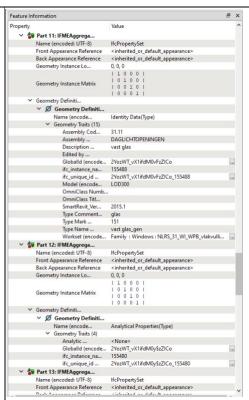


Fig 27. Uptown Element 4 IfcWindow: Geometry snap 6 (geometry aggregate parts 11-13 traits / attributes: Assembly Code, Description, Model, SmartRevit_Version, Type*, Workset, Property Sets)

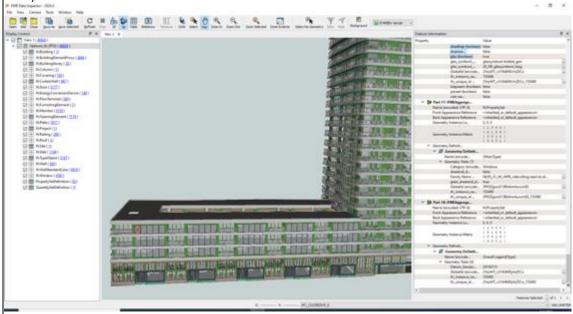
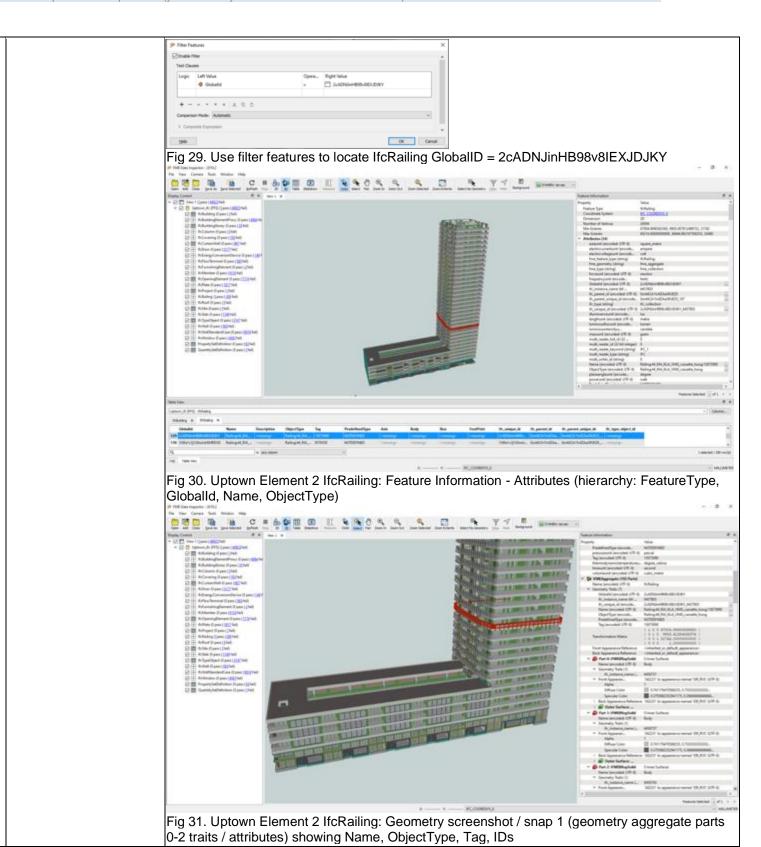


Fig 28. Uptown Element 4 IfcWindow: Geometry snap 7 (geometry aggregate parts 17-18 traits / attributes: glas*, Category, Family Name, Datum, paneel)



Proprietary software

Extract/Transform/Load

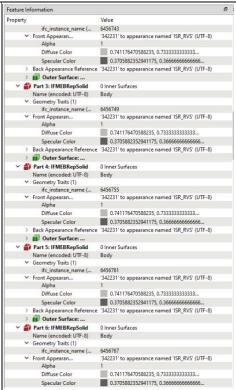


Fig 32. Uptown Element 2 IfcRailing: Geometry snap 2 (aggregate parts 3-6 traits / attributes) showing appearances

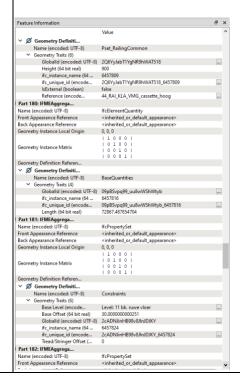


Fig 33. Uptown Element 2 IfcRailing: Geometry snap 3 (aggregate parts 180-182 traits / attributes) showing BaseQuantities, Base Level, Base Offset, Length



Fig 34. Uptown Element 2 IfcRailing: Geometry snap 4 (aggregate parts 183-184 traits / attributes) showing Workset, Family, Type

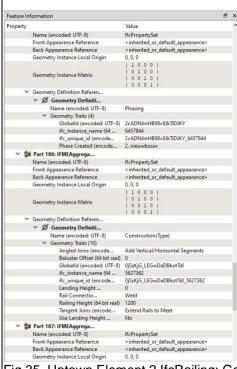


Fig 35. Uptown Element 2 IfcRailing: Geometry snap 5 (aggregate parts 186-187 traits / attributes) showing Name, Phase Created, Construction, Angled Joins, Rail Connection, Railing Height

Extract/Transform/Load

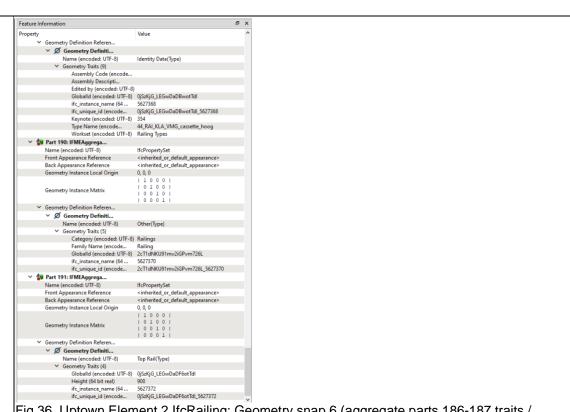


Fig 36. Uptown Element 2 IfcRailing: Geometry snap 6 (aggregate parts 186-187 traits / attributes) showing Asssembly Code, Description, Keynote, Type Name, Workset, Category, Family, Height

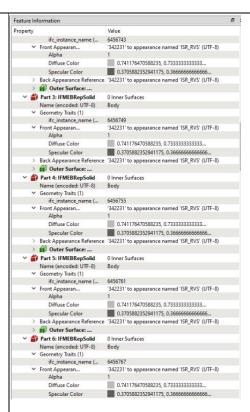


Fig 37. Uptown Element 2 IfcRailing: Geometry snap 2 (aggregate parts 3-6 traits / attributes) showing appearances

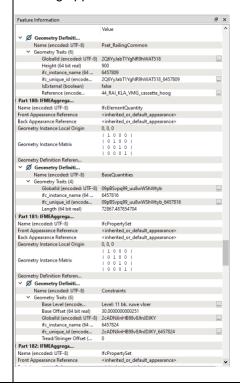


Fig 38. Uptown Element 2 IfcRailing: Geometry snap 3 (aggregate parts 180-182 traits / attributes) showing BaseQuantities, Base Level, Base Offset, Length



Fig 39. Uptown Element 2 IfcRailing: Geometry snap 4 (aggregate parts 183-184 traits / attributes) showing Workset, Family, Type

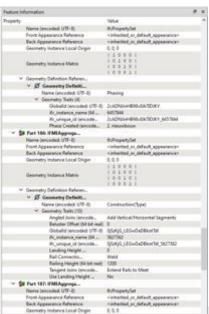


Fig 40. Uptown Element 2 IfcRailing: Geometry snap 5

(aggregate parts 186-187 traits / attributes) showing Name, Phase Created, Construction, Angled Joins, Rail Connection, Railing Height

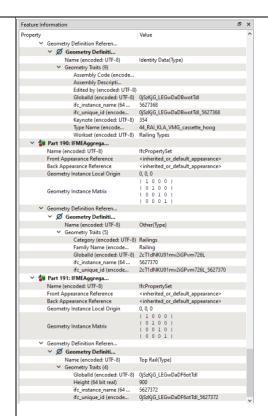
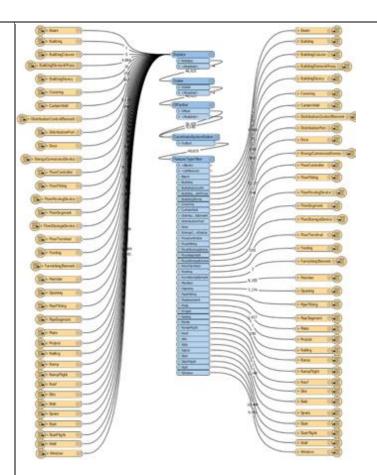
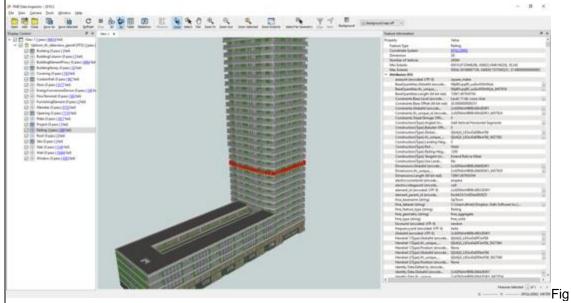


Fig 41. Uptown Element 2 IfcRailing: Geometry snap 6 (aggregate parts 186-187 traits / attributes) showing Asssembly Code, Description, Keynote, Type Name, Workset, Category, Family, Height



IFC 42. IFC with Data Views to FFS workspace



43. Uptown Element 4 IfcRailing: Feature Information – Attributes (page 1) using IFC with Data Views reader cached to FFS. Note the property sets are added to the attribute schema.

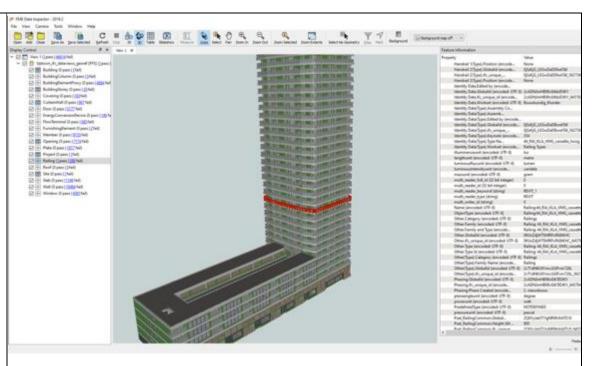


Fig 44. Uptown Element 4 IfcRailing: Feature Information – Attributes (page 2) using IFC with Data Views reader cached to FFS. Note the property sets are added to the attribute schema.

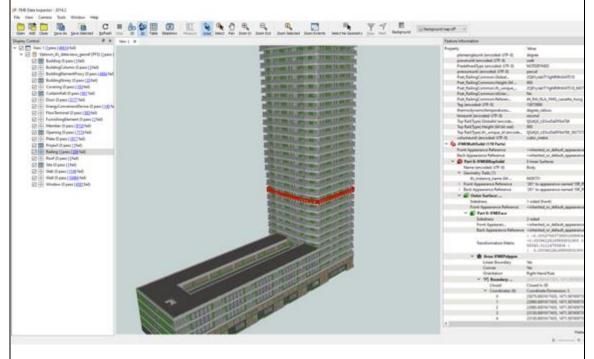


Fig 45. Uptown Element 4 IfcRailing: Feature Information – Attributes (page 3) using IFC with Data Views reader cached to FFS. Note the property sets are added to the attribute schema.

	30.2) short comments to the previous question (optional)	Note that in the screen shots below, comparison with GeoBIM website screenshots can be somewhat challenging since the properties, relationships and attributes are displayed differently. What FME calls 'Attributes' seem to correspond to a lot of the relationship or hierarchy information shown on the website (ids and classification). Also, for much of what GeoBIM calls 'attributes', with FME this information is stored as traits within the geometry aggregates (materials, property sets, appearances etc). The following screenshots simply page through all the attributes, geometries and traits available for the Elements in question using the Feature Information window in FME Data Inspector. Please contact the author if there are any questions on how to interpret these results. Note that free demo licenses of FME are available for educational and research purposes, so that is always an option for anyone who wishes to test this for themselves from https://www.safe.com/free-fme-licenses/		
	31.1) Is it possible to view	the model in 3D? Yes		
	As mentioned above, it is possible to view in 3D using FME Data Inspector. In general, to the previous question (optional) As mentioned above, it is possible to view in 3D using FME Data Inspector. In general, to machine used should have 16GB RAM and a dedicated video card. However, given the the Uptown.ifc, the model takes some time to load directly in Data Inspector and can ended to the Uptown.ifc, the model takes some time to load directly in Data Inspector and can ended to the Uptown.ifc, the model takes some time to load directly in Data Inspector and can ended to the Uptown.ifc, the model takes some time to load directly in Data Inspector and can ended to the Uptown.ifc, the model takes some time to load directly in Data Inspector and can ended to the Uptown.ifc, the model takes some time to load directly in Data Inspector and can ended to the Uptown.ifc, the model takes some time to load directly in Data Inspector and can ended to the Uptown.ifc, the model takes some time to load directly in Data Inspector and can ended to the Uptown.ifc, the model takes some time to load directly in Data Inspector and can ended to the Uptown.ifc and U			
	32.1) Is it possible to view	the model in 2D?		
2D/3D	32.2) short comments to the previous question (optional)	As mentioned above, it is possible to view in 3D using FME Data Inspector. In general, the machine used should have 16GB RAM and a dedicated video card. However, given the size of the Uptown.ifc, the model takes some time to load directly in Data Inspector and can encounter delays when zooming or changing display modes. Because of this we found better performance when using an FME workspace created in FME Workbench to convert the IFC to FME FFS file and then use Data Inspector to display that. 2D display works ok. Background map only visible in 2D. Also, we needed to flip to 2D mode to run the filter queries.		
	34.1) Is it possible to quer	the model and the attributes? The answers are the same I gave during the test with Myran.ifc		
Querying	34.1.2) Attach screenshots	Translation Parameter Values User Parameters		

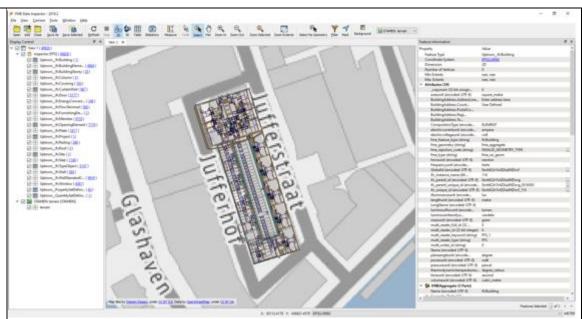


Fig 2. Display of UpTown.ifc in Data Inspector using 2D view mode showing georeferencing relative to Stamen background map (IfcBuilding attributes).

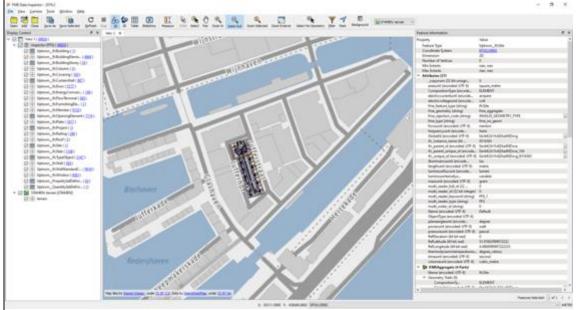


Fig 3. Display of UpTown.ifc in Data Inspector using 2D view mode showing georeferencing relative to Stamen background map – zoomed out (IfcSite attributes).

34.2) short comments to the previous question (optional)

Georeferening relative to background maps - this was adjusted for viewing purposes. OSM is like based on web mercator and thus not necessarily very accurate in terms of real world coordinates.

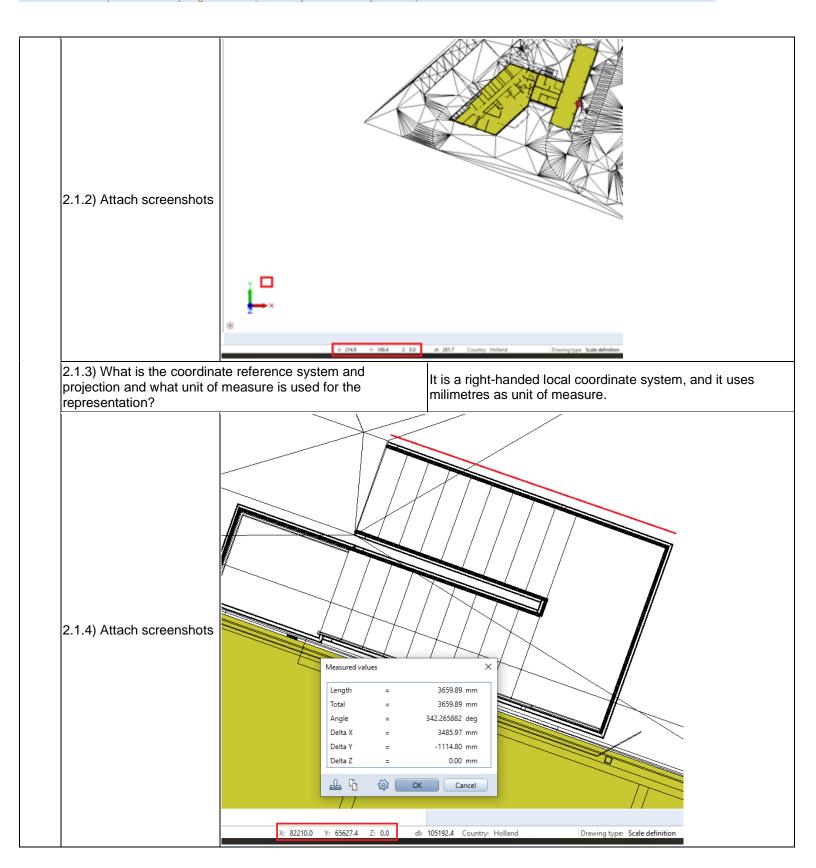
FME Desktop 2019.2 build 19800 - Windows 10 Home Proprietary software

Extract/Transform/Load
Level of tester expertise: 3 - Expert user (you know very well the technical details and tricks)

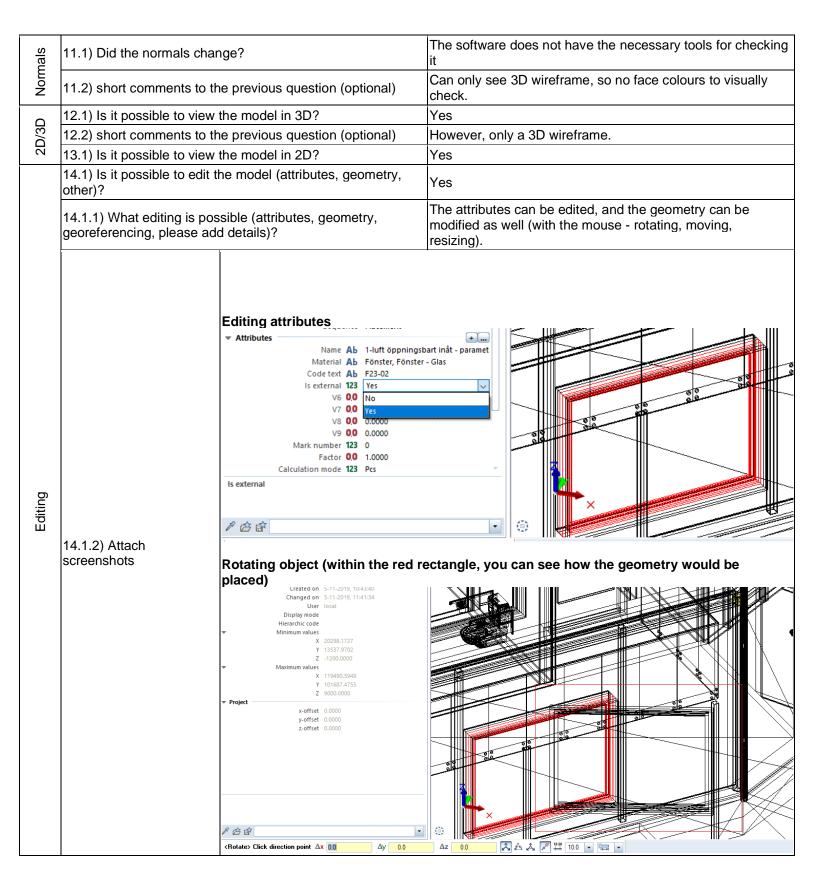
	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:		The software has also export abilities to IFC
	36) How long does it take	e for the data to be exported to IFC?	1-5 minutes
Export	36.1) Comments to the previous question (optional)	completed without any errors. Ther geometry type. For example: "WAF representation identifier 'Body' WARN IFC: Unable to write a geomost likely these feature types sho could use transformers to detect are 'Bday' is incorrect for this feature does allow for lines such as 'Annot	Installation completed in 1 minute and 3 seconds. Translation we were a number of warnings related to inappropriate RN IFC: Unable to write a geometry of type 'IFMEArc' with similar of type 'IFMELine' with representation identifier 'Body'" and be either mult-surface or solids not lines or arcs. FME and correct these problems. It may be that the geometry name type and this should be changed to something else that ation' or 'Footprint'. Full translation logs, FME workspaces in https://3d.bk.tudelft.nl/projects/geobim-kspaces.zip

Allplan

ē	Software Name [version] Allplan [2020] Sof			Software	oftware house /-			
Software	Proprietary or ope	en source software	e?	Kind of s	Kind of software			
Ň	proprietary			вім				
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
	self-built desktop (2013)	Windows 10 Home 64-bit		AMD Ra HD 7800		8 GB	120 GB	20 GB
ıtion	IFC import Import Import certification certification status date Import certification program IFC export certification status			Export certification date	Export certification program			
Certification	certified in (date)	2014-05-07	buildingSMART International IFC Certification 2.0	certified in (date)		2013-04-16	buildingSMART International IFC Certification 2.0	
			Test	with My	ran.ifc			
		take, approximate ftware allows it) th			1-5 minutes			
(1)	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate			
Performance	How long does it	take, approximate	ely, to:Pan the mod	del	it's almo	st immediate		
orm			ely, to:Rotate the m		it's almost immediate			
-Jerf	How long does it take, approximately, to:Query an object				it's almost immediate			
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship				less than a minute			
	Please report on any errors the software gives when importing the file.				It ignored 14 objects, but does not state which ones these are.			
Georeferenci ng	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate			No				
Geore		ne origin of the mo	del coordinate ref	erence	(0, 0) (a	at the reference po	oint)	



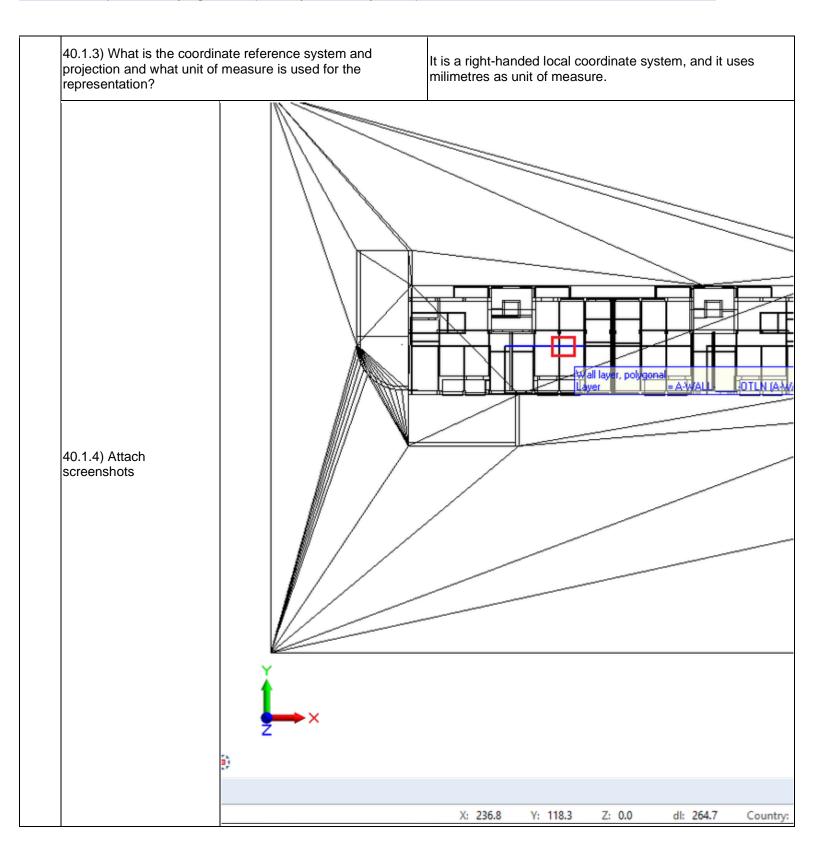
	considered when locating t	evation values (heights) he model in the software (z)?	No
-	3.1.1) What is the elevation	value of the origin of the model	0
eight		symbol (1) Pen thickness 0.25 Line type 1 Line color 1 Layer A-GLAZOTLN (A-GLAZ- Pen from layer 1 line from layer 1 line from layer 2 line from layer 3 Start point X 60721.5428 Start point Y 46515.2878 Start point Y 46515.2878 Start point Z 900.0000 X angle 0.0000° Y angle 0.0000° Z angle 160.9122° Resize X 1.0000 Resize Y 1.0000 Resize Z 1.0000 Smart symbol name macro Name 2-luft öppningsbart inåt - assy Type Default sizing smart symbol Link to No	
	3.1.3) What is the height re	-	Local, starting at 0
;	3.1.4) Attach screenshots		See screenshot from 3.1.2
	4.1) Is the model oriented on North?	correctly with respect to the true	Yes
	5.1) Does the model maintaproportions?	ain its correct dimensions and	Yes
C tions	6.1) Is the eventual transla definitions?	tion consistent with the IFC	Partially
IFC definitions	6.2) short comments to the	previous question (optional)	For some elements yes (for example element 2, the IfcRailing), others are "user defined architecture elements"
	7.1) Are the hierarchical re hierarchy?	lationships consistent with the IFC	The software does not have the necessary tools to determine this information
	8.1) Are the attributes pres and consistent?	ent in the IFC entities retained	Yes
Rel atio	9.1) Are the relationships b	etween the objects retained?	The software does not have the necessary tools to determine this information
ЭС	10.1) Is geometry read cor	rectly?	Yes
Geome try	10.2) short comments to th	e previous question (optional)	The geometry types can't be seen, but objects are not grouped nor broken.



	15.1) Is it possible to que	ery the model and the attributes?	Yes
	15.1.1) What kinds of query are possible?	You can filter on (native) attributes,	properties. Not on geometry or Ifc attributes however.
Querying	15.1.2) Attach screenshots	Filter Step by Step	Attribute Selection Attribute group User Default Architecture - General Material attributes Doors, windows Dolly 277, Floor Area Engineering Steel construction Alfa Sync Landscaping Urban Planning Thermal Insulation Layout index Fixtures Precast elements, user-specific OK Cancel Attributes OK Cancel
.s	16.1) Is it possible to ana	alyse the objects and the model?	Yes, analysis about the modelled building performances (energy, noise, shadows) are possible (type 2)
Analysis	16.1.1) What analysis are reliable?	e possible? Do you know if the	It's possible to do an analysis on thermal insulation. It however does not work on the dataset, nor are there clear instructions on how to do it.

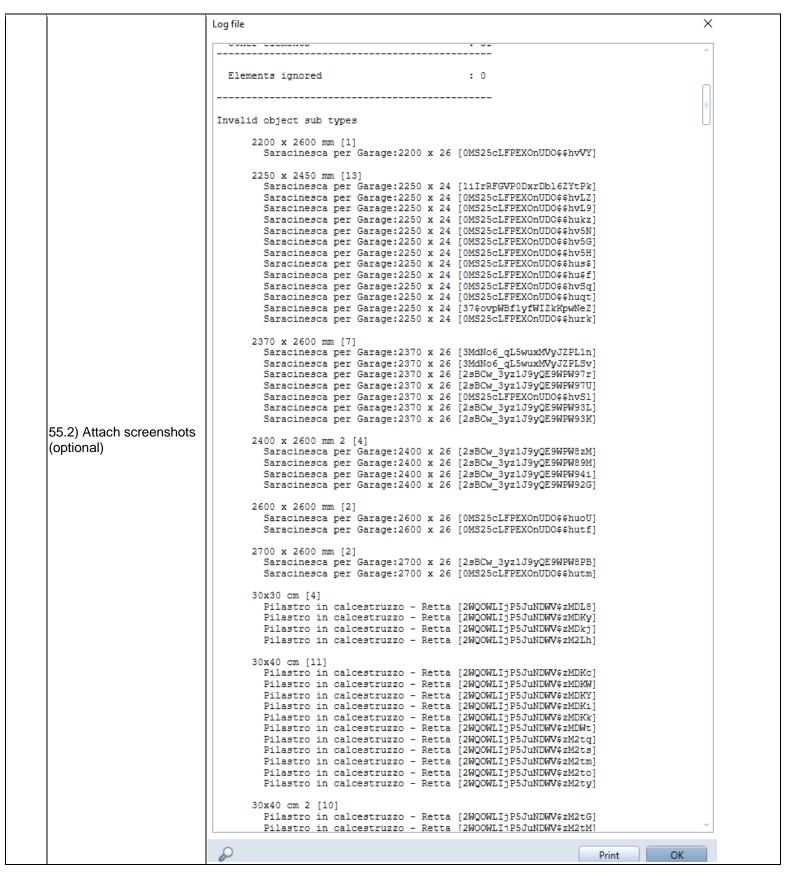
		Finish Modeling Label Design User-Defined Objects En	nergy Structural Framing Teamwork Visualization Layout Editor		
		A M A M	P TO HE STATE OF THE STATE OF T		
		Thermal insulation Quick Access Chan	ge Edit Measure Annotations Attributes Filter Work Environment		
		# X ibrary Objects Planes Task B Conn Layers	Parallel projection		
		ports 💌 🗞 🍸			
		hthickness 0.25 Line type 11 Line color			
		Layer VI_LEGENDE (Legende, beschrijving) from layer			
		from layer United Interest Int	Allplan		
	16.1.2) Attach screenshots	Sequence 0 up number 4257	No components found that match the selection criterion		
	3016611311013	'attern line			
			OK OK		
	16.1.3) Time required to p	erform the analysis about the			
	model itself (type 1)		No analysis of type 1 are possible		
	16.1.3) Time required to permodel performances (type	erform the analysis about the	it crashes without completing the operation		
		he phase 1: "Import and manage	The software has also export abilities to IEC		
	the file in the software".No		The software has also export abilities to IFC		
ort	17.1) Are any pre-process the software to enable a co	ing or setting changes needed in onsistent export?	No		
Export	18.1) Is it possible to choo	se the IFC model view definition	No		
	(MVD) to be used when ex		1		
	19) How long does it take	for the data to be exported to IFC?	less than a minute		
		Test with UpT	own.ifc		
	How long does it take, app		it crashes without completing the operation		
Pe	visualise if the software all	ows it) the model			
		Test with Savig	gliano.ifc		
	How long does it take, app visualise if the software all		less than a minute		
Se l		proximately, to:Zoom into the	ide also act increasing		
nan	model to see more detail		it's almost immediate		
form		proximately, to:Pan the model	it's almost immediate		
rforr	How long does it take, app	Toximatery, to:r arr the model			
ərf		proximately, to:Rotate the model	it's almost immediate		

	How long does it take, applinked to the queried one t	proximately, to:Inspect the objects hrough a relationship	the software does not allow this
	38) Please report on any eimporting the file.	errors the software gives when	440 elements have been ignored during the import.
	40.1) Are the world (project account when locating the coordinate reference systems)		No
	40.1.1) Where is the origin reference system as important		(0,0) (at the reference point)
Georeferencing	40.1.2) Attach screenshots		X: 236.8 Y: 118.3 Z: 0.0 dl: 264.7 Country:



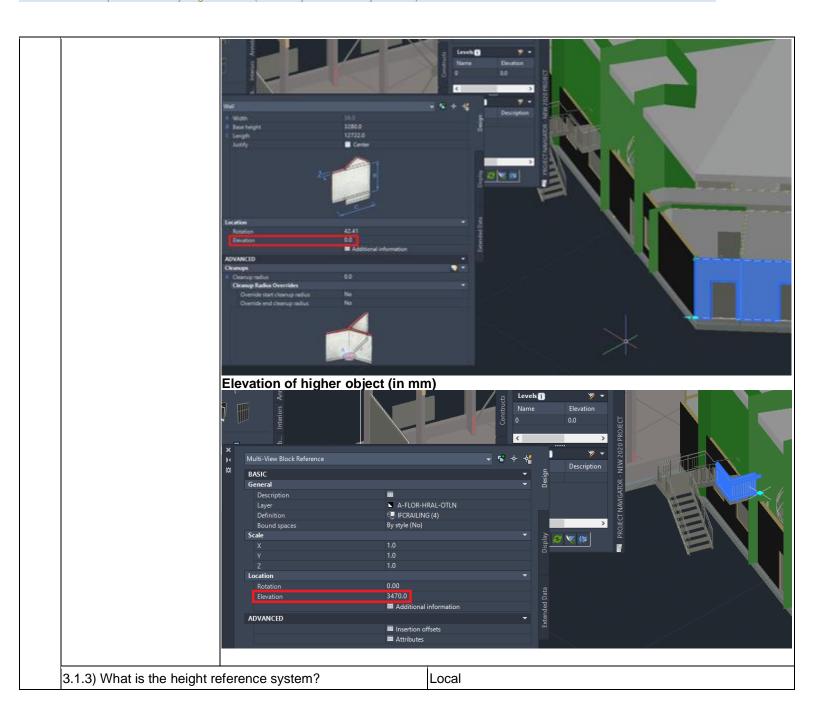
	41.1) Are the "real-world"	elevation values (heights)	I		
		the model in the software (z)?	No		
		on value of the origin of the model	0		
	coordinate reference syste	em as imported in the software?			
		Sequence 0 Group number 12 328			
		▼ Geometry			
		Start point X 7430.5479 Start point Y -5036.0584			
		Start point Z 150.0000 X angle 0.0000 °			
		Y angle 0.0000° Z angle 180.0000°			
		Resize X 1.0000 Resize Y 1.0000			
ŧ		Resize Z 1.0000			
Height	41.1.2) Attach	▼ Element Smart symbol name Saracinesca per Garage	2400 x 26		
-	screenshots	Name Saracinesca per Garage Type Default	2400 x 26		
		Resizing smart symbol Link to No			
		Consider No Format Elements			
		Sequence Placement			
		▼ Attributes Name Ab Saracinesca per Garage	2400 x 26		
		Material Ab Metallo - Finitura vernio Code text Ab 2400 x 2600 mm 2	ciata - Avori		
		Is external 123 Yes Thermal transmittance 0.0 3.7021			
	41.1.3) What is the height	Manufacturer Ah	Local, presumably in cm		
	41.1.4) Attach screenshots		See screenshot from 41.1.2		
	,	ne previous question (optional)	Many objects don't show any height attribute		
Orie ntati	42.1) Is the model oriented North?	d correctly with respect to the true	Yes		
Pro porti	43.1) Does the model main proportions?	ntain its correct dimensions and	Yes		
	Other	Other problems			
	44.2) short comments to the previous question (optional)	Most elements couldn't be found, public tit didn't properly show its Ifc type	possibly due to the import error. Only element 4 was there, be.		
	45.1) Are the hierarchical r IFC hierarchy?	relationships consistent with the	The software does not have the necessary tools to determine this information		
ites	46.1) Are the attributes present in the IFC entities retained and consistent?		Yes		
Attributes	46.2) short comments to the previous question (optional)		escription can not be found (probably due to the import properties, and other elements seem to have retained them		
Rel	47.1) Are the relationships	between the objects retained?	The software does not have the necessary tools to determine this information		
ЭС	48.1) Is geometry read cor	rectly?	Yes		
Geome try	48.2) short comments to the	ne previous question (optional)	The geometry types can't be seen, but objects are not grouped nor broken.		

als	49.1) Did the normals change?	The software does not have the necessary tools for checking it
Normals	149 2) Short comments to the previous duestion (optional)	Can only see 3D wireframe, so no face colours to visually check.
73	50.1) Is it possible to view the model in 3D?	Yes
2D/3 D	51.1) Is it possible to view the model in 2D?	Yes
Export	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities to IFC
Ш	55) How long does it take for the data to be exported to IFC?	less than a minute



AutoCAD Architecture

ē	Software Name [version] Architecture [2020] Soft		Software	are house AutoCAD				
Software	Proprietary or ope	Proprietary or open source software?			software			
ŭ	proprietary			CAD				
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ 3.20GHz	AMD Ra		8 GB	120 GB	20 GB
ıtion	IFC import certification status	Import certification date	Import certification program	IFC export certification status		Export certification date	Export certification program	
Certification	not certified			certified in (date)		2015-02-24	buildingSMART International IFC Certification 2.0	
		•	Test	with My	yran.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				1-5 minutes			
Performance	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate			
rma	How long does it take, approximately, to:Pan the model				it's almo	st immediate		
erfo	How long does it	take, approximate	ely, to:Rotate the r	nodel	it's almost immediate			
٩	_		ely, to:Query an ob	-	less than a minute			
	How long does it linked to the quer		ely, to:Inspect the or relationship	objects	the software does not allow this			
Georef	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?			account	Yes			
t	3.1) Are the "real- considered when		values (heights) el in the software (z)?	No			
Height			of the origin of the ported in the softw		0			
	3.1.2) Attach scre	enshots Elevati	on origin					



AutoCAD Architecture 2020 - Windows 10 Home

Proprietary software

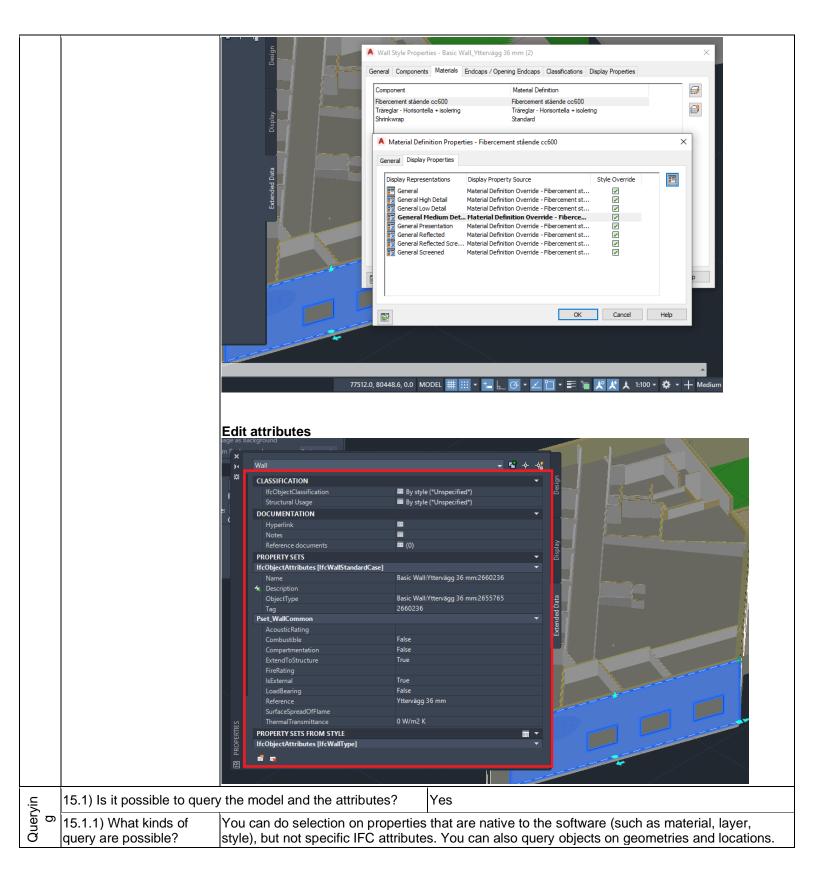
CAD

Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

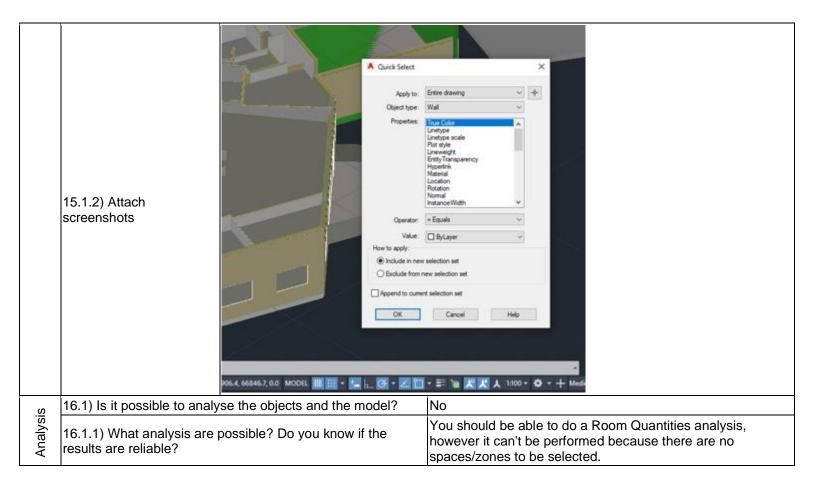
	3.1.4) Attach screenshots 66339.6, 70067.4, 0.0 MODEL	## III ↑ III G ↑ Z T ↑ E TO X X A 1:100 ↑ ★ ↑ + Medius
ntatio	4.1) Is the model oriented correctly with respect to the true North?	Yes
Orientatio n	4.2) short comments to the previous question (optional)	The angle is 48 degrees, similarly to to example on the data page.
Pro porti	5.1) Does the model maintain its correct dimensions and proportions?	Yes
	6.1) Is the eventual translation consistent with the IFC definitions?	Yes
IFC definitior	6.2) short comments to the previous question (optional)	Despite there not being any errors during the import, not all elements shown on the data page are present.
	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools to determine this information
S	8.1) Are the attributes present in the IFC entities retained and consistent?	Yes
Attrik	8.2) short comments to the previous question (optional)	The attributes are included in "Extended Data" in the object popup.
Rel atio	9.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information

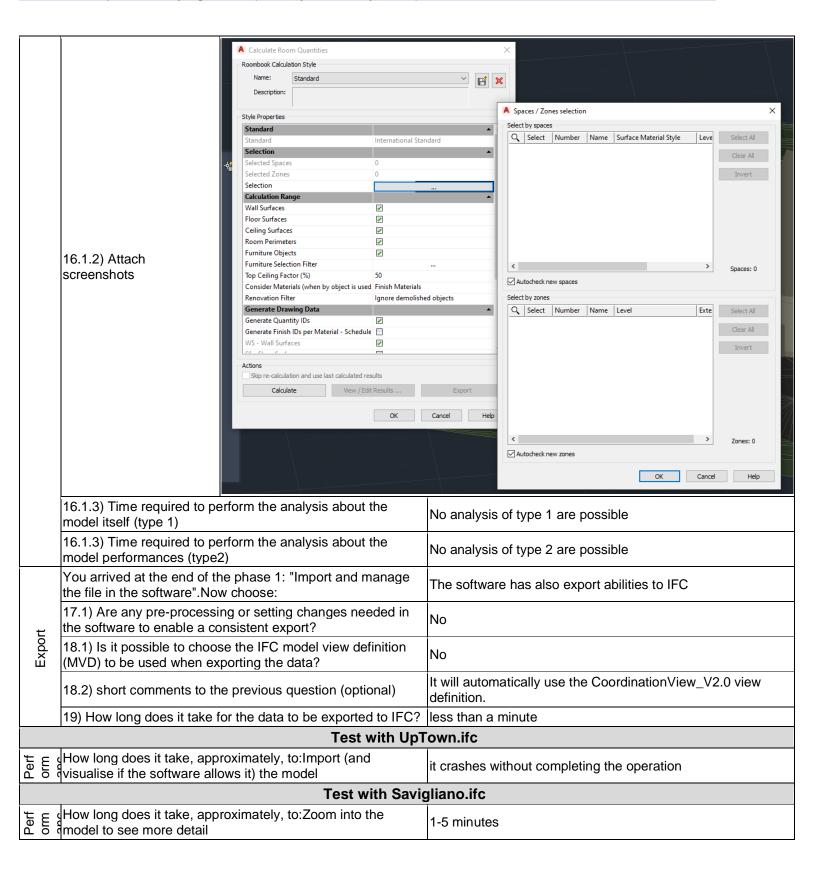
	10.2) short comments to t	the previous question (optional)	Objects are not grouped nor broken, but the geometry types can't be viewed.
Nor	11.1) Did the normals cha	ange?	The software does not have the necessary tools for checking it
	12.1) Is it possible to view	v the model in 3D?	Yes
2D/3D	12.2) short comments to t	the previous question (optional)	View -> under Appearance, click SW Isometric -> under Visual Styles, click for example Realistic
	13.1) Is it possible to view	v the model in 2D?	Yes
	14.1) Is it possible to edit other)?	the model (attributes, geometry,	Yes
	14.1.1) What editing is pogeoreferencing, please ac	ossible (attributes, geometry, dd details)?	The attributes, geometry (both change dimensions and move), style (e.g. material). Georeferencing can NOT be changed.
Editing	14.1.2) Attach screenshots	Style Bound spaces Cleanup automatically Cleanup group definition Segment type Shadow disolav Dimensions A Width B Base height	FOWSE Basic Wall_Yttervägg 36 mm (2) By style (No) Yes Standard Line Casts and receives shadows 36.0 4093.7 15003.9 Center

CAD



CAD





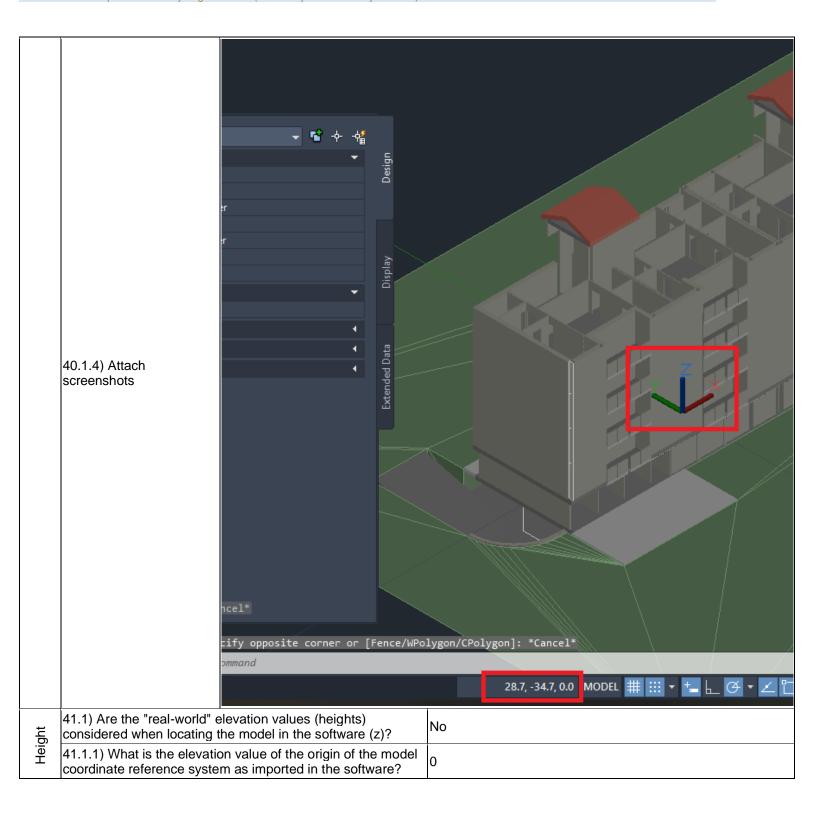
AutoCAD Architecture 2020 - Windows 10 Home

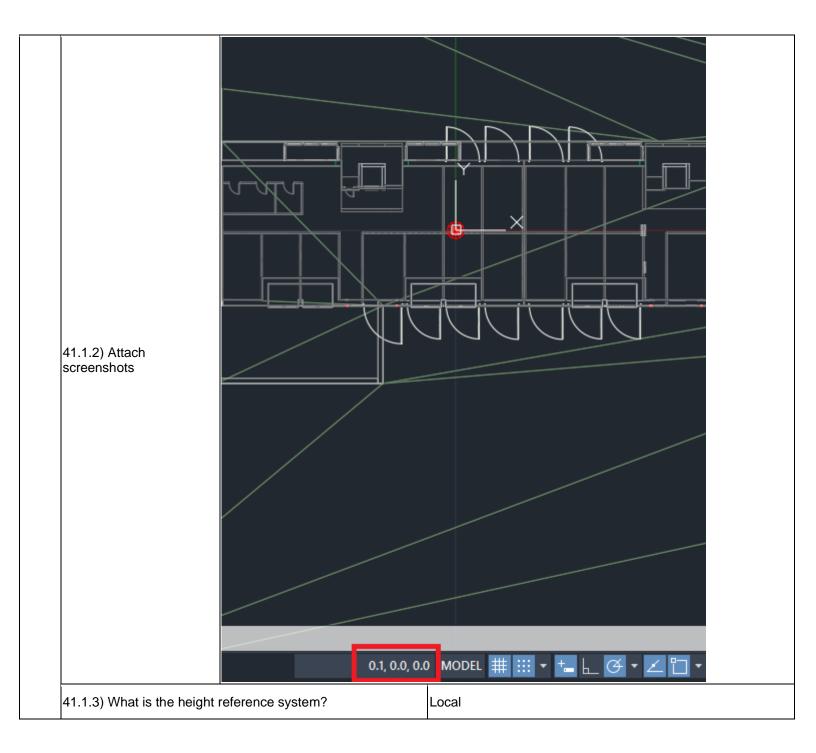
Proprietary software

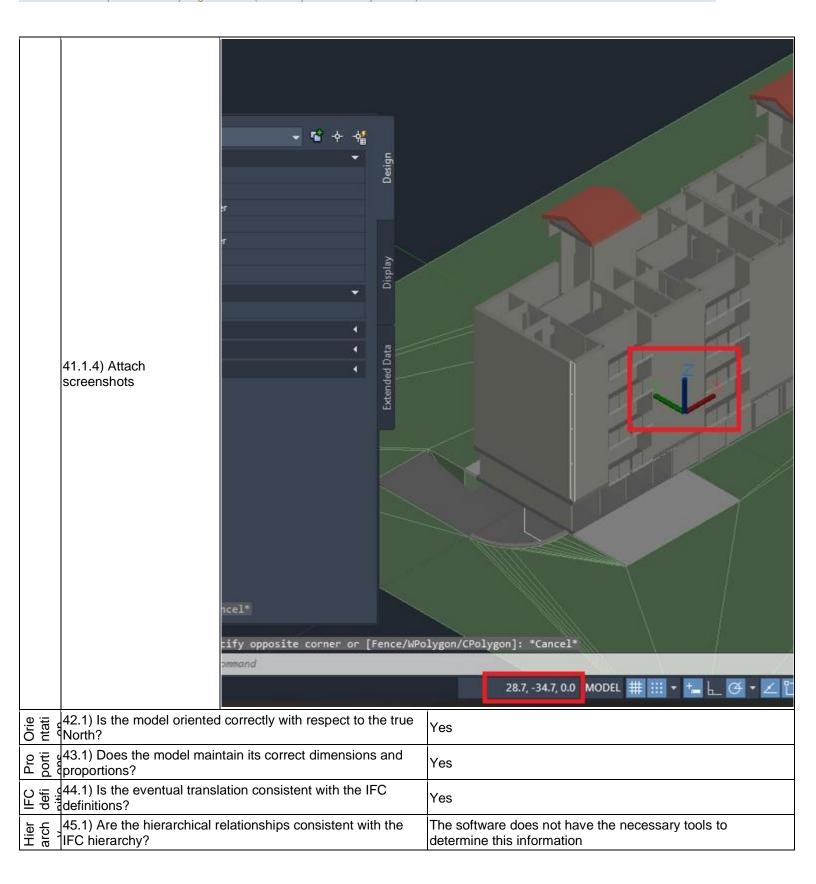
CAD

Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate		
	How long does it take, approximately, to:Pan the model	it's almost immediate		
	How long does it take, approximately, to:Rotate the model	it's almost immediate		
	How long does it take, approximately, to:Query an object	it's almost immediate		
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	the software does not allow this		
Georeferencing	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	No		
	40.1.1) Where is the origin of the model coordinate reference system as imported in the software?	(0,0,0)		
	40.1.2) Attach screenshots	MODEL ## ::: * *** L & *** L		
	40.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?	It is a local right-handed reference system with metres as unit of measure (however, you could also choose milimetres during import)		







AutoCAD Architecture 2020 - Windows 10 Home

Proprietary software

CAD

Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

ibute	46.1) Are the attributes present in the IFC entities retained and consistent?	Yes		
	46.2) short comments to the previous question (optional)	Yes, they are present in "Extended Data" in the popup that shows when you click an object.		
Rel atio	47.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information		
ome	48.1) Is geometry read correctly?	The software does not have the necessary tools to determine this information		
	48.2) short comments to the previous question (optional)	Objects are not grouped nor broken, but the geometry types can not be seen.		
Nor mal	49.1) Did the normals change?	The software does not have the necessary tools for checking it		
2D/3 D	50.1) Is it possible to view the model in 3D?	Yes		
	51.1) Is it possible to view the model in 2D?	Yes		
 	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities to IFC		
	55) How long does it take for the data to be exported to IFC?	1-5 minutes		

ACCA Edificius v.BIM ONE(d) - Windows 10 Home

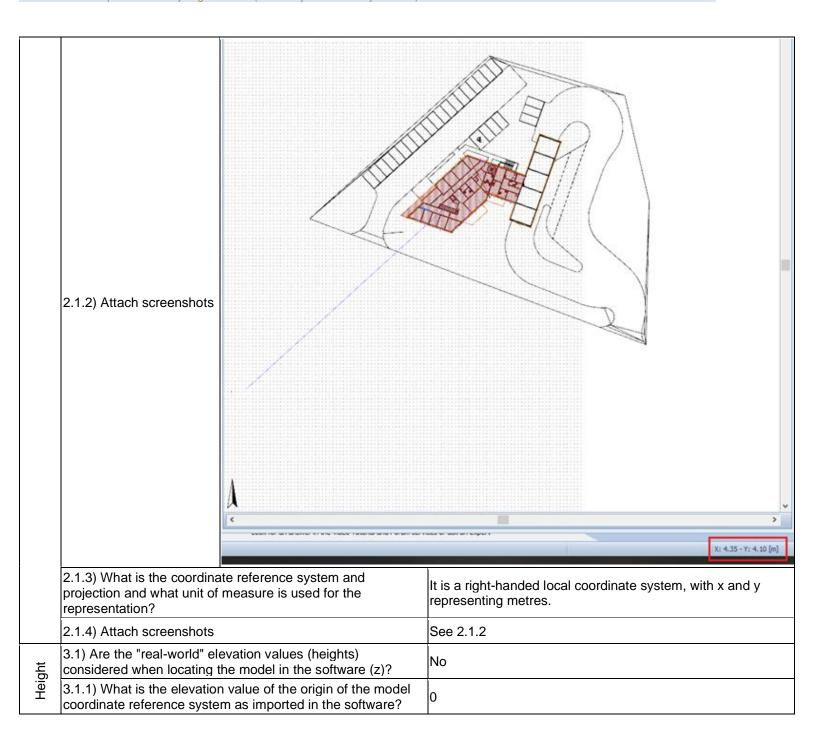
Proprietary software

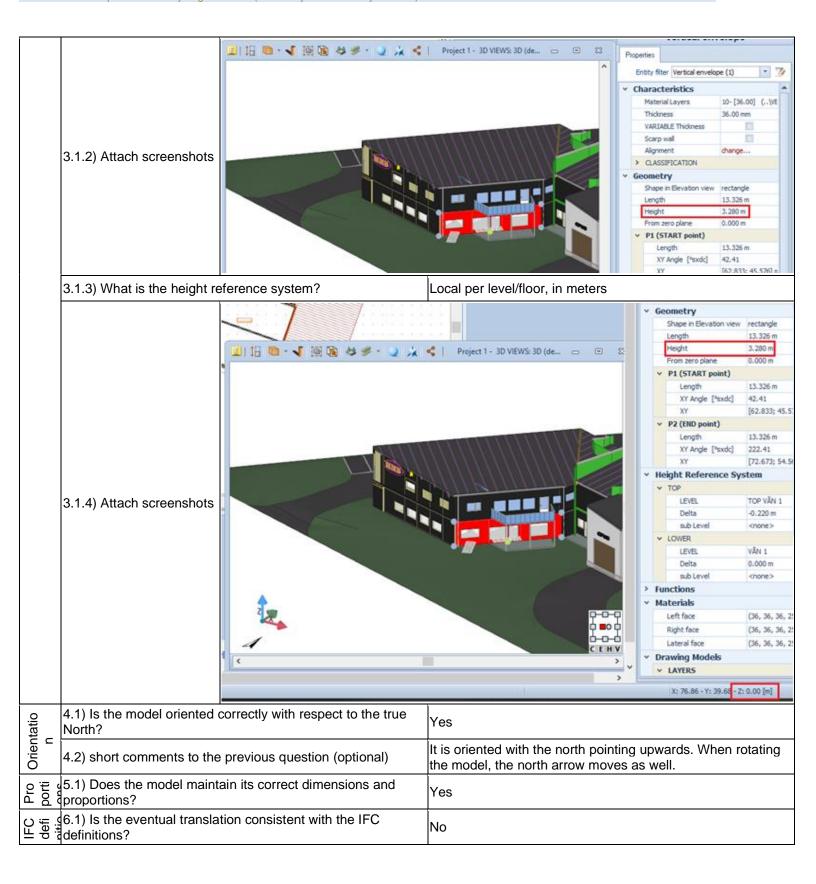
BIM

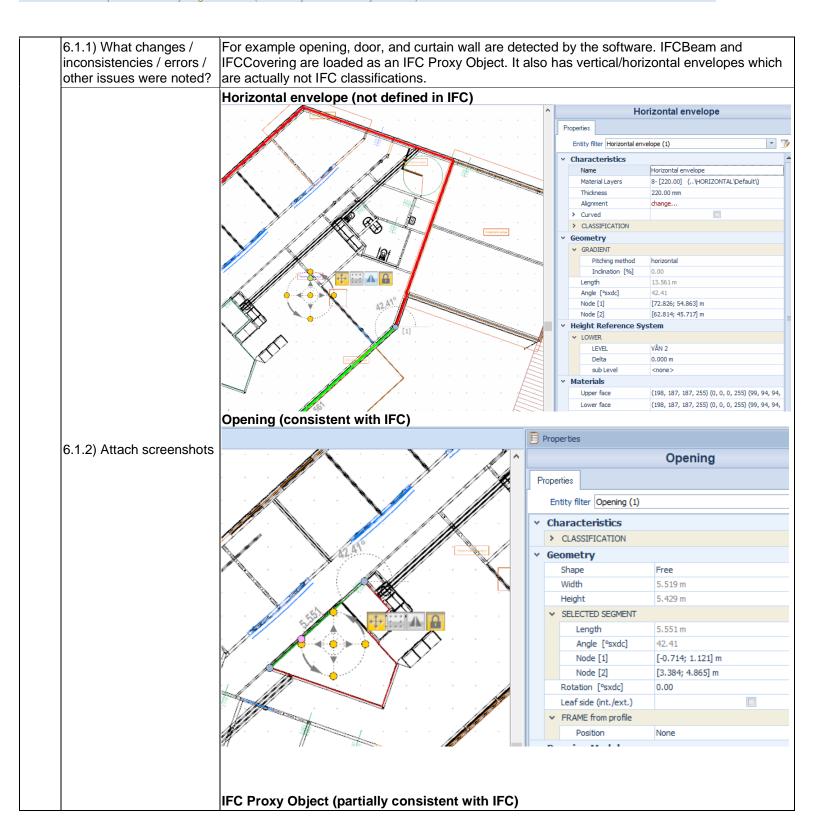
Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

ACCA Edificius

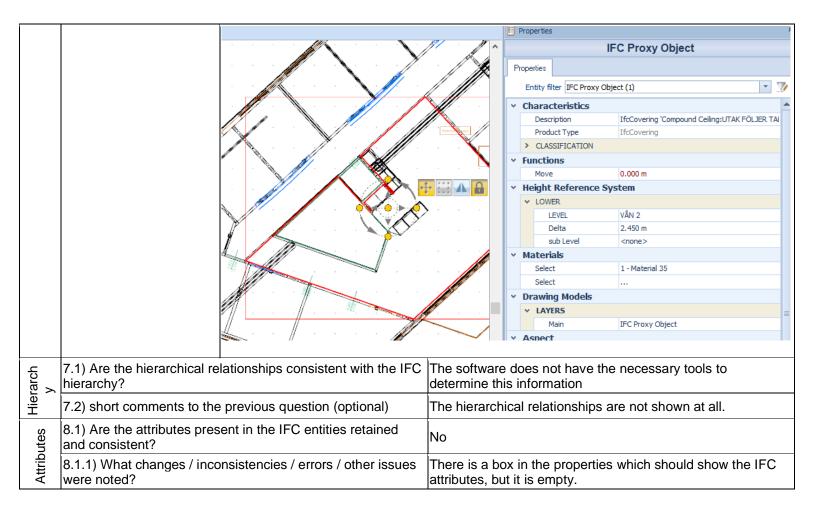
Software	Software Name [version] Edificius [v.BIM ONE(d)]		Software house		ACCA			
	Proprietary or open source software?			Kind of software				
	proprietary			ВІМ				
Computer	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ 3.20GHz	AMD Radeon HD 7800 Series		8 GB	120	20
tion	IFC import certification status	Import certification date	Import certification program	IFC export certification status		Export certification date	Export certification program	
Certification	certified in (date)	2017-05-31	buildingSMART International IFC Certification 2.0	certified in (date)		2016-03-11	buildingSMART International IFC Certification 2.0	
Test with Myran.ifc								
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				less than a minute			
	How long does it take, approximately, to:Zoom into the model to see more detail			it's almost immediate				
99	How long does it take, approximately, to:Pan the model			it's almost immediate				
man	How long does it take, approximately, to:Rotate the model				it's almost immediate			
Performance	How long does it take, approximately, to:Query an object				the software does not allow this			
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship				the software does not allow this			
	Please report on any errors the software gives when importing the file. It had the following kind of errors: incorrect element referencing, unexpected error while calculation Entity 2409 cross beam, a critical error has occurred in the structural model calculation.							
Georef erenci		model in the sof	dinates taken into tware's coordinate	No				
Geo refe	2.1.1) Where is the system as import		odel coordinate ref e?	(0, 0)				

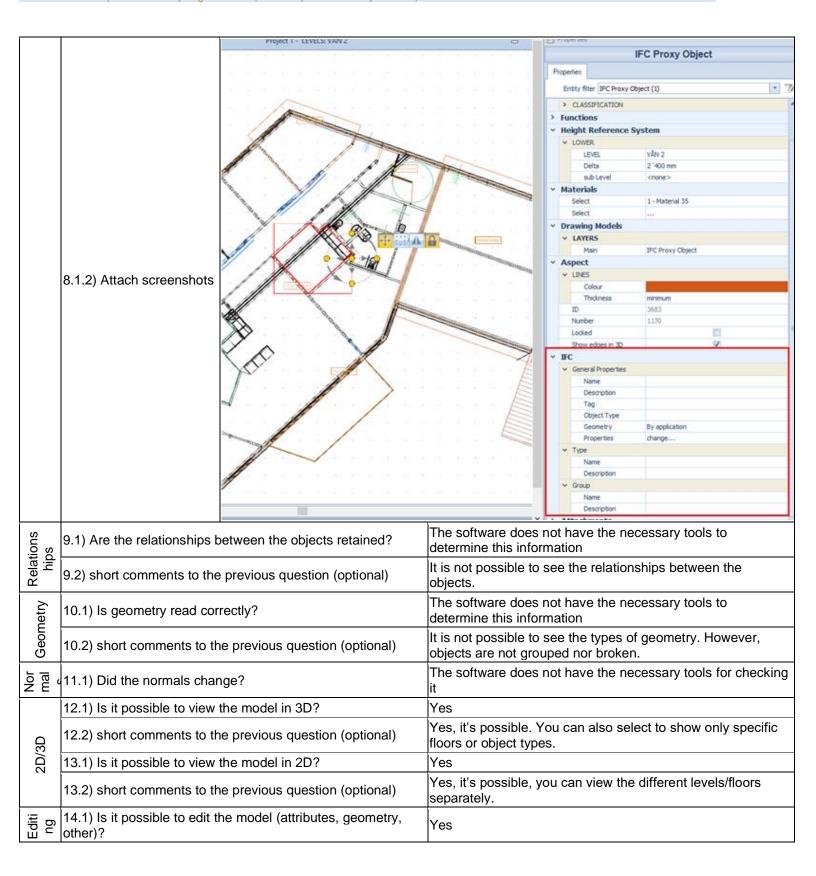






RIM

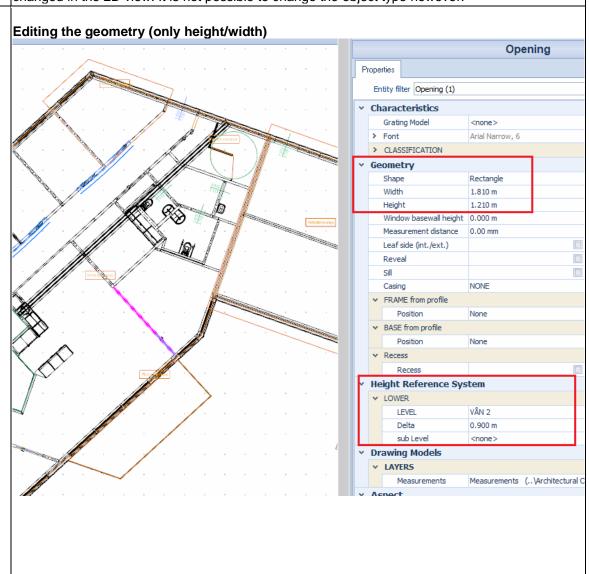




14.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?

You can edit the geometry - by changing the (local) coordinates of nodes of objects or by changing the height/width. In the first case, you could also move a geometry. This is inconsistent for different objects, even if they are of the same type.

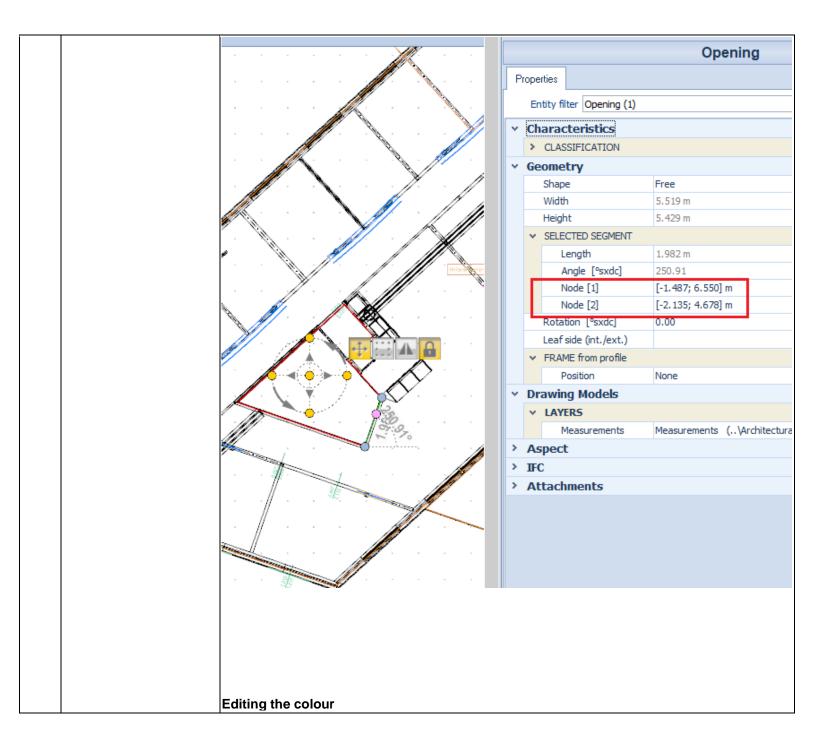
The height can also be changed. Attributes can be altered freely as well. The colours can be changed in the 2D view. It is not possible to change the object type however.



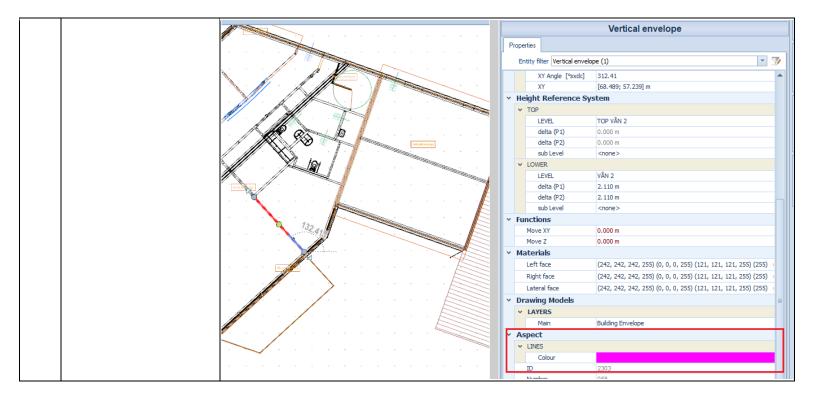
14.1.2) Attach screenshots

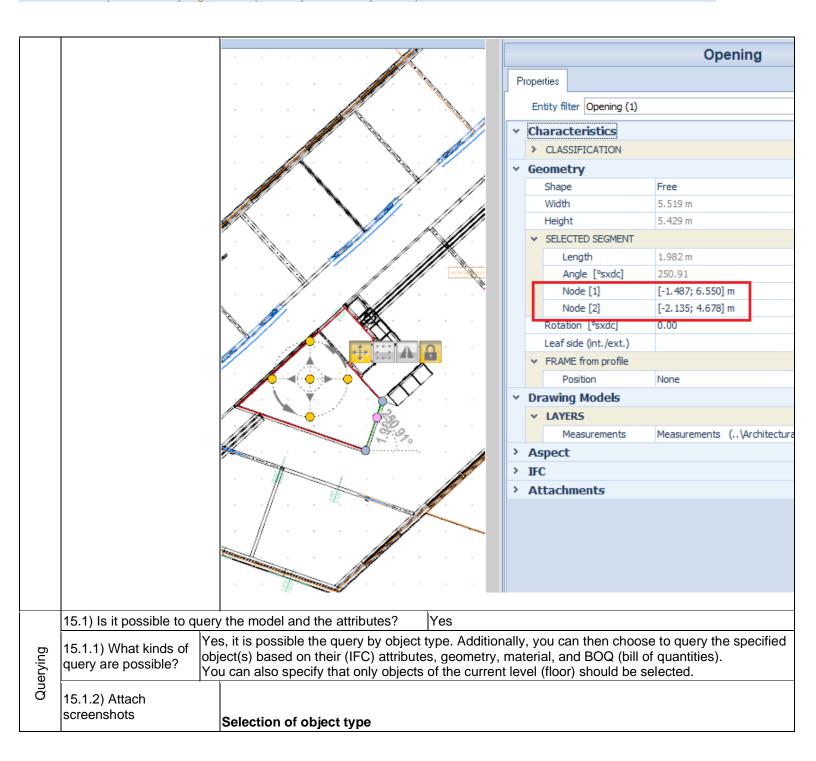
Editing the geometry (by changing the actual coordinates of nodes)

RIM

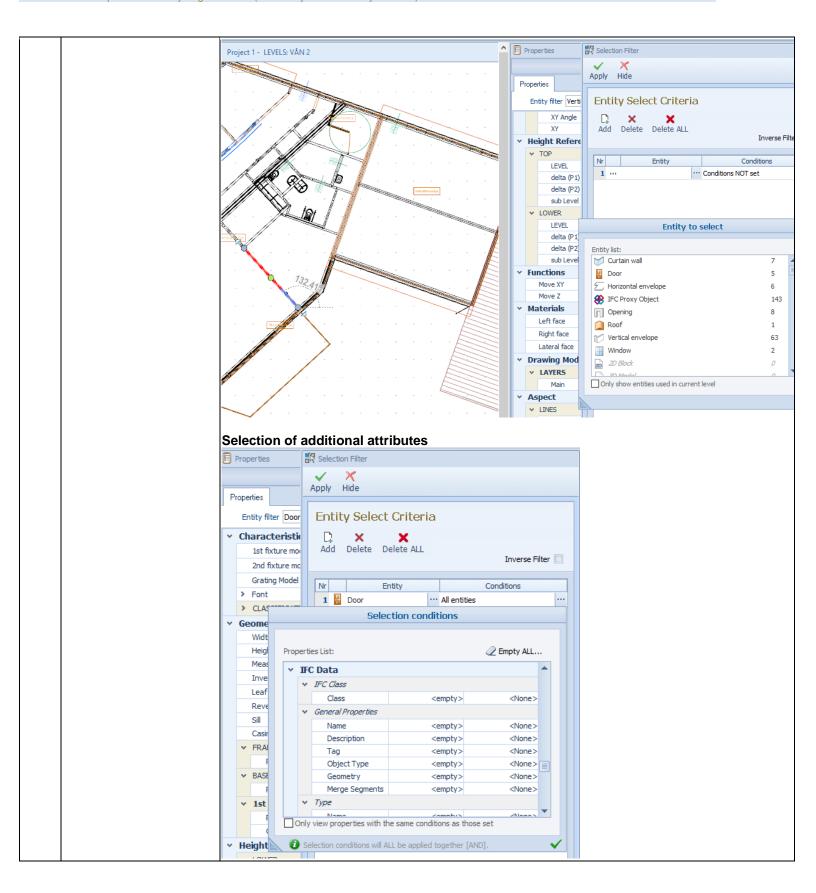


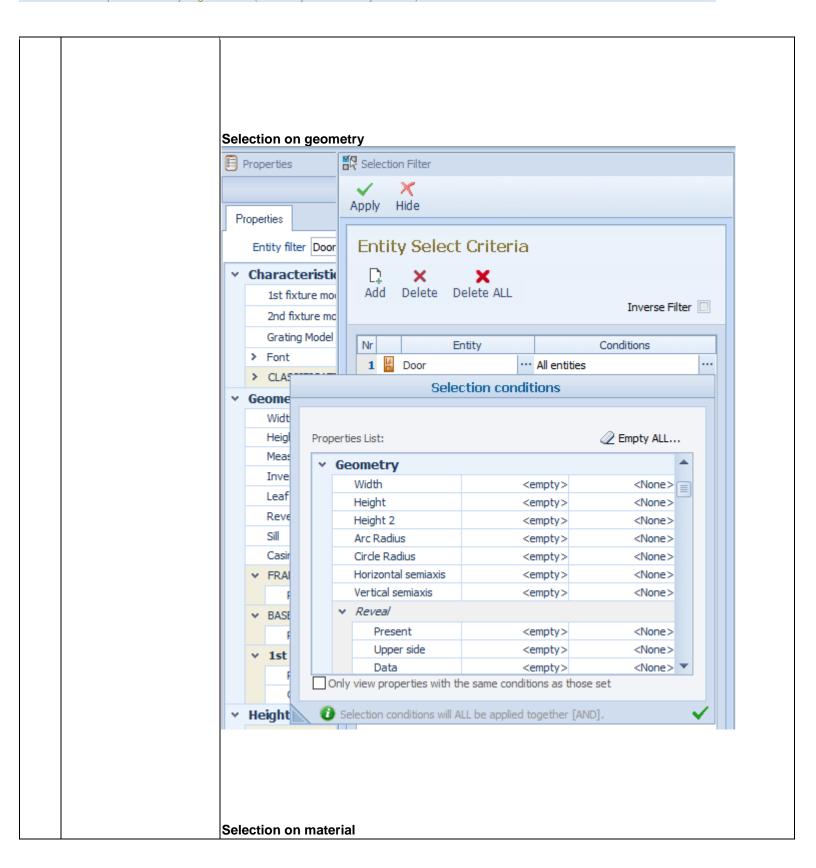
RIM



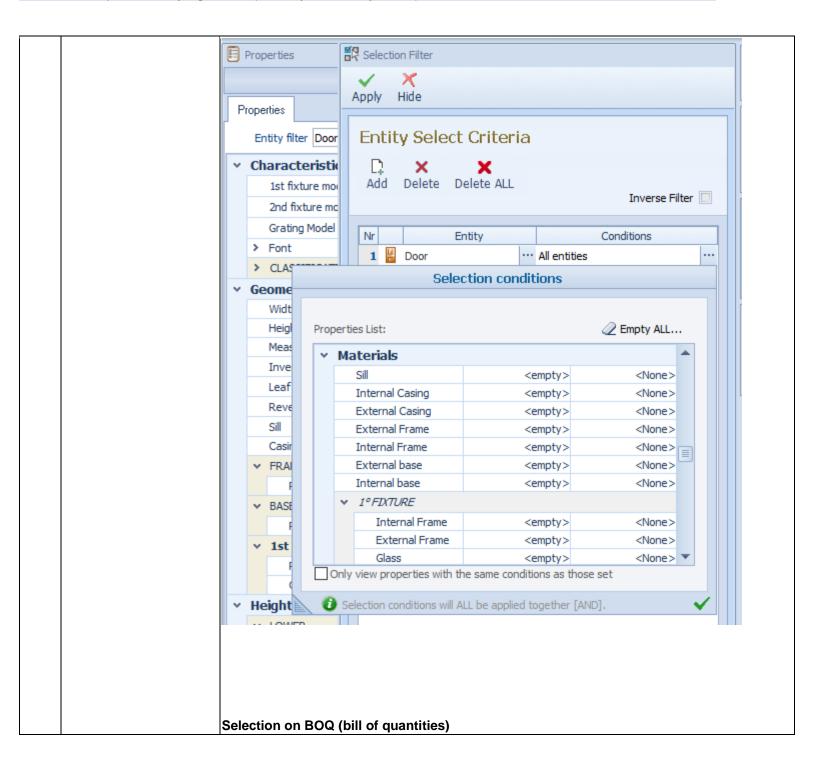


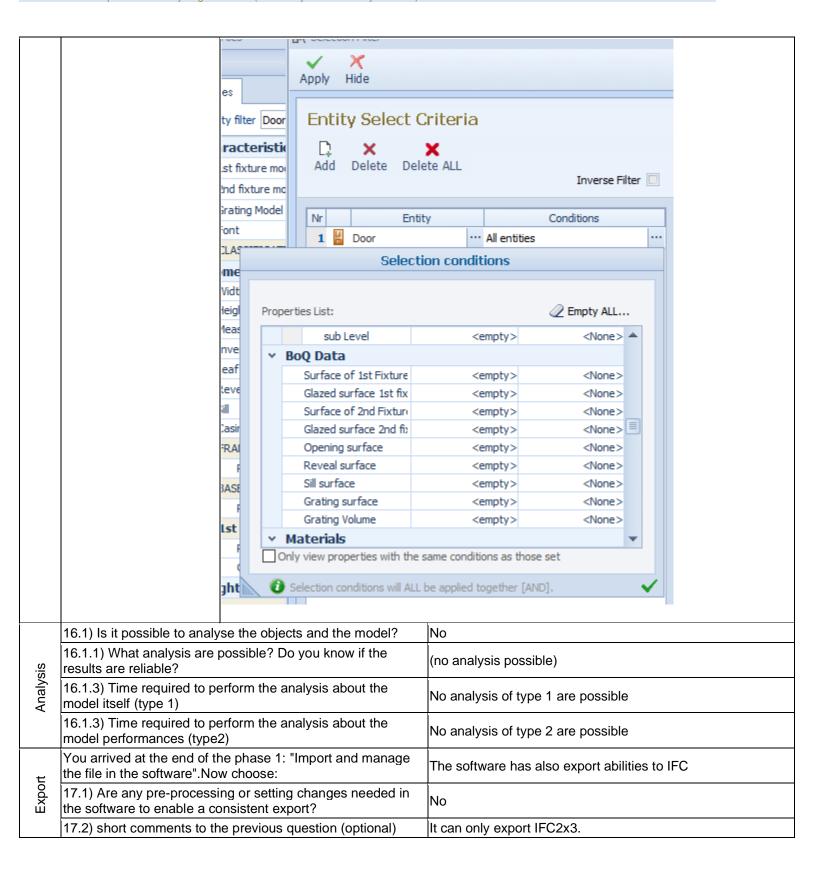
RIM





DIM

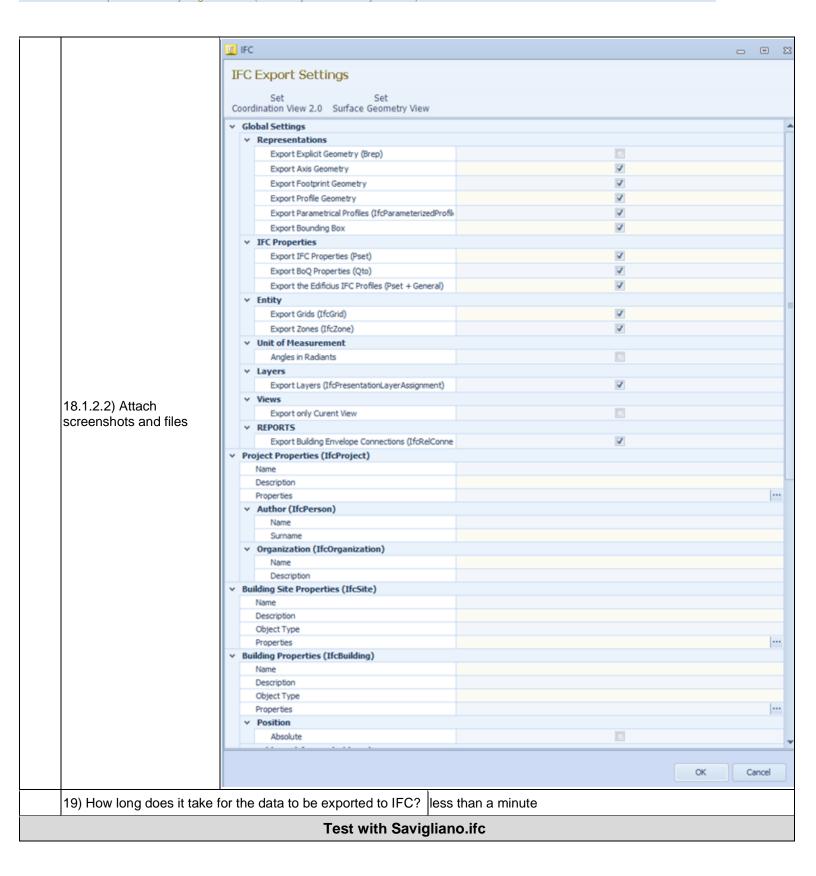




ACCA Edificius v.BIM ONE(d) - Windows 10 Home Proprietary software BIM Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

18.1) Is it possible to choose the IFC model view definition (MVD) to be used when exporting the data?	Yes
18.1.1) Which ones are available?	You can choose Coordination View 2.0 or Surface Geometry View.
18.1.2) Is it possible to add a customised MVD to be used for exporting IFC?	Yes
18.1.2.1) What kind of customisation is possible?	For example, you can choose whether or not the axis geometry, footprint geometry, profile geometry, parametrical profiles, or bounding box are exported to the output file.

RIM



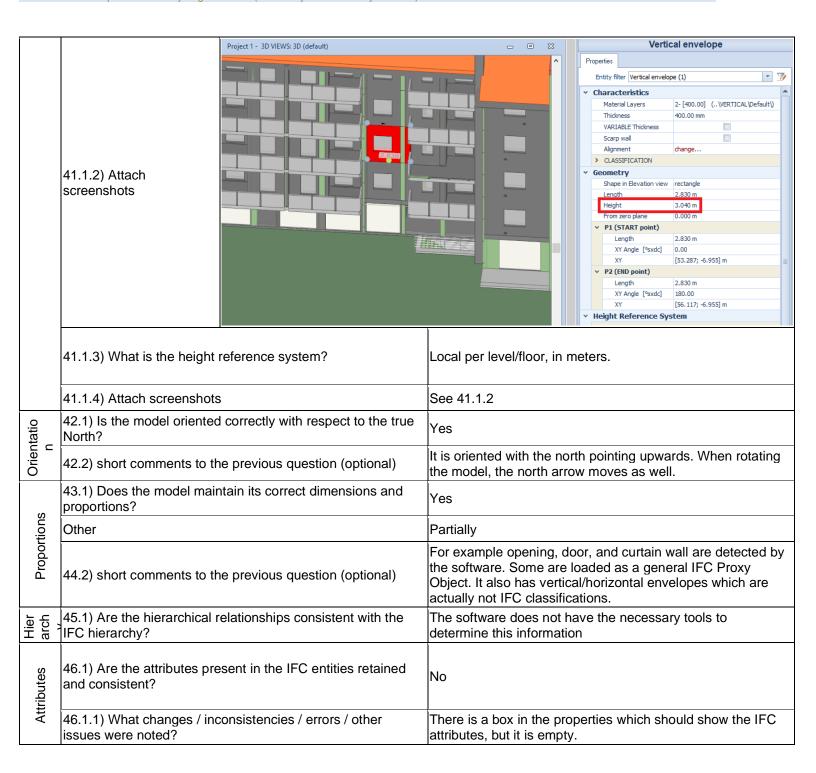
ACCA Edificius v.BIM ONE(d) - Windows 10 Home

Proprietary software

BIM

Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

	How long does it take, a visualise if the software	pproximately, to:Import (and allows it) the model	less than a minute		
	How long does it take, a model to see more detail	pproximately, to:Zoom into the il	it's almost immediate		
nce	How long does it take, a	pproximately, to:Pan the model	it's almost immediate		
Performance	How long does it take, a	pproximately, to:Rotate the model	it's almost immediate		
Perfc	How long does it take, a	pproximately, to:Query an object	it's almost immediate		
	How long does it take, a linked to the queried one	pproximately, to:Inspect the objects e through a relationship	the software does not allow this		
	38) Please report on any importing the file.	y errors the software gives when	None		
Georef		jected) coordinates taken into account coordinate reference system?	when locating the No		
	40.1.1) Where is the original reference system as imp	gin of the model coordinate ported in the software?	(0,0)		
Georeferencing	40.1.2) Attach screenshots		Left face (192, Lateral face (192, Lateral face (192, Lateral face (192, Variety Layers Main Buildin Name Description Tag Clipect Type Cocometry By ap Merge Segments Properties Change Change		
		dinate reference system and of measure is used for the	It is a right-handed local coordinate system, with x and y representing metres.		
	40.1.4) Attach screensh	ots	See 40.1.2		
ght	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?		No		
Hei	considered when locating the model in the software (z)? 41.1.1) What is the elevation value of the origin of the model coordinate reference system as imported in the software?		0		



		□ 10 □ V 京原 5 乗・リルミ front1 - 30 Wi	W Dated	COLUMN WAR	
	46.1.2) Attach screenshots		O O O O O O O O O O O O O O O O O O O	Proposes toto the Curtam wild (1) Selfs (1.440 or a state or a s	
Relation ships	47.1) Are the relationships	s between the objects retained?	The software does not have the no determine this information	ecessary tools to	
Rel	47.2) short comments to t	he previous question (optional)	The relationships are not shown a	t least.	
netry	48.1) Is geometry read co	rrectly?	The software does not have the no determine this information	ecessary tools to	
Geometry	48.2) short comments to the previous question (optional)		2 It is not possible to see the types of geometry. However, it seems like objects are not grouped nor broken.		
2D/ 3D	49.1) Did the normals cha	nge?	The software does not have the noit	ecessary tools for checking	
3D	50.1) Is it possible to view	the model in 3D?	Yes		
2D/3D	51.1) Is it possible to view	the model in 2D?	Yes		
Export	You arrived at the end of t the file in the software".No	the phase 1: "Import and manage ow choose:	The software has also export abili	ties to IFC	
Ě	55) How long does it take	for the data to be exported to IFC?	less than a minute		

Windows 10 Home

Proprietary software

BIM

Level of tester expertise: 3 - Expert user (you know very well the technical details and tricks)

ESRI, Pro and ArcGIS 10.X, Revit, Safe FME

Software	Software Name [version] ESRI, Pro and ArcGIS 10.X, Revit, Safe FME [ArcGIS Pro 2.4, ArcGIS 10.7, FME 2019.1, Revit 2018 - 2020]			Software	oftware house ESRI, Autodesk, Safe Softw			sk, Safe Software
Sof	Proprietary or open source software?			Kind of	software			
	proprietary			ВІМ				
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	Dell Precision M7720 2017	Windows 10	Intel i7	Nvidia F	5000	64GB RAM	1TB	450GB
Certification	IFC import certification status	Import certification date	Import certification program	IFC expectifications status		Export certification date	Export certification program	
Certii	certification in progress		N/A	not certi	fied			
			Test	with My	ran.ifc			
	How long does it visualise if the so		ely, to:Import (and he model		5-20 minutes			
ο ο	How long does it model to see mor		ely, to:Zoom into th	ne	less than a minute			
Performance	How long does it take, approximately, to:Pan the model				less than a minute			
orm			ely, to:Rotate the n		less than a minute			
Perf			ely, to:Query an ob	•	less than a minute			
	linked to the quer	ied one through a		objects	less than a minute			
	Please report on importing the file.	any errors the so	ftware gives when		IFC oper discarde	ning elements not d	imported and ne	eeded to be
Georefere		model in the sof	dinates taken into tware's coordinate	account	Yes			
- g			us question (option	al)	N/A			
Height	3.1) Are the "real- considered when		values (heights) el in the software (z)?	Yes			
Hei	3.2) short comments to the previous question (optional)			al)	When imported XYZ reference coordinates are taken into account with the models location.			
Orienta tion	4.1.1) How is the reference direction		with respect to the					
Ö	4.2) short comme	ents to the previou	us question (option	al)	Initially r	not but fixed		
Proport	5.1) Does the mo proportions?	del maintain its c	orrect dimensions	and	Yes			
Pr	5.2) short comme	ents to the previou	us question (option	al)	All dime	nsions were main	tained	

ESRI, Pro and ArcGIS 10.X, Revit, Safe FME [ArcGIS Pro 2.4, ArcGIS 10.7, FME 2019.1, Revit 2018 - 2020] -

Windows 10 Home

Propi

Level of tester expertise: 3 - Expert user (you know very well the technical details and tricks)

	6.1) Is the eventual translade definitions?	tion consistent with the IFC	Yes		
l del	6.2) short comments to the	previous question (optional)	N/A		
Hierarc hy	7.1) Are the hierarchical rehierarchy?	lationships consistent with the IFC	The software does not have the necessary to determine this information	ools to	
불	7.2) short comments to the	previous question (optional)	N/A		
	8.1) Are the attributes pres and consistent?	ent in the IFC entities retained	Yes		
Att	8.2) short comments to the	previous question (optional)	All transferred over		
Rel	9.1) Are the relationships b	etween the objects retained?	The software does not have the necessary to determine this information	ools to	
>	10.1) Is geometry read corr	rectly?	Yes		
Geometry	10.2) short comments to th	e previous question (optional)	geometry imported correctly into Revit and s by FME into ArcGIS fGDB	structure defined	
ဗိ	11.2) short comments to th	e previous question (optional)	some		
	12.1) Is it possible to view to	the model in 3D?	Yes		
2D/3D	12.2) short comments to th	e previous question (optional)	ArcGIS Pro visualises in 3D either in local coordinates or Global. Revit permits 3D views, FME Data Inspector allows for 3D Views.		
2	13.1) Is it possible to view to	the model in 2D?	Yes		
	13.2) short comments to th	e previous question (optional)	ArcGIS Pro, Revit and FME permit 2D viewing of models		
,	14.1) Is it possible to edit thother)?	ne model (attributes, geometry,	Yes		
	14.1.1) What editing is pos georeferencing, please add		Geometry editing as well as transformation a georeferencing are possible along with chan		
		Similar Section 1997 1997	March State Authors Inter March State Sta	\$ - 0 X \$ two Wiley (million \$1 \text{ Inset } \cdot 0 \) \$ Inset to the Wiley (million \$1 \text{ Inset } \cdot 0 \) ### Comparison on the Comparison of th	
Editing	14.1.2) Attach screenshots	* Others Mark Made 1/2 Instruction 1/		Page Up or Page	

ESRI, Pro and ArcGIS 10.X, Revit, Safe FME [ArcGIS Pro 2.4, ArcGIS 10.7, FME 2019.1, Revit 2018 - 2020] -

Windows 10 Home

Prop BIM

Level of tester expertise: 3 - Expert user (you know very well the technical details and tricks)

	14.2) short comments to the previous question (optional)	N/A			
	15.1) Is it possible to query the model and the attributes?	Yes			
	15.1.1) What kinds of query are possible?	Select by attribute and direct que	ery		
Querying	15.1.2) Attach screenshots	Charting Order Charting Charting	The state of the control of the cont		
		he previous question (optional)	N/A		
	16.1) Is it possible to analyse the objects and the model?		No		
Sis	results are reliable?	possible? Do you know if the	N/A		
Analysis	16.1.3) Time required to p model itself (type 1)	perform the analysis about the	No analysis of type 1 are possible		
	16.1.3) Time required to p model performances (type	perform the analysis about the e2)	No analysis of type 2 are possible		

eveBIM

ē	Software Name [version] eveBIM [2.10.0]			Software	tware house CSTB				
Software	Proprietary or ope	en source softwar	e?	Kind of software					
Š	proprietary			BIM					
ıter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	DELL Precision 5510 - 2018	Windows 7 Professionnel - 64 bit	Intel(R) Xeon(R) CPU E3-1505M v5	Nvidia C		16,0 Go	953 Go	278 Go	
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC exponential certification status		Export certification date	Export certification program		
Ce	not certified			not certi	fied				
			Test	with My	ran.ifc				
	How long does it visualise if the so		ely, to:Import (and ne model		it's almo	st immediate			
nce			ely, to:Pan the mod			st immediate			
rma	How long does it take, approximately, to:Rotate the model				it's almost immediate				
Performance	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship			objects	it's almost immediate				
	Please report on importing the file.	any errors the sof	tware gives when		No error				
D)		model in the soft	dinates taken into ware's coordinate		t Yes				
Georeferencing	cityGML, shape) with different and longitude information to the previous question (optional) cityGML, shape) with different and longitude information to in eveBIM we let the possible latitude, longitude and elevations and elevations and elevations and elevations are parameters configurations.			to geologisibility to revation given is case y igure for	w you geolocalise your files. eveBIM can load multi-files (ifc, coordinate system. In france BIM manager don't use the latitude eolocalise their files but use the local placement as base point. So y to manage the geolocalisation as you want: 1) either using on given in the ifcSite, 2) either using the localPlacement of the ase you have to set the default coordinate system, 3) either in e for each loaded file exactly what you want (which coordinate or not, use true north,)			n't use the latitude nt as base point. So) either using Placement of the em, 3) either in	
ght	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?			(z)?	Yes				
Hei	considered when locating the model in the software (z)? 3.2) short comments to the previous question (optional)			ıal)	If we pick a point on the terrain, the elevation of the ground is around ~148 mm			tion of the ground	
uo	4.1) Is the model North?	4.1) Is the model oriented correctly with respect to the tru North?			Yes				
Orientation	4.2) short comments to the previous question (optional)			nal)	eveBIM use the information of the true north given in the IfcProject. As I said before, in advance configuration, we can choose to ignore this information. In the 3D view, there is a compass that show you the north				

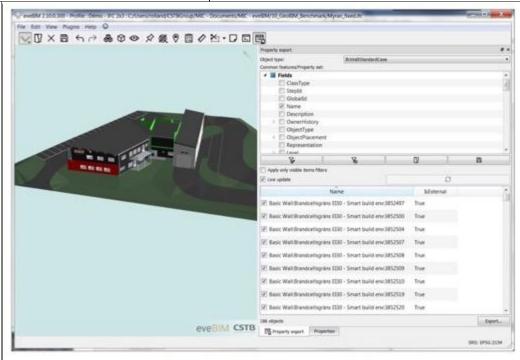
CSTB eveBIM 2.10.0 - Windows 10 Home
Proprietary software
BIM
Level of tester expertise: 4 - Developer of the tested software

ions	5.1) Does the model maintain its correct dimensions and proportions?	Yes		
Proportions		There is no distorsion or scale. eveBIM preserve unit (in mm). we see this when we do measures or calculate surfaces.		
ions	6.1) Is the eventual translation consistent with the IFC definitions?	Yes		
IFC definitions		I'm not sure to understand the question. In the properties view, we have a mode without traduction, and an other whith translation (thus IfcWall is indicated as Wall or 'Mur' in france). eveBIM is multi langage (english and french)		
۶ί	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes		
Hierarchy	7.2) Short comments to the previous question (optional)	In eveBIM, the 'Model view' window, show you the spatial hierarchy (IfcProject > IfcSite > IfcBuilding > IfcBuildingStorey >). eveBIM can also present groupe hierarchy (objects classified under the IfcGroup)		
tes	8.1) Are the attributes present in the IFC entities retained and consistent?	Yes		
Attributes		When we click on an element, the properties are displayed. it's quite similar to the way the properties are presented in the file description on GeoBIM / data / Myran Ifc Model.		
. <u>d</u>	9.1) Are the relationships between the objects retained?	Yes		
Relationship s	9.2) short comments to the previous question (optional)	The different relationsships are displayed in the proprety view. We can see IfcRelAssociatesMaterial, IfcRelFillsElement, IfcRelContainedInSpatialStructure, IfcRelAggregates depending on the objetcs we select		
<u>></u>	10.1) Is geometry read correctly?	Yes		
Geometry		The model is displayed in the same way than the images displayed in geoBIM/data. The geometry of the IfcSite is a surface.		
	11.1) Did the normals change?	Yes		
Normals	11.2) short comments to the previous question (optional)	Yes for the windows. I think in the model, there is a problem of normal for some element (geometry of the site, under the building). In eveBIM, we have an option name 'backface culling (by press 'b' touch) which allows to control the reversed normals		
	12.1) Is it possible to view the model in 3D?	Yes		
۵	13.1) Is it possible to view the model in 2D?	No		
2D/3D	14.2) short comments to the previous question (optional)	We can edit some attributes (change name, description, tag, predefined type and pset). We can modify or add property set.		
Ø = 0	15.1) Is it possible to query the model and the attributes?	Yes		

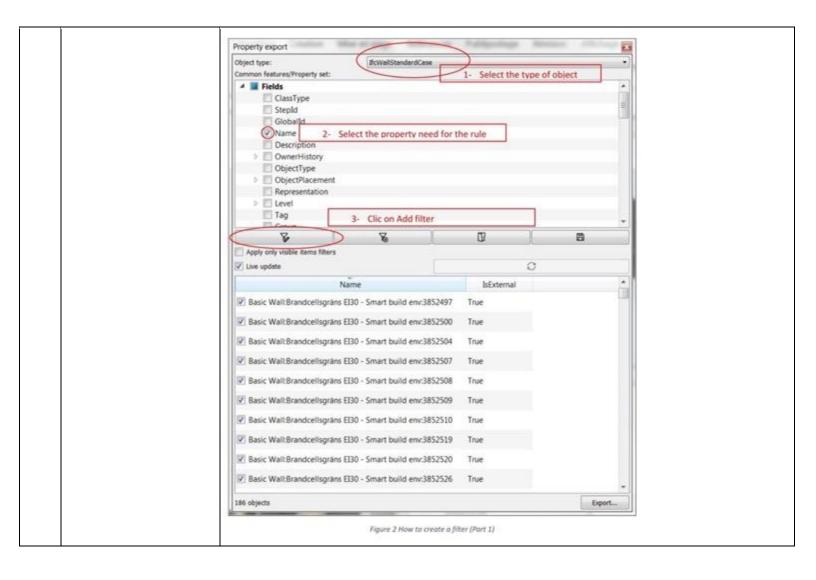
15.1.1) What kinds of query are possible?

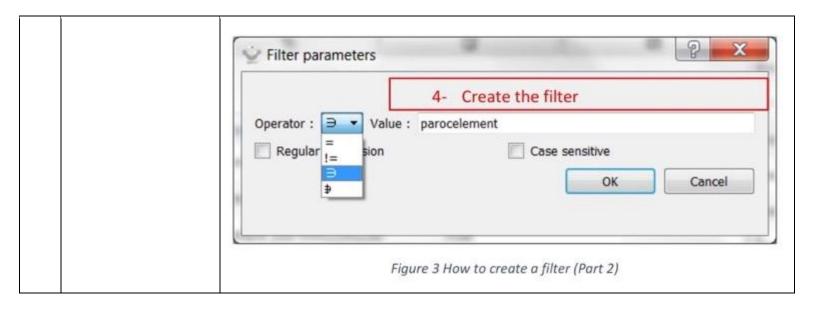
Selection by attributes: From a type of element (IfcWall, IfcBuildingStorey, IfcSpace, ...) select the elements that have a certain value of attribute (examples of rule: select all the IfcWall with the surface > 20 m² or select all the external walls). The operators for rules are =, !=, <, >, <=, >=, contains, not contains.

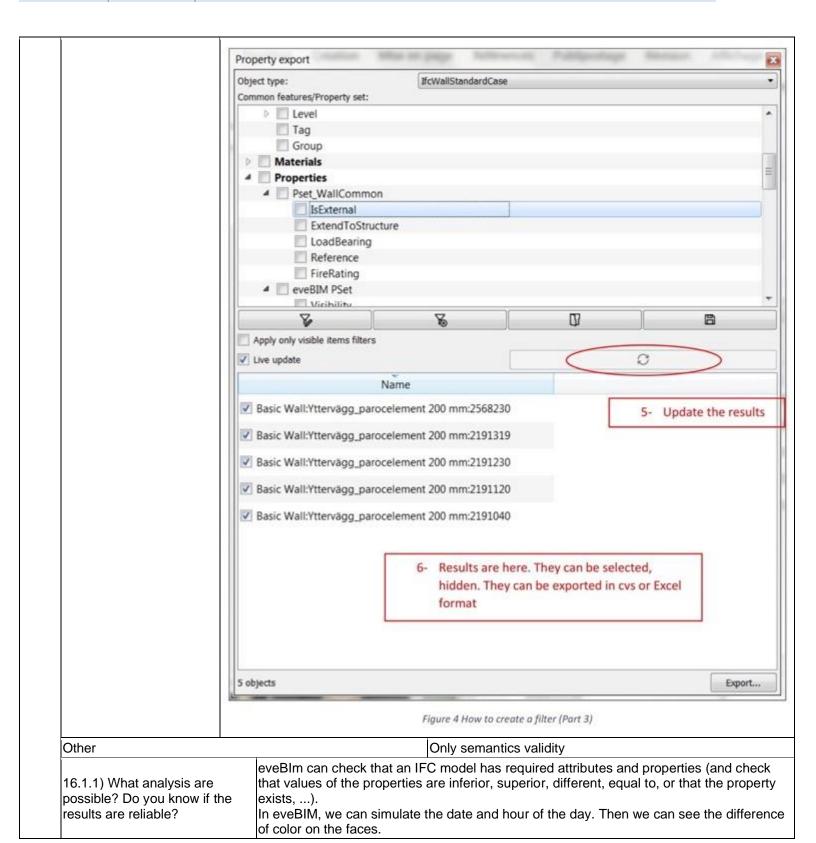


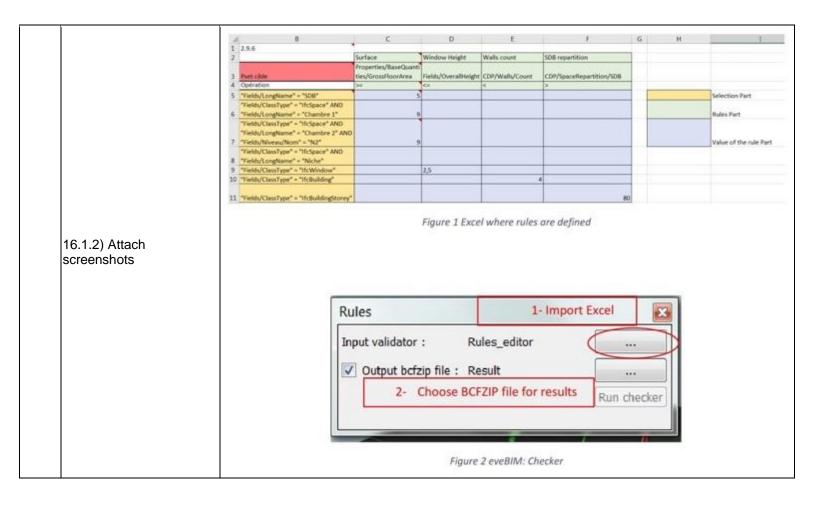


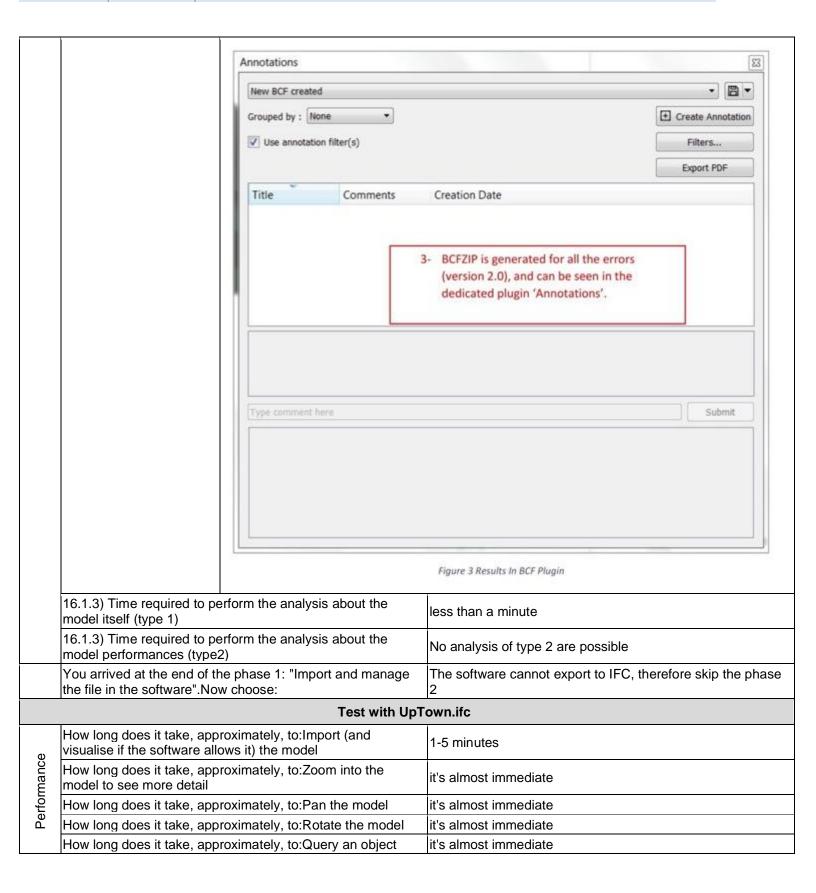
DIM











Proprietary software
BIM
Level of tester expertise: 4 - Developer of the tested software

	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	it's almost immediate		
Propor tions	24.1) Does the model maintain its correct dimensions and proportions?	Yes		
Pro tic	24.2) short comments to the previous question (optional)	Ok no error		
IFC defi	25.1) Is the eventual translation consistent with the IFC definitions?	Yes		
Hierarc hy	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes		
ΞΞ	26.2) short comments to the previous question (optional)	Exactly the same		
Attribut	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes		
Att	27.2) short comments to the previous question (optional)	All the attributes can be read		
io S	28.1) Are the relationships between the objects retained?	Yes		
Relatio nships	28.2) short comments to the previous question (optional)	\- We find IfcRelAssignsToGroup, IfcRelContainedInSpatialStructure,tructure		
O 0 0	29.1) Is geometry read correctly?	Yes		
Nor mals	30.1) Did the normals change?	Yes		
ŽË	30.2) short comments to the previous question (optional)	For geometry (surface) we can see the direction of normal		
	31.1) Is it possible to view the model in 3D?	Yes		
2D/3D	31.2) short comments to the previous question (optional)	Everything is ok		
21	32.1) Is it possible to view the model in 2D?	No		
Exp	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot export to IFC, therefore skip the phase 2		
	Test with Savi	gliano.ifc		
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it's almost immediate		
	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate		
	How long does it take, approximately, to:Pan the model	it's almost immediate		
ance	How long does it take, approximately, to:Rotate the model	it's almost immediate		
l ü	How long does it take, approximately, to:Query an object	it's almost immediate		
Perform	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	it's almost immediate		
		ed. Error message is: "Warn - IFCProduct (#565376): error Error - this representation Item IfcAdvancedBRep (#564922)		
	39) Attach screenshots regarding the eventually reported errors.			
	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	Yes		
	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	Yes		

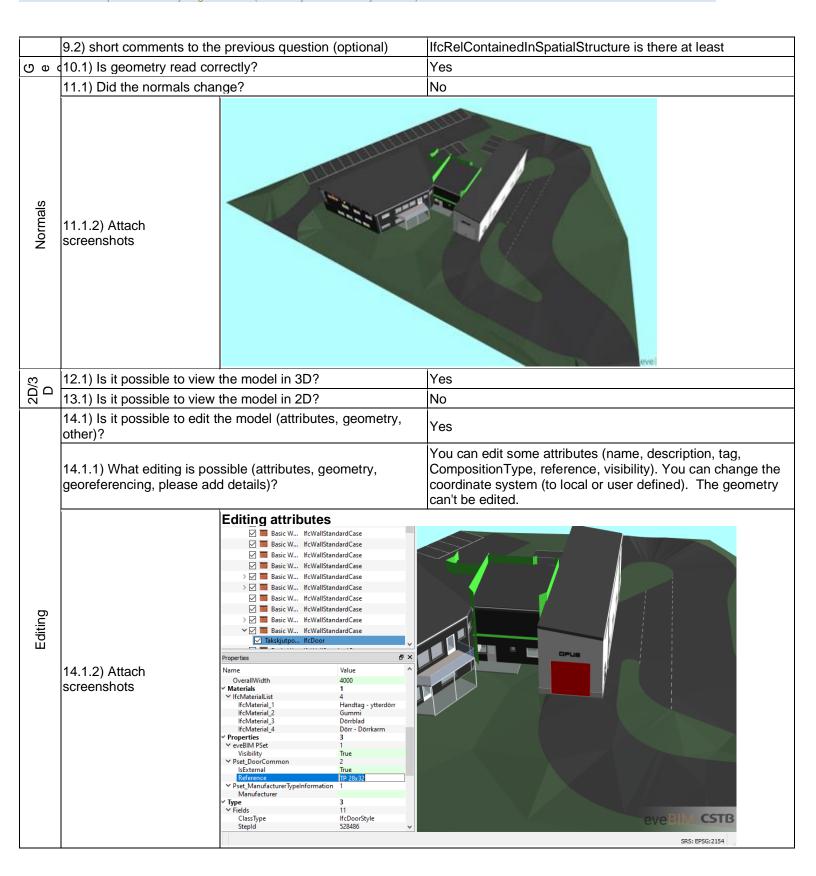
CSTB eveBIM 2.10.0 - Windows 10 Home
Proprietary software
BIM
Level of tester expertise: 4 - Developer of the tested software

	42.1) Is the model oriented North?	correctly with respect to the true	Yes		
	43.1) Does the model mair proportions?	ntain its correct dimensions and	Yes		
	44.1) Is the eventual transl definitions?	ation consistent with the IFC	Yes		
	45.1) Are the hierarchical r IFC hierarchy?	elationships consistent with the	Yes		
	45.2) short comments to th	e previous question (optional)	everything is ok		
Attribut es	46.1) Are the attributes pre and consistent?	sent in the IFC entities retained	Yes		
Att	46.2) short comments to the	e previous question (optional)	same answer as other files: ok		
R le to	47.1) Are the relationships	between the objects retained?	Yes		
	48.1) Is geometry read cor	rectly?	No		
	48.1.1) What changes / incissues were noted?	consistencies / errors / other	The IfcAdvancedBrep is not implemented so the geometry is not shown		
Geometry	48.1.2) Attach screenshots	ERROR - OsgBuildVisitor failed to general WARN - IfcProduct (#565376): error in ERROR - this Representation Item IfcAdv ERROR - OsgBuildVisitor failed to general WARN - IfcProduct (#565376): error in WARN - IfcProduct (#565376): failed to ERROR - this Representation Item IfcAdv ERROR - OsgBuildVisitor failed to general WARN - IfcProduct (#377642): error in	IfcRepresentationItem (#565115) rancedBrep (#565368) is not implemented TODO :-) Ite IfcAdvancedBrep IfcRepresentationItem (#565368) generate "Body" representation!!! rancedBrep (#377175) is not implemented TODO :-) Ite IfcAdvancedBrep IfcRepresentationItem (#377175) rancedBrep (#377634) is not implemented TODO :-) Ite IfcAdvancedBrep IfcRepresentationItem (#377634)		
Nor mals	49.1) Did the normals char	nge?	Yes		
žε̈́	49.2) short comments to the	e previous question (optional)	Same as previous IFC files		
	50.1) Is it possible to view	the model in 3D?	Yes		
2D/3D	50.2) short comments to the	e previous question (optional)	with missing elements		
21	51.1) Is it possible to view	the model in 2D?	No		
Exp	You arrived at the end of the file in the software".No	ne phase 1: "Import and manage w choose:	The software cannot export to IFC, therefore skip the phase 2		

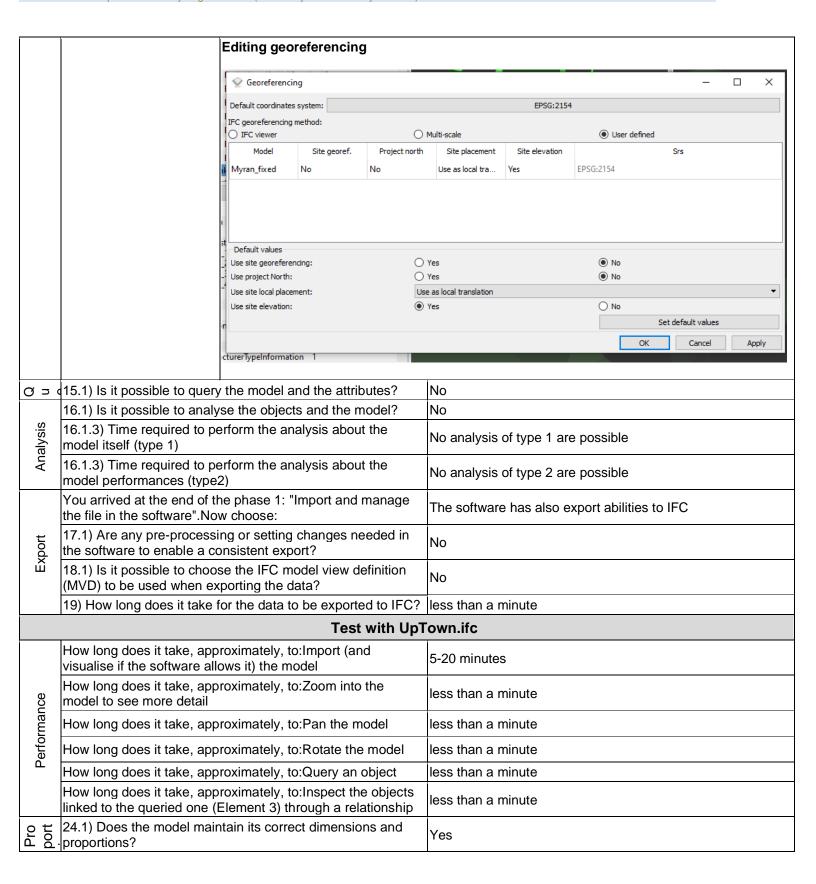
eveBIM Viewer

ā	Software Name [version] eveBIM Viewer [Beta 2.4.2.201] Sof			Software	are house CSTB				
Software	Proprietary or open source software? Kind			Kind of	software				
Š	proprietary B			BIM					
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	self-built desktop (2013)	Windows 10 Home 64-bit	Intel i5-4570 @ 3.20GHz	AMD Ra		8 GB	120 GB	20 GB	
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC exp certificate status		Export certification date	Export certification program		
Ce	not certified			not certi	fied				
			Test	with My	ran.ifc				
	How long does it visualise if the so		ely, to:Import (and ne model		less than	n a minute			
Performance	How long does it model to see mor		ely, to:Zoom into the	he	it's almost immediate				
ıma	How long does it	take, approximate	ely, to:Pan the mo	del	it's almost immediate				
erfc	_		ely, to:Rotate the r		it's almost immediate				
			ely, to:Query an ol		it's almo	it's almost immediate			
	linked to the quer		ely, to:Inspect the relationship	objects	it's almost immediate				
rencing		model in the soft	dinates taken into ware's coordinate		Yes				
Georeferencing	2.2) short comme	ents to the previou	s question (option	nal)	By default, it would load the model with a local coordinate system. You can however change the settings to have it use the model's coordinate system.				
Orie ntati	3.1) Are the "real- considered when			(z)?	Yes				
Pro	4.1) Is the model North?	oriented correctly	with respect to th	e true	Yes				
				Yes					
	6.1) Is the eventual translation consistent with the IFC definitions?			Yes					
Attri bute	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?			The software does not have the necessary tools to determine this information			ry tools to		
	8.1) Are the attrib and consistent?	outes present in th	e IFC entities reta	ained	Yes				
조 - 6	9.1) Are the relati	ionships between	the objects retain	ed?	Yes				

BIM



DIM



Proprietary software
BIM
Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

	T		
IFC defi	25.1) Is the eventual transl definitions?	ation consistent with the IFC	Yes
	26.1) Are the hierarchical r IFC hierarchy?	elationships consistent with the	The software does not have the necessary tools to determine this information
te ti	27.1) Are the attributes pre and consistent?	sent in the IFC entities retained	Yes
		between the objects retained?	Yes
	29.1) Is geometry read cor		Yes
	30.1) Did the normals char		No
OZ	30.1.2) Attach screenshots		eveBIM CSTB
(3D	31.1) Is it possible to view	the model in 3D?	Yes
2D/3D	32.1) Is it possible to view		No
Exp	You arrived at the end of the file in the software".No	ne phase 1: "Import and manage w choose:	The software has also export abilities to IFC

CSTB eveBIM Beta 2.4.2.201- Windows 10 Home

Proprietary software

BIM

Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

	36) How long does it take for the data to be exported to IFC?	20 minutes-1 hour
Test with Savigliano.ifc		
Performance	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	less than a minute
	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate
	How long does it take, approximately, to:Pan the model	it's almost immediate
	How long does it take, approximately, to:Rotate the model	it's almost immediate
	How long does it take, approximately, to:Query an object	it's almost immediate
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	it's almost immediate
	39) Attach screenshots regarding the eventually reported errors.	
Georef	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	Yes
Hei ght	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	Yes
Orie ntati	42.1) Is the model oriented correctly with respect to the true North?	Yes
	43.1) Does the model maintain its correct dimensions and proportions?	Yes
	44.1) Is the eventual translation consistent with the IFC definitions?	Yes
Hier	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools to determine this information
Attri bute	46.1) Are the attributes present in the IFC entities retained and consistent?	Yes
	47.1) Are the relationships between the objects retained?	Yes
	48.1) Is geometry read correctly?	Yes
Z 0 '	49.1) Did the normals change?	No

Proprietary software
BIM
Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

	49.1.2) Attach screenshots		
3D	50.1) Is it possible to view	the model in 3D?	Yes
2D/3D	51.1) Is it possible to view	the model in 2D?	No
Export	You arrived at the end of the file in the software".No	ne phase 1: "Import and manage w choose:	The software has also export abilities to IFC
Ë	55) How long does it take f	or the data to be exported to IFC?	less than a minute

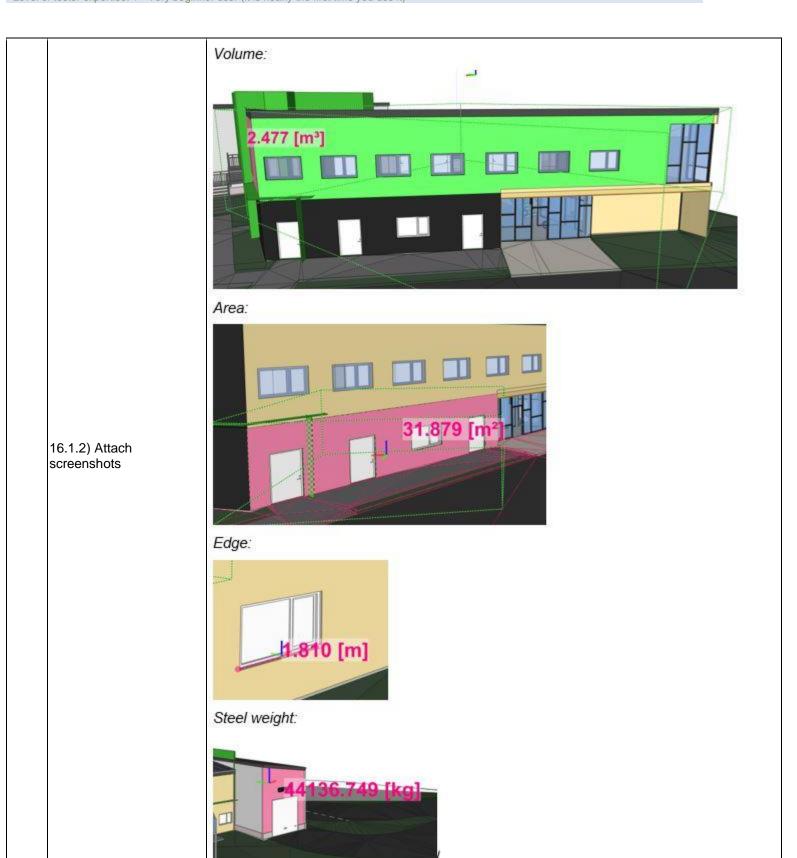
BIM Visison 2.20.3

ē)	Software Name [version]	BIM Visison [2.2	20.3]	Software	rare house Datacomp Sp. z o.o.				
Software		Proprietary or ope	en source softwar	e?	Kind of	ind of software				
Š	ĺ	open source			3D view	er				
ıter		Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer		HP ZBook 15 G3, 2018	Windows 10 Enterprise, 64- bit	Intel ® Core™ i7-6820HQ CPU	NVIDIA M1000N		32	474	217	
Certificatio		IFC import certification status	Import certification date	Import certification program	IFC exp certificat status		Export certification date	Export certification program		
Ce		not certified			not certi	fied				
				Test	with My	ran.ifc				
		How long does it visualise if the so				it's almo	st immediate			
e e	Performance	How long does it take, approximately, to:Zoom into the model to see more detail					it's almost immediate			
mar		How long does it take, approximately, to:Pan the model					it's almost immediate			
erfor		How long does it take, approximately, to:Rotate the model					st immediate			
۵		How long does it take, approximately, to:Query an object					it's almost immediate			
		How long does it linked to the quer		ely, to:Inspect the or	objects	it's almost immediate				
Georef	ב ב	2.1) Are the world when locating the reference system	model in the soft		account	Yes				
Hei		3.1) Are the "real- considered when			z)?	Yes				
Orie	υ >	4.1) Is the model North?	•	•		Yes				
Pro		North? 5.1) Does the mo proportions?	del maintain its co	orrect dimensions	and	Yes				
FC	ບ ເສຼ (6.1) Is the eventual translation consistent with the IFC ບ ສ definitions?					Yes				
Hier	7.1) Are the hierarchical relationships consistent with the hierarchy?				the IFC	Yes				
Attri						Yes				
Relat	2 2	9.1) Are the relati				Yes				
		9.2) short comme	<u>-</u>	s question (option	al)		elations might be r	missing		
≥ ७ (10.1) Is geometry read correctly?										

	44.4) Did the area area along	0				V	
	11.1) Did the normals ch					Yes	
2D/3 D	12.1) Is it possible to vie					Yes	
] [13.1) Is it possible to vie	w the mo	odel in 2D	?		Yes	
Editing	14.1) Is it possible to ed other)?	4.1) Is it possible to edit the model (a ther)?				No	
Щ	14.2) short comments to	the prev	vious ques	tion (opti	ional)	At least, I cannot fi	nd such possibilities
	15.1) Is it possible to query the model and the att					Yes	•
	15.1.1) What kinds of query are possible?	There	here are general pre-defined ways to view the informat groups (system, zones or other) and by layers. For all the and relations can be shown at the object level				
		List	by type.	S:			
		Acti	1	ype		Name	
		V	Types				
		~	■ Subsoil				
		~	■ Standard	Wall			
		~	⊞ Wall				
		~	Slab				
					Floor:Platta på mark 700 mm:219 Floor:Bjälklag 150 mm uteplats:22		
					Floor:Bjälklag 150 mm uteplats:22		
			Slab		Floor:Bjälklag145+145 mm ovan		
		~	Slab		Floor:Bjälklag36 mm ovan entré:2		
		V	Slab			1:3791582	
		~	Slab		Assemble	ed Stair:Stair:2346773 La	
		~	Slab		Assemble	ed Stair:Stair:2346773 La	
g		~	Slab			of:Papptak 386 mm - isol	
Querying		~	Slab			of:Papptak 476 mm - Isol	
ne			Slab			ildag 220 mm: 2200260	
Ø	15.1.2) Attach	8	Slab			ildag 150 mm balkong:23 ildag 100 mm:2606093	
	screenshots		Slab			sidag 200 mm: 2853814	
			Slab			of:Plåttak 340 mm - isoler	
		~	Slab			ion Slab:Brandcellsgräns	
		~	Slab			ion Slab:Brandcellsgräns	
		V	∃ Door				
		4	⊕ Curtain V	Vall		2000	
		roperti	es Location	Classificati	ion Relations		
		1	Name			Value	
		-	ement Specifi			200000	
		14	Guid		0KjxtkWpLDWw3Eo6azlgM\$		
		1811	IfcEntity		Slab or:Bjälldag 220 r	2200260	
		14-1-3	Name ObjectType		or:Bjälklag 220 r		
		18-1-5	PredefinedType		OOR 220 I		
		11 - 3	Tag	5000	00260		
			et_SlabCom				
		18-1	IsExternal	No			
		100	LoadBearing	No			
			Reference	Duti	ildag 220 mm		

Datacomp Sp. z o.o. BIM Visison 2.20.3 - Windows 10 Home Open source 3D viewer Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

Sis		Yes, analysis about the modelled building performances (energy, noise, shadows) are possible (type 2)
Analy	results are reliable?	Volume, area, edge, weight, counting and coordinates can be measured. Do not know it they are reliable



	16.1.3) Time required to perform the analysis about the model itself (type 1)	No analysis of type 1 are possible		
	16.1.3) Time required to perform the analysis about the model performances (type2)	it's almost immediate		
	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software cannot export, therefore skip the phase 2		
	Test with UpT	Fown.ifc		
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	5-20 minutes		
99	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate		
man	How long does it take, approximately, to:Pan the model	it's almost immediate		
Performance	How long does it take, approximately, to:Rotate the model	it's almost immediate		
Pe	How long does it take, approximately, to:Query an object	it's almost immediate		
	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	it's almost immediate		
Pro	24.1) Does the model maintain its correct dimensions and proportions?	Yes		
Hier	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes		
Attri	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes		
조 <u>a</u>	28.1) Are the relationships between the objects retained?	Yes		
ന മ	29.1) Is geometry read correctly?	Yes		
Z o	30.1) Did the normals change?	Yes		
2D/3 D	31.1) Is it possible to view the model in 3D?	Yes		
25	32.1) Is it possible to view the model in 2D?	Yes		
Editi	33.1) Is it possible to edit the model (attributes, geometry, other)?	No		
ing	34.1) Is it possible to query the model and the attributes?	The answers are the same I gave during the test with Myran.ifc		
Querying		ys to view the information, listed by structure, by types, by and by layers. For all these properties, location, classification e object level		

		Lis	st by	classification:				
					Classifications			
		巴	Acti ve	Туре	Name			
			~	Classifications				
			~	□ Uniformat				
			V	⊕ 20				
			V	+ 21.0	ALGEMEEN			
		-	~	⊟ 21.10	ALGEMEEN			
			V	Wall	Basic Wall:21_WA_KLA_storax_r			
			~	Standard Wall	Basic Wall: 21_WA_KLA_storax_r			
		148	~	Standard Wall	Basic Wall:21_WA_KLA_storax_r			
		16	~	⊞ 21.12	SPOUWWANDEN			
	34.1.2) Attach		V	□ 21.16.10	BOEIBOORD, HOUT			
	screenshots		V	Standard Wall	Basic Wall:21_KLA_Houten lijst:1			
			~	Standard Wall	Basic Wall:21_KLA_Houten lijst:2			
			Y	Standard Wall	Basic Wall:21_KLA_Houten lijst:2			
			V	Standard Wall	Basic Wall:21_KLA_Houten lijst:2			
			~	Standard Wall	Basic Wall: 21_KLA_Houten lijst: 2			
			~	Standard Wall	Basic Wall:21_KLA_Houten lijst:2			
			~	Standard Wall	Basic Wall:21_KLA_Houten lijst:3			
			~	Standard Wall	Basic Wall:21_KLA_Houten lijst:3			
			~	Standard Wall	Basic Wall: 21_KLA_Houten lijst: 3			
			~	Standard Wall	Basic Wall:21_KLA_Houten lijst:3			
		~		Standard Wall	Basic Wall:21_KLA_Houten lijst:3			
			Standard Wall		Basic Wall:21_KLA_Houten lijst:3			
			V	Standard Wall	Basic Wall:21_KLA_Houten lijst:3			
			V	Standard Wall	Basic Wall: 21_KLA_Houten lijst: 3			
		L Lie	V	Standard Wall	Basic Wall:21_KLA_Houten lijst:3			
g F	You arrived at the end of the file in the software".No				The software cannot export, therefor	e skip the phase 2		
				Test with Sav	vigliano.ifc			
	How long does it take, app visualise if the software all				it's almost immediate			
	How long does it take, app model to see more detail	approximately, to:Zoom into the ail			it's almost immediate			
ance	How long does it take, app	roxii	nate	ly, to:Pan the model	it's almost immediate			
Performance	How long does it take, app	roxi	nate	ly, to:Rotate the model	it's almost immediate	it's almost immediate		
Perf	How long does it take, app	roxi	nate	ly, to:Query an object	it's almost immediate			
	How long does it take, app linked to the queried one t				it's almost immediate			
	39) Attach screenshots regerrors.	gardi	ng tl	ne eventually reported				
	40.1) Are the world (project software's coordinate refere				nt when locating the model in the	Yes		
ght	41.1) Are the "real-world" considered when locating	eleva	ation	values (heights)	Yes	·		

Datacomp Sp. z o.o. BIM Visison 2.20.3 - Windows 10 Home Open source 3D viewer Level of tester expertise: 1 - Very beginner user (it is nearly the first time you use it)

- w	42.1) Is the model oriented correctly with respect to the true North?	Yes
	43.1) Does the model maintain its correct dimensions and proportions?	Yes
IFC defi	44.1) Is the eventual translation consistent with the IFC definitions?	Yes
	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes
	46.1) Are the attributes present in the IFC entities retained and consistent?	Yes
ত ত	47.1) Are the relationships between the objects retained?	Yes
O 0 0	48.1) Is geometry read correctly?	Yes
Z o s	49.1) Did the normals change?	Yes
6/3	50.1) Is it possible to view the model in 3D?	Yes
2D/3 D	51.1) Is it possible to view the model in 2D?	Yes
Exp	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software cannot export, therefore skip the phase 2

Level of tester expertise: 2 - Current user

FreeCAD

Software	Software Name [version]	• • • • • • • • • • • • • • • • • • •			Software house does not apply			у			
Soft	Proprietary or ope	en source	softwar	e?	Kind of	software					
	open source				CAD						
uter	Model and year	Operatin system	ıg	СРИ	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space		
Computer	Dell Precision 3630	Windows		Intel Core i5- 8500 3.00 GHz	Intel UH Graphic		16	237 (System drive)	167 (System drive)		
Certificatio n	IFC import certification status	Import certificat date	ion	Import certification program	IFC export certification status		Export certification date	Export certification program			
Cerl	not certified				not certi	fied					
				Test	with My	ran.ifc					
	visualise if the so	ows it) th			5-20 minutes						
	How long does it model to see more	roximate	ely, to:Zoom into th	ne	e it's almost immediate						
Performance	_			ely, to:Pan the mod							
ıma	_	How long does it take, approximately, to:Rotate the r					st immediate				
erfo	_			ely, to:Query an ob	_	it's almo	st immediate				
_ ₽		How long does it take, approximately, to:Inspect the linked to the queried one through a relationship					it's almost immediate				
	Please report on any errors the software gives when importing the file. I have set the log to debug level. Thus it is very verbose. There seem to be 3 types of error messages, that may pertain to similar causes, but in different places in the import process: Invalid base object, invalid shape, has an invalid shape.										
referencing		e model in		dinates taken into ware's coordinate		Yes					
Georefe	2.2) short comme the previous ques (optional)		website	d min and max X a image. Looks rea e, terrain.X ranges	sonable v	with refer	ence point at 0,0				
ıt.	3.1) Are the "real considered when			values (heights) el in the software ((z)?	Yes					
Height	3.2) short comme the previous ques (optional)		6860. T	here is no informa	ition abou	alues of terrain and roof. Terrain goes from -1200 to 200, roof up to tion about the vertical location of the reference point on the website. is not moved to zero, but the reference point is at z=0.					
j e j	Other		The mod	del is oriented cor	rectly witl	n respect	to the reference	system.			

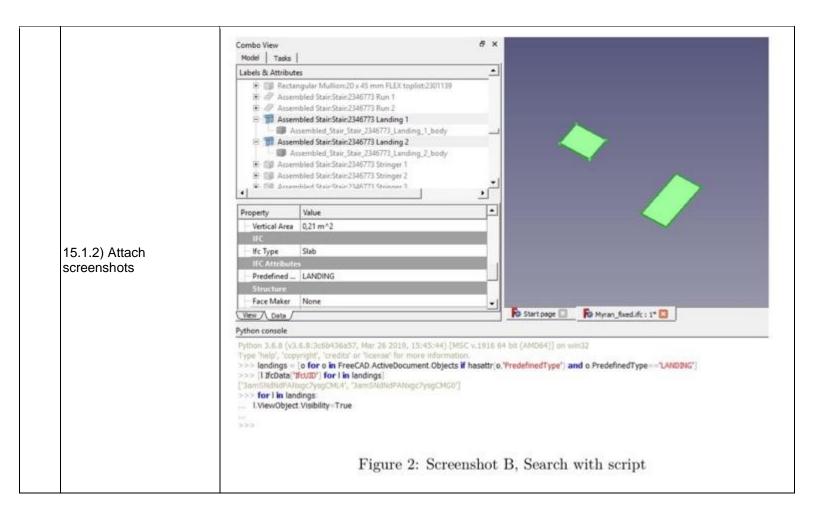
	the ref system) is not relevant at all for this. There is a (brand st other CAD systems) to rotate the view such that true north chitecture plans are not displayed nor printed like this. Also, rientation.					
ns	5.1) Does the model main proportions?	tain its correct dimensions and	Yes			
	5.2) short comments to the previous question (optional)	where taken. E.g. the diagonal mea	estions, because it is not clear where exactly measurements asure could be different on different heights and the vertical n a sloped roof, again depending on exact position of			
Suc	6.1) Is the eventual transladefinitions?	ation consistent with the IFC	Yes			
IFC definitions	6.2) short comments to the	e previous question (optional)	Checked all mappings through FreeCAD's Python console. IfcOpeningElement was not imported due to default import settings.			
	7.1) Are the hierarchical re hierarchy?	elationships consistent with the IFC	Yes			
Hierarchy	7.2) short comments to the previous question (optional)	pictures and the mentioning of sub defined for the IFC? Usually, native tree including all abstract types. Als (unless we have an Open Source a the spatial hierarchy, that is Projec data section would need to be update	and the meaning of "hierarchical relationships". From the oclasses it looks like you are talking about the inheritance tree in BIM applications do not need to implement the IFC type is so, implementation details are usually not visible to the user application). So a more reasonable question would relate to the tight of the work of the lated). With regard to this, FreeCAD behaves properly. I also are considered and preserved during import.			
Se	8.1) Are the attributes presand consistent?	sent in the IFC entities retained	Yes			
	8.2) short comments to the previous question (optional)	With regard to attributes defined di	er "attributes" in detailled data screenshots) are retained. rectly for the entity type (including inherited attributes) - these infiguration, most are retained, but ObjectType is missing ple.			
S	9.1) Are the relationships	between the objects retained?	Yes			
	9.2) short comments to the previous question (optional)	aggregations with more than 10 obseem not to be considered. IfcRelC	ent is properly retained (although in debug mode, jects are skipped). Type objects (IfcRelDefinedByType) ConnectsPathElements (connection between walls) is FillsElement could not be checked because due to import ted as objects in their own right.			
	10.1) Is geometry read co	rrectly?	Yes			
Geometry	10.2) short comments to the previous question (optional)	It is difficult to deliver a precise evaluation without concrete examples of geometry types that should result in s olids and others that should result in surfaces. Wether a solid is a proper solid can be determined from the IFC geometry type in many cases, but not in all. For instance in this model the site geometry is an IfcFaceBasedSurfaceModel with IfcConnectedFaceSet. This can be either a closed or open shell. A different way to distinguish solids from surfaces may be the actual geometry but this may be contrary to the geometry representation type (which would mean that the file does not conform to the standard). It seem that these cases do exist in the IFC file at hand.				
Zos	11.1) Did the normals cha	nge?	No			

FreeCAD Current 0.19_pre development build 0.19.17352_x64_LP_11.11_PY2QT4-WinVS2013 - Windows 10

Home Open source CAD

	11.1.1) What changes / inconsistencies / errors / other issues were noted?	No changes. Is the typeform flow correct? Should I really answer this question if the normals did *not* change?		
	11.2) short comments to the previous question (optional)	Visual check by setting all rendering materials to one-sided via Python script. No changes observed.		
	12.1) Is it possible to view the model in 3D?	Yes		
	12.2) short comments to the previous question (optional)	3D view is very nice and responsive. Only changes of visibility for all objects at once take a bit longer.		
2D/3D	13.1) Is it possible to view the model in 2D?	Yes		
	13.2) short comments to the previous question (optional)	Projection works just fine. There are also several ways create 2D technical drawings, but I did not extensively evaluate these.		
<u></u> <u>D</u> L	14.1) Is it possible to edit the model (attributes, geometry, other)?	Yes		
Editing	14.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?	Full CAD functionality available, including attributes, both through GUI and scripting interface. With regard to IFC, also validity of enumeratin values is checked.		
	15.1) Is it possible to query the model and the attributes?	Yes		
Querying	* simple search by (partial) name (15.1.1) What kinds of query are possible? * search via Python console - arbit select with pointing device in mode transfer pointing device selection	rary complex conditions (screenshot B) del tree or 3D view		

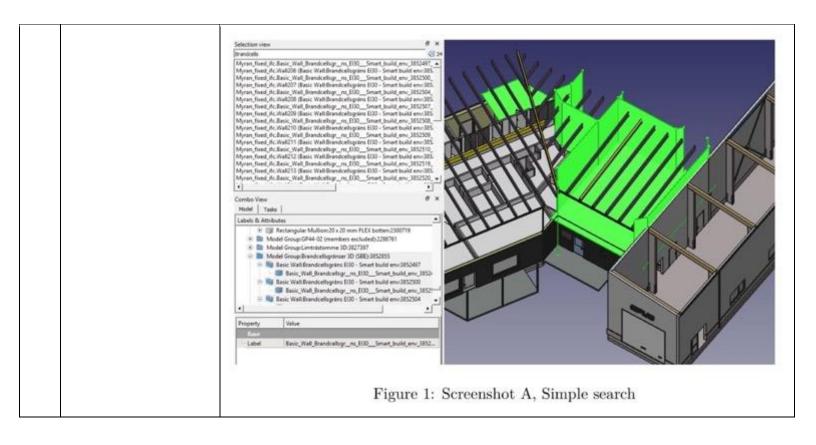
CAD



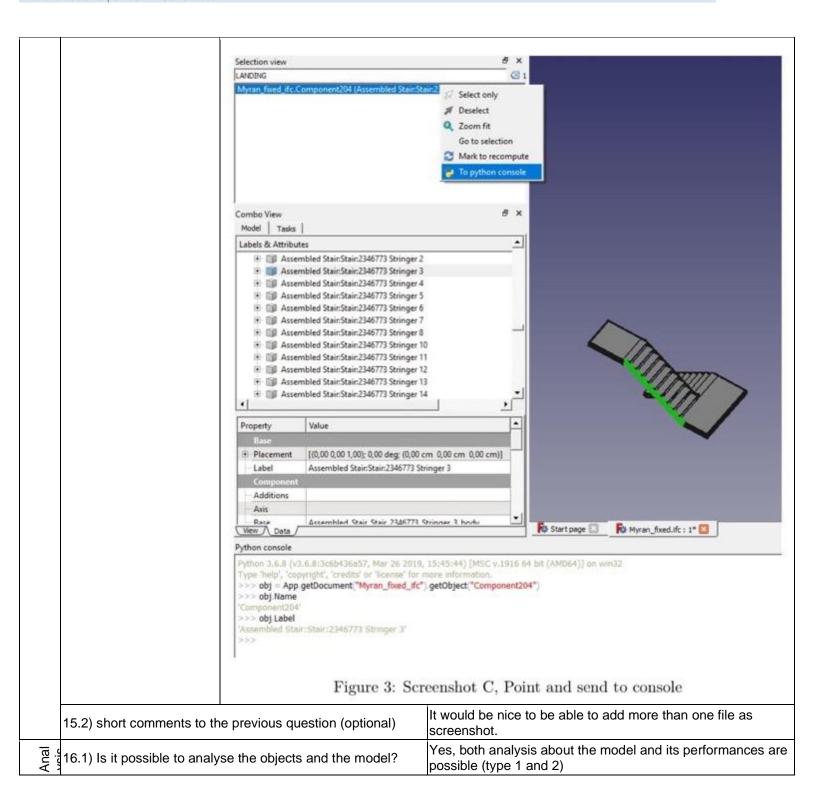
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Home

Open source CAD



CAD

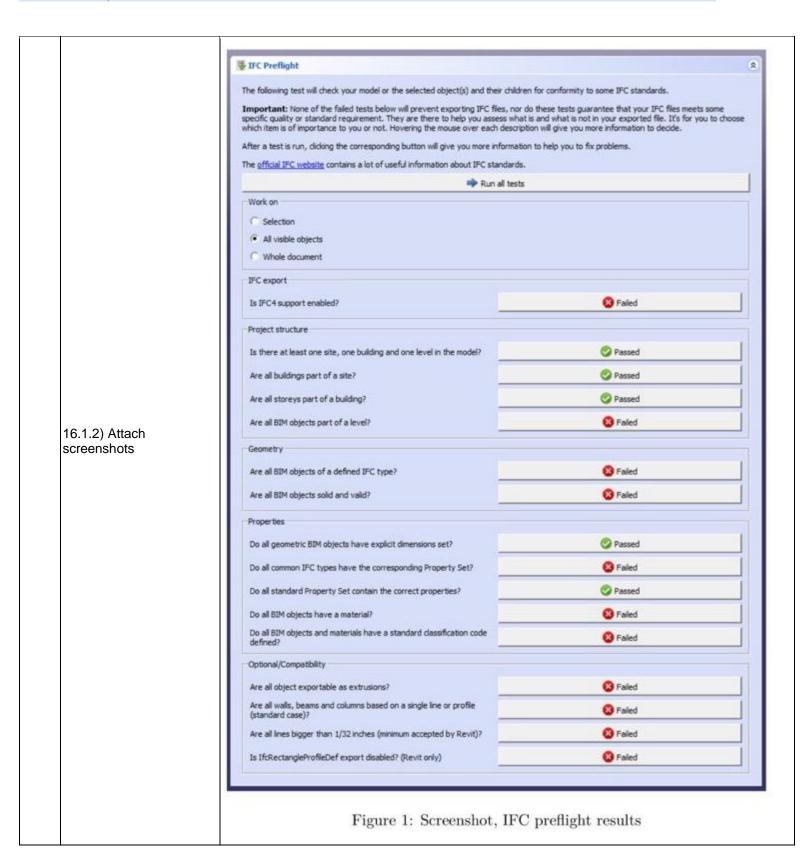


FreeCAD Current 0.19_pre development build 0.19.17352_x64_LP_11.11_PY2QT4-WinVS2013 - Windows 10

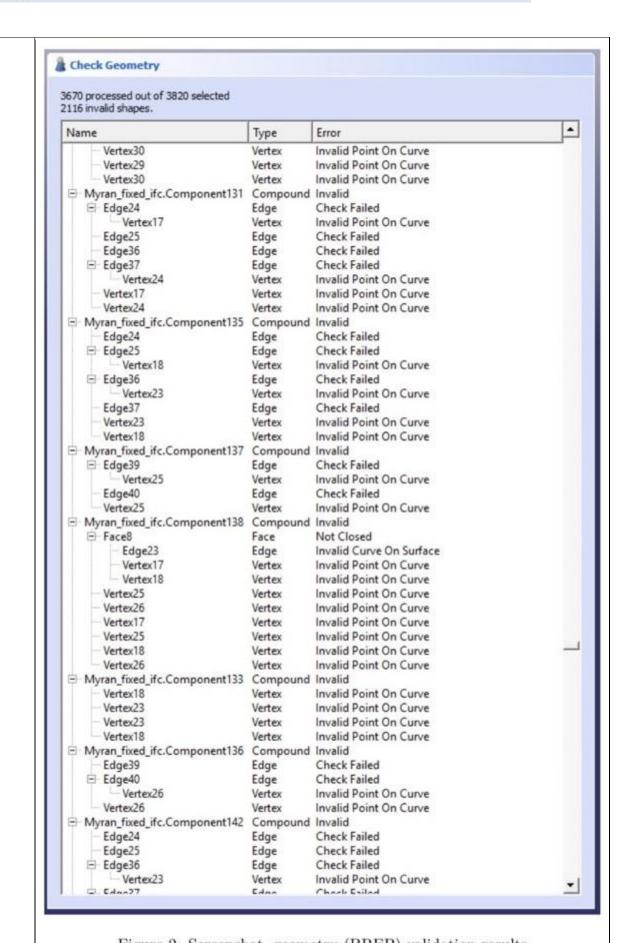
Home Open source CAD

16.1.1) What analysis are possible? Do you know if the results are reliable?	Just a few possibilities (not exhaustive): * Validity of geometry (not closed solids etc.) * IFC preflight (standard conformance) * FEM analysis * Solar diagram * CFD simulation * more possible due to extensibility with workbenches and open source code I trust the geometry validation quite well since it is based on a mature and open source CAD kernel (OpenCascade). Maturity means it is used, tested, improved for a long time, open source code means people can verify and check what it really does under the hood. Most analysis tools integrate other external (open source) tools, e.g. pysolar for solar analysis or OpenFoam for CFD and are as reliably as these.
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CAD



CAD



& Check Geometry		
3670 processed out of 3820 selected 2116 invalid shapes.		
Name	Туре	Error
Vertex30	Vertex	Invalid Poi
Vertex29	Vertex	Invalid Poi
Vertex30	Vertex	Invalid Poi
Myran_fixed_ifc.Component131	Compound	Invalid
⊟ Edge24	Edge	Check Fail
Vertex17	Vertex	Invalid Poi
Edge25	Edge	Check Fail
Edge36	Edge	Check Fail
⊟ Edge37	Edge	Check Fai
Vertex24	Vertex	Invalid Po
···· Vertex17	Vertex	Invalid Po
Vertex24	Vertex	Invalid Po
☐ Myran_fixed_ifc.Component135	Compound	Invalid
Edge24	Edge	Check Fail
⊟ Edge25	Edge	Check Fai
Vertex18	Vertex	Invalid Po
⊟ Edge36	Edge	Check Fai
Vertex23	Vertex	Invalid Po
Edge37	Edge	Check Fai
Vertex23	Vertex	Invalid Po
Vertex18	Vertex	Invalid Po
☐ Myran_fixed_ifc.Component137	Compound	Invalid
⊟ Edge39	Edge	Check Fail
Vertex25	Vertex	Invalid Po
Edge40	Edge	Check Fail
Vertex25	Vertex	Invalid Po
Myran_fixed_ifc.Component138	Compound	Invalid
□ Face8	Face	Not Close
Edge23	Edge	Invalid Cu
Vertex17	Vortey	Invalid Dai

& Check Geometry		
3670 processed out of 3820 selected 2116 invalid shapes.		
Name	Туре	Error
Vertex30	Vertex	Invalid Poi
Vertex29	Vertex	Invalid Poi
Vertex30	Vertex	Invalid Poi
	Compound	Invalid
⊟ Edge24	Edge	Check Faile
Vertex17	Vertex	Invalid Poi
Edge25	Edge	Check Fail
Edge36	Edge	Check Fail
⊟ Edge37	Edge	Check Fail
Vertex24	Vertex	Invalid Poi
··· Vertex17	Vertex	Invalid Poi
Vertex24	Vertex	Invalid Poi
☐ Myran_fixed_ifc.Component135	Compound	Invalid
Edge24	Edge	Check Fail
⊟ Edge25	Edge	Check Fail
Vertex18	Vertex	Invalid Poi
⊟ Edge36	Edge	Check Fail
Vertex23	Vertex	Invalid Poi
Edge37	Edge	Check Fail
Vertex23	Vertex	Invalid Poi
Vertex18	Vertex	Invalid Poi
☐ Myran_fixed_ifc.Component137	Compound	Invalid
⊟ Edge39	Edge	Check Fail
Vertex25	Vertex	Invalid Poi
Edge40	Edge	Check Fail
Vertex25	Vertex	Invalid Poi
☐ Myran_fixed_ifc.Component138	Compound	Invalid
□ Face8	Face	Not Closed
Edge23	Edge	Invalid Cur
Vortex17	Vartor	Invalid Dai

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	16.1.3) Time required to permodel itself (type 1)	erform the analysis about the	1-5 minutes	
	16.1.3) Time required to permodel performances (type.	erform the analysis about the 2)	No analysis of type 2 are possible	
	16.2) short comments to the	ne previous question (optional)	Type 2 analysis: I did not install additional libraries and workbenches due to a matter of time, so could not try these.	
	You arrived at the end of the file in the software".No	ne phase 1: "Import and manage w choose:	The software has also export abilities to IFC	
Export	17.1) Are any pre-processi the software to enable a co	ing or setting changes needed in onsistent export?	Yes	
Exp	17.1.1) Can you add a short description of the steps involved in the preprocessing?	reported for fixing if necessary). By changing the settings to use the IFCOpenShell serializer,		

	Export options			
	Force export as Brep			
	Use DAE triangulation options			
	Join coplanar facets when triangulating			
	Store IFC universal ID in FreeCAD objects			
	Use IfcOpenShell serializer if available			
	Export 2D objects as IfcAnnotations			
	Export full FreeCAD parametric model			
	☑ Reuse similar entities			
	Disable IfcRectangleProfileDef			
	Auto-detect and export as standard cases when applicable			
17.1.2) Attach	Add default site if one is not found in the document			
screenshots and files	Add default building if one is not found in the document (no standard)			
	Add default building storey if one is not found in the document			
	Figure 1: Default IFC export options When using default options (Figure 1), then an error related to colors is raise Traceback (most recent call last): File "ctring>", line 211, in <module> File "D:\mu\FreeCAD_0.19.17382_x64_LP_11.11_PY2QT4-WinVS2013\Mod\Arch\importIFC.py", line 1678, in export representation.placement.shapetype = getRepresentation(ifcfile.context.ob),forcebrep=(brepflag or FORCE_BREP),colors=colors) File "D:\mu\FreeCAD_0.19.17382_x64_LP_11.11_PY2QT4-WinVS2013\Mod\Arch\importIFC.py", line 3413, in getRepresentation key = rgbt[i] <type 'exceptions.indexerror'="">: list index out of range Inspecting the source it could be found that this piece of code is not carried out when IFCOpenShell serializer is used, so enabled this option and found that the error did not appear. Will be verified in later FreeCAD versions, reported and/or fixed.</type></module>			
	Ž.			
18.1) Is it possible to che (MVD) to be used when	noose the IFC model view definition exporting the data?			
18.2) short comments to	Some of the export options are related to MVD choices, of the previous question (optional) Some of the export options are related to MVD choices, of the use BREP over CSG.			

FreeCAD Current 0.19_pre development build 0.19.17352_x64_LP_11.11_PY2QT4-WinVS2013 - Windows 10

Home Open source CAD

Performanc e e raiv	ow long does it take, approximately, to:Import (and sualise if the software allows it) the model	The software was not able to import it, even without crushing
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FreeCAD

ē	Software Name [version]	FreeCAD [0.18]		Software	are house https://www.freecadwel		eecadweb.org/	
Software	Proprietary or open source software? Kind of s		software					
Ň	open source			CAD				
ıter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
	Dell Precision M2800	Windows 10 Enterprise 2016 LTSB	Intel Core i7- 4710MQ 2.50 GHz	Intel HD Graphic		8	120	77
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC export certification status		Export certification date	Export certification program	
Cer	not certified			not certi	fied			
			Test	with My	ran.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model			it crashes without completing the operation				
			Test v	with UpT	own.ifc			
Performance	How long does it take, approximately, to:Import (and visualise if the software allows it) the model			it crashe	es without complet	ing the operatio	n	
			Test w	ith Savig	liano.ifc			
orma te	How long does it visualise if the so				it crashes without completing the operation			n
Performa nce	38) Please report importing the file.	on any errors the	software gives w	hen		tly IFC4 is not sup opty model.	oported and fails	s silently resulting

Open source
BIM
Level of tester expertise: 2 - Current user

BimServer

ē	Software Name [version] BimServer [1.5.138] Softw			Software	re house http://bimserver.org			
Software	Proprietary or ope	roprietary or open source software? Kind of so		software				
ŭ	open source			BIM				
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	MacBook Pro 15-inch 2017	macOS 10.13.6	Intel Core i7 2,8GHz	Radeon 555	Pro	16Go	500Go	25Go
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC exp certificates status		Export certification date	Export certification program	
Cer	not certified			not certi	fied			
	Test with M		with My	ran.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model			1-5 minu	utes			
e e	How long does it take, approximately, to:Zoom into the model to see more detail			ne	it's almost immediate			
man	How long does it	take, approximate	ly, to:Pan the mo	del	it's almost immediate			
Performance	How long does it take, approximately, to:Rotate the model			it's almo	st immediate			
	How long does it	take, approximate	ly, to:Query an ob	oject	it's almo	st immediate		
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship			objects	it's almo	st immediate		
encing	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?				Yes			
Georeferencing	2.2) short comments to the previous question (optional)			nal)	It is not directly visible, but a query on IfcSite object gives the same coordinates as in the IFC file (59°19'55", 18°3'53", 148.2)			
tc		-world" elevation v locating the mode		(z)?	Yes			
Height	3.2) short comments to the previous question (optional)			nal)	It is not directly visible, but a query on IfcSite object gives the same coordinates as in the IFC file (59°19'55", 18°3'53", 148.2)			
tion	4.1) Is the model North?	oriented correctly	with respect to th	e true	Yes			
Orientation	4.2) short comme	ents to the previous	s question (option	nal)	IfcRepre	directly visible, bu esentationContext n as in the IFC file	object gives the	e same TrueNorth , 0.845261833)
	5.1) Does the mo proportions?	del maintain its co	rrect dimensions	and		ware does not ha ne this informatior		ry tools to

1		
5.2) short comments to t	he previous question (optional)	There is nothing native in bimserver to check this, but there is no visible problem in BimView or iTowns.
	slation consistent with the IFC	Yes
6.2) short comments to t	he previous question (optional)	No Translation
	relationships consistent with the IFC	Yes
8.1) Are the attributes pr and consistent?	esent in the IFC entities retained	Yes
9.1) Are the relationships	s between the objects retained?	Yes
10.1) Is geometry read of	orrectly?	Yes
10.2) short comments to	the previous question (optional)	BimServer use IfcOpenShell (http://ifcopenshell.org/) to generate the geometries
11.1) Did the normals ch	ange?	Yes
12.1) Is it possible to vie	w the model in 3D?	Yes
		BimServer included a 3D visu in BimViews and BimSurfer
•		No
		No
15.1) Is it possible to que	ery the model and the attributes?	Yes
15.1.1) What kinds of qu	Essay I All Market State of the	It's based on JSON syntax and could test Object Id, Object type or properties It's possible to build and check queries directly in BimViews
	BIMVie.ws Project - User Settings - Server -	License Administrator (gregorie malfertilige h)
	Tree Types Layers Classifications Properties Query 30 AWaltsincoudingWindows \$	Project Subgrojects Revisions Checkouts Services Extended Data Browse Users Model Checkers Log
	Returns all walls and includes the openings and fillings, but only when those are of type IfcWindow. This is assentially the same as the previous query, except that only windows are included.	
15.1.2) Attach screenshots	("Type": "name": "RCWall", "nchude*(ShubTypes": true), "nchude*(" "Type": "RcWall", "skat": "HalaCopeninga", "inchude" ("Type": "RCHetVoidsElement", "flaid": "RelatedCopening(Soment", "inchude" ("Type": "RCOpening(Soment", "inchude" ("Type": "RCHetFillings", "inchude": ("Type": "RELAEFillings", "inchude": ("Type": "RelatedShuldingElement", "deld": "RelatedShuldingElement", "output Type": "IscWeckow")))	
	6.1) Is the eventual transidefinitions? 6.2) short comments to to to to the first to	6.2) short comments to the previous question (optional) 7.1) Are the hierarchical relationships consistent with the IFC hierarchy? 8.1) Are the attributes present in the IFC entities retained and consistent? 9.1) Are the relationships between the objects retained? 10.1) Is geometry read correctly? 10.2) short comments to the previous question (optional) 11.1) Did the normals change? 12.1) Is it possible to view the model in 3D? 12.2) short comments to the previous question (optional) 13.1) Is it possible to view the model in 2D? 14.1) Is it possible to edit the model (attributes, geometry, other)? 15.1) Is it possible to query the model and the attributes? 15.1.1) What kinds of query are possible?

26.1) Are the hierarchical relationships consistent with the IFC hierarchy? 27.1) Are the attributes present in the IFC entities retained and consistent? 28.1) Are the relationships between the objects retained? Yes			
Model performances (type2) You arrived at the end of the phase 1: "Import and manage the fille in the software". Now choose: 17.1) Are any pre-processing or setting changes needed in the software to enable a consistent export? 18.1) Is it possible to choose the IFC model view definition (MVD) to be used when exporting the data? 19. How long does it take, approximately, to:Import (and visualise if the software allows it) the model how long does it take, approximately, to:Zoom into the model to see more detail How long does it take, approximately, to:Pan the model how long does it take, approximately, to:Rotate the model how long does it take, approximately, to:Rotate the model how long does it take, approximately, to:Rotate the model how long does it take, approximately, to:Rotate the model how long does it take, approximately, to:Rotate the model how long does it take, approximately, to:Rotate the model how long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) 25. State of the previous question (optional) 26. State of the previous question (optional) 27. The software does not have the necessary tools to determine this information It seems to be good, but there is no tool to measure distances Yes 27.1) Are the heirarchical relationships consistent with the IFC here of the previous question (optional) 28. State of the previous question (optional) 29. State of the previous question (optional) 20. State of the previou		16.1) Is it possible to analyse the objects and the model?	No
Model performances (type2) You arrived at the end of the phase 1: "Import and manage the fille in the software". Now choose: 17.1) Are any pre-processing or setting changes needed in the software to enable a consistent export? 18.1) Is it possible to choose the IFC model view definition (MVD) to be used when exporting the data? 19. How long does it take, approximately, to:Import (and visualise if the software allows it) the model how long does it take, approximately, to:Zoom into the model to see more detail How long does it take, approximately, to:Pan the model How long does it take, approximately, to:Rotate the model how long does it take, approximately, to:Rotate the model how long does it take, approximately, to:Rotate the model how long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) 25.51) Is the eventual translation consistent with the IFC definitions? 26.52 (3.1) Are the hierarchical relationships consistent with the IFC herearchy? 27.1) Are the hierarchical relationships consistent with the IFC herearchy? 28.2) Short comments to the previous question (optional) 29.1) Is geometry read correctly? 29.1) Is geometry read correctly? 29.2) Short comments to the previous question (optional) 29.2) Short comments to the previous question (optional) 30.53 Figure 2. 31. Figure 2. 32. Short comments to the previous question (optional) 33. Short comments to the previous question (optional) 34. Short comments to the previous question (optional) 35. Short comments to the previous question (optional) 36. Short comments to the previous question (optional) 37. Short comments to the previous question (optional) 38. Short comments to the previous question (optional) 39. Short comments to the previous question (optional) 30. Short comme	ıalysis		No analysis of type 1 are possible
the file in the software".Now choose: 11.1 Are the relationships between the objects inched to the queried one (Element 3) through a relationship in proportions? 12.1 Does the model maintain its correct dimensions and proportions? 24.1 Does the model maintain its correct dimensions and proportions? 25.1 Jeg Toll Toll Toll Toll Toll Toll Toll Tol	Ar		No analysis of type 2 are possible
the software to enable a consistent export? It is, it is possible to choose the IFC model view definition (MVD) to be used when exporting the data? 19) How long does it take, approximately, to:Import (and visualise if the software allows it) the model How long does it take, approximately, to:Zoom into the model How long does it take, approximately, to:Zoom into the model How long does it take, approximately, to:Pan the model How long does it take, approximately, to:Pan the model It's almost immediate How long does it take, approximately, to:Rotate the model It's almost immediate How long does it take, approximately, to:Rotate the model It's almost immediate How long does it take, approximately, to:Query an object It's almost immediate How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. 24 1) Does the model maintain its correct dimensions and proportions? 24 21) Does the model maintain its correct dimensions and proportions? 25 25 1) Is the eventual translation consistent with the IFC determinents is information It seems to be good, but there is no tool to measure distances Yes 26 25 1) Are the hierarchical relationships consistent with the IFC for hierarchy? 27 28 27 1) Are the theirarchical relationships consistent with the IFC and consistent? 28 29 37 1) Are the relationships between the objects retained? 29 21 1s geometry read correctly? 29 21 1s geometry read correctly? 29 21 1s geometry read correctly? 29 21 2s) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower			The software has also export abilities
(MVD) to be used when exporting the data? 19) How long does it take for the data to be exported to IFC? 1-5 minutes	port		No
How long does it take, approximately, to:Import (and visualise if the software allows it) the model How long does it take, approximately, to:Zoom into the model to see more detail How long does it take, approximately, to:Pan the model It's almost immediate How long does it take, approximately, to:Pan the model It's almost immediate How long does it take, approximately, to:Query an object Ito long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) 25.1) Is the eventual translation consistent with the IFC definitions? 26.1) Are the hierarchical relationships consistent with the IFC hierarchy? 27.1) Are the attributes present in the IFC entities retained? 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 29.1) Is geometry read correctly? 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower	Ex		No
How long does it take, approximately, to:Import (and visualise if the software allows it) the model How long does it take, approximately, to:Zoom into the model to see more detail How long does it take, approximately, to:Pan the model How long does it take, approximately, to:Pan the model How long does it take, approximately, to:Rotate the model How long does it take, approximately, to:Rotate the model How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) 25.1) Is the eventual translation consistent with the IFC definitions? 26.1) Are the hierarchical relationships consistent with the IFC hierarchy? 27.1) Are the attributes present in the IFC entities retained and consistent? 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 29.1) Is geometry read correctly? 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower		19) How long does it take for the data to be exported to IFC?	1-5 minutes
Visualise if the software allows it) the model International How long does it take, approximately, to:Zoom into the model to see more detail How long does it take, approximately, to:Rotate the model It's almost immediate How long does it take, approximately, to:Rotate the model It's almost immediate How long does it take, approximately, to:Rotate the model It's almost immediate How long does it take, approximately, to:Rotate the model It's almost immediate How long does it take, approximately, to:Rotate the model It's almost immediate It's almost imm		Test with UpT	own.ifc
model to see more detail How long does it take, approximately, to:Pan the model How long does it take, approximately, to:Rotate the model How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. The geometric creation is very long (more than one hour), but finally, it works 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) 25.1) Is the eventual translation consistent with the IFC definitions? 26.1) Are the hierarchical relationships consistent with the IFC hierarchy? 27.1) Are the attributes present in the IFC entities retained and consistent? 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 29.1) Is geometry read correctly? Yes This seems to be correct except that there is no roof at the top of the tower			more than one hour
How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) Example 25.1) Is the eventual translation consistent with the IFC definitions? 26.1) Are the hierarchical relationships consistent with the IFC in the consistent? 27.1) Are the attributes present in the IFC entities retained and consistent? 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 29.2) short comments to the previous question (optional) The software does not have the necessary tools to determine this information It seems to be good, but there is no tool to measure distances Yes Yes 18.2 27.1) Are the hierarchical relationships consistent with the IFC entities retained and consistent? Yes 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) Properties' tab, it's only available from the 'Browse' tab and it's not easy to found a specific object in a very large model like this one 29.1) Is geometry read correctly? Yes 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower			it's almost immediate
How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) Example 25.1) Is the eventual translation consistent with the IFC definitions? 26.1) Are the hierarchical relationships consistent with the IFC in the consistent? 27.1) Are the attributes present in the IFC entities retained and consistent? 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 29.2) short comments to the previous question (optional) The software does not have the necessary tools to determine this information It seems to be good, but there is no tool to measure distances Yes Yes 18.2 27.1) Are the hierarchical relationships consistent with the IFC entities retained and consistent? Yes 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) Properties' tab, it's only available from the 'Browse' tab and it's not easy to found a specific object in a very large model like this one 29.1) Is geometry read correctly? Yes 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower	nce	How long does it take, approximately, to:Pan the model	it's almost immediate
How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) Example 25.1) Is the eventual translation consistent with the IFC definitions? 26.1) Are the hierarchical relationships consistent with the IFC in the consistent? 27.1) Are the attributes present in the IFC entities retained and consistent? 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 29.2) short comments to the previous question (optional) The software does not have the necessary tools to determine this information It seems to be good, but there is no tool to measure distances Yes Yes 18.2 27.1) Are the hierarchical relationships consistent with the IFC entities retained and consistent? Yes 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) Properties' tab, it's only available from the 'Browse' tab and it's not easy to found a specific object in a very large model like this one 29.1) Is geometry read correctly? Yes 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower	orma	How long does it take, approximately, to:Rotate the model	it's almost immediate
How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship Please report on any errors the software gives when importing the file. 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) Example 25.1) Is the eventual translation consistent with the IFC definitions? 26.1) Are the hierarchical relationships consistent with the IFC in the consistent? 27.1) Are the attributes present in the IFC entities retained and consistent? 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 29.2) short comments to the previous question (optional) The software does not have the necessary tools to determine this information It seems to be good, but there is no tool to measure distances Yes Yes 18.2 27.1) Are the hierarchical relationships consistent with the IFC entities retained and consistent? Yes 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) Properties' tab, it's only available from the 'Browse' tab and it's not easy to found a specific object in a very large model like this one 29.1) Is geometry read correctly? Yes 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower	Perfc	How long does it take, approximately, to:Query an object	it's almost immediate
importing the file. 24.1) Does the model maintain its correct dimensions and proportions? 24.2) short comments to the previous question (optional) 25.1) Is the eventual translation consistent with the IFC definitions? 26.1) Are the hierarchical relationships consistent with the IFC hierarchy? 27.1) Are the attributes present in the IFC entities retained and consistent? 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 29.2) short comments to the previous question (optional) 29.3) Is geometry read correctly? 29.2) short comments to the previous question (optional) The software does not have the necessary tools to determine this information It seems to be good, but there is no tool to measure distances Yes Yes In BimViews the relationships are not directly visible in the Properties' tab, it's only available from the 'Browse' tab and it's not easy to found a specific object in a very large model like this one 29.1) Is geometry read correctly? 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower			less than a minute
proportions? 24.2) short comments to the previous question (optional) Lit seems to be good, but there is no tool to measure distances Yes 25.1) Is the eventual translation consistent with the IFC definitions? 26.1) Are the hierarchical relationships consistent with the IFC hierarchy? 27.1) Are the attributes present in the IFC entities retained and consistent? 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) Properties' tab, it's only available from the 'Browse' tab and it's not easy to found a specific object in a very large model like this one 29.1) Is geometry read correctly? Yes This seems to be correct except that there is no roof at the top of the tower			
25.1) Is the eventual translation consistent with the IFC General Section 1	ortion		
State Stat	Propo	24.2) short comments to the previous question (optional)	
Tes			Yes
and consistent? 28.1) Are the relationships between the objects retained? 28.2) short comments to the previous question (optional) 29.1) Is geometry read correctly? 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower	Hier arch		Yes
28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 28.2) short comments to the previous question (optional) 29.1) Is geometry read correctly? 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower			Yes
29.1) Is geometry read correctly? 29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower	dir	28.1) Are the relationships between the objects retained?	
29.2) short comments to the previous question (optional) This seems to be correct except that there is no roof at the top of the tower	Relationsh s	28.2) short comments to the previous question (optional)	'Properties' tab, it's only available from the 'Browse' tab and it's not easy to found a specific object in a very large model
	ЭС	29.1) Is geometry read correctly?	Yes
Z o 30.1) Did the normals change?	Geon	29.2) short comments to the previous question (optional)	· ·
	Zos	30.1) Did the normals change?	Yes

က	31.1) Is it possible to view	the model in 3D?	Yes		
2D/3 D	32.1) Is it possible to view		No		
		y the model and the attributes?	The answers are the same I gave during the test with Myran.ifc		
		SIMvio.ws Project - Law Settings - Server -	License root (onneaverlige, for		
Querying	34.1.2) Attach screenshots 34.1.2 Attach screenshots		30. Project Subprojects Recisions Obschools Services Estended Data Browser Users Model Onschars Log		
Export	You arrived at the end of the file in the software".No	he phase 1: "Import and manage w choose:	The software has also export abilities		
Ä	36) How long does it take	for the data to be exported to IFC?	it crashes without completing the operation		
		Test with Savig	gliano.ifc		
	How long does it take, app visualise if the software all		1-5 minutes		
	How long does it take, approached to see more detail	proximately, to:Zoom into the	it's almost immediate		
J.Ce	How long does it take, app	roximately, to:Pan the model	it's almost immediate		
Performan	How long does it take, app	roximately, to:Rotate the model	it's almost immediate		
rfor		roximately, to:Query an object	it's almost immediate		
Pe	How long does it take, app linked to the queried one t	proximately, to:Inspect the objects hrough a relationship	less than a minute		
	IMPORTING TO THE		Relationships are not directly visible in the Properties tab of BimViews, it's necessary to find the object in the 'Browse' tab		
Georeferenci ng	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?		Yes		
Geore	40.2) short comments to the	ne previous question (optional)	IfcSite object keep the coordinates (RefLatitude, RefLongitude, RefElevation)		

	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	The software does not have the necessary tools for checking it
tion	42.1) Is the model oriented correctly with respect to the true North?	Yes
Orientation	42.2) short comments to the previous question (optional)	it's in TrueNorth property of the IfcGeometricRepresentationContext object (checked in the Browse tab of BimViews)
	43.1) Does the model maintain its correct dimensions and proportions?	The software does not have the necessary tools to determine this information
	44.1) Is the eventual translation consistent with the IFC definitions?	Yes
	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes
	46.1) Are the attributes present in the IFC entities retained and consistent?	Yes
≃ o t	47.1) Are the relationships between the objects retained?	Yes
(D) (a) (d)	48.1) Is geometry read correctly?	Yes
Z o s	49.1) Did the normals change?	Yes
/3	50.1) Is it possible to view the model in 3D?	Yes
2D/3 D	51.1) Is it possible to view the model in 2D?	No
Export	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities
ш	55) How long does it take for the data to be exported to IFC?	less than a minute

SketchUp

	Software Name	SketchUp [2019	1	Softwar	a hausa		Trimble	
are	[version] Software			e house Trimble				
Software	Proprietary or open source software?			Kind of	software			
S	proprietary			CAD				
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	Mac book air 13 inch 2016	macOS Mojave	2,2GZ	x		8GB	256	22
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC exp certifica status		Export certification date	Export certification program	
Cer	not certified			not certi	fied			
Test with M				with My	ran.ifc	•		
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model			1-5 minu	utes			
	How long does it take, approximately, to:Zoom into the model to see more detail			he	it crashes without completing the operation			
nce	How long does it	take, approximate	ely, to:Pan the mo	del	the software does not allow this			
ıma	How long does it take, approximately, to:Rotate the model			model	the softv	vare does not allo	w this	
Performance	How long does it	take, approximate	ely, to:Query an ol	bject	the softv	vare does not allo	w this	
		take, approximate ied one through a		objects	the software does not allow this			
	Please report on importing the file.	any errors the sof	tware gives when		The mod	del is not shown		
			Test	with UpT	own.ifc			
Perform ance	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				it crashes without completing the operation			
Test v	with Savigliano.	ifc						
		take, approximate ftware allows it) th			the software does not allow this			
Performance	How long does it model to see mor	take, approximate e detail	ely, to:Zoom into tl	he	the software does not allow this			
)rms		take, approximate				es without complet		
erfc		take, approximate	-		1	es without complet	· ·	
1 -		take, approximate			it crashe	es without complet	ting the operatio	n
		How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship			it crashe	es without complet	ting the operatio	n

Trimble SketchUp 2019 – macOS Mojave Proprietary 3D viewer 1 - Very beginner user (it is nearly the first time you use it)

38) Please report on any errors the software gives when importing the file.	Import failed
39) Attach screenshots regarding the eventually reported errors.	

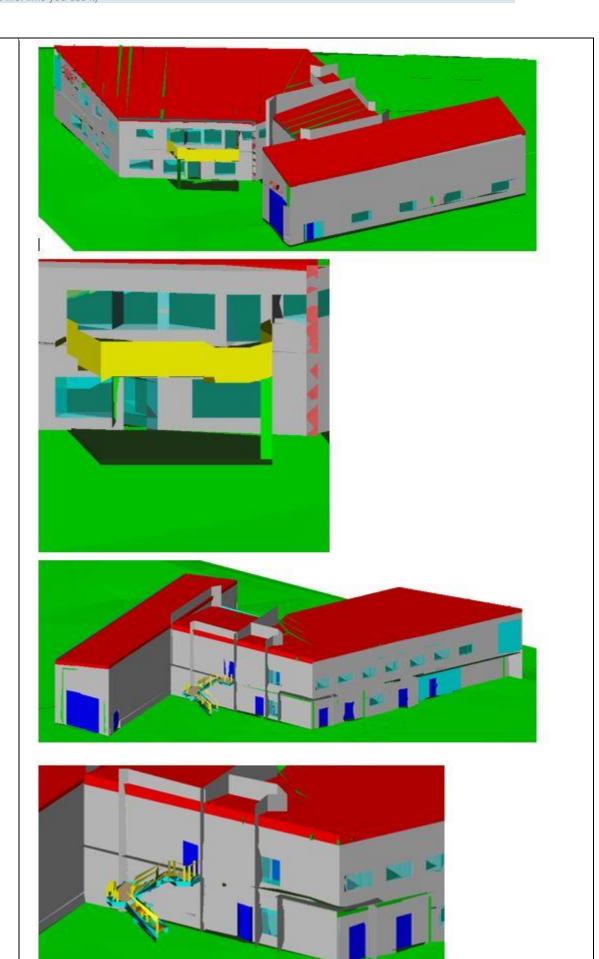
FZKViewer

Software	Software Name [version] FZKViewer [5.1]			Software house		Karlsruhe Institute for Technology, C:\Downloads\FZKViewer-5.1_Build-978.zip		
	Proprietary or open source software?			Kind of	Kind of software			
	open source 3I			3D view	D viewer			
Computer	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
	HP ZBook 15 G3, 2018	Windows 10 Enterprise, 64- bit	Intel ® Core™ i7-6820HQ CPU	NVIDIA Quatro M1000M		32	474	217
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC export certification status		Export certification date	Export certification program	
Se	not certified			not certi	fied			
	Test with N				/ran.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				less than a minute			
	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate			
e G	How long does it take, approximately, to:Pan the model				it's almost immediate			
nan	How long does it take, approximately, to:Rotate the model				it's almost immediate			
forn	How long does it take, approximately, to:Query an object				it's almost immediate			
Performance	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship				it's almost immediate			
	Please report on any errors the software gives when importing the file.				Error 776: Boolean Operation - clipping plane generation for CdgisModel geometry failed; Geometry face - Invalid outer loop; Geometry polyline - Polyline contains colinear points, points removed; Geometry polylines - Double point removed			
Georef erenci	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?			Yes				
Hei	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?			Yes				
Orie ntati	4.1) Is the model oriented correctly with respect to the true North?			Yes				
Proportion s	5.1) Does the model maintain its correct dimensions and proportions?				Yes			
Propo	5.2) short comments to the previous question (optional)				A measured distance is still correct, 22840.8 mm in the description and 22851.5 mm when I measure.			
	6.1) Is the eventual translation consistent with the IFC definitions?			Yes				

FZKViewer 5.1 – Windows 10 Enterprise Proprietary 3D viewer 1 - Very beginner user (it is nearly the first time you use it)

	6.2) short comments to the previous question (optional)	The geometrical representation looks a bit distorted when viewing the model, but seem to be correctly translated (examples in the Word document provided)		
Hierarc hy	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes		
	7.2) short comments to the previous question (optional)	Examples are given in the Word document		
tribu	8.1) Are the attributes present in the IFC entities retained and consistent?	Yes		
	8.2) short comments to the previous question (optional)	Examples are given in the Word document		
	9.1) Are the relationships between the objects retained?	Yes		
		Example is provided in the Word document		
eorr try	10.1) Is geometry read correctly?	No		
	10.1.1) What changes / inconsistencies / errors / other issues were noted?	The dimensions of the building seem to be ok, but visually more or less all objects look distorted		

10.1.2) Attach screenshots



FZKViewer 5.1 – Windows 10 Enterprise

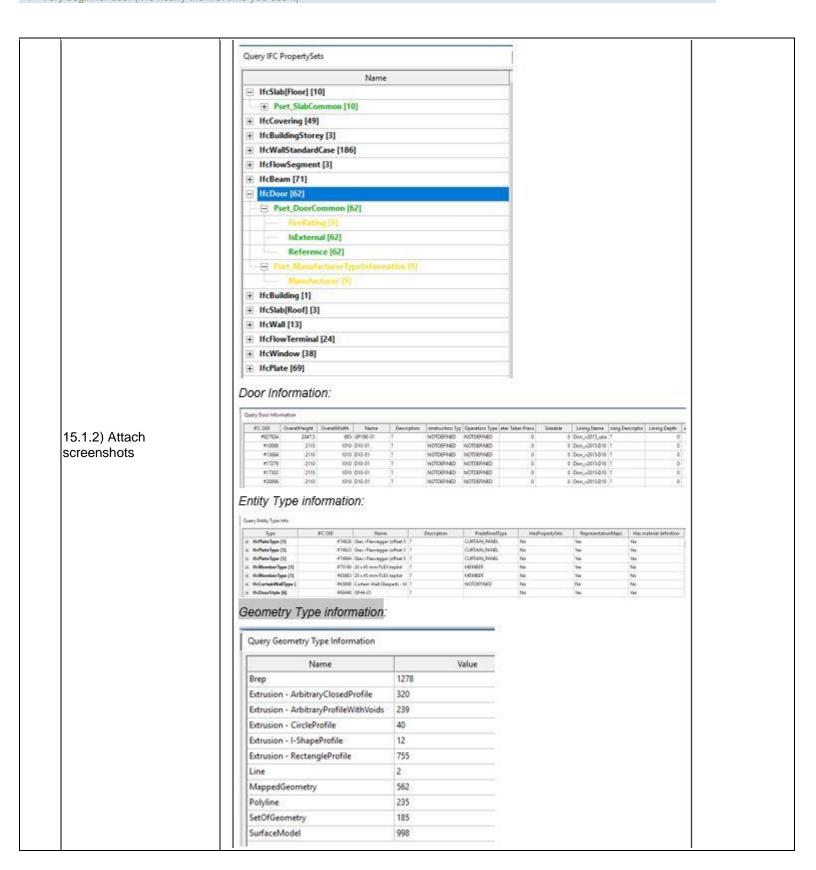
Proprietary
3D viewer
1 - Very beginner user (it is nearly the first time you use it)

Z 0 5	11.1) Did the normals cha	ange?	Yes		
۷ D	12.1) Is it possible to view the model in 3D?		Yes		
	14.1) Is it possible to edit the model (attributes, geometry, other)?		Yes		
	14.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?		It is possible to add and remove and recover elements		
		The element "Vinkryss"	' selected:		
	14.1.2) Attach screenshots	The element "Vinkryss"	removed:		

FZKViewer 5.1 – Windows 10 Enterprise Proprietary 3D viewer 1 - Very beginner user (it is nearly the first time you use it)

g	15.1) Is it possible to query the model and the attributes?	Yes		
Queryir	15.1.1) What kinds of query are possible?	Many different predefined queries ara avaliable, e.g. IFC PropertySets, Door Information, Entity Type information, Geometry Type information		

1 - Very beginner user (it is nearly the first time you use it)



16.1) Is it possible to	analyse the objects and the model?	Yes, analysis about the model validity and features (geometry, semantics, schema validity) are possible (type 1)		
16.1.1) What analysi results are reliable?	is are possible? Do you know if the	Type 1 - IfcSchemaValidation. Do not know if it is reliable.		
	MessageLog			
	Comments, Warnings and Errors			
	The state of the s			
	Message Type Error [26]	Message Description		
	EccoError_38 [26]			
	⊟ EccoError_38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType\AssemblyPlace"		
		Instance: OID: #488342		
		Type: HcFumitureType		
		References:		
		in file ifc-express\ifc2x3_tc1.exp at line 4810		
	—⊟ EccoError_38	integrity constraint violation: indeterminate mandatory attribute "IfcFurnitureType\AssemblyPlace"		
		Instance: OID: #458466		
		Type: HcFurnitureType		
		References:		
	0.5.5.36	in file ifc-express\ifc2x3_tc1.exp at line 4810		
	—⊟ EccoEmor_38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType\AssemblyPlace" Instance: OID: #48861		
		Type: #cFurnitureType		
2		References		
16.1.2) Attach screenshots		in file ifc-express/ifc2x3,tc1.exp at line 4810		
16.1.2) Attach	—⊟ EccoEmor 38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType\AssemblyPla		
screenshots		Instance: OID: #493227		
		Type: HcFurnitureType		
		References:		
		in file ifc-express/ifc2x3_tc1.exp at line 4810		
	—⊟ EccoError_38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType".AssemblyPlace"		
		Instance: OID: #493302		
		Type: IfcFurnitureType		
		References:		
		in file ifc-express\ifc2x3_tc1.exp at line 4810		
	⊕ EccoError_38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType\AssemblyPlace"		
	⊕ EccoError_38	integrity constraint violation: indeterminate mandatory attribute "EcFurnitureType\AssemblyPlace"		
	⊕ EccoError, 38 ⊕ EccoError, 38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType:AssemblyPlace" integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType:AssemblyPlace"		
	₩ EccoEmor_38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType\AssemblyPlace"		
	⊕ EccoError 38	integrity constraint violation: indeterminate mandatory attribute "tr/FurnitureType\AssemblyPlace"		
	⊕ EccoEmor 38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType\AssemblyPlace"		
	⊕ EccoEmor_38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType\AssemblyPlace"		
	—⊞ EccoError_38	integrity constraint violation: indeterminate mandatory attribute "lfcFurnitureType\AssemblyPlace"		
	— ∰ EccoEmor_38	integrity constraint violation: indeterminate mandatory attribute "ifcFurnitureType\AssemblyPlace"		
	— (€) EccoError_38	integrity constraint violation: indeterminate mandatory attribute "fcFurnitureType\AssemblyPlace"		
16.1.3) Time require model itself (type 1)	d to perform the analysis about the	it's almost immediate		
16.1.3) Time require model performances	d to perform the analysis about the (type2)	No analysis of type 2 are possible		
You arrived at the er the file in the softwar	nd of the phase 1: "Import and manage re".Now choose:	The software has also export abilities		
	ocessing or setting changes needed in le a consistent export?	No		
	choose the IFC model view definition hen exporting the data?	No		
	t take for the data to be exported to IFC	it's almost immediate		

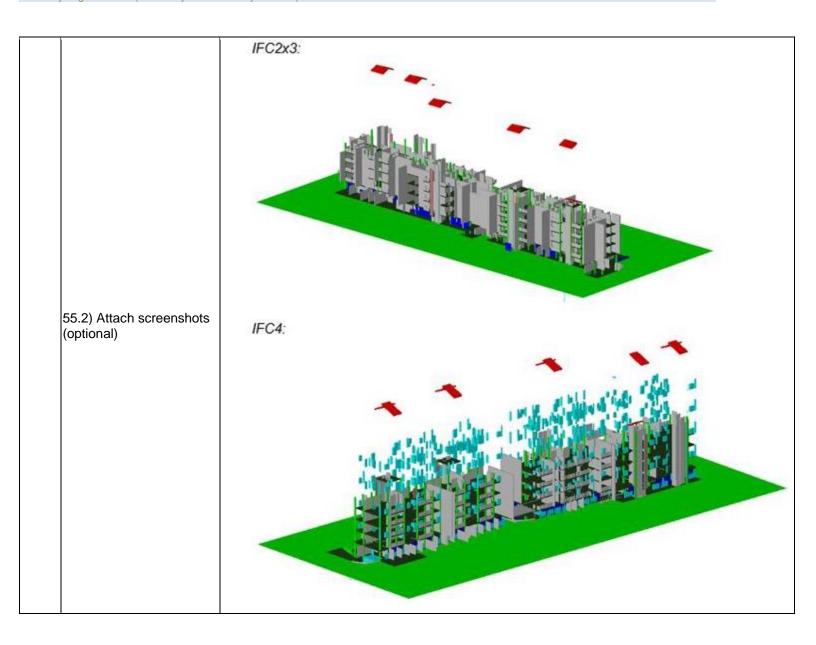
FZKViewer 5.1 – Windows 10 Enterprise

Proprietary
3D viewer
1 - Very beginner user (it is nearly the first time you use it)

	Test with Upl	Fown.ifc
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	5-20 minutes
Φ	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate
Performance	How long does it take, approximately, to:Pan the model	it's almost immediate
Ĕ	How long does it take, approximately, to:Rotate the model	it's almost immediate
l gu	How long does it take, approximately, to:Query an object	it's almost immediate
ď	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	it's almost immediate
	Please report on any errors the software gives when importing the file.	Did not note them down, will try again later and add it to the Word document.
<u> </u>	24.1) Does the model maintain its correct dimensions and proportions?	Yes
IFC defi	25.1) Is the eventual translation consistent with the IFC definitions?	Yes
Hier	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes
Attri bute	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes
ত ত	28.1) Are the relationships between the objects retained?	Yes
(D) (a)	29.1) Is geometry read correctly?	Yes
Zo:	30.1) Did the normals change?	Yes
2D/3 D	31.1) Is it possible to view the model in 3D?	Yes
2D/ D	32.1) Is it possible to view the model in 2D?	No
Querying	34.1.1) What kinds of query are possible?	Model Information (e.g. File Header, Property sets), Entity Information (e.g. Space Information, Text information), Element Type Information, Quantities, File Statistics (e.g. File statistics and SRS statistics)

	Query SRS Info	POREN AUSTRIAN					
	Name	•	Valu				
	Used Spartial Reference System:		Local CRS - Local Cartesian Coordinate System				
	Bounding Box in Local CRS:						
	Position min:		The Ir				
	— х	0					
	Y		0				
	Z		0				
	Position max:						
	X		96.4630211572531				
	Y		60.7528174853782				
	z		0				
	Bounding Box in Longitude / Latitude:						
	Position min:		- Indiana - Control - Cont				
	Longitude (decimal degree)		4.48689999865437				
	Longitude (degree, minute, second)		E 4" 29' 12.8400"				
	Latitude (decimal degree)		51.916029999024				
	Latitude (degree, minute, second)		N 51* 54" 57.7080"				
34.1.2) Attach	Position max:	4 4000000000000000000000000000000000000					
screenshots	Longitude (decimal degree)	4.48832009185352					
	Longitude (degree, minute, second)	E 4" 29' 17.9523"					
	Latitude (decimal degree)	51.9165583269303 N 51° 54' 59.6100°					
		Latitude (degree, minute, second)					
	☐ Bounding Box in UTM Coordinates (Zone 31):						
	Position min:	150000000000000000000000000000000000000					
	Easting	602264.639309486					
	Northing	5752743.45339065					
	Position max						
	Easting	602361.102330434 5752804.20620813					
		Northing					
	─ Model Bounding Box:						
	Position min:		-1000				
		— х					
	Ψ Υ		-1000				
	z		-2680				
	Position max:						
	x		95463				
	Y		59752.8				
	Z		105652				
You arrived at the er	nd of the phase 1: "Import and manage	The software has also	export abilities				
the file in the softwa	re".Now choose:	The contract has also t					
the file in the softwar 36) How long does it	take for the data to be exported to IFC	? 1-5 minutes					
2 5, 1 12 11 15 11 9 40 50 11	·						
	Test with Sav	/igliano.ifc					
How long does it tak	e, approximately, to:Import (and						
	are allows it) the model	it's almost immediate					
	•						
	e, approximately, to:Zoom into the	it's almost immediate					
model to see more of	ietaii						
I	e, approximately, to:Pan the model	it's almost immediate					

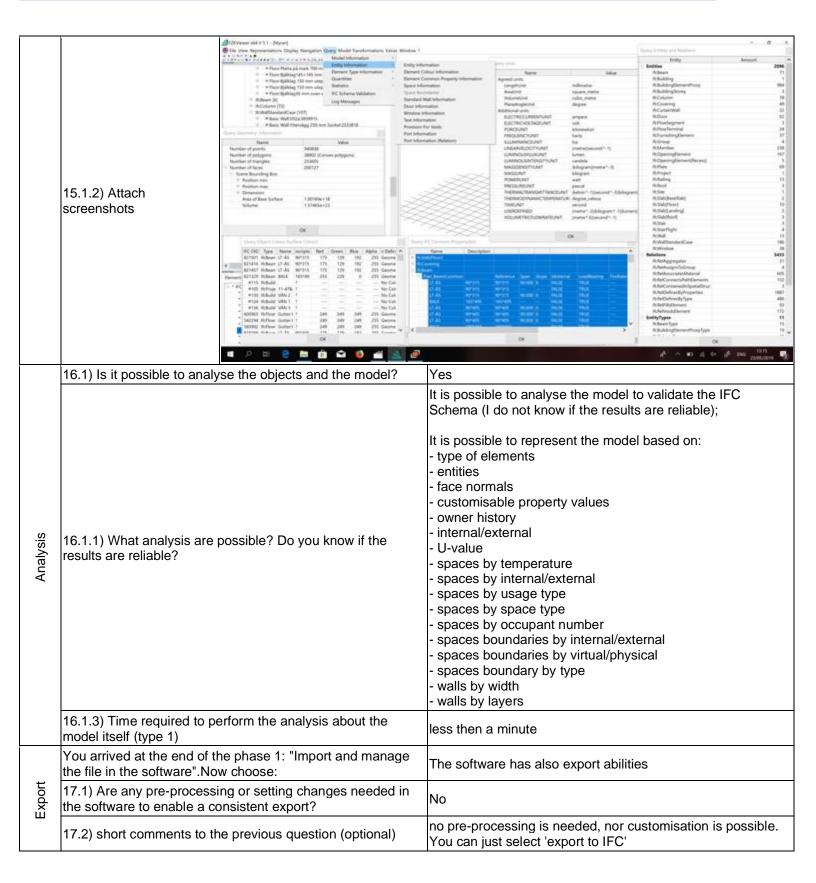
	How long does it take, app	proximately, to:Rotate the model	it's almost immediate
	How long does it take, app	proximately, to:Query an object	it's almost immediate
	How long does it take, applinked to the queried one t	proximately, to:Inspect the objects hrough a relationship	it's almost immediate
	38) Please report on any errors the software gives when importing the file.	runtime error: incompatible operan Geometry is part of IfcColumn; Invaremoved; Geometry polyline - doubt	generation for CsgiModelGeometry failed; EccoError - d types transition <> enum_literal; Geometry CSG - alid outer loop; Polylines contains colinear points, points ble point removed; OpenGL - invalid action; Door/Window - ot located within element bounding box; Representation ange to Body_1; Triangulation
	39) Attach screenshots regerrors.	garding the eventually reported	
erenci	40.1) Are the world (project account when locating the coordinate reference systems)		Yes
Hei ght	41.1) Are the "real-world" considered when locating	elevation values (heights) the model in the software (z)?	Yes
Orie ntati	42.1) Is the model oriented North?	d correctly with respect to the true	Yes
	43.1) Does the model main proportions?	ntain its correct dimensions and	Yes
IFC defi	44.1) Is the eventual trans definitions?	lation consistent with the IFC	Yes
Hier	45.1) Are the hierarchical I IFC hierarchy?	relationships consistent with the	Yes
Attri bute	46.1) Are the attributes pre and consistent?	esent in the IFC entities retained	Yes
요 교 t	47.1) Are the relationships	between the objects retained?	Yes
(D) (a)	48.1) Is geometry read cor	rrectly?	Yes
Z 0 1	49.1) Did the normals char	nge?	Yes
2D/3 D	50.1) Is it possible to view		Yes
21	51.1) Is it possible to view		No
Export	You arrived at the end of the file in the software".No	he phase 1: "Import and manage w choose:	The software has also export abilities
ш̂	55) How long does it take	for the data to be exported to IFC?	it's almost immediate



FZK Viewer

Software	Software Name [version] FZK Viewer [5.1 Build 978]			Software	Karlsruhe Institute of Technology (KIT) - Institute for Automation and Applied Informatics (IAI) (https://www.iai.kit.edu/english/ 1302.php)			(IT) - Institute for nd Applied AI)	
S	Proprietary or open source software?			Kind of	software				
	open source			3D view	er				
	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	DELL XPS 15 9570 - 2019	Windows 10 Pro (version 1809) 64-bit operating system, x64- based processor	Intel(R) Core(TM) i7- 8750H CPU @ 2.20 GHz 2.21 GHz	\-		32,0 GB (31,7 GB usable)	937 GB	848 GB	
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC exp certifica status	tion	Export certification date	Export certification program		
ဝီ	not certified			not certi	fied				
				with My	ran.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				the software does not allow this				
lce	How long does it take, approximately, to:Zoom into the model to see more detail				the software does not allow this				
mar	How long does it	take, approximate	ely, to:Pan the mod	del	the software does not allow this				
Performance	How long does it take, approximately, to:Rotate the model				the softv	vare does not allo	w this		
	How long does it	w long does it take, approximately, to:Query an object				the software does not allow this			
	How long does it linked to the quer		ely, to:Inspect the or relationship	objects	the software does not allow this				
	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?				Yes				
Hei ght	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?				Yes				
Orientatio n	4.1) Is the model North?	oriented correctly	with respect to the	e true	Yes				
Orier	Other				the geometry is not visualised, therefore it is not possible to make the measurements			is not possible to	
	6.1) Is the eventu definitions?	al translation cons	sistent with the IFC	C	Yes				

	Other		Sometimes hierarchical relationships and aggregation relationships are visualised in the same way		
	8.1) Are the attributes pro and consistent?	esent in the IFC entities retained	Yes		
utes	Other		Sometimes they are different from the ones in the descriptions		
Attributes	Other		Many errors are given during the import phase, and no geometry can be visualised		
	Other		The software could map the normals through colours, but it is impossible to check, since the geometry is not visualised		
	12.1) Is it possible to view	w the model in 3D?	Yes		
2D/3D	12.2) short comments to	the previous question (optional)	the 3D view is possible, and many pre-set views can be chosen (axonometries, sides/top/bottom, isometric views, user defined views). However, since the geometry is not here visualised, it is not possible to check them.		
	13.1) Is it possible to view	w the model in 2D?	No		
Editi	14.1) Is it possible to edit other)?	t the model (attributes, geometry,	No		
	15.1) Is it possible to que	ery the model and the attributes?	Yes		
Querying	15.1.1) What kinds of query are possible?	$^{\prime\prime}$			



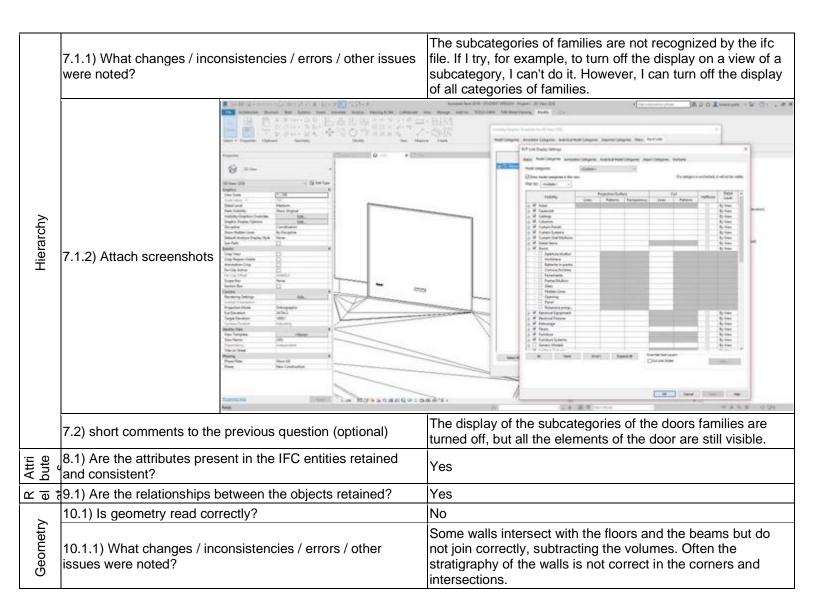
	18.1) Is it possible to choose	se the IFC model view definition	Nic					
	(MVD) to be used when ex	porting the data?	No					
	19) How long does it take t	for the data to be exported to IFC?	it's almost immediate					
	Test with UpTown.ifc							
	How long does it take, app visualise if the software alle		it crashes without completing the operation					
	Test with Savigliano.ifc							
	How long does it take, app visualise if the software alle		it's almost immediate					
	How long does it take, app model to see more detail	roximately, to:Zoom into the	it's almost immediate					
e e	How long does it take, app	roximately, to:Pan the model	it's almost immediate					
Performance	How long does it take, app	roximately, to:Rotate the model	it's almost immediate					
rforr	How long does it take, app	roximately, to:Query an object	it's almost immediate					
Pe	How long does it take, app linked to the queried one the	roximately, to:Inspect the objects nrough a relationship	it's almost immediate					
	38) Please report on any e importing the file.	rrors the software gives when	no errors					
	39) Attach screenshots reg	garding the eventually reported erro	rs.					
cing	40.1) Are the world (project account when locating the coordinate reference systems)	eted) coordinates taken into model in the software's em?	No					
Georeferencing	40.1.1) Where is the origin reference system as impor		RefLatitude is read as N 41 degrees 47'59.9972"; RefLongitude is E 12 degrees 36' 0.1373" RefElevation is 0					
Geor	40.1.3) What is the coordir projection and what unit of representation?		Local reference system; m is the length unit and degree the plane angle unit					
ght	41.1) Are the "real-world" econsidered when locating to	elevation values (heights) the model in the software (z)?	No					
Height		on value of the origin of the model m as imported in the software?	0					
	42.1) Is the model oriented North?	d correctly with respect to the true	Yes					
ation	42.2) short comments to the	ne previous question (optional)	It is visualised as in the data description, but the value of the True North direction is -234.50 instead of 125.5					
Orientation	Other	model is visualised, it appears to h of the left building in the images is	e distances and the software stops responding; from how the ave the correct proportions. One of the measures (the length similar (45.31 m instead of 42.20 m) but an approximation is not possible (also considered the response time of the					
	44.1) Is the eventual transl definitions?	ation consistent with the IFC	Yes					
Hier	45.1) Are the hierarchical r IFC hierarchy?	elationships consistent with the	Yes					

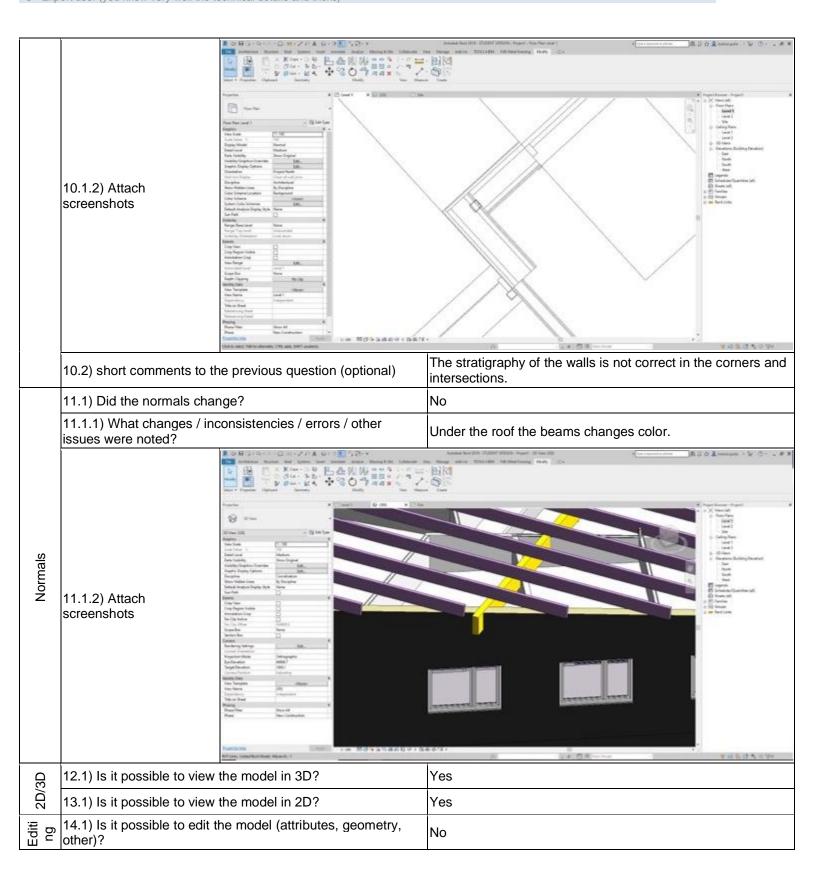
	45.2) short comments to the previous question (optional)	The hierarchical relations and the containment relations are represented in the same way in the hierarchical layers tree
ntes	46.1) Are the attributes present in the IFC entities retained and consistent?	Yes
Attributes	46.2) short comments to the previous question (optional)	When querying some of the elements, the application stops responding for a while and takes time to finish the task.
io	47.1) Are the relationships between the objects retained?	Yes
Relatio nships	Other	Generally yes, but some elements (some roof pitches) are not visualised
ها	49.1) Did the normals change?	Yes
Normal s	49.2) short comments to the previous question (optional)	They appear mostly consistent, some images are attached at the end
6)	50.1) Is it possible to view the model in 3D?	Yes
2D/3 D	51.1) Is it possible to view the model in 2D?	No
Editi	52.1) Is it possible to edit the model (attributes, geometry, other)?	No
er	53.1) Is it possible to query the model and the attributes?	Yes
Quer	53.1.1) What kinds of query are possible?	see answers for Myran model
· <u>iS</u>	54.1) Is it possible to analyse the objects and the model?	Yes
Analysi s	54.1.1) What analysis are possible? Do you know if the results are reliable?	see Myran description; the results are almost immediate
ort	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities
Export	55) How long does it take for the data to be exported to IFC?	it's almost immediate
	55.1) Comment to the previous question (optional)	another possible export format is the IFC-ZIP

Autodesk Revit

ē	Software Name [version]	Autodesk	Revit [2019]	Software	re house Autodesk			
Software	Proprietary or ope	en source so	oftware	?	Kind of s	ind of software			
Š	proprietary	proprietary			BIM				
ıter	Model and year	Operating system	(CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	HP Envy Notebook - 2015	Microsoft Windows 1 Home	111	Intel Core i7- 6700HQ	NVIDIA GeForce 950M	GTX	16.0 GB	120 GB	10.8 GB
Certification	IFC import certification status	Import certification date	n	Import certification program	IFC expo certificat status		Export certification date	Export certification program	
Certi	certified in (date)	2015-07-24	4	CV2.0	certified (date)	in	2013-04-16	CV2.0-Arch	
				Test	with My	ran.ifc			
	How long does it visualise if the sof					1-5 minu	ıtes		
	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate				
e	How long does it take, approximately, to:Pan the model				it's almost immediate				
Performance	How long does it take, approximately, to:Rotate the model				it's almo	st immediate			
erfor	How long does it take, approximately, to:Query an object				it's almo	st immediate			
مَ	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship					it's almo	st immediate		
					s and do not join correctly, subtracting the volumes. inside the families of doors and windows, which are used to played.				
Georef	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?				account	Yes			
	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?				Yes				
Orie ntati	4.1) Is the model oriented correctly with respect to the true North?				Yes				
/	5.1) Does the moon	del maintair	n its cor	rect dimensions	and	Yes			
O ≔ :	6.1) Is the eventual translation consistent with the IFC definitions?					Yes			
Hier	7.1) Are the hierarchical relationships consistent with the IEC					No			

3 - Expert user (you know very well the technical details and tricks)





			It is possible to query some data of the model, but it is not possible to modify geometries or parameters.			
	15.1) Is it possible to query	the model and the attributes?	Yes			
	15.1.1) What kinds of query are possible?		Selecting the elements it is possible to display the properties and some parameters.			
Querying	15.1.2) Attach screenshots	See Comment Co	Annual And Print (1900)			
	15.2) short comments to the previous question (optional)	The properties show the parameters of the selected element (for example the creation phase, the name of the wall, the materials of the stratigraphy, etc.).				
ysis	16.1) Is it possible to analyse the objects and the model?	Yes, analysis about the modelled building performances (energy, noise, shadows) are possible (type 2)				
Analysis	16.1.1) What analysis are possible? Do you know if the results are reliable?	It is possible to perform the energy analysis. However Revit is not a specialized software for this function, so the results are not reliable. It is also possible to perform the solar study. In this case the result is more reliable.				

Autodesk Revit 2019 – Windows 10 Home
Proprietary
BIM
3 - Expert user (you know very well the technical details and tricks)

	16.1.2) Attach screenshots	Search Control of the	Section of the Sectio
	16.1.3) Time required to model itself (type 1)	perform the analysis about the	No analysis of type 1 are possible
	-	perform the analysis about the e2)	5-20 minutes
	16.2) short comments to	the previous question (optional)	In order to perform the energy analysis it is first necessary to carry out a series of operations on the model: activate the room bounding, compute the spaces, attribute thermophysical properties and then launch the calculation.
	You arrived at the end of the file in the software".N	the phase 1: "Import and manage ow choose:	The software has also export abilities
	17.1) Are any pre-proces the software to enable a	sing or setting changes needed in consistent export?	No
Export	18.1) Is it possible to cho (MVD) to be used when e	ose the IFC model view definition exporting the data?	No
Ä	18.2) short comments to	the previous question (optional)	During export it's possible choose to change the detail level for some element geometries, but only creating a new export preset. Using the basic presets provided by the software this parameter cannot be changed.
	19) How long does it take	e for the data to be exported to IFC?	it's almost immediate
		Test with UpT	own.ifc
بو	How long does it take, ap visualise if the software a	oproximately, to:Import (and illows it) the model	more than one hour
Performance	How long does it take, apmodel to see more detail	pproximately, to:Zoom into the	more than one hour
irfo	How long does it take, ap	proximately, to:Pan the model	less than a minute
l a		proximately, to:Rotate the model	less than a minute
	How long does it take, ap	pproximately, to:Query an object	less than a minute

	I	1
	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	less than a minute
Pro porti	24.1) Does the model maintain its correct dimensions and proportions?	Yes
	25.1) Is the eventual translation consistent with the IFC definitions?	Yes
S	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	No
semantics	26.1.1) What changes / inconsistencies / errors / other issues were noted?	The subcategory of families is not recognized by the ifc file.
ŭ	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes
	28.1) Are the relationships between the objects retained?	Yes
O 0 0	29.1) Is geometry read correctly?	Yes
	30.1) Did the normals change?	Yes
	31.1) Is it possible to view the model in 3D?	Yes
2D/3 D	32.1) Is it possible to view the model in 2D?	Yes
Editing	33.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?	It is possible to query some data of the model, but it is not possible to modify geometries or parameters. The only possible operation is to move the model, using the appropriate command or project points, changing the georeferencing.
Export	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities
ũ	36) How long does it take for the data to be exported to IFC?	20 minutes-1 hour
	Test with Savig	liano.ifc
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it's almost immediate
0	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate
anc.	How long does it take, approximately, to:Pan the model	it's almost immediate
formance	How long does it take, approximately, to:Rotate the model	it's almost immediate
ojue	How long does it take, approximately, to:Query an object	it's almost immediate
Per	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	it's almost immediate
	39) Attach screenshots regarding the eventually reported errors.	
Georef	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	Yes
Hei	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	Yes
Orie ntati	42.1) Is the model oriented correctly with respect to the true North?	Yes

Autodesk Revit 2019 – Windows 10 Home
Proprietary
BIM
3 - Expert user (you know very well the technical details and tricks)

	43.1) Does the model maintain its correct dimensions and proportions?	Yes
IFC defi	44.1) Is the eventual translation consistent with the IFC definitions?	Yes
ırchy	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	No
Hierarchy	45.1.1) What changes / inconsistencies / errors / other issues were noted?	The subcategory of families is not recognized by the ifc file.
Attri bute	46.1) Are the attributes present in the IFC entities retained and consistent?	Yes
조 <u>교</u> 한	47.1) Are the relationships between the objects retained?	Yes
	48.1) Is geometry read correctly?	No
Geometry	48.1.1) What changes / inconsistencies / errors / other issues were noted?	Some walls intersect with the floors and the beams and do not join correctly, subtracting the volumes. Furthermore, the subtraction solids inside the families of doors and windows, which are used to pierce the walls, are mistakenly displayed.
Zo,	49.1) Did the normals change?	Yes
(3	50.1) Is it possible to view the model in 3D?	Yes
2D/3 D	51.1) Is it possible to view the model in 2D?	Yes
Exp	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities
ш×ч	55) How long does it take for the data to be exported to IFC?	it's almost immediate

Autodesk Revit

Φ	Software Name [version]	Revit [2018]		Software	e house		Autodesk		
Software	Proprietary or ope	en source softwa	re?	Kind of	nd of software				
So	proprietary			ВІМ	Л				
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	Aspire R5-471T	Windows 10	Intel (R) Core (TM) i5-6200	Intel HD Graphic		8	500 (SSD)	65	
Certification	IFC import certification status	Import certification date	Import certification program	IFC exp certificates status		Export certification date	Export certification program		
Certifi	certified in (date)	2015-02-07	CV2.0	certified (date)	in	2013-04-16	CV2.0-Arch		
			Test	with My	ran.ifc				
	How long does it visualise if the so		ely, to:Import (and he model		1-5 minutes				
eg Se	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate				
Performance	How long does it take, approximately, to:Pan the model				it's almo	st immediate			
erfor	How long does it take, approximately, to:Rotate the model					st immediate			
۵	How long does it	take, approximat	ely, to:Query an ob	oject	it's almost immediate				
	How long does it linked to the quer		ely, to:Inspect the a relationship	objects	it's almost immediate				
Georef		model in the sof	dinates taken into tware's coordinate		Yes				
Height	3.1) Are the "real- considered when		values (heights) el in the software ((z)?	Yes				
He	3.2) short comme	ents to the previou	us question (option	nal)	The precision of the height is in mm.				
Orientati	4.1) Is the model North?	oriented correctly	with respect to th	e true	Yes				
Orie	4.2) short comme	ents to the previou	us question (option	nal)	Alignme	nt can be change	d		
Proporti ons	5.1) Does the mo proportions?	del maintain its c	orrect dimensions	and	Yes				
Pro	5.2) short comments to the previous question (optional)			Units are also in mm					

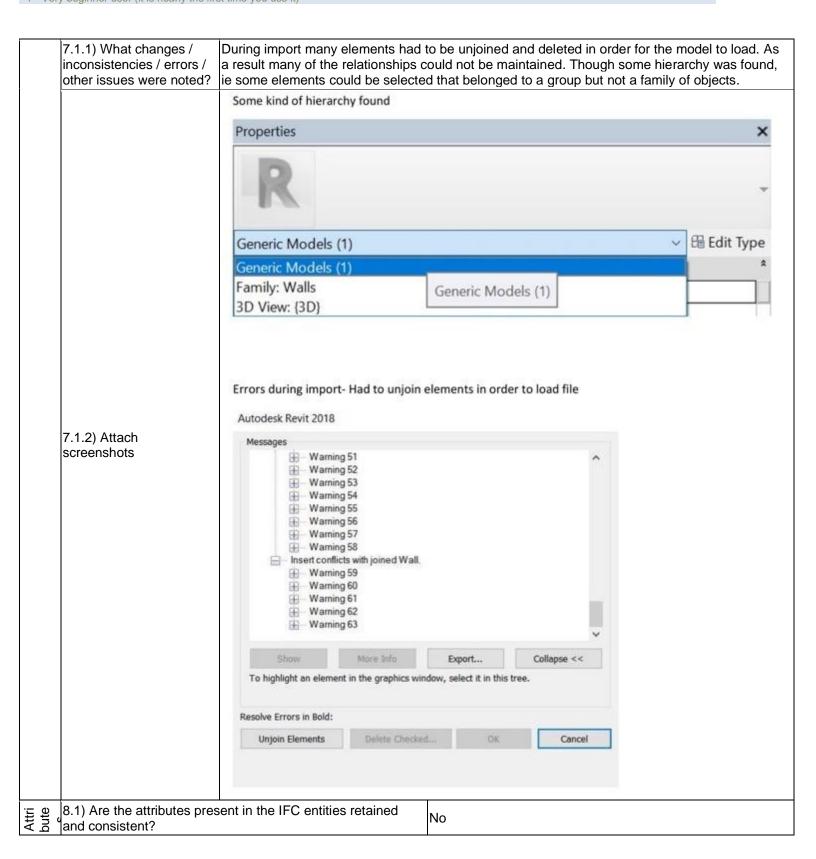
	1				
	6.1) Is the eventual transladefinitions?	tion consistent with the IFC	No		
definitions	6.1.1) What changes / incowere noted?	nsistencies / errors / other issues	Some classes that are different in IFC are the same in Revit		
IFC defir	6.1.2) Attach screenshots 6.2) short comments to the	IfcTank IfcTankType IfcTransportElement IfcTransportElementType previous question (optional)	Specialty Equipment Specialty Equipment Specialty Equipment Specialty Equipment Specialty Equipment These are the standard settings. It is possible to set own Revit Categories (therefore set them to the correct IFC Class		
Hierarchy	hierarchy?	lationships consistent with the IFC	No The elements are ordered in the Revit Families that are		
Attribut Hie	were noted?	ent in the IFC entities retained	different from the IFC-hierarchy Yes		
	8.2) short comments to the	previous question (optional)	Pitch Angle is given in degrees not in radian		
2D/3 D	12.1) Is it possible to view to		Yes		
2	13.1) Is it possible to view to	ne model (attributes, geometry,	Yes		
Editing	other)? 14.1.1) What editing is post georeferencing, please add	sible (attributes, geometry,	Yes attributes, georeferencing, for sure geometries (but geometries at all couldn't assessed because not found)		
	15.1) Is it possible to query	the model and the attributes?	Yes		
	15.1.1) What kinds of query	y are possible?	select by the Object type, select by id		
Querying	15.1.2) Attach screenshots	Decal Types Phases Select by ID Uses an element's unique identification the current view. Press F1 for more help			
	16.1) Is it possible to analy	se the objects and the model?	Yes		
Sis		possible? Do you know if the	possible analysis in screenshot. Results are currently not reliable due to the model (no masses available)		
Analysis	16.1.2) Attach screenshots	Company Control Contro	The control of the co		
	16.1.3) Time required to permodel itself (type 1)	erform the analysis about the	less then a minute		

	16.2) short comments to the previous question (optional)	not every possible analysis could be assessed (because not possible)		
	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities		
	17.1) Are any pre-processing or setting changes needed in the software to enable a consistent export?	No		
	18.1) Is it possible to choose the IFC model view definition (MVD) to be used when exporting the data?	Yes		
	18.1.1) Which ones are available?	possible definitions can be found in the screenshot		
	18.1.2) Is it possible to add a customised MVD to be used for exporting IFC?	Yes		
	18.1.2.1) What kind of customisation is possible?	It is possible to create a new export scheme where many different parameters can be changed.		
Export		IFC 2x3 Coordination View 2.0 ✓		
EXE	18.1.2.2) Attach screenshots and files	IFC 2x2 Coordination View		
		IFC 2x3 Coordination View		
		IFC 2x3 Coordination View 2.0		
		IFC 2x3 GSA Concept Design BIM 2010		
		IFC 2x2 Singapore BCA e-Plan Check		
		IFC 2x3 Basic FM Handover View		
		IFC2x3 Extended FM Handover View		
		IFC4 Reference View		
		IFC4 Design Transfer View		
	19) How long does it take for the data to be exported to IFC?	1-5 minutes		
	Test with UpT	own.ifc		
Perfor mance	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it crashes without completing the operation		
	Test with Savig	gliano.ifc		
Perfor mance	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it crashes without completing the operation		

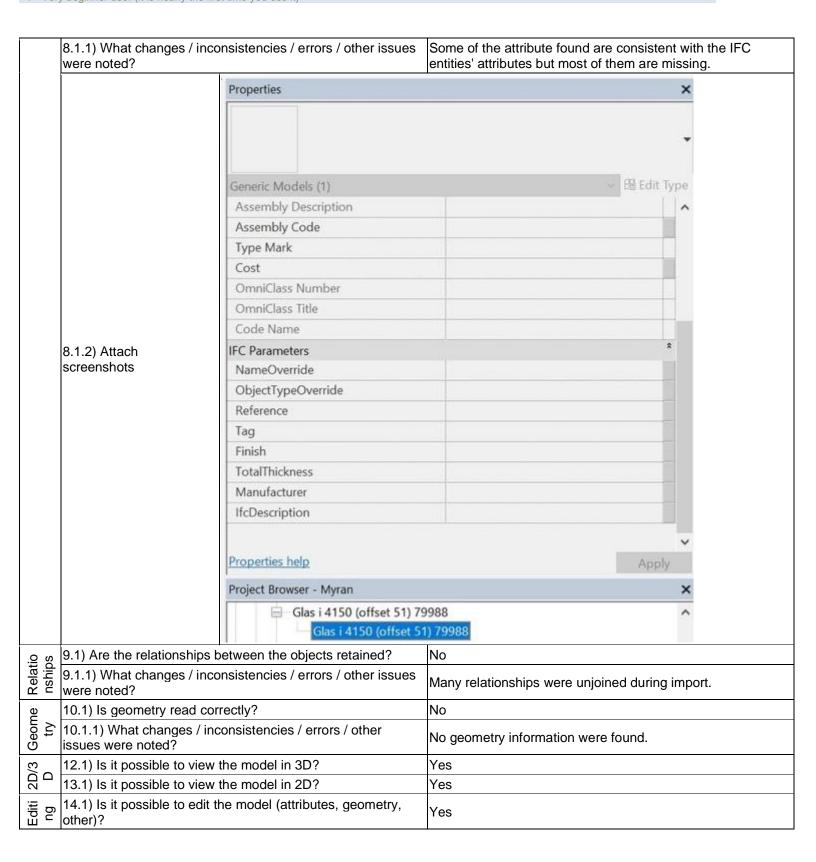
REVIT

ē	Software Name [version]	REVIT [2018]		Software	e house		AUTODESK		
Software	Proprietary or ope	en source softwar	e?	Kind of	software				
ŭ	proprietary			BIM					
	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	HP ZBook Studio G5/ 2018	Microsoft Windows 10 Home	Intel(R) Core(TM) i7- 8750H CPU @ 2.20GHz, 2208 Mhz, 6 Core(s), 12 Logical Processor(s)	NVDIA (P1000, 4 MB(mer 1493 MHz(clo	4096 nory),	16 GB	455GB	286GB	
Certification	IFC import certification status	Import certification date	Import certification program	IFC expectations and status		Export certification date	Export certification program		
Certi	certified in (date)	2015-07-24	CoordinationVie w 2.0	certified (date)	in	2013-04-16	CoordinationVie w 2.0		
			Test	with My	ran.ifc				
	How long does it visualise if the so		ely, to:Import (and ne model		1-5 minu	utes			
Ge	How long does it take, approximately, to:Zoom into the model to see more detail				it's almo	's almost immediate			
Performance	How long does it	take, approximate	ely, to:Pan the mod	del	it's almost immediate				
erfor	How long does it	take, approximate	ely, to:Rotate the m	nodel	it's almost immediate				
۵	How long does it	take, approximate	ely, to:Query an ob	ject	it's almost immediate				
	How long does it linked to the quer		ely, to:Inspect the or relationship	objects	the software does not allow this				
Georef erenci	2.1) Are the world when locating the reference system	model in the soft	dinates taken into a ware's coordinate	account	Yes				
Hei	3.1) Are the "real- considered when	world" elevation value in the mode	values (heights) el in the software (z)?	Yes				
Orie ntati	4.1) Is the model North?	oriented correctly	with respect to the	e true	Yes				
	5.1) Does the mo proportions?	del maintain its co	orrect dimensions	and	Yes				
	6.1) Is the eventu definitions?	al translation cons	sistent with the IFC		Yes				
Hier	7.1) Are the hiera hiera hierarchy?	rchical relationshi	ps consistent with	the IFC	No				

1 - Very beginner user (it is nearly the first time you use it)

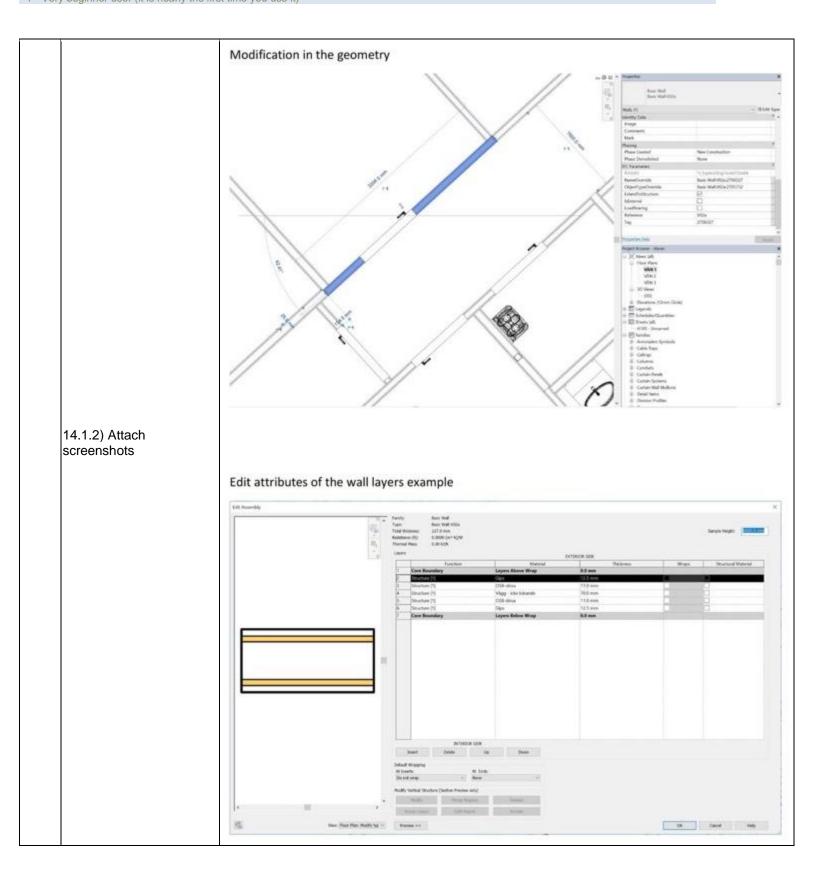


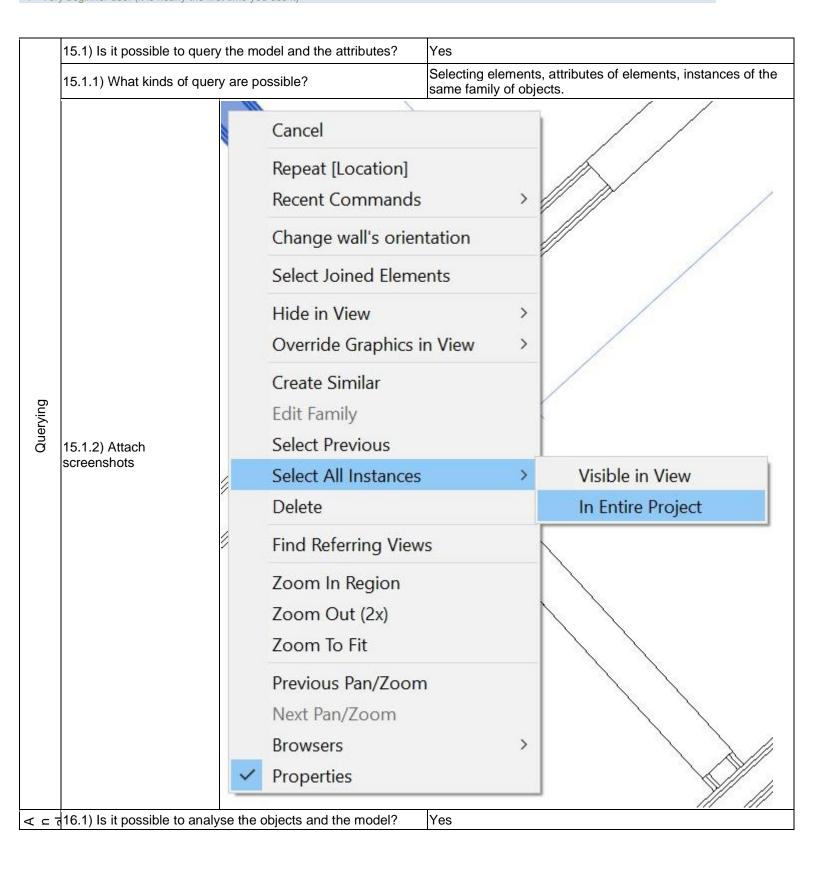
1 - Very beginner user (it is nearly the first time you use it)

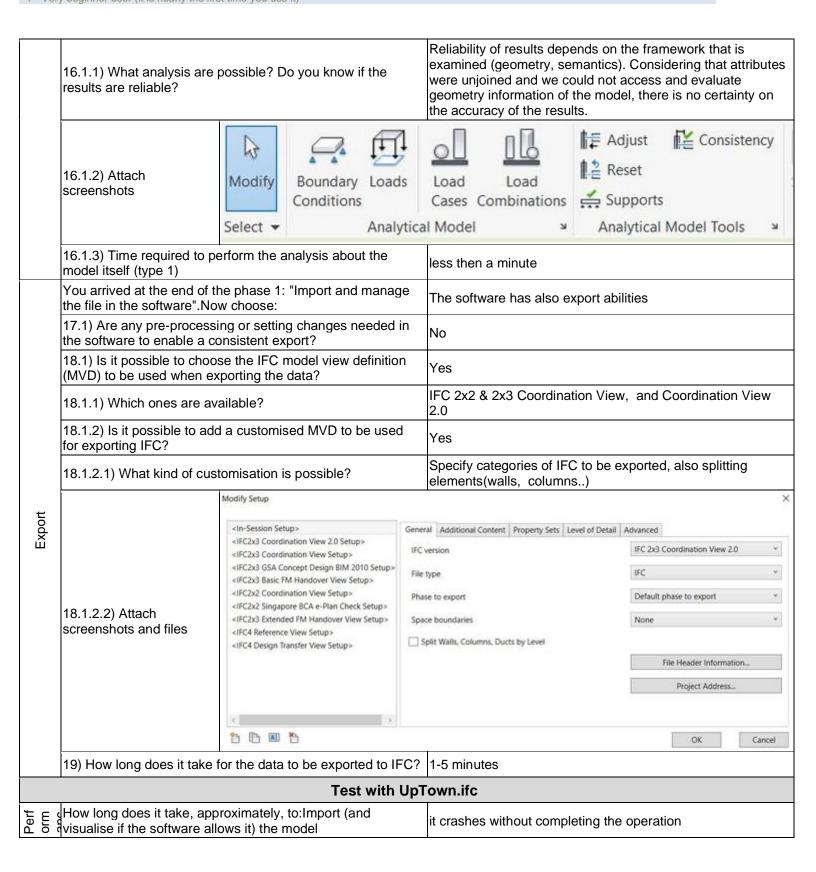


Autodesk Revit 2018 – Windows 10 Home Proprietary BIM 1 - Very beginner user (it is nearly the first time you use it)

14.1.1) What editing is possible (attributes, geometry,	There are lots of ways to manipulate attributes, geometries,
georeferencing, please add details)?	modify semantics etc







How long does it take, approximately, to:Zoom into the			
model to see more detail	it crashes without completing the operation		
How long does it take, approximately, to:Pan the model	it crashes without completing the operation		
How long does it take, approximately, to:Rotate the model	it crashes without completing the operation		
How long does it take, approximately, to:Query an object	it crashes without completing the operation		
How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	it crashes without completing the operation		
30.1) Did the normals change?	Yes		
31.1) Is it possible to view the model in 3D?	Yes		
32.1) Is it possible to view the model in 2D?	Yes		
33.1) Is it possible to edit the model (attributes, geometry, other)?	Yes		
33.1.2) Attach screenshots Modify Select - Properties Clipboard Geometr	Modify		
34.1) Is it possible to query the model and the attributes?	Yes		
34.1.1) What kinds of query are possible?	Select elements, attributes, families of elements.		
35.1) Is it possible to analyse the objects and the model?	Yes		
35.1.3) Time required to perform the analysis about the model (type 1)	5-20 minutes		
You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities		
36) How long does it take for the data to be exported to IFC?	1-5 minutes		
Test with Savig	liano.ifc		
How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it crashes without completing the operation		
	How long does it take, approximately, to:Pan the model How long does it take, approximately, to:Rotate the model How long does it take, approximately, to:Query an object How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship 30.1) Did the normals change? 31.1) Is it possible to view the model in 3D? 32.1) Is it possible to view the model in 2D? 33.1) Is it possible to edit the model (attributes, geometry, other)? 33.1.2) Attach screenshots 34.1) Is it possible to query the model and the attributes? 34.1.1) What kinds of query are possible? 35.1.3) Time required to perform the analysis about the model (type 1) You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose: 36) How long does it take, approximately, to:Import (and		

Autodesk Revit 2018

re	Software Name [version]	Autodesk Revit [18.0.0.420]	2018	Software	e house		Autodesk	Autodesk		
Software	Proprietary or ope	en source softwar	e?	Kind of	software					
Ň	proprietary			BIM				apacity space 80 240 Export ertification rogram		
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity			
Computer	Lenovo T480 2018	Windows 10 Enterprise	Intel i5-8250U	Nividia (MX150	GeForce	8	480	240		
Certification	IFC import certification status	Import certification date	Import certification program	IFC expectations of the certification of the certif		Export certification date	Export certification program			
Certif	certified in (date)	2015-07-24	buildingSMART	certified (date)	in	2013-04-16	buildingSMART			
			Test	with My	ran.ifc					
		take, approximate ftware allows it) th	ely, to:Import (and ne model		1-5 minu	I-5 minutes				
	How long does it take, approximately, to:Zoom into the model to see more detail				it's almo	st immediate				
	How long does it take, approximately, to:Pan the mode				it's almo	st immediate				
	How long does it take, approximately, to:Rotate the mod				it's almo	it's almost immediate				
	How long does it	take, approximate	ely, to:Query an ob	oject						
			ely, to:Inspect the crelationship	objects	the softw	vare does not allo	w this			
Performance	Error message Elements Can't keep elements joined. Walls: Basic Wall: Basic Wall: Yttervägg						15 Can't keep Wall: Basic p elements sic Wall: Basic mm: id 246877 ents joined. Walls ic Wall:Yttervägg 7 Walls: Basic d: id 246656 ake cut-out. Void 2: id 246795 204231: Walls: Basic 518565: amily to modify it. an't regenerate Opening 518892			

opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 248291 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 248308 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 248344 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 248392 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 248558 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 248586 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: Yttervägg 36 mm: id 246820 lfcOpeningElements: Opening 518565: Opening 518565: id 246840 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: Yttervägg 36 mm: id 246862 IfcOpeningElements: Opening 518437: Opening 518437: id 246876 Instance of inplace family is not cutting host. Walls : Basic Wall : Basic Wall:Yttervägg 36 mm : id 246877 IfcOpeningElements: Opening 517844: Opening 517844: id 246940 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V06a: id 247614 IfcOpeningElements: Opening 579680: Opening 579680: id 247628 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V06a: id 247629 IfcOpeningElements: Opening 564238: Opening 564238: id 247643 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V02a: id 247644 IfcOpeningElements: Opening 564114: Opening 564114: id 247658 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: Yttervägg 36 mm : id 247682 lfcOpeningElements : Opening 517009 : Opening 517009 : id 248557 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: Yttervägg 36 mm: id 247714 IfcOpeningElements: Opening 516266: Opening 516266: id 247749 Instance of inplace family is not cutting host. Walls: Basic Wall: Basic Wall: V05c: id 247869 IfcOpeningElements: Opening 4481: Opening 4481: id 247885 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: Yttervägg 120 mm: id 247887 IfcOpeningElements: Opening 3999: Opening 3999: id 247901 Instance of in-place family is not cutting host, Walls: Basic Wall: Basic Wall: V02a: id 247902 IfcOpeningElements: Opening 3237: Opening 3237: id 247916 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V05b: id 247919 IfcOpeningElements: Opening 2727: Opening 2727: id 247964 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V11b: id 247966 IfcOpeningElements: Opening 2589: Opening 2589: id 247980 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V02a: id 247981 IfcOpeningElements: Opening 2271: Opening 2271: id 247995 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V06a: id 247996 IfcOpeningElements: Opening 2209: Opening 2209: id 248010 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V02a: id 248011 IfcOpeningElements: Opening 1949: Opening 1949: id 248025 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V02a: id 248026 IfcOpeningElements: Opening 1844: Opening 1844: id 248040 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V02a: id 248041 IfcOpeningElements: Opening 1652: Opening 1652: id 248055 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: V08: id 248057 IfcOpeningElements: Opening 1349: Opening 1349: id 248073 Instance of in-place family is not cutting host. Walls: Basic Wall: Basic Wall: Yttervägg 240 mm: id 248213 IfcOpeningElements: Opening 540: Opening 540: id 248227 Can't keep elements joined. Walls: Basic Wall: Basic Wall:Innervägg 70 mm Icke Bärande: id 247058 Void Blend: id 247065 IfcOpeningElements: Opening 511763: Opening 511763: id 247076 Can't keep elements joined. Walls: Basic Wall: Basic Wall: V04: id 246649 Void Blend: id 246656 Void Extrusion: id 246678 lfcOpeningElements: Opening 580221: Opening 580221: id 246687 The following problems were encountered in the IFC file: IFC: IfcPolyLine #589477 is too short, discarding. The following problems were encountered in the IFC file: IFC: IfcProfileDef #519093 has a very short segment that can't be fixed. Highlighted floors overlap. Floors: Floor: Floor:Platta på mark 700 mm : id 249412 Floors : Floor : Floor:Bjälklag 150 mm uteplats : id 249613 Highlighted floors overlap. Floors : Floor : Floor:Platta på mark 700 mm : id 249412

DIM

1 - Very beginner user (it is nearly the first time you use it)

Floors: Floor: Floor:Bjälklag 150 mm uteplats: id 249624 Highlighted floors overlap. Floors: Floor: Floor: Platta på mark 700 mm: id 249412 Floors: Floor: Pad:Pad 1: id 251286 Highlighted floors overlap. Floors: Floor: Floor: Bjälklag 220 mm; id 249443 Floors: Floor: Floor:Bjälklag 150 mm balkong: id 250719 Highlighted floors overlap. Floors: Floor: Floor:Bjälklag 220 mm: id 249443 Floors: Floor: Floor:Bjälklag 100 mm: id 250828 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall: V04: id 246649 Walls: Basic Wall: Basic Wall: V04: id 246757 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall: V04: id 246757 Walls: Basic Wall: Basic Wall:Portalvägg: id 249867 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall : Basic Wall:Yttervägg 36 mm : id 246862 Walls : Basic Wall : Basic Wall:Yttervägg 36 mm : id 246877 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall: Yttervägg 36 mm: id 246877 Walls: Basic Wall: Basic Wall: Yttervägg 36 mm: id 248535 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall: V02a: id 247351 Walls: Basic Wall: Basic Wall:Brandcellsgräns El30 - Smart build env: id 251318 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall: V02a: id 247644 Walls: Basic Wall: Basic Wall:Brandcellsgräns El30 - Smart build env: id 251316 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall:Innervägg enl. K 262 mm: id 247752 Walls: Basic Wall: Basic Wall: V13: id 251255 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall:Innervägg enl. K 262 mm: id 247752 Walls : Basic Wall : Basic Wall:Brandcellsgräns El30 - Smart build env : id 251323 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall:Yttervägg parocelement 200 mm : id 247789 Walls : Basic Wall : Basic Wall:Brandcellsgräns El30 - Smart build env: id 251327 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other, Walls: Basic Wall: Basic Wall: Vägg enl. K 197: id 247840 Walls: Basic Wall: Basic Wall:Brandcellsgräns El30 - Smart build env : id 251327 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall: V02a: id 247981 Walls: Basic Wall: Basic Wall:Brandcellsgräns El30 - Smart build env : id 251318 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other, Walls : Basic Wall : Basic Wall:V06a : id 247996 Walls : Basic Wall : Basic Wall:Brandcellsgräns El30 - Smart build env : id 251319 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other, Walls: Basic Wall: Basic Wall: V02a: id 248011 Walls: Basic Wall: Basic Wall:Brandcellsgräns El30 - Smart build env : id 251320 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall: V02a: id 248026 Walls: Basic Wall: Basic Wall:Brandcellsgräns El30 - Smart build env : id 251321 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Basic Wall: V02a: id 248041 Walls: Basic Wall: Basic Wall:Brandcellsgräns El30 - Smart build env : id 251317 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls : Basic Wall : Basic Wall:Yttervägg 240 mm : id 248116 Walls : Basic Wall : Basic Wall:Brandcellsgräns El30 - Smart build env: id 251324 Highlighted walls overlap. One of

	within the other. Walls: Basic Wall Wall: Basic Wall:Brandcellsgräns I One of them may be ignored when one wall within the other. Walls: Basic Wall:Brandcellsgräns El30 - them may be ignored when Revit fi within the other. Walls: Basic Wall Wall: Basic Wall:Brandcellsgräns I One of them may be ignored when one wall within the other. Walls: Ba Walls: Basic Wall: Basic Wall:Bra walls overlap. One of them may be Geometry to embed one wall withir Walls: Basic Wall: Basic Wall:Bra walls overlap. One of them may be Geometry to embed one wall withir Walls: Basic Wall: Basic Wall:Bra conflicts with joined Wall. IfcOpenir Walls: Basic Wall: Basic Wall:Ytte	nds room boundaries. Use Cut Geometry to embed one wall: Basic Wall:Yttervägg 240 mm: id 248167 Walls: Basic El30 - Smart build env: id 251323 Highlighted walls overlap. Revit finds room boundaries. Use Cut Geometry to embed asic Wall: Basic Wall:V02a: id 249194 Walls: Basic Wall: Smart build env: id 251315 Highlighted walls overlap. One of nds room boundaries. Use Cut Geometry to embed one wall: Basic Wall:Yttervägg 240 mm: id 249428 Walls: Basic El30 - Smart build env: id 251324 Highlighted walls overlap. Revit finds room boundaries. Use Cut Geometry to embed asic Wall: Basic Wall:Innervägg enl. K 262 mm: id 249429 indcellsgräns El30 - Smart build env: id 251323 Highlighted ignored when Revit finds room boundaries. Use Cut in the other. Walls: Basic Wall: Basic Wall:V02a: id 249633 indcellsgräns El30 - Smart build env: id 251321 Highlighted ignored when Revit finds room boundaries. Use Cut in the other. Walls: Basic Wall: Basic Wall:V05a: id 250935 indcellsgräns El30 - Smart build env: id 251318 Insert ingElements: Opening 517401: Opening 517401: id 246982 invägg 240 mm: id 247581 Insert conflicts with joined Wall. Seried 247120 Windows: F15-02: F15-02 - Mark 42: id wall. IfcOpeningElements: Opening 515903: Opening Vall: Basic Wall:Brandcellsgräns El30 - Smart build env: id 248026 18: id 249566 Insert conflicts with joined Wall. Walls: Basic fcOpeningElements: Opening 827: id 248166
	Other	only elevation is correctly specified; Northern and Eastern values are 0.0 and 0.0
Height	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	Yes
He	3.2) short comments to the previous question (optional)	elevation correct
Orientatio n	4.1) Is the model oriented correctly with respect to the true North?	No
Orier	4.1.1) How is the model oriented, with respect to the reference direction?	Angle to True North 0.0°

	4.1.2) Attach screenshots	Project Base Shared Site: N/S 0.0 mm EW 0.0 mm Elev 14820 Angle to Tru			
noi		ain its correct dimensions and	Yes		
00	proportions? 5.2) short comments to the previous question (optional)		Height of Section B can not be measured unambiguously		
() ≔ .9	,	tion consistent with the IFC	due to the sloped roof Yes		
r G e		lationships consistent with the IFC	The software does not have the necessary tools to determine this information		
ributes	-	ent in the IFC entities retained	No		
+-:	8.1.1) What changes / incowere noted?	nsistencies / errors / other issues	no plate specified, only the complete glass front		
Geo	10.1) Is geometry read cor	rectly?	In general yes, but reported errors lead to broken objects etc.		
	11.1) Did the normals char	nge?	The software does not have the necessary tools for checking it		
2/3	13.1) Is it possible to view	the model in 3D?	Yes		
2D/3 D	12.1) Is it possible to view	the model in 2D?	Yes		
Editing	other)?	ne model (attributes, geometry,	Yes		
Edii	14.1.1) What editing is pos georeferencing, please add	sible (attributes, geometry, d details)?	Revit internal attributes + IFC Attributes except the IfcGUID		
1 = -		the model and the attributes?	Yes		
ğ≒	15.1.1) What kinds of query	y are possible?	filtering objects by category		

Anal	16.1) Is it possible to analy		Maybe possible; too unexperienced with software to perform such tasks	
	You arrived at the end of the file in the software".No	he phase 1: "Import and manage w choose:	The software has also export abilities to IFC	
	17.1) Are any pre-process the software to enable a co	ing or setting changes needed in onsistent export?	No	
	18.1) Is it possible to choo (MVD) to be used when ex	se the IFC model view definition corting the data?	Yes	
Export	18.1.1) Which ones are av	railable?	IFC2x3 Coordination View 2.0 IFC2x3 Coordination View IFC2x3 GSA Concept Design BIM 2010 IFC2x3 Basic FM Handover View IFC2x2 Coordination View IFC2x2 Singapore BCA e-Plan Check IFC2x3 Extended FM Handover View IFC4 Reference View IFC4 Design Transfer View	
	Other		I don't know; not experienced enough	
	19) How long does it take	for the data to be exported to IFC?	it crashes without completing the operation	
		Test with UpT	own.ifc	
Perfor mance	How long does it take, app visualise if the software all		The software was not able to import it, even without crushing	
		Test with Savio	gliano.ifc	
	How long does it take, app visualise if the software all		1-5 minutes	
	How long does it take, app model to see more detail	proximately, to:Zoom into the	it's almost immediate	
	How long does it take, app	proximately, to:Pan the model	it's almost immediate	
	How long does it take, app	proximately, to:Rotate the model	it's almost immediate	
	How long does it take, app How long does it take, app	proximately, to:Rotate the model proximately, to:Query an object		
Performance	How long does it take, app How long does it take, app	proximately, to:Rotate the model proximately, to:Query an object proximately, to:Inspect the objects	it's almost immediate	

Muro di base:Generico - 40 cm:133292 : id 233934 Walls : Basic Wall : Muro di base:Muro balconi - 10 cm:520552 : id 238168 Can't keep elements joined. Walls : Basic Wall : Muro di base:Generico - 40 cm:133292 : id 235804 Walls : Basic Wall : Muro di base:Generico - 40 cm:133292 : id 235805 Walls : Basic Wall : Muro di base:Muro balconi - 10 cm:520552 : id 238185 Can't keep elements joined. Walls : Basic Wall : Muro di base:Generico - 40 cm:133292 : id 236093 Walls : Basic Wall : Muro di base:Generico - 40 cm:133292 : id 236094 Walls : Basic Wall: Muro di base: Muro balconi - 10 cm:520552: id 238202 Can't keep elements joined. Walls: Basic Wall: Muro di base: Generico - 40 cm: 133292: id 236419 Walls: Basic Wall: Muro di base:Generico - 40 cm:133292 : id 236430 Walls : Basic Wall : Muro di base:Muro balconi - 10 cm:520552 : id 238219 Instance(s) of 100 x 220 cm not cutting anything. Walls : Basic Wall : Muro di base:Generico - 40 cm:133292 : id 232247 Windows : 100 x 220 cm : 100 x 220 cm - Mark 195: id 236763 Instance(s) of 100 x 220 cm 90384 not cutting anything. Walls : Basic Wall : Muro di base:Generico - 40 cm:133292 : id 232247 Windows : 100 x 220 cm 90384 : 100 x 220 cm 90384 - Mark 194 : id 236762 Instance(s) of 120 x 135 cm not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232058 Windows: 120 x 135 cm : 120 x 135 cm - Mark 186 : id 236739 Instance(s) of 120 x 135 cm not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232188 Windows: 120 x 135 cm : 120 x 135 cm - Mark 193 : id 236761 Instance(s) of 120 x 135 cm 98850 not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232293 Windows: 120 x 135 cm 98850: 120 x 135 cm 98850 - Mark 196: id 236764 Instance(s) of 120 x 135 cm 98850 not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292 : id 232339 Windows : 120 x 135 cm 98850 : 120 x 135 cm 98850 - Mark 188 : id 236742 Instance(s) of 120 x 215 cm not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292 : id 232058 Windows : 120 x 215 cm : 120 x 215 cm - Mark 185 : id 236738 Instance(s) of 120 x 215 cm 80979 not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292 : id 230937 Windows : 120 x 215 cm 80979 : 120 x 215 cm 80979 - Mark 91: id 235009 Instance(s) of 120 x 215 cm 80979 not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292 : id 232339 Windows : 120 x 215 cm 80979 : 120 x 215 cm 80979 - Mark 187 : id 236741 Instance(s) of 140 x 140 cm not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232516 Windows: 140 x 140 cm: 140 x 140 cm - Mark 203: id 236795 Instance(s) of 140 x 140 cm not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232549 Windows: 140 x 140 cm : 140 x 140 cm - Mark 200 : id 236792 Instance(s) of 140 x 140 cm 242263 not cutting anything, Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232516 Windows: 140 x 140 cm 242263 : 140 x 140 cm 242263 - Mark 201 : id 236793 Instance(s) of 70 x 140 cm not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 230827 Windows: 70 x 140 cm: 70 x 140 cm - Mark 104: id 235034 Instance(s) of 70 x 140 cm not cutting anything. Walls: Basic Wall: Muro di base: Generico - 40 cm: 133292: id 232293 Windows: 70 x 140 cm: 70 x 140 cm - Mark 197: id 236765 Instance(s) of 70 x 140 cm 93420 not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 230827 Windows: 70 x 140 cm 93420: 70 x 140 cm 93420 - Mark 103: id 235033 Instance(s) of 70 x 140 cm 93420 not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292 : id 232188 Windows: 70 x 140 cm 93420: 70 x 140 cm 93420 - Mark 192: id 236760 Instance(s) of 80 x 135 cm not cutting anything. Walls: Basic Wall: Muro di base: Generico - 40 cm:133292 : id 232454 Windows : 80 x 135 cm : 80 x 135 cm - Mark 206 : id 236798 Instance(s) of 80 x 135 cm 95126 not cutting anything. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292 : id 230937 Windows : 80 x 135 cm 95126 : 80 x 135 cm 95126 - Mark 105: id 235035 Instance(s) of 80 x 135 cm 95126 not cutting anything. Walls: Basic Wall : Muro di base:Generico - 40 cm:133292 : id 232454 Windows : 80 x 135 cm 95126 : 80 x 135 cm 95126 - Mark 207 : id 236799 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 229378 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 229382 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening:

DIM

1 - Very beginner user (it is nearly the first time you use it)

Rectangular Straight Wall Opening: id 229727 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 229729 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 230056 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 230057 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 230059 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 230060 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 230720 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 230721 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 230723 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 230724 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 231912 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 231913 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 231915 Rectangular opening doesn't cut its host. Rectangular Straight Wall Opening: Rectangular Straight Wall Opening: id 231916 Instance of in-place family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 227322 IfcOpeningElements: Opening 260236: Opening 260236: id 227360 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 227437 IfcOpeningElements: Opening 258067: Opening 258067: id 227475 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 20 cm:2340: id 227816 IfcOpeningElements: Opening 111868: Opening 111868: id 227830 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 20 cm:2340: id 228118 IfcOpeningElements: Opening 107237: Opening 107237: id 228132 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 20 cm:2340: id 228556 IfcOpeningElements: Opening 54012: Opening 54012: id 228570 Instance of in-place family is not cutting host. Walls: Basic Wall: Muro di base:Strutturale - 35 cm:425707: id 229206 IfcOpeningElements: Opening 234884: Opening 234884: id 231079 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base: Generico - 40 cm: 133292: id 230147 IfcOpeningElements: Opening 67349: Opening 67349: id 230185 Instance of in-place family is not cutting host. Walls : Basic Wall : Muro di base:Generico - 40 cm:133292 : id 230827 IfcOpeningElements: Opening 116159: Opening 116159: id 230859 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 230937 IfcOpeningElements: Opening 116790: Opening 116790: id 230981 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 230937 IfcOpeningElements: Opening 116812: Opening 116812: id 230995 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292; id 232058 IfcOpeningElements: Opening 257394: Opening 257394: id 232074 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232058 IfcOpeningElements: Opening 257416: Opening 257416: id 232088 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232058 IfcOpeningElements: Opening 257438: Opening 257438: id 232102 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232058 IfcOpeningElements: Opening 257460: Opening 257460: id 232116 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232188 IfcOpeningElements: Opening 257826: Opening 257826: id 232204 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232188 IfcOpeningElements: Opening 257848: Opening 257848: id 232218 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232247 IfcOpeningElements: Opening 258201: Opening 258201: id 232263 Instance of inDIM

1 - Very beginner user (it is nearly the first time you use it)

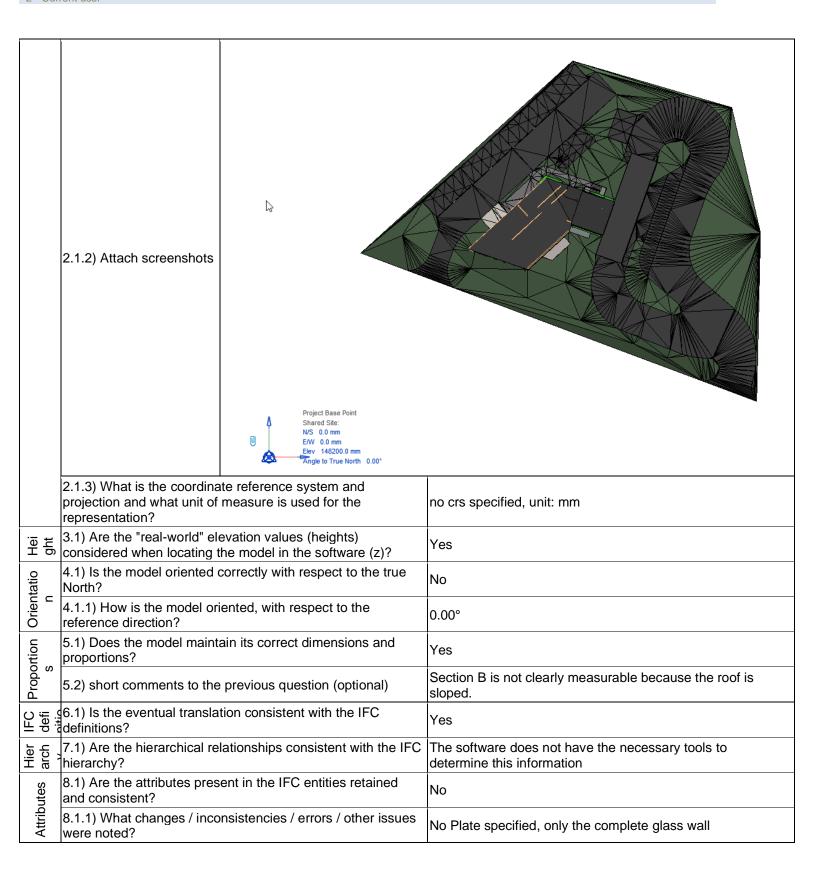
place family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232293 IfcOpeningElements: Opening 258484: Opening 258484: id 232309 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232339 IfcOpeningElements: Opening 258730: Opening 258730: id 232355 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232339 IfcOpeningElements: Opening 258752: Opening 258752: id 232369 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232339 IfcOpeningElements: Opening 258774: Opening 258774: id 232383 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232339 IfcOpeningElements: Opening 258796: Opening 258796: id 232397 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232454 IfcOpeningElements: Opening 260366: Opening 260366: id 232470 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232516 IfcOpeningElements: Opening 260811: Opening 260811: id 232534 Instance of inplace family is not cutting host. Walls: Basic Wall: Muro di base:Generico - 40 cm:133292: id 232549 IfcOpeningElements: Opening 260961: Opening 260961: id 232579 Can't keep elements joined. Walls: Basic Wall: Muro di base:Strutturale - 35 cm:425707: id 232580 Void Extrusion: id 232663 IfcOpeningElements: Opening 271716: Opening 271716: id 232670 The following problems were encountered in the IFC file: There were 1 errors and 0 warnings encountered while reading the IFC file. Please look at D:\GeoBIMBenchmark\Savigliano\Savigliano.ifc.log for more information. Highlighted floors overlap. Floors: Floor: Pavimento: Pavimento - 36 cm: id 233753 Floors: Floor: Pavimento:Calcestruzzo da 300 mm : id 236886 Highlighted floors overlap. Floors : Floor : Pavimento:Pavimento - 36 cm : id 234222 Floors : Floor : Pavimento:Balconi : id 234264 Highlighted floors overlap. Floors: Floor: Pavimento: Pavimento - 36 cm: id 234222 Floors: Floor: Pavimento:Marmetta balconi - 3 cm : id 238579 Highlighted floors overlap. Floors: Floor : Pavimento:Pavimento - 36 cm : id 235652 Floors : Floor : Piattaforma:Magrone : id 240014 Highlighted floors overlap. Floors: Floor: Pavimento: Pavimento - 36 cm: id 236834 Floors: Floor: Piattaforma: Magrone: id 240029 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls : Basic Wall : Muro di base:Strutturale - 35 cm:425707 : id 226945 Walls : Basic Wall : Muro di base:Generico - 10 cm:298586 : id 233252 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Muro di base:Strutturale - 20 cm:301367: id 228258 Walls: Basic Wall: Muro di base: Strutturale - 20 cm: 301367: id 233602 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Muro di base:Strutturale - 20 cm:301367: id 228281 Walls : Basic Wall : Muro di base:Strutturale - 20 cm:301367 : id 233545 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Muro di base:Generico - 20 cm:2340: id 228304 Walls: Basic Wall: Muro di base: Generico - 20 cm: 2340: id 233532 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Muro di base:Strutturale - 20 cm:301367: id 230229 Walls: Basic Wall: Muro di base:Strutturale - 20 cm:301367: id 233601 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Muro di base:Strutturale - 20 cm:301367 : id 233544 Walls : Basic Wall : Muro di base:Strutturale - 20 cm:301367 : id 234424 Highlighted walls overlap. One of them may be ignored when Revit finds room boundaries. Use Cut Geometry to embed one wall within the other. Walls: Basic Wall: Muro di base:Strutturale -20 cm:301367 : id 233546 Walls : Basic Wall : Muro di base:Strutturale - 20 cm:301367 : id 234436 Insert conflicts with joined Wall. IfcOpeningElements: Opening: Opening: id 226979 Walls: Basic Wall: Muro di base: Generico - 10 cm: 298586: id 233246 Insert conflicts with joined Wall. IfcOpeningElements: Opening 246895: Opening 246895: id 228043 Walls: Basic

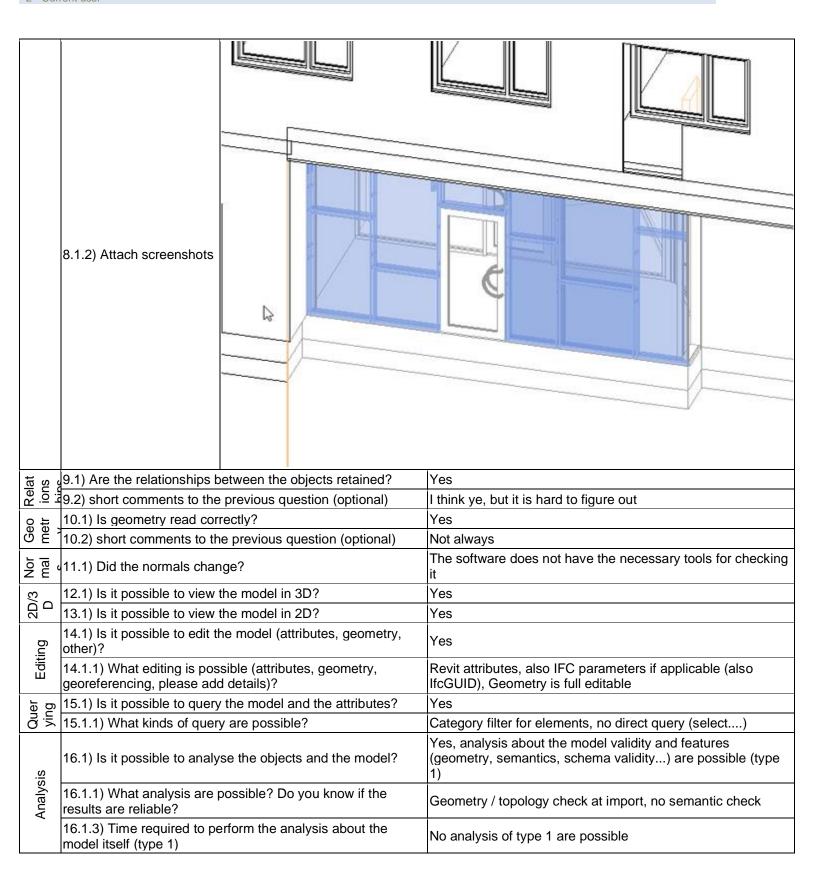
	IfcOpeningElements: Opening 246 di base:Generico - 10 cm:298586: IfcOpeningElements: Opening 667 base:Generico - 10 cm:298586: id: Opening 272600: Opening 27260 35 cm:425707: id 236829 Insert cotological base:Generico - 10 cm:298586: id: Mark 64: id 233951 Insert conflicts - 10 cm:298586: id: 235738 Doors 235744 Insert conflicts with joined cm:298586: id: 235817 Doors: 80 Insert conflicts with joined Wall. Wall: 236036 Doors: 80 x 210 cm:23843 conflicts with joined Wall. Walls: B: 236105 Doors: 80 x 210 cm:65949 with joined Wall: Walls: Basic Wall: Mark: Basic Wall: Walls: Basic Wall: Walls: Basic Wall: Muro discome 65949: 80 x 210 cm:65949 - Mark: Walls: Basic Wall: Muro discome 65949: 80 x 210 cm:65949 - Mark: Wall: Walls: Basic Wall: Muro discome 65949: 80 x 210 cm:65949 - Mark: Wall: Walls: Basic Wall: Muro discome 65949: 80 x 210 cm:65949 - Mark: Wall: Walls: Basic Wall: Muro discome 65949: 80 x 210 cm:65949 - Mark: Wall: Walls: Basic Wall: Muro discome 65949: 80 x 210 cm:65949 - Mark: Wall: Walls: Basic Wall: Walls: Basic Wall: Wall: Mark: Wall: Wall: Wall: Wall: Mark: Wall:	cm:298586 : id 235847 Insert conflicts with joined Wall. 6895 : Opening 246895 : id 228043 Walls : Basic Wall : Muro id 235848 Insert conflicts with joined Wall. 743 : Opening 66743 : id 228473 Walls : Basic Wall : Muro di 233970 Insert conflicts with joined Wall. IfcOpeningElements 00 : id 229205 Walls : Basic Wall : Muro di base:Strutturale - onflicts with joined Wall. Walls : Basic Wall : Muro di 233944 Doors : 80 x 210 cm 65949 : 80 x 210 cm 65949 - with joined Wall. Walls : Basic Wall : Muro di base:Generico : 80 x 210 cm 238431 : 80 x 210 cm 238431 - Mark 196 : id Wall. Walls : Basic Wall : Muro di base:Generico - 10 x 210 cm 65949 : 80 x 210 cm 65949 - Mark 208 : id 235824 alls : Basic Wall : Muro di base:Generico - 10 cm:298586 : id 31 : 80 x 210 cm 238431 - Mark 226 : id 236042 Insert asic Wall : Muro di base:Generico - 10 cm:298586 : id 236362 Doors : 238431 - Mark 255 : id 236368 Insert conflicts with joined base:Generico - 10 cm:298586 : id 236491 Doors : 80 x 210 cm 238498 Insert conflicts with joined wall. Walls : 0 - 10 cm:298586 : id 236750 Doors : 80 x 210 cm 238431 : d 236756
	errors.	
	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	No
	40.1.1) Where is the origin of the model coordinate reference system as imported in the software?	N: 0; E:0; Elev:0; Angle to True North:0;
Georeferencing	40.1.2) Attach screenshots	Project Base Point Shared Site: N/S 0.0000 m E/W 0.0000 m Elev 0.0000 m Angle to True North 0.00°
	40.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?	no CRS specified; unit: meters
jt.	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	No
	41.1.1) What is the elevation value of the origin of the model coordinate reference system as imported in the software?	0 m
	41.1.3) What is the height reference system?	no reference system specified
Orie ntati	42.1) Is the model oriented correctly with respect to the true North?	No

	42.1.1) How is the model oriented, with respect to the reference direction?	no orientation; angle to true north 0.0°
	Other	correct dimensions but sections at different heights. (e.g at 12.17 m instead of 12 m)
C tions	44.1) Is the eventual translation consistent with the IFC definitions?	No
IFC definitions	44.1.1) What changes / inconsistencies / errors / other issues were noted?	element not imported
Attri bute	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes
utes	46.1) Are the attributes present in the IFC entities retained and consistent?	No
Attributes	46.1.1) What changes / inconsistencies / errors / other issues were noted?	window not imported
Rel atio	47.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information
ЭС	48.1) Is geometry read correctly?	No
Geome try	48.1.1) What changes / inconsistencies / errors / other issues were noted?	elements missing and some are broken
Nor mal	49.1) Did the normals change?	The software does not have the necessary tools for checking it
2 D	50.1) Is it possible to view the model in 3D?	Yes
Export	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC
Ш	55) How long does it take for the data to be exported to IFC?	it crashes without completing the operation

Autodesk Revit 2019.2

ē	Software Name [version]	Autodesk Revit [19.2.1.1]	2019.2	Software	Software house Autodesk			
Software	Proprietary or open source software?			Kind of	Kind of software			
S	proprietary			BIM				
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	LENOVO T480s, 2018	Windows 10 Enterprise	Intel Core i5- 8250U	Intel UHD Graphics 620		8	475	207
Certification	IFC import certification status	Import certification date	Import certification program	certification status		Export certification date	Export certification program	
Certif	certified in (date)	2015-07-24	buildingSMART			2013-04-16	buildingSMART	
			Test	with My	ran.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				1-5 minutes			
o o	How long does it take, approximately, to:Zoom into the model to see more detail			it's almo	st immediate			
Performance	How long does it take, approximately, to:Pan the model			it's almo	st immediate			
Ë	How long does it take, approximately, to:Rotate the model			it's almost immediate				
erfc	How long does it take, approximately, to:Query an object			it's almost immediate				
<u> </u>	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship			the software does not allow this				
	Please report on any errors the software gives when importing the file.			76 errors, diverse errors regarding "Can't make cut out", "Can't keep elements joined.",				
Georef	2.1) Are the world (projected) coordinates taken into account		No					
	2.1.1) Where is the system as imported		odel coordinate ref	erence	0/0			





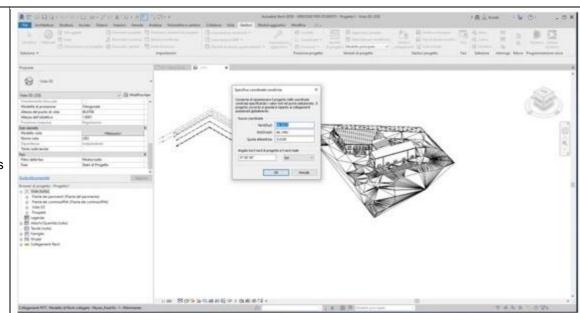
	16.1.3) Time required to perform the analysis about the model performances (type2)	No analysis of type 2 are possible				
	16.2) short comments to the previous question (optional)	Type 1: only implicit at import / Type 2: no experience				
	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities to IFC				
	17.1) Are any pre-processing or setting changes needed in the software to enable a consistent export?	No				
	18.1) Is it possible to choose the IFC model view definition (MVD) to be used when exporting the data?	Yes				
Export	18.1.1) Which ones are available?	IFC2x3 Coordination View 2.0 IFC4 Reference View IFC4 Design Transfer View IFC2x3 Coordination View IFC2x3 GSA Concept Design BIM 2010 IFC2x3 Basic FM Handover View IFC2x2 Coordination View IFC2x2 Singapore BCA e-Plan View IFC2x3 COBie 2.4 Design Deliverable				
	18.1.2) Is it possible to add a customised MVD to be used for exporting IFC?	No				
	18.2) short comments to the previous question (optional)	Only IFC configuration json (regarding IFC Export for Revit)				
	19) How long does it take for the data to be exported to IFC?	it's almost immediate				
	Test with UpTown.ifc					
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	The software was not able to import it, even without crushing				
	Test with Savig	gliano.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	1-5 minutes				
Φ	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate				
ormance	How long does it take, approximately, to:Pan the model	it's almost immediate				
) Li	How long does it take, approximately, to:Rotate the model	it's almost immediate				
Perfc	How long does it take, approximately, to:Query an object	it's almost immediate				
<u> </u>	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	the software does not allow this				
	38) Please report on any errors the software gives when importing the file.	46 errors, 65 warnings				
cing	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	No				
eferer	40.1.1) Where is the origin of the model coordinate reference system as imported in the software?	0/0				
Georeferencing	40.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?	no crs, unit: m				

	Ħ	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	No
	Height	41.1.1) What is the elevation value of the origin of the model coordinate reference system as imported in the software?	0
		41.1.3) What is the height reference system?	no system
	itatio	42.1) Is the model oriented correctly with respect to the true North?	No
	Orientatio n	42.1.1) How is the model oriented, with respect to the reference direction?	0.00°
	Proportion s	43.1) Does the model maintain its correct dimensions and proportions?	Yes
	Propo s	43.2) short comments to the previous question (optional)	but some measure differ in a few cm (maybe because its hard to find the same points to measure out of the sketch)
	C tions	44.1) Is the eventual translation consistent with the IFC definitions?	No
	IFC definitions	44.1.1) What changes / inconsistencies / errors / other issues were noted?	Building element was not imported
:	Hier arch '	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools to determine this information
	Rel atio	47.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information
	e(48.1) Is geometry read correctly?	No
	Geome try	48.1.1) What changes / inconsistencies / errors / other issues were noted?	Many elements are missing. Some elements are broken regarding their storey
	Nor mal	49.1) Did the normals change?	The software does not have the necessary tools for checking it
	3/3	50.1) Is it possible to view the model in 3D?	Yes
	2D/3 D	51.1) Is it possible to view the model in 2D?	Yes
	Export	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC
	û	55) How long does it take for the data to be exported to IFC?	it's almost immediate

3 - Expert user (you know very well the technical details and tricks)

Autodesk Revit 2020

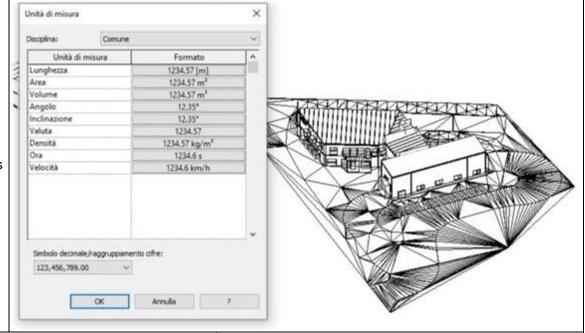
ē	Software Name [version] Autodesk Revit 2020 [Educational 2020]		Software	Software house Autodesk				
Software	Proprietary or open source software?		Kind of software					
Ň	Proprietary		BIM					
_	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	Assembled (Motherboard TUF Z390-PRO GAMING)	Windows 10 Pro version 1809	Intel (R) Core (TH) i7-9700K CPU @3.60GHz 3.60GHz	Nvidia Geforce GTX 1660Ti		64 GB	465 GB + 3630 GB	353 GB + 77.9 GB
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC export certification status		Export certification date	Export certification program	
Ö	not certified			not certi	fied			
			Test	with My	ran.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				less than a minute			
	How long does it take, approximately, to:Zoom into the model to see more detail			ne	it's almost immediate			
nce	How long does it take, approximately, to:Pan the model			del	it's almo	st immediate		
Performance	How long does it take, approximately, to:Rotate the model			it's almost immediate				
Perfc	How long does it take, approximately, to:Query an object			it's almost immediate				
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship			objects	less than a minute			
	Please report on any errors the software gives when importing the file.			no error				
Georeferenci	2.1) Are the world when locating the reference system	model in the soft	dinates taken into ware's coordinate	account	No No			
Geore	2.1.1) Where is the origin of the model coordinate refere system as imported in the software?			erence	The IFC lost the coordinate reference system, so I can't get the origin. I can decide the new origin as I want.			



2.1.2) Attach screenshots

2.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?

CRS: geographic, UoM: meters

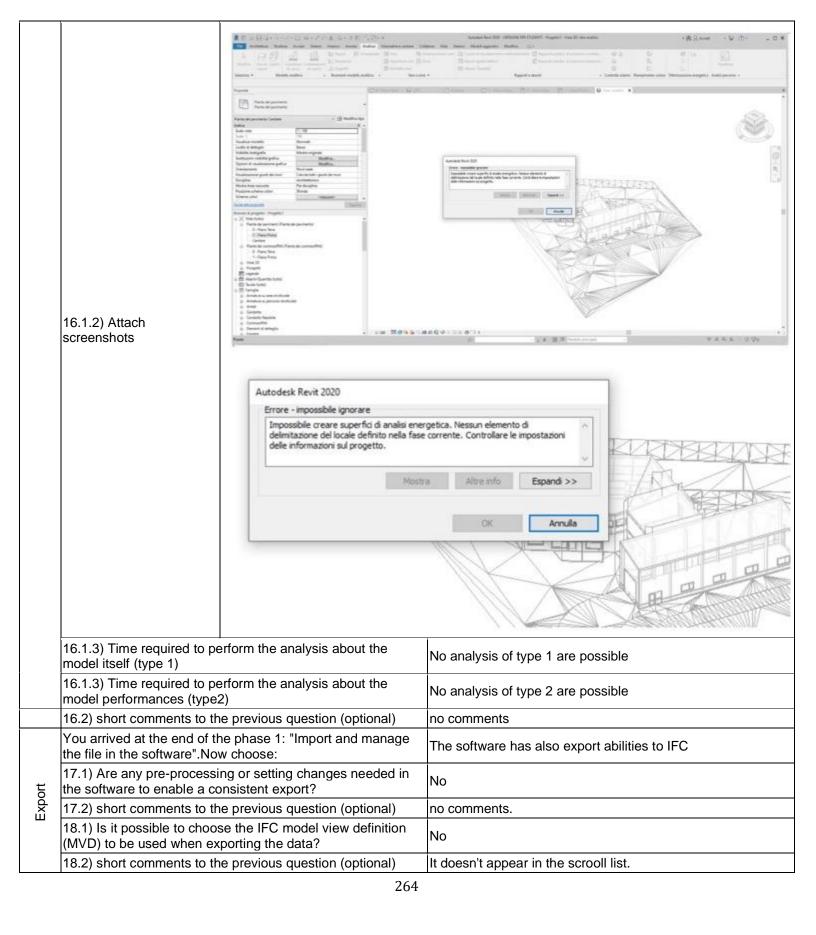


2.1.4) Attach screenshots

	2.2) short comments to the previous question (optional)	no comments
Height	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	Yes
Ĭ	3.2) short comments to the previous question (optional)	no comments.
tatio	4.1) Is the model oriented correctly with respect to the true North?	No
Orient n	4.1.1) How is the model oriented, with respect to the reference direction?	The model is oriented.

Autodesk Revit 2020 – Windows 10 Pro
Proprietary
BIM
3 - Expert user (you know very well the technical details and tricks)

	4.1.2) Attach screenshots	The control of the co	Some and the All Control Contr	
	4.2) short comments to the	previous question (optional)	no comments	
Proport ions	5.1) Does the model maintaproportions?	ain its correct dimensions and	Yes	
Pro	5.2) short comments to the	previous question (optional)	no comments	
0 ±	10.1) Is geometry read cor	rectly?	Yes	
Geo	10.2) short comments to th	e previous question (optional)	no comments.	
or als	11.1) Did the normals char	ige?	Yes	
Nor mals	11.2) short comments to th	e previous question (optional)	no comments.	
	12.1) Is it possible to view the model in 3D?		Yes	
3D	12.2) short comments to the previous question (optional)		no comments.	
2D/3D	13.1) Is it possible to view the model in 2D?		Yes	
	13.2) short comments to the previous question (optional)		no comments.	
Editing	14.1) Is it possible to edit the model (attributes, geometry, other)?		No	
Щ		e previous question (optional)	The software doesn't allow me to edit the features.	
Quer		the model and the attributes?	No	
₫ <u>¥</u>	·	e previous question (optional)	no comments.	
/Si	, , ,	se the objects and the model?	No	
Analysi s	16.1.1) What analysis are ր results are reliable?	possible? Do you know if the	Revit Educational 2020 allows energetic, structural analyses but they don't work with Myran IFC file.	

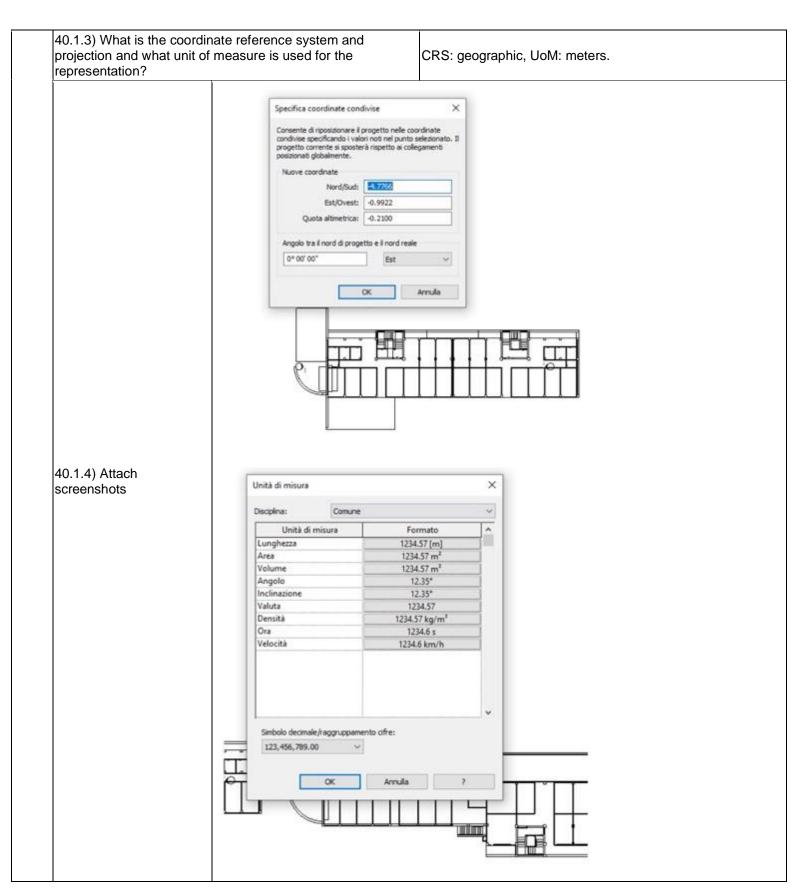


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	19) How long does it take for the data to be exported to IFC? it's almost immediate					
	Test with UpTown.ifc					
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	20 minutes-1 hour				
d)	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate				
Performance	How long does it take, approximately, to:Pan the model	it's almost immediate				
Ĕ	How long does it take, approximately, to:Rotate the model	it's almost immediate				
erfo	How long does it take, approximately, to:Query an object	it's almost immediate				
ه ا	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	it's almost immediate				
	Please report on any errors the software gives when importing the file.	no errors.				
Proportions	24.1) Does the model maintain its correct dimensions and proportions?	Yes				
ortic	24.2) short comments to the previous question (optional)	no comments				
g 0	Other	Not all the features of the IFC file could be selectionable.				
Ь	Other	They are not all be readen.				
s is	29.1) Is geometry read correctly?	Yes				
Geo	29.2) short comments to the previous question (optional)	no comments.				
Z 0 '	30.1) Did the normals change?	Yes				
	31.1) Is it possible to view the model in 3D?	Yes				
30	31.2) short comments to the previous question (optional)	no comments.				
2D/3D	32.1) Is it possible to view the model in 2D?	Yes				
	32.2) short comments to the previous question (optional)	no comments.				
Editing	33.1) Is it possible to edit the model (attributes, geometry, other)?	No				
Щ	33.2) short comments to the previous question (optional)	The software doesn't allow me to edit the features.				
Quer	34.1) Is it possible to query the model and the attributes?	No				
ું ≥ે	34.2) short comments to the previous question (optional)	no comments.				
'Si	35.1) Is it possible to analyse the objects and the model?	No				
Analy		Revit Educational 2020 allows energetic, structural analyses but they don't work with UpTown IFC file.				
Export	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC				
ш̂	36) How long does it take for the data to be exported to IFC?	it's almost immediate				
Test w	rest with Savigliano.ifc					
φ	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	less than a minute				
Performance	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate				
) if	How long does it take, approximately, to:Pan the model	it's almost immediate				
Pe	How long does it take, approximately, to:Rotate the model	it's almost immediate				
	How long does it take, approximately, to:Query an object	it's almost immediate				

	How long does it take, ap linked to the queried one	oproximately, to:Inspect the objects through a relationship	it's almost immediate
	38) Please report on any importing the file.	errors the software gives when	no errors
	39) Attach screenshots reerrors.	egarding the eventually reported	
		ected) coordinates taken into e model in the software's tem?	No
	40.1.1) Where is the orig	in of the model coordinate orted in the software?	The IFC lost the coordinate reference system, so I can't get the origin. I can decide the new origin as I want.
o cioncroforaco ()	40.1.2) Attach screenshots	Consente condisise i progetto a posizionati fluore ca	di riposizionare il progetto nelle coordinate perificando i salori noti nel punto selezionato. Il promette il sposterà il rapetto si collegamenti globalmente. Nordificate Nordificate Est(Divest: 0.9922 collegamenti collegamenti collegamenti collegamenti collegamenti collegamenti condinate Nordificate 0.2200 collegamenti collegamenti condinate Nordificate 0.2200 collegamenti collegamenti condinate collegamenti collegamenti condinate collegamenti colleg

3 - Expert user (you know very well the technical details and tricks)



	40.2) short comments to t	the previous question (optional)	no comments.
lht	41.1) Are the "real-world"	elevation values (heights)	Yes
Height		the model in the software (z)?	
	•	the previous question (optional)	no comments.
	North?	d correctly with respect to the true	No
	42.1.1) How is the model reference direction?	oriented, with respect to the	The model is not oriented as the Uptown and Myran IFC model.
Orientation	42.1.2) Attach screenshots	Transmit	Idinate condivise X Institute condivise Institute condivise X Institute condivise Institute condivise X Institute condivise Institute condition Institute condit
	42.2) short comments to t	0° 00' 00°	nod di progetto e il nord reale Est no comments.
	<u> </u>	the previous question (optional)	no comments.
s	43.1) Does the model ma	the previous question (optional) intain its correct dimensions and	no comments. Yes
tions	43.1) Does the model man proportions? 43.2) short comments to t	the previous question (optional)	no comments. Yes no comments.
portions	43.1) Does the model man proportions? 43.2) short comments to to ther	the previous question (optional) intain its correct dimensions and the previous question (optional)	no comments. Yes no comments. Not all the features of the IFC file could be selectionable.
Proportions	43.1) Does the model man proportions? 43.2) short comments to to ther 44.2) short comments to to the short comments to to the short comments the short comments to the short comments to the short comments to the short comments the short comments to the short comments the short	the previous question (optional) intain its correct dimensions and	no comments. Yes no comments. Not all the features of the IFC file could be selectionable. Not all the features of the IFC file could be selectionable.
Proportions	43.1) Does the model man proportions? 43.2) short comments to to ther 44.2) short comments to to ther	the previous question (optional) intain its correct dimensions and the previous question (optional)	no comments. Yes no comments. Not all the features of the IFC file could be selectionable.

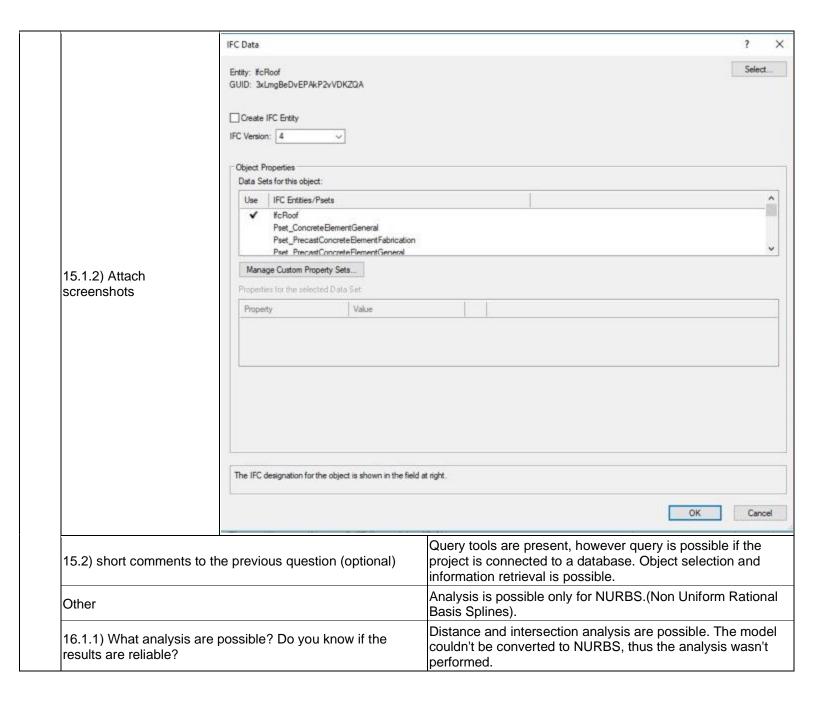
Autodesk Revit 2020 – Windows 10 Pro
Proprietary
BIM
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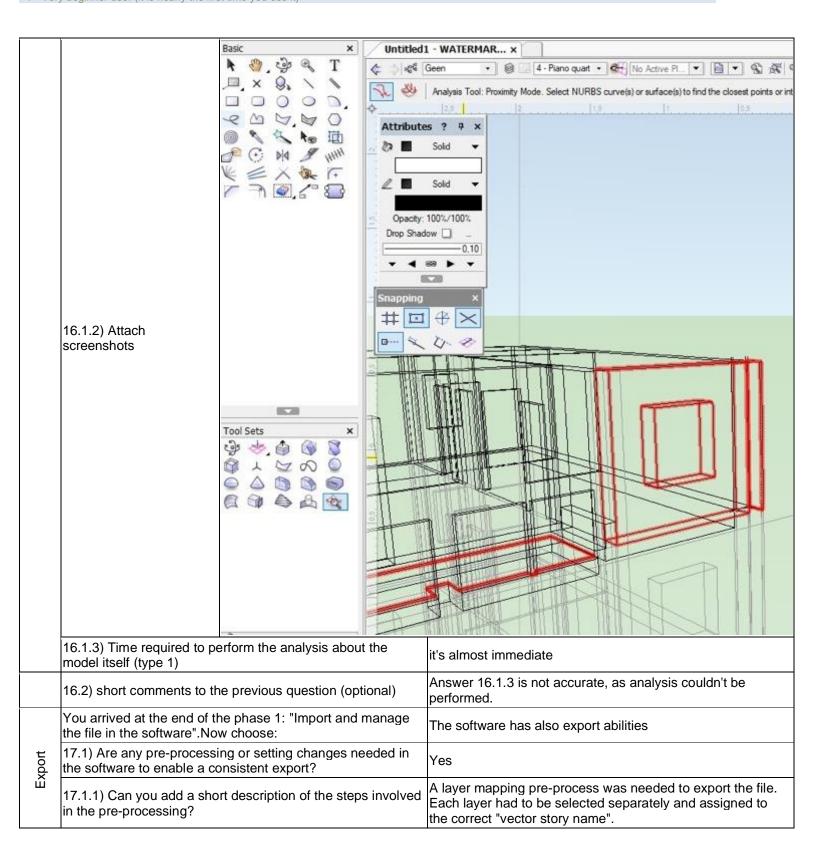
46.2) short comments to the Other	previous question (optional)	They are not all be readen. no other comments.
		no other comments.
		Not for all objects.
47.2) short comments to the		no other comments.
48.1) Is geometry read corre	ectly?	Yes
48.2) short comments to the	previous question (optional)	no comments.
49.1) Did the normals chang	je?	Yes
49.2) short comments to the	previous question (optional)	no comments.
50.1) Is it possible to view th	e model in 3D?	Yes
50.2) short comments to the	previous question (optional)	no comments.
51.1) Is it possible to view th	e model in 2D?	Yes
51.2) short comments to the	previous question (optional)	no comments.
		The software has also export abilities to IFC
55) How long does it take for	r the data to be exported to IFC?	it's almost immediate
55.1) Comment to the previous question (optional)		no comments.
55.2) Attach screenshots (optional)	Esperta FC Nume tile Config. attuelmente selezionata Versione FCI Progetti da esportare IE. Progetti d. Come si somofica an'imperatazione di espertazione)	MALISON/Desidep/DOTTORATO DI RICERCA C. Shippia. Modifica configurazione. Bisporte Amulio
4 4 4 5 5 5 YH 5 5	8.2) short comments to the 9.1) Did the normals changes. (9.2) short comments to the (0.1) Is it possible to view the (0.2) short comments to the (1.1) Is it possible to view the (1.2) short comments to the (1.2) short comments to the (1.2) short comments to the (1.3) short comments to the (1.4) short comments to the (1.5) How long does it take for (1.5) How long does it take for (1.5) Comment to the previous (1.5) Attach screenshots	9.1) Did the normals change? 9.2) short comments to the previous question (optional) 0.1) Is it possible to view the model in 3D? 0.2) short comments to the previous question (optional) 1.1) Is it possible to view the model in 2D? 1.2) short comments to the previous question (optional) 1.2) short comments to the phase 1: "Import and manage ne file in the software".Now choose: 1.5) How long does it take for the data to be exported to IFC? 1.5.1) Comment to the previous question (optional)

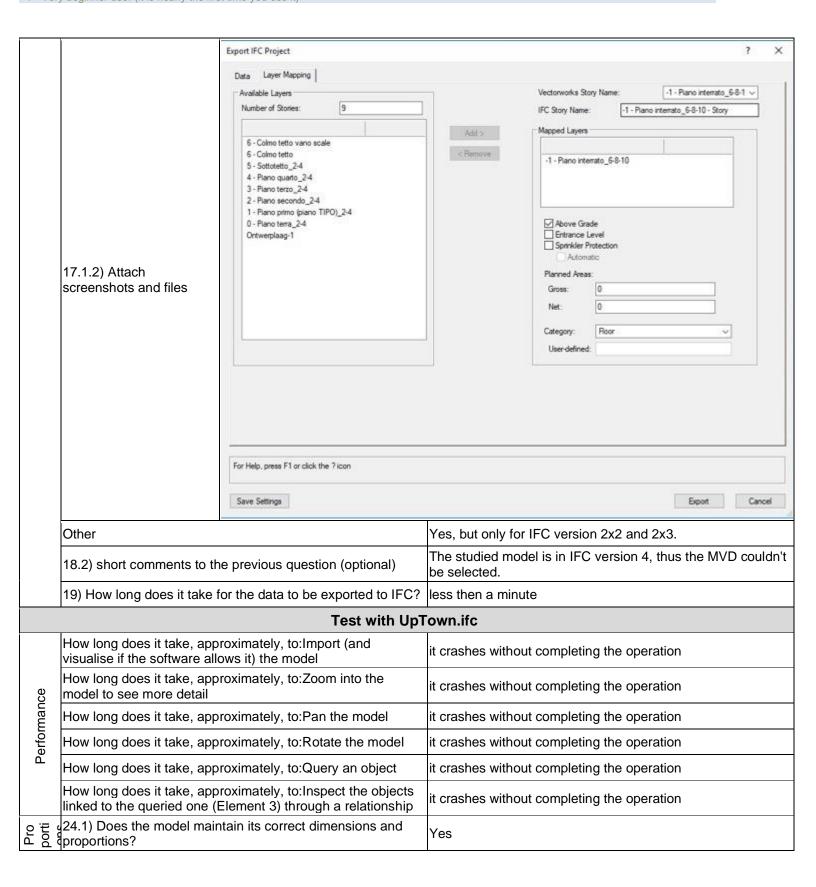
Vectorworks Designer 2019

Ire	Software Name [version] Vectorworks Designer 2019 [2019 SP2] Software				e house Software house						
Software	Proprietary or ope	en source softwa	re?	Kind of	Kind of software						
ŭ	proprietary BIM										
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space			
Computer	TURBOX 2017	Windows	Intel i7	NVIDIA GTX 960 M		16 GB DDR3	500 GB	216 GB			
Certification	IFC import certification status	Import certification date	Import certification program	IFC exp certificates status		Export certification date	Export certification program				
Certil	certified in (date)	2013-11-11	buildingSMART international	certified (date)	in	2013-11-11	buildingSMART international				
	(0.200)			with My	ran.ifc						
	How long does it visualise if the so		ely, to:Import (and he model		it's almost immediate						
nce	How long does it take, approximately, to:Zoom into the model to see more detail					it's almost immediate					
Performance	How long does it take, approximately, to:Pan the model					it's almost immediate					
erfo	How long does it take, approximately, to:Rotate the model					it's almost immediate					
	How long does it take, approximately, to:Query an object					st immediate					
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship					the software does not allow this					
cing	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?					Yes					
Georeferencing	2.2) short comments to the previous question (optional)					Georeferencing tool preserves the origin and orientation of the georeferenced data to match document coordinates					
Geore	Other					Height value is equal to zero, however information about the real-world reference system is not given. Relative elevations are provided for the stories of the building.					
tatio	4.1) Is the model oriented correctly with respect to the true North?				Yes						
Orientatio n	4.2) short comments to the previous question (optional)				if the ifc geometric representation context has been defined, then the model orientation can be changed.						
	5.1) Does the model maintain its correct dimensions and proportions?					Yes					
	6.1) Is the eventual translation consistent with the IFC definitions?					Yes					
Hier	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?					Yes					

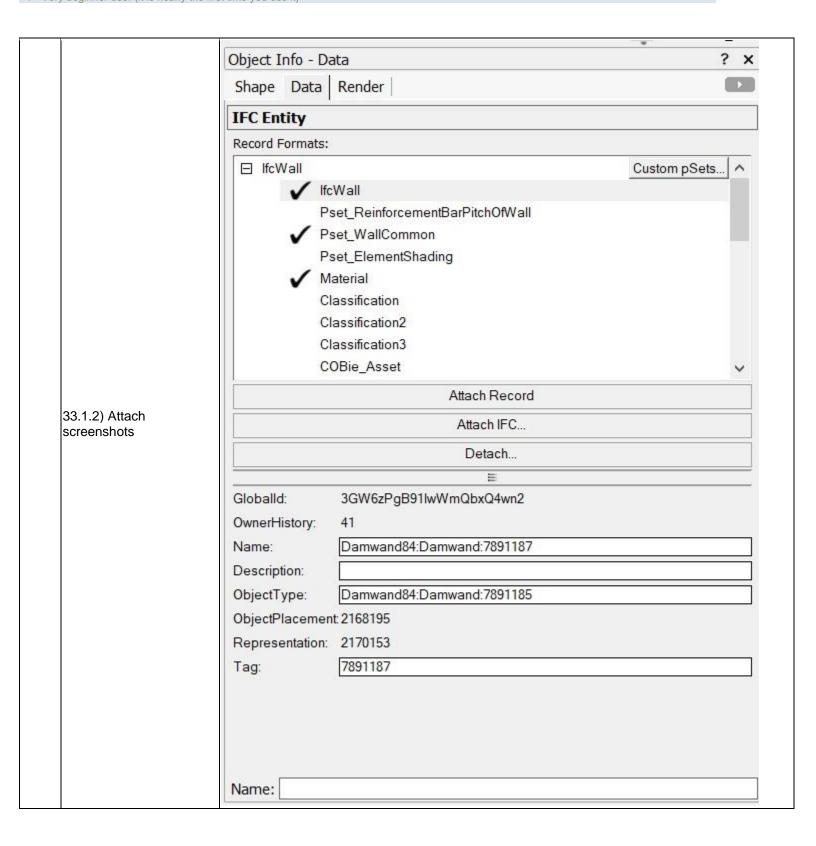
	8.1) Are the attributes present in the IFC entities retained and consistent?	Yes				
ত ত	9.1) Are the relationships between the objects retained?	Yes				
(D) (a)	10.1) Is geometry read correctly?	Yes				
Nor mal	11.1) Did the normals change?	The software does not have the necessary tools for checking it				
9	12.1) Is it possible to view the model in 3D?	Yes				
2D/3 D	13.1) Is it possible to view the model in 2D?	Yes				
	14.1) Is it possible to edit the model (attributes, geometry, other)?	Yes				
	14.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?	Attributes, geometry, scale, units and geo referencing				
Editing	14.1.2) Attach screenshots	Acob PC.				
. <u>.</u> _	15.1) Is it possible to query the model and the attributes?	Yes				
Queryi	15.1.1) What kinds of query are possible?	Attributes, geometry and entities can be queried.				



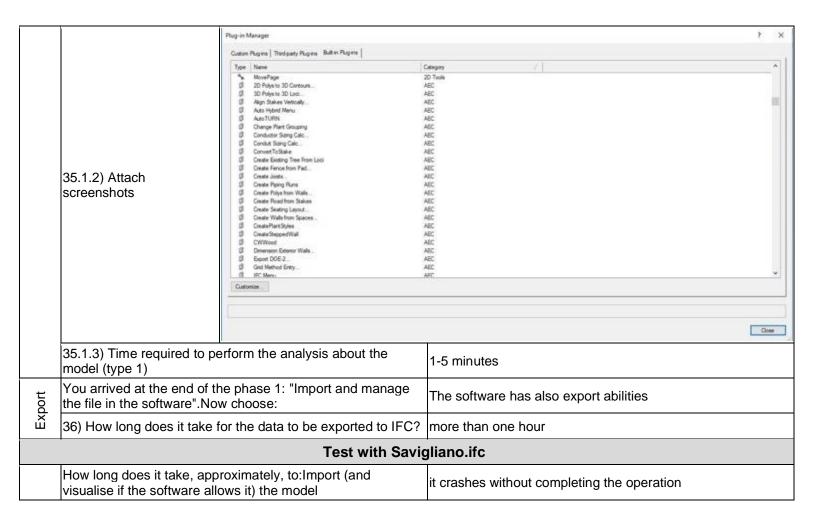




IFC defi	25.1) Is the eventual translation consistent with the IFC definitions?	Yes				
Hier	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes				
Attri bute	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes				
~ • ₹	28.1) Are the relationships between the objects retained?	Yes				
(J) (a) (29.1) Is geometry read correctly?	Yes				
8)	31.1) Is it possible to view the model in 3D?	Yes				
2D/3 D	32.1) Is it possible to view the model in 2D?	Yes				
	33.1) Is it possible to edit the model (attributes, geometry, other)?	Yes				
Editing	33.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?	Attributes, geometry, georeferencing can be edited. Attributes can be changed in the object info - data bar: for example, IFC entity name and type can be changed. A number of tools exist to modify object's geometry: add surfaces, scale etc. Projection plane, orientation of the model, CRS informations can be also changed.				



	34.1) Is it possible to	query the model and the attributes?	Yes Queries can be performed if the project is connected to a database. Generic selection and attribute retrieval can be done, class filtering is also possible.			
	34.1.1) What kinds of	query are possible?				
		IFC Data	7			
Quelynig	34.1.2) Attach screenshots	Eintry: Folkulding/Deneral Proxy GUID: Too/POOLXDPOIS ShyGenNh Counter IFC Eintry IFC Version: 2x3 Cityect Properties Data Sets for this object: Use IFC Entities/Peets V Ethickly Demonst Floory Peet Benners Shading Material Clemification Manage Custom Property Sets Properties for the selected Data Set: Property: Value Globalid Too/POOLXDPOIS ShyGenNh Owners History - 5- EcOuncer History -	Select			
n.	35.1) Is it possible to	For Help, press F1 or click the ? loon analyse the objects and the model?	Yes			
<u> </u>	, ,		Shadow analysis can be performed, selection by location			
Ai Idiyələ	35.1.1) What analysis results are reliable?	s are possible? Do you know if the	etc. A number of plugins is available for AEC categories. The reliability of the results couldn't be checked.			

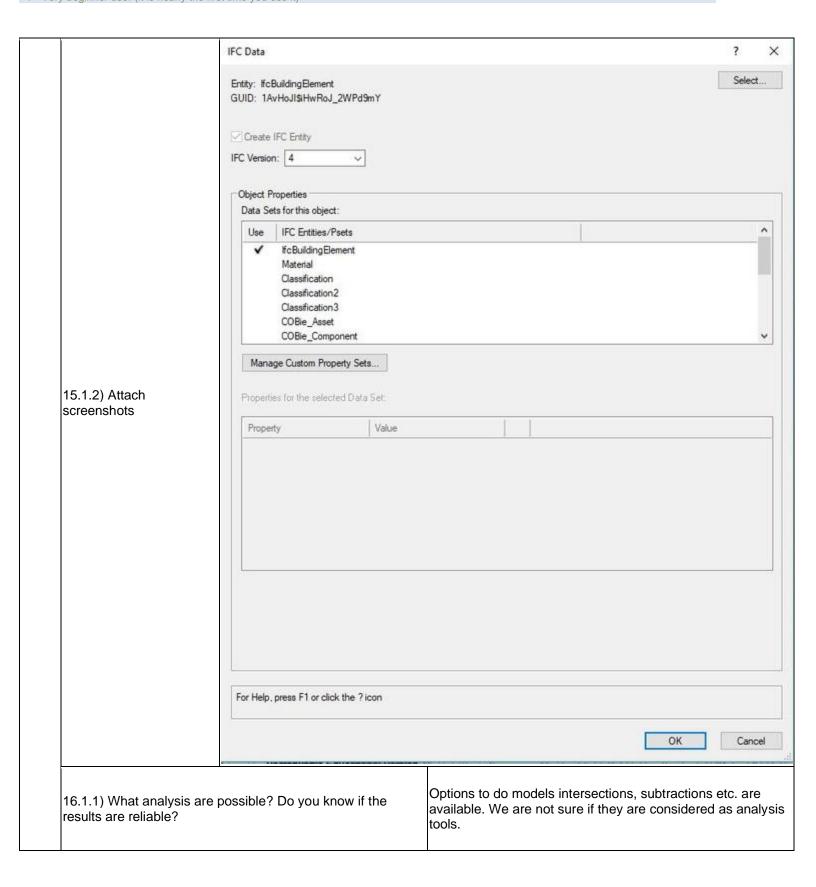


Vectorworks Designer 2019

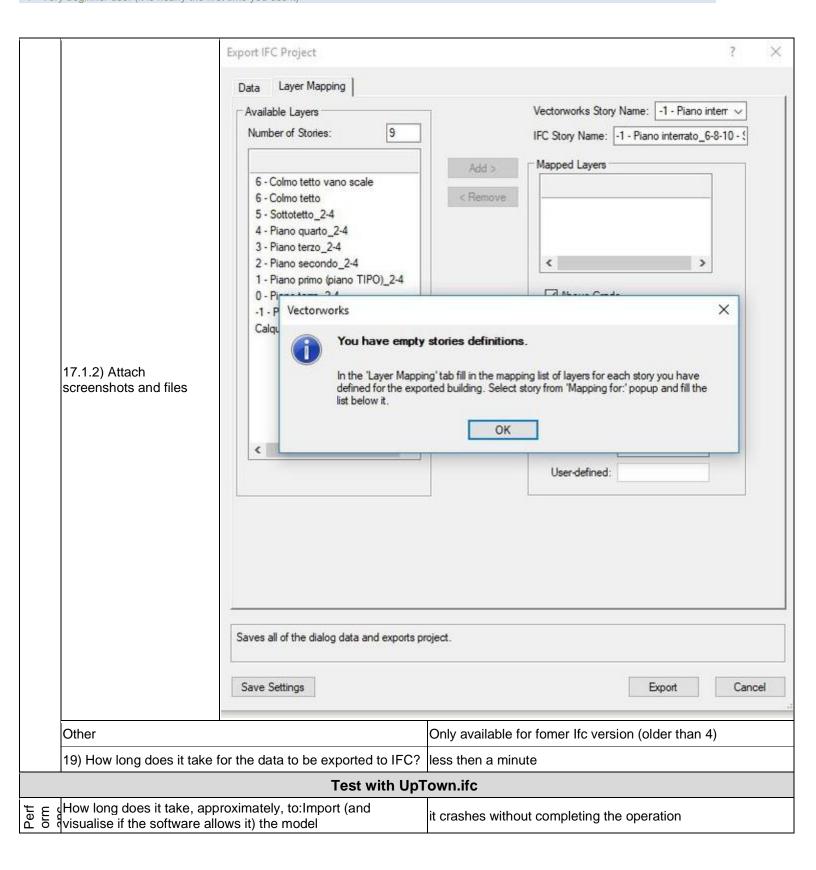
are	Software Name [version] Vectorworks Designer 2019 [2019 SP2 (Build 463397) (64-Bit)]			Software house Software house						
Software	Proprietary or open source software?				Kind of software					
	proprietary									
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space		
Computer	HP ZBook Studio G5	Microsoft Windows 10 Home	Intel(R) Core™ i7-8750	GPU N\ Quadro		16.00 GB	455.00 GB	280.00 GB		
Certification	IFC import certification status	Import certification date	Import certification program	IFC expectations and status		Export certification date	Export certification program			
Certi	certified in (date)	2013-11-11	buildingSMART International	certified (date)	in	2013-11-11	buildingSMART International			
			Test	with My	ran.ifc					
	How long does it visualise if the so	take, approximate ftware allows it) th			less then a minute					
99	How long does it take, approximately, to:Zoom into the model to see more detail					it's almost immediate				
Performance	How long does it take, approximately, to:Pan the model					it's almost immediate				
erfor	How long does it take, approximately, to:Rotate the model					it's almost immediate				
	How long does it take, approximately, to:Query an object					st immediate				
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship					the software does not allow this				
encing	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?					Yes				
Georeferencing	2.2) short comments to the previous question (optional)				The software adjusts origin and orientation of georeferenced data to match document coordinates by default. We don't know the actual origin coordinates, therefore we cannot check if they are correct					
Height	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?					Yes				
He	3.2) short comments to the previous question (optional)					Every layer has its own elevation value				
tion	4.1) Is the model oriented correctly with respect to the true North?				Yes					
Orientation	4.2) short comments to the previous question (optional)				The entity that describes the model orientation is the IfcGeometricRepresentationContext. It might be missing in our file, therefore no orientation entity was created					
	5.1) Does the mo proportions?	del maintain its co	orrect dimensions	No						

	5.1.1) How do the dimensions distorted?	change / how is	the model	A scale of 1:20 is applied by default						
				A L						
	10.70		Document Seti	1b		? ×				
			Units, Scale a	nd Grids						
		Layer Scale					? ×			
		Imperial			Metric/Engin	eering				
	No.	O 1/32"	O 1/2"	O 1" = 10'	O 1:1	O 1:10	O 1:200			
	11/1	O 1/16"	○3/4"	O 1" = 20"	O 1:2	1:20	O 1:500			
	100	O 1/8"	○1"	○ 1" = 30"	○ 1:4	O 1:25	O 1:1000			
		○3/16"	O 1-1/2"	O 1" = 40"	O 1:5	O 1:50	O 1:5000			
		○ 1/4"	○2"	○ 1" = 50°	O 1:8	O 1:100	O 1:10000			
	5.4.0) Attack	3/8"	○3"	O 1" = 100'						
	5.1.2) Attach screenshots	Enlargement =			Paper Scale					
		O2x	○ 6x	○ 20x	_	20	1			
		○3x	Ō8x	○ 50x			-			
		○ 4x	○ 10x	○ 100x	All Layers					
		○ 5x	○ 15x	○ 500x	☑ Scale Te	xt				
		For Help, press F1 or click the ?icon								
		For Help, press	F I or click the ! ice	on						
						OK	Cancel			
					200	22.1				
					ОК	Cancel				
		1-VI								
						-				
HE SE	6.1) Is the eventual translation definitions?	consistent with	the IFC	Yes						
Hier arch	7.1) Are the hierarchical relation hierarchy?	nt with the IFC	Yes							
Attri bute	8.1) Are the attributes present and consistent?	Yes								
Rel atio	9.1) Are the relationships betw	retained?	The software does not have the necessary tools to determine this information							
G e	(10.1) Is geometry read correct		Yes							

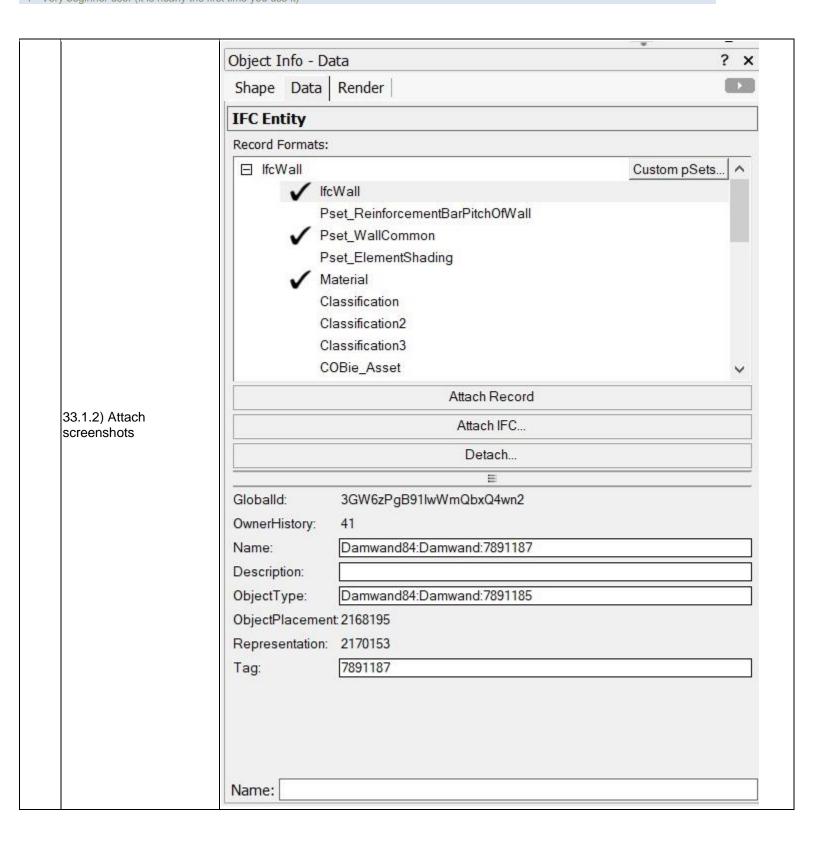
Nor mal	11.1) Did the normals cha	ange?		The software does not have the necessary tools for checking it			
2D/3 D	12.1) Is it possible to view	v the model in	3D?	Yes			
2D L	13.1) Is it possible to view	v the model in	2D?	Yes			
	14.1) Is it possible to edit other)?	the model (at	tributes, geometry,	Yes			
	14.1.1) What editing is pogeoreferencing, please ac	•	ites, geometry,	Attributes, geometry, reference system, scale, measuring units can be modified. Possibly, other attributes can also be modified (http://app-help.vectorworks.net/2019/eng/VW2019_Guide/IFC/Viewing_and_Editing_IFC_Data.htm)			
		Viewing and	d Editing IFC Data wit	th the IFC Data Command			
Editing		IFC Data	Architect: AEC Landmark: Landmark > Archite Spotlight: Spotlight > Archite				
	14.1.2) Attach screenshots	Select the Select the	SASSA SE SASSA	Multiple items can be selected; edits apply to all eligible objects in the selection.			
		If you have selected a group that contains objects with multiple lfcObjectTypes, the Choose IFC Type dialog box opens. Select the IF Type to apply to the group. Optionally, remove the IFC data from the contained objects.					
		 When the items to be edited have been specified if necessary, the IFC Data dialog box opens. View or edit the IFC data as described Assigning IFC Data to Objects. 					
		the data c	[1] [1] [1] [1] [1] [1] [1] [1] [1] [1]	log box displays the data attached to the entity as described in <u>Assigning IFC Data to Objects</u> ; g-in object is selected, the IFC Data dialog box displays the corresponding IFC Object type. At type of entity.			
. <u>.</u> _	15.1) Is it possible to que	ry the model a	and the attributes?	Yes			
Queryi ng	15.1.1) What kinds of que	ery are possibl	le?	You can query entities, geometries and attributes			

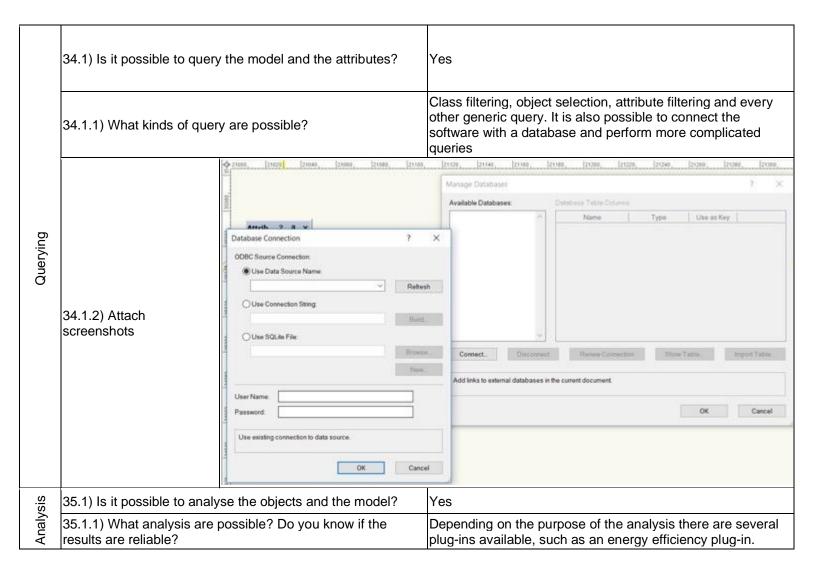


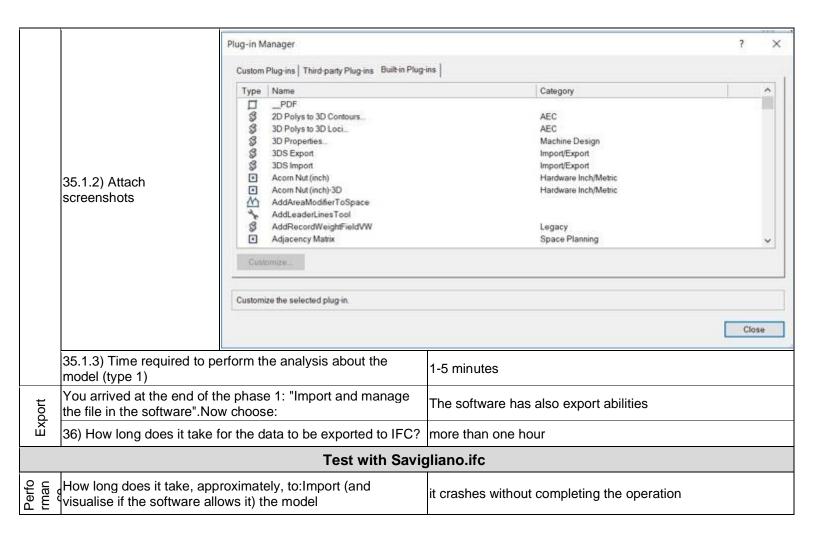
		Model	AEC	Tools	Text	Window	Clou
			Add Solid	s		Ctrl+Al	+A
	16.1.2) Attach screenshots		Subtract	Solids		Ctrl+A	t+S
			Intersect	Solids		Ctrl+A	t+I
			Section 9	Solids		Ctrl+Al	+T
			Extrude			Ct	l+E
			Multiple E	Extrude	·	Ctrl+A	t+E
			Extrude /	Along P	Path	Ctrl+A	t+X
			Tapered	Extrud	e	Ctrl+Al	t+U
			Sweep			Ctrl+Alt	+W
			Create Surface Array				
			Create Si	ubdivisi	on Primit	tive	
		:	3D Power Pack				•
			Create Image Prop				
			Create Animation				
			Engineeri	ing Pro	perties		
			Volumetr	ric Prop	erties		
			Point Clo	uds			•
	16.2) short commer	nts to the previ	evious question (optional)) We	didn'
	You arrived at the e		e phase 1: "Import and manage v choose:			nge The	softv
Export	17.1) Are any pre-p the software to enal				needed	d in Yes	}
Ш	17.1.1) Can you add in the pre-processing	d a short descr			eps invo	olved Sel	ection



_							
		How long does it take, approximately, to:Zoom into the model to see more detail	it crashes without completing the operation				
		How long does it take, approximately, to:Pan the model	it crashes without completing the operation				
		How long does it take, approximately, to:Rotate the model	it crashes without completing the operation				
		How long does it take, approximately, to:Query an object	it crashes without completing the operation				
		How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	it crashes without completing the operation				
Pro		24.1) Does the model maintain its correct dimensions and proportions?	Yes				
E	defi	25.1) Is the eventual translation consistent with the IFC definitions?	Yes				
Hier	arch	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes				
Attri	bute	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes				
2	<u> </u>	28.1) Are the relationships between the objects retained?	Yes				
	<u>></u>	29.1) Is geometry read correctly?	Yes				
	Geometry	Other	Surface normals can only be displayed for NURBS surfaces. Different visualisation methods didn't provide different colours for different faces directions				
ć	5/	31.1) Is it possible to view the model in 3D?	Yes				
Č	2D/3	32.1) Is it possible to view the model in 2D?	Yes				
	Editing	33.1) Is it possible to edit the model (attributes, geometry, other)?	Yes				
	E Gi	33.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?	Attributes, geometry, scale, georeference information, units				

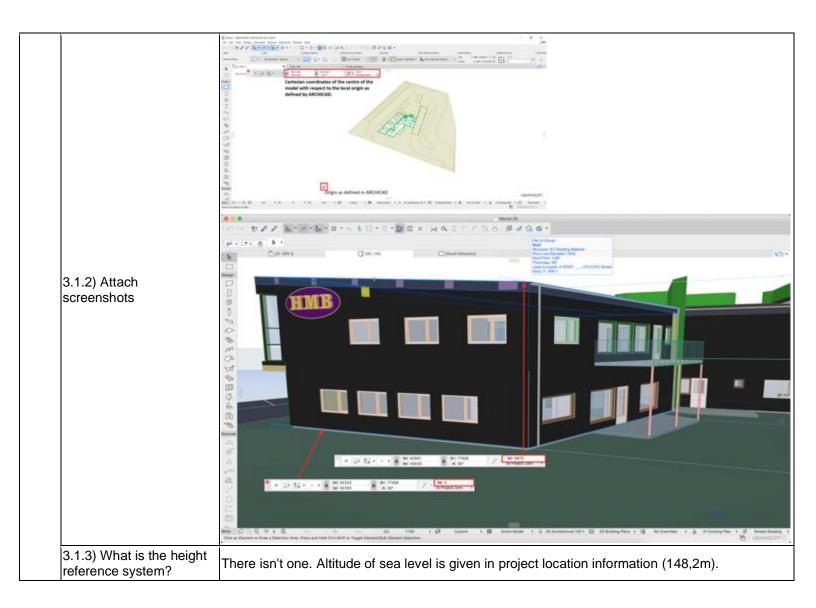


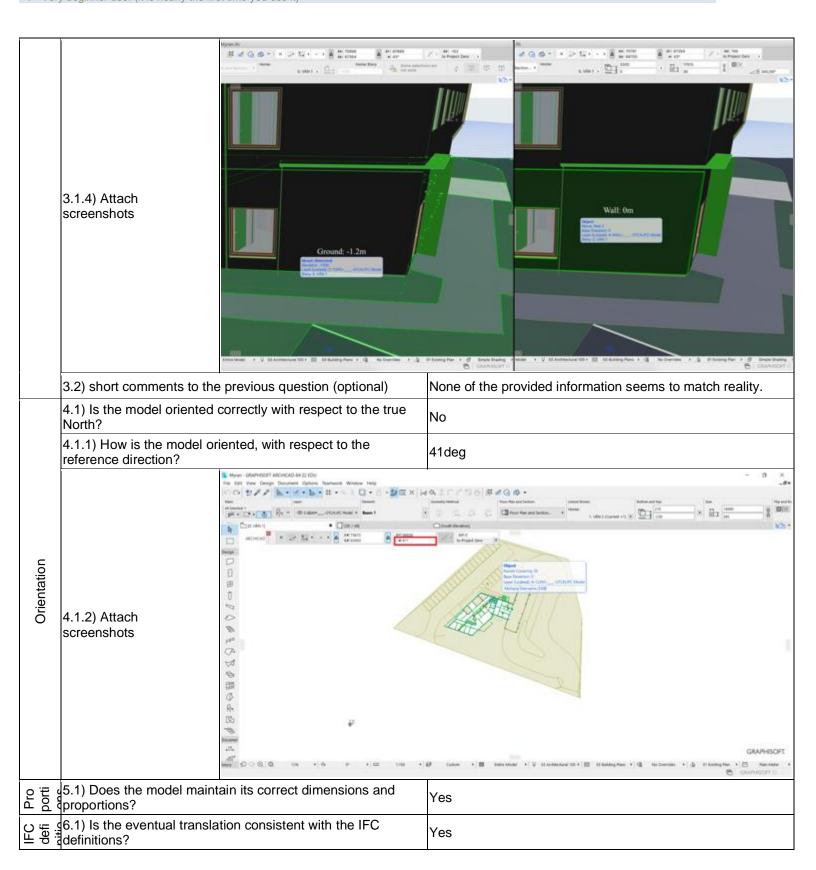




ArchiCAD

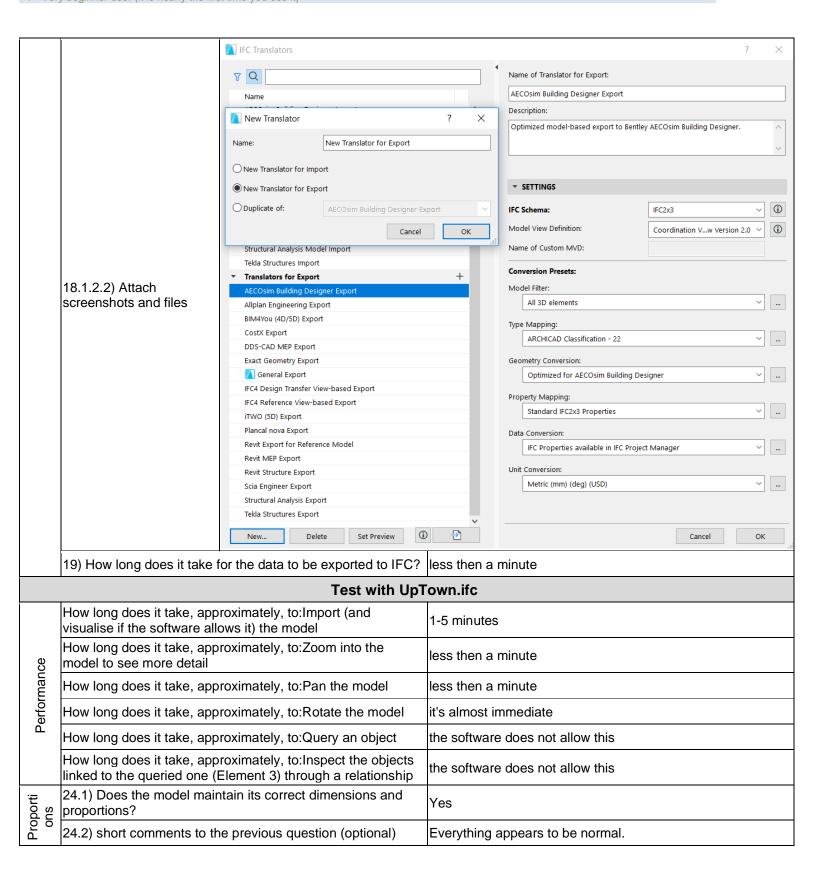
re	Software Name [version] ArchiCAD [ArchiCAD 22]			Software	oftware house Graphisoft				
Software	Proprietary or open source software?			Kind of	Kind of software				
ŭ	proprietary			ВІМ					
er	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	HP Pavilion Gaming Laptop 15-cx0400nd	Windows 10 Home (64-bit) - v10.0.17134 Build 17134	Intel i7-8750H @ 2.20GHz	NVIDIA GeForce GTX105		16	1000	887	
ion	IFC import certification status	Import certification date	Import certification program	IFC expectation of the control of th		Export certification date	Export certification program		
Certification	certified in (date)	2013-09-20	IFC Coordination View 2.0 Import (buildingSMART)	certified (date)	in	2013-04-16	IFC Coordination View 2.0 Import (buildingSMAR T)		
			Test	with My	lyran.ifc				
		take, approximate ftware allows it) th			less then a minute				
e e	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate				
Performance	How long does it take, approximately, to:Pan the model				it's almost immediate				
erfor	How long does it take, approximately, to:Rotate the model				it's almost immediate				
₫.	How long does it take, approximately, to:Query an object				the software does not allow this				
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship				the software does not allow this				
cing		model in the soft	dinates taken into a ware's coordinate	account	The software does not have the necessary tools to check this information				
Georeferencing	2.2) short comments to the previous question (optional)				It just imports it without any further options. There is a coordinate tool, but this is linked to a local Cartesian reference system. We can see the project location in LON/LAT, but in the model view itself there seems to be no reference to this.				
jht		-world" elevation v	values (heights) el in the software (z)?	No				
Height	3.1.1) What is the elevation value of the origin of the model coordinate reference system as imported in the software?				0 metre. The bottom elements of the model are moved to 0m.				



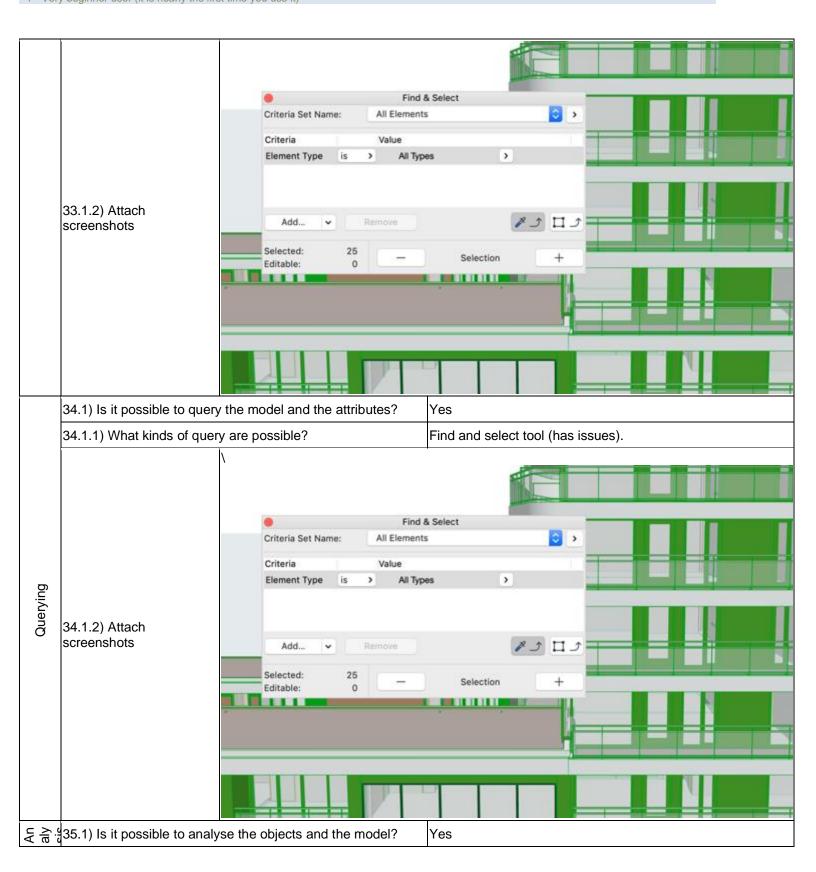


	- 1) 1				
ırchy	7.1) Are the hierarchical r hierarchy?	elationships consistent with the IFC	Yes		
Hierarchy			We manually checked a few elements by using the available IFC project manager in ARCHICAD.		
Attribut	8.1) Are the attributes preand consistent?	esent in the IFC entities retained	Yes		
Ą	8.2) short comments to the	e previous question (optional)	Difficult to check in the software.		
io S	9.1) Are the relationships	between the objects retained?	Yes		
Relatio nships	9.2) short comments to the	e previous question (optional)	When looking at an element, a door or window says that it is part of a wall.		
Nor mals	11.1) Did the normals cha	ange?	Yes		
Nor	11.2) short comments to	the previous question (optional)	The same face in different directions has different colours.		
3D	12.1) Is it possible to view	the model in 3D?	Yes		
	12.2) short comments to	the previous question (optional)	Easily accessible through a tab at the top.		
2D/3D	13.1) Is it possible to view	the model in 2D?	Yes		
	13.2) short comments to	the previous question (optional)	Same as for 3D.		
	14.1) Is it possible to edit other)?	the model (attributes, geometry,	Yes		
	14.1.1) What editing is pogeoreferencing, please as	ossible (attributes, geometry, dd details)?	Attributes, georeferencing, morphing tool to perform operations on geometries.		
Editing	14.1.2) Attach screenshots	The East View Concept Consumer Opinion Represent Window Party The Consumer	### Cance * ## Separations Description D		
	Other		Find and Select tool		
<u>iS</u>	16.1) Is it possible to ana	lyse the objects and the model?	Yes		
Analysi s	16.1.1) What analysis are possible? Do you know if the results are reliable?		It is possible to create a sun study, an energy evaluation (climate data, environment costs) is also possible.		

		S Germa - GRAPHICOT	T ANDHICAD-NA 22 EDN		-				
		for Edit View Design	Document Options Startwork W		4.404.00.00.00.00.00	Thergy Evaluation	12	The Energy Model Review	
		00 5/1	Discurrenting Tools	. 9 - MIL H	40/			Operation Profiles	
		Total Server	Lights Till Floor Ram Spain.	1 S - D - D	- Management			D- Optimion Figures	
			The Section Display.	M 1967 Feb. 144	Continue			△ Environment Settings	
		P Ch name on	Per Ses		Littorina			村 Climate Data	
		T MOKROSA	Model View Gogitte Overrides					Physician description (
		Seage	Amounton					# Building Systems	
			Bu Floor Han Cut Plane.					Energy Source Factors	
	16.1.2) Attach	B	of Markon Tools					% Energy Costs	
	screenshots	田	Carge Wanager					V	
		0	Coaline Imaging	(I) Protegorde Pojecti	lot			(Thermal Bridge Simulation	
		0	Schedules	A SE TOWN TOWNS THE				A Faces Simulation Octions	
		0	Listing Estrasi	And the beautiful	or met later			Energy Simulation Options	
		10	Project Indicate.	PhytoRendering Settl Apply Render Settl (In					
		Part I	Drawings	· Contract forms					
		OA.	$\overline{\mathbb{Q}}_{2}$ Save Vans and Place on Layout	Alls 17 Align 3D Tenture					
		420	(S) Palin.	ck Cook by though.					
		0		50 Ceals See Study					
		File		Q1 Algr Nex.					
	16.1.3) Time required to p	erform the	analysis aho	out the					
			analysis abo	out the	less then	a minute			
	model itself (type 1)								
					You can immediately show the results or save them as a				
					- I				
	16.2) short comments to the previous question (optional)			ptional)	video. Experiment conducted at default settings for the				
					sunstudy.				
	Valuerriyad at the and af	the phase	1. "Import on	d managa	-				
	You arrived at the end of			u manage	The software has also export abilities				
	the file in the software".No	ow choose	:		The software has also export abilities				
	17 1) 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2								
	17.1) Are any pre-process			needed in	No				
	the software to enable a c	consistent (export?						
	10 1) la it manaible to abou	222 th 2 IEC		dofinition.					
	18.1) Is it possible to choo			definition	Yes				
	(MVD) to be used when e	xporting th	ne data?		100				
		<u> </u>			Coordinat	tion View IEC 2v2		stion View (Conford	
Export								ation View (Surface	
<u>ĕ</u>	40 4 4) \\/\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	٥ - ا - ا - ا			Geometry	/), IFC 2x3 Basic Fl	M Hando	over View, Concept	
lŵ	18.1.1) Which ones are a	valiable?			Design RI	M 2010 and more	available	e under the translator	
					_		availabil	c dilder the translator	
					option in t	the export.			
	18.1.2) Is it possible to ad	ld a custon	nised MVD to	he used					
		ia a custon	inised ivivid it	be useu	Yes				
1	for exporting IFC?								
					Soveral	spects of the difference	ont M//D	translatore can be	
	40 4 0 4 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4							liansialuis can be	
	18.1.2.1) What kind of cus	stomisatior	n is possible?	1	customize	ed.			
					Complete	ly new ones can be	e made a	ıs well.	
					- Cp.oto	., onoo can be			



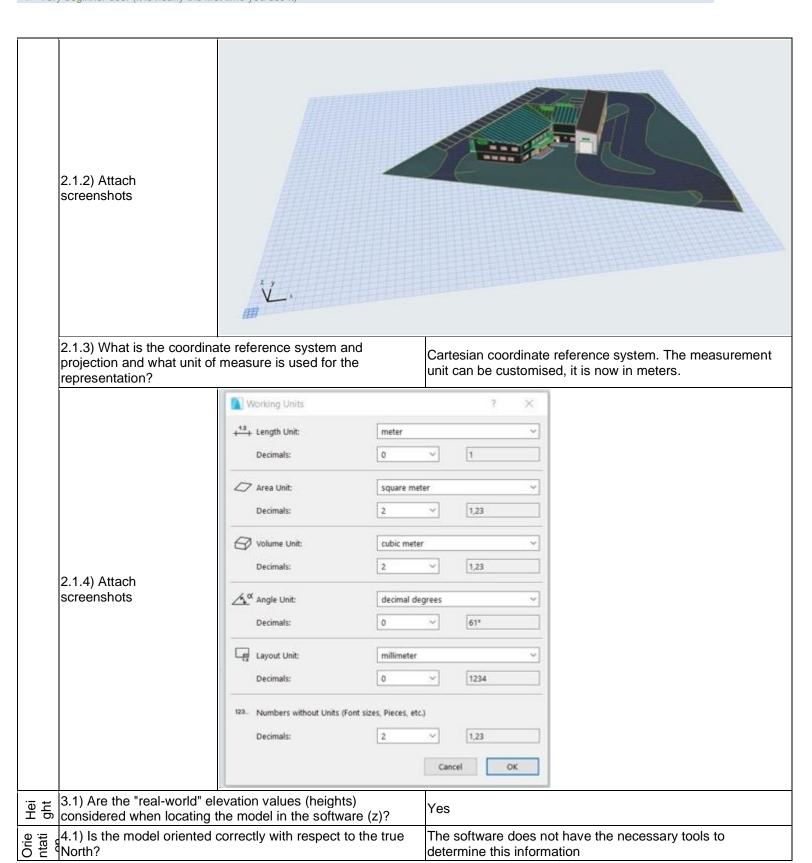
SUC	25.1) Is the eventual translation consistent with the IFC definitions?	Yes
IFC definitions	25.2) short comments to the previous question (optional)	We tested this manually by selecting an element (for example: Wall:21_WA_KLA_storax_rooster_41mm_2270:3225692 in ARCHICAD) and by looking up this same element in the original .ifc.
rchy	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes
Hierarchy	26.2) short comments to the previous question (optional)	We manually checked a few elements by using the available IFC project manager in ARCHICAD.
Attribut	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes
Att	27.2) short comments to the previous question (optional)	Difficult to check in the software.
모 e t	28.1) Are the relationships between the objects retained?	Yes
<u>></u>	29.1) Is geometry read correctly?	Yes
Geometry	29.2) short comments to the previous question (optional)	It is possible to check whether a morph is solid or not. This can be done under the design > modify morph > check solidity option. This process in not intuitive.
a	30.1) Did the normals change?	Yes
Normal s	30.2) short comments to the previous question (optional)	We can see changes in colour of the same surface from different directions. Gradual shadow transition looks realistic.
	31.1) Is it possible to view the model in 3D?	Yes
3D	31.2) short comments to the previous question (optional)	Via the tabs at the top you can switch between views.
2D/3D	32.1) Is it possible to view the model in 2D?	Yes
	32.2) short comments to the previous question (optional)	Same as previous question about 3D.
	33.1) Is it possible to edit the model (attributes, geometry, other)?	Yes
Editing	33.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?	Changing attributes is possible, as is editing of both the local reference system of the model as the global referencing of the project. Morph objects can be solidified. Trimming and splitting operations on the geometry are also possible.



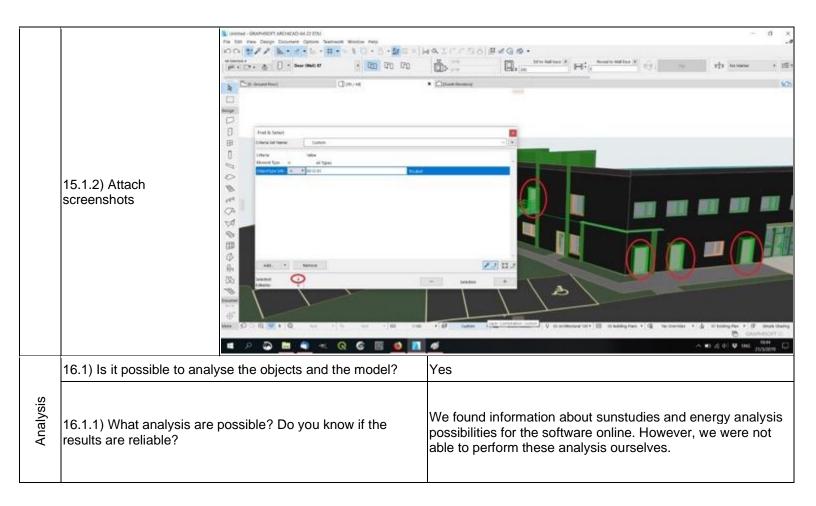
	35.1.1) What analysis are possible? Do you know if the results are reliable?	also possible. Analysis accuracy d requires thermalblocks to properly	epends on your in study energy usa	uation (climate data, environment costs) is nput model. For example, energy model age. If the placement of these blocks is done lts in a negative way. The exact accuracy				
		Environment Settings						
		Location and Climate:						
		51° 54' 58° N, 4° 29' 13° E	Project Location	Wind protection				
		Climate source: NLD_Amsterdam.06240	Climate Data					
		Grade Level:	to Project Zero >	NW				
		Modeled by Mesh Elements						
		Surface Heat Transfer						
		Soil Type:	Gravel 0	w				
		Thermal Conductivity 1,400	W/mK					
		Density 2200,00	kg/m³					
	35.1.2) Attach	Heat Capacity 1900,00	J/kgK					
	screenshots	Surroundings:	Garden 0					
		Ground reflectance	20 %	SW				
		Wind Protection	_	5				
		Horizontal Shading		Orientation Wind Protection				
				North L Partly protected				
			Cancel OK	NorthEast 1 Partly protected				
			H	East 1 Partly protected SouthEast 1 Partly protected				
				South Partly protected				
				SouthWest 1 Partly protected				
				West L Partly protected				
				NorthWest L Partly protected				
				Cancel				
				Cancer				
	35.1.3) Time required to pe	erform the analysis about the						
	model (type 1)	,	1-5 minutes					
			There are many	analysis options, too many to all list here.				
	25 0) also et a companyo de de	iona diamenti		a wind analysis is shown in the provided				
	(35.2) short comments to tr	ne previous question (optional)		ran the timing on the sun study again for				
			comparison reas	sons with the other datasets.				
ort	You arrived at the end of the file in the software".No	he phase 1: "Import and manage w choose:	The software has also export abilities					
\simeq		for the data to be exported to IFC?	more than one h	nour				
Ή	36.1) Comments to the pre	•	Really big file	1001				
	os. 1) Comments to the pre	,	•					
		Test with Savi	ynano.ne					
	How long does it take, app visualise if the software all		it crashes withou	ut completing the operation				
	•		•					

Archicad

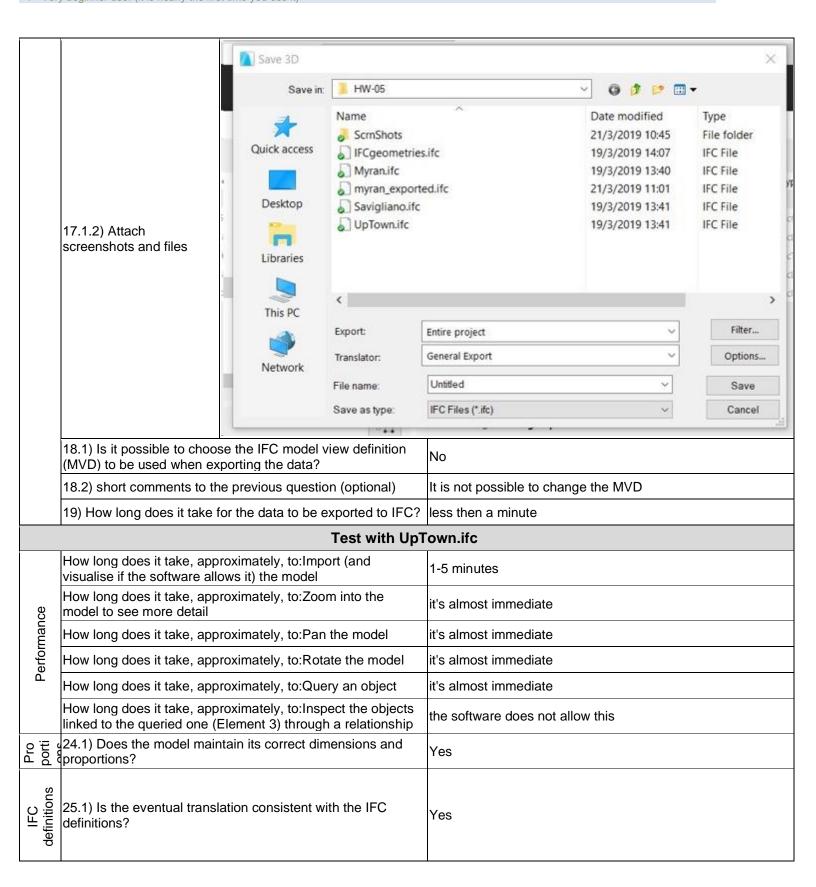
ē	Software Name [version]	Archicad 122 II III		Software	Software house Graphicsoft				
Software	Proprietary or ope	Proprietary or open source software?			Kind of software				
Ň	proprietary								
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	HP zbook studio G5 2018	Windows 10	Intel I7-8750H	NVIDIA Quadro-	·p1000	16	512	90	
Certification	IFC import certification status	Import certification date	Import certification program	IFC export certification status		Export certification date	Export certification program		
Certif	certified in (date)	2013-09-20	CV2.0	certified (date)	in	2013-04-16	CV2.0-Arch		
			Test	with My	ran.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				less then a minute				
99	How long does it take, approximately, to:Zoom into the model to see more detail			it's almost immediate					
Performance	How long does it take, approximately, to:Pan the model				it's almost immediate				
erfor	How long does it take, approximately, to:Rotate the model				it's almost immediate				
۵	How long does it	take, approximate	ely, to:Query an ob	ject	the software does not allow this				
	How long does it linked to the quer		ely, to:Inspect the or relationship	objects	the software does not allow this				
eferenci ng	M I '			No					
Geore				It is arbitrarily set by the software itself and remains fixed for the whole life of the project (unless you relocate it)					



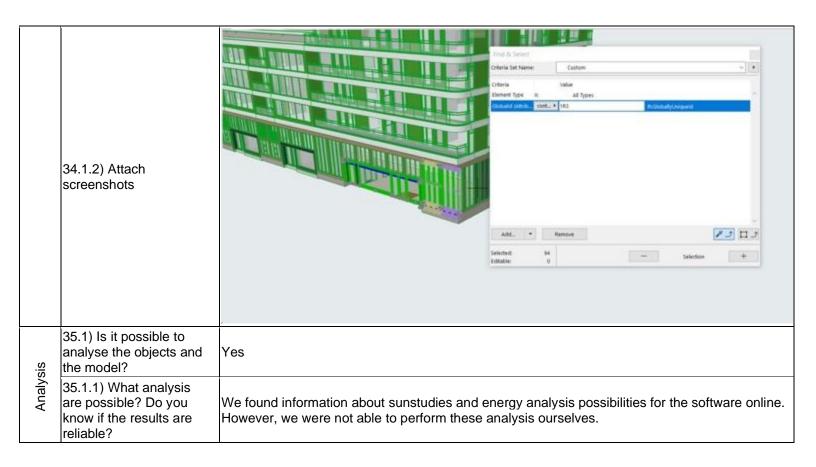
		ain its correct dimensions and	Yes		
O ≔ .9	proportions? 6.1) Is the eventual transladefinitions?	ation consistent with the IFC	Yes		
		elationships consistent with the IFC	Yes		
Hierarchy	7.2) short comments to the	e previous question (optional)	It is difficult to find out, however IFC classes are present from which the information can be extracted		
	8.1) Are the attributes presand consistent?	sent in the IFC entities retained	Yes		
ship	9.1) Are the relationships I	petween the objects retained?	The software does not have the necessary tools to determine this information		
Re	· 	e previous question (optional)	This is very difficult to check as it is very difficult to define relationships objects have documented before loading them into the software		
Geo	10.1) Is geometry read cor	rectly?	Yes		
ŎĔ1	Other		Unclear question. Same colour for different faces directions		
2D/3 D	12.1) Is it possible to view	the model in 3D?	Yes		
2D	13.1) Is it possible to view	the model in 2D?	Yes		
	14.1) Is it possible to edit to other)?	he model (attributes, geometry,	Yes		
	14.1.1) What editing is pos georeferencing, please ad	ssible (attributes, geometry, details)?	You can alter attribute values, but not geometries		
Editing	14.1.2) Attach screenshots	The field View Choight Districtor Options Transmiss Window Right C C T P P P P P P P P P P P P P P P P P	# Comment of the control of the con		
	15.1) Is it possible to query the model and the attributes?	Yes			
Que	15.1.1) What kinds of query are possible?	Attribute and spatial queries (clicking	ng on elements)		

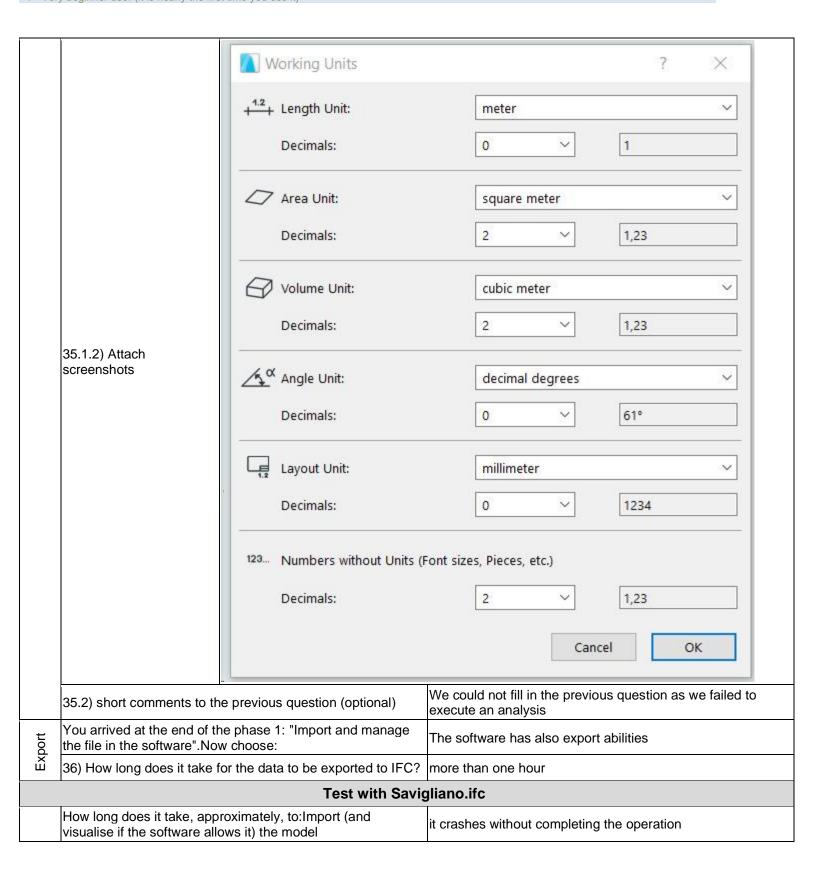


	16.1.2) Attach screenshots	ARCHICAD Energy Eva https://www.youtube.com/watch 22 jun. 2012 ArchiCAD 325 obtained by 04. ArchiCAD 16 Site An. https://www.youtube.com/watch 25 jul. 2013 ArchiCAD 325 oTENBuildi ARCHICAD Energy Eva https://www.youtube.com/watch 2 mei 2012 ArchiCAD 325 oTENBuildi ARCHICAD 5 mei 2012 A	luation - Run Energy Simulation and Review ??v=qfgDshrwET8 ▼ Vertaal deze pagina ? - Geüpload door ARCHICAD 16 New Features - Energy Evaluation Run Energy input data are meanings of alysis - YouTube ??v=QPaelLSrce€ ▼ Vertaal deze pagina - Geüpload door OTENBuildingCourses 16 Site Analysis 04. ArchiCAD 16 Site Analysis. ngCourses. Loading luation - Working with Zones - YouTube ??v=ntg0fFJc4r8 ▼ Vertaal deze pagina - Geüpload door ARCHICAD 16 New Features - Energy Evaluation Working with Zones FT continues to innovate in hiCAD - YouTube ??v=W5Cw1oxyaNI - Vertaal deze pagina - Geüpload door four5isx explaining how to create a sun study in ArchiCAD.
	16.2) short comments to th		As described before, we did not succeed in doing the analysis.
	the life in the software .now choose:		The software has also export abilities
Export	17.1) Are any pre-processi the software to enable a co	ng or setting changes needed in onsistent export?	Yes
	17.1.1) Can you add a sho in the pre-processing?	rt description of the steps involved	The extent of the project to be exported needs to be specified together with the translator.



	26.1) Are the hierarchical IFC hierarchy?	relationships consistent with the	Yes
	27.1) Are the attributes preand consistent?	esent in the IFC entities retained	Yes
Relationships	28.1) Are the relationships	s between the objects retained?	The software does not have the necessary tools to determine this information
E >	29.1) Is geometry read con	rrectly?	Yes
Geom	Other		unclear question: same colour for different faces directions
3D	31.1) Is it possible to view	the model in 3D?	Yes
2D/3D	32.1) Is it possible to view	the model in 2D?	Yes
	33.1) Is it possible to edit to other)?	the model (attributes, geometry,	Yes
	33.1.1) What editing is pos georeferencing, please ad	ssible (attributes, geometry, d details)?	You can alter attribute values, but not geometries
	33.1.2) Attach screenshots	The first Vice Chegin Discover Discover Seathwork Wildows ready In the Seath of Chegin Seathwork Ready ready In the Seath of Chegin Seathwork Ready ready In the Seath of Chegin Seathwork Ready ready In the Seath of Chegin Seath of Che	Section forms of the final of
Querying	34.1) Is it possible to query the model and the attributes?	Yes	
Que	34.1.1) What kinds of query are possible?	Attribute and spatial queries (clicki	ing on elements)





Graphisoft ArchiCAD 21 – Windows 10

Proprietary

BIM

1 - Very beginner user (it is nearly the first time you use it)

ArchiCAD

<u>re</u>	Software Name [version] ArchiCAD [ArchiCAD 21]			Software	ftware house Graphisoft					
Software	Proprietary or open source software?			Kind of	Kind of software					
ŭ	proprietary			BIM						
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space		
Computer	Asus VivoBook Pro N552VW- FY217T 2016	Windows 10 64X	Intel Core i7- 6700HQ	GeForce 960M	e GTX	8	256	56		
	IFC import certification status	Import certification date	Import certification program	IFC exponential certification status		Export certification date	Export certification program			
Certification	certified in (date)	2013-03-12	IFC Coordination View 2.0 (Certification 2.0) and the buildingSMART alliance 2013 COBie Challenge	certified (date)	in	2013-03-12	IFC Coordination View 2.0 (Certification 2.0) and the buildingSMART alliance 2013 COBie Challenge			
			Test	with My	yran.ifc					
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model					1-5 minutes				
Performance	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate					
rma	_		ely, to:Pan the mod		it's almost immediate					
erfc	_		ely, to:Rotate the n		it's almost immediate					
"	How long does it take, approximately, to:Query an object How long does it take, approximately, to:Inspect the objects				it's almost immediate					
	linked to the quer			objects	it's almost immediate					
Georef erenci		model in the soft	dinates taken into a ware's coordinate	account	Yes					
Hei	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?			Yes						
Orie ntati	4.1) Is the model oriented correctly with respect to the true North?			Yes						
	(5.1) Does the model maintain its correct dimensions and aproportions?			Yes						
IFC defi	6.1) Is the eventudefinitions?	al translation con	sistent with the IFC		Yes					

Hier	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes
	8.1) Are the attributes present in the IFC entities retained and consistent?	Yes
ट च र	9.1) Are the relationships between the objects retained?	Yes
	10.1) Is geometry read correctly?	Yes
Geometry	10.2) short comments to the previous question (optional)	The software doesn't explicitly show this information. However, with visual inspection and adding and removing elements, I didn't find any reason to expect that the geometry was not read correctly.
. 73	12.1) Is it possible to view the model in 3D?	Yes
2D/3 D	13.1) Is it possible to view the model in 2D?	Yes
Editi	14.1) Is it possible to edit the model (attributes, geometry, other)?	No
	15.1) Is it possible to query the model and the attributes?	Yes
	15.1.1) What kinds of query are possible?	\- selecting all walls (and then hiding them or show them collectively). this can also be done to all other elements (slabs, stairs, windows and so on) querying for an element based on its IFC id. then the attributes of the elements can be viewed.
Querying	15.1.2) Attach screenshots	

	,	e previous question (optional)	Note; Archicad is software used mostly by designers. Hence querying is not the main priority (unlike navigating for example). therefore there is no specific querying tool in ArchiCAD. instead, there are multiple ways to query and these ways are integrated within the different tools, and I don't believe I checked all of them.		
		se the objects and the model?	No		
	16.1.1) What analysis are presults are reliable?	oossible? Do you know if the	I couldn't perform any of the analysis that I am aware of.		
Analysis	16.1.2) Attach screenshots	Structure is currently relected. To each Properties Structure is currently relected. To each Properties Structure from the list above.	ESSORS Project document overlain early valid Thermal Block. WARNINGS		
	16.2) short comments to the	e previous question (optional)	It would be helpful if you give some examples of the expected analysis. then I can try to perform these analyses		
	You arrived at the end of th the file in the software".Nov	e phase 1: "Import and manage v choose:	The software has also export abilities		
	17.1) Are any pre-procession the software to enable a co	ng or setting changes needed in nsistent export?	No		
Ħ	18.1) Is it possible to choos (MVD) to be used when ex	e the IFC model view definition porting the data?	Yes		
Export	18.1.2) Is it possible to add for exporting IFC?	a customised MVD to be used	Yes		
	18.1.2.1) What kind of cust	omisation is possible?	additional filtiring for the element classes		
	19) How long does it take fo	or the data to be exported to IFC?	less then a minute		
		Test with UpT	own.ifc		
ırma	How long does it take, approvisualise if the software allo		5-20 minutes		
Performa nce	How long does it take, appropriet and to see more detail	roximately, to:Zoom into the	it's almost immediate		

		, approximately, to:Pan the model	it's almost immediate			
		, approximately, to:Rotate the model	it's almost immediate			
		, approximately, to:Inspect the objects one (Element 3) through a relationship	the software does not allow this			
	Please report on any importing the file.	errors the software gives when	Elements have been created and/or have changed their position on currently unseen stories			
	24.1) Does the model proportions?	maintain its correct dimensions and	Yes			
	25.1) Is the eventual t definitions?	ranslation consistent with the IFC	No			
	25.1.1) What changes issues were noted?	s / inconsistencies / errors / other	The software was able to read and visualize all classes correctly. However, it was not able to correctly define each class; for example, a stair is presented correctly but does not have the definition and attributes of a stair.			
IFC definitions	25.1.2) Attach screenshots	The state of the s	Management of the control of the con			
Hier arch	26.1) Are the hierarch IFC hierarchy?	ical relationships consistent with the	The software does not have the necessary tools to determine this information			
		s present in the IFC entities retained	No			
Attributes	27.1.1) What changes issues were noted?	s / inconsistencies / errors / other	some objects are not recognized correctly in terms of attributes and semantics			
⋖	27.1.2) Attach screen:	shots	See 25.1.2			
Rel atio	28.1) Are the relations	ships between the objects retained?	The software does not have the necessary tools to determine this information			
O 0	29.1) Is geometry rea	d correctly?	Yes			
	30.1) Did the normals		No			
~	31.1) Is it possible to	view the model in 3D?	Yes			
٤٠)			Yes			
2D/3 D	32.1) Is it possible to	view the model in 2D?	Yes			

t	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities to IFC		
Export	36) How long does it take for the data to be exported to IFC?	20 minutes-1 hour		
Û	36.1) Comments to the previous question (optional)	Some elements could not be exported due to missing geometry		
	Test with Savig	viliana ifa		
	rest with Savig	gnano.ne		
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	less than a minute		
	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate		
ce	How long does it take, approximately, to:Pan the model	it's almost immediate		
Performance	How long does it take, approximately, to:Rotate the model	it's almost immediate		
erfor	How long does it take, approximately, to:Query an object	the software does not allow this		
ď	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	the software does not allow this		
	38) Please report on any errors the software gives when importing the file.	inconsistency found during IFC file read operation / Some elements could not be imported during to missing or incorrect geometry		
	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	Yes		
Hei	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	Yes		
Orie ntati	42.1) Is the model oriented correctly with respect to the true North?	Yes		
	43.1) Does the model maintain its correct dimensions and proportions?	Yes		
IFC definitions	44.1) Is the eventual translation consistent with the IFC definitions?	No		
IF defini	44.1.1) What changes / inconsistencies / errors / other issues were noted?	Some classes/layers are missing, most notably are the roofs and windows		

Graphisoft ArchiCAD 21 – Windows 10

Proprietary

BIM

1 - Very beginner user (it is nearly the first time you use it)

	44.1.2) Attach screenshots				
	Other	if an entity is not missing then its at	ttributes are retained		
Rel atio	47.1) Are the relationships	between the objects retained?	The software does not have the necessary tools to determine this information		
Export	You arrived at the end of t the file in the software".No	he phase 1: "Import and manage w choose:	The software has also export abilities to IFC		
Ш	55) How long does it take for the data to be exported to IFC?		less than a minute		

Proprietary
Other
1 - Very beginner user (it is nearly the first time you use it)

Dlubal RFEM

ē	Software Name [version] RFEM [5.12]			Software house Dlubal						
Software	Proprietary or open source software?			Kind of software						
ŭ	proprietary			Other (fi	nite elem	nent analysis softv	vare)			
Computer	Model and year	Operating system		CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 7 Home 64-l		Intel i7-9750H @ 2.60GHz	Nvidia Quadro T1000		16 GB	512 GB	60 GB	
Certification	IFC import certification status	Import certificatio date	n	Import certification program	IFC expo certificat status		Export certification date	Export certification program		
Certii	certified in (date)	13-11-201	3	CV 2.0	not certi	fied				
			·	Test	with Myı	an.ifc				
	How long does it visualise if the so					less thar	n a minute			
	How long does it take, approximately, to:Zoom into the model to see more detail				ne	it's almost immediate				
	How long does it take, approximately, to:Pan the model				del	it's almost immediate				
	How long does it take, approximately, to:Rotate the mo				nodel	it's almo	st immediate			
	How long does it take, approximately, to:Query an obj				oject	less thar	n a minute			
	How long does it take, approximately, to:Inspect the o linked to the queried one through a relationship				objects	the software does not allow this				
ance	Many elements were not in analysis".				mported	mported because they were said to be "not relevant for structural				
Performance	Please report on errors the softwar when importing th		PCEULIPEGLIPE PCEULIPEGLIPE PCEUPIGNAME PCEUPIGNAME PCENAL PCENAL PCENAL	PHICH ST						

Dlubal RFEM – Windows 10 Home

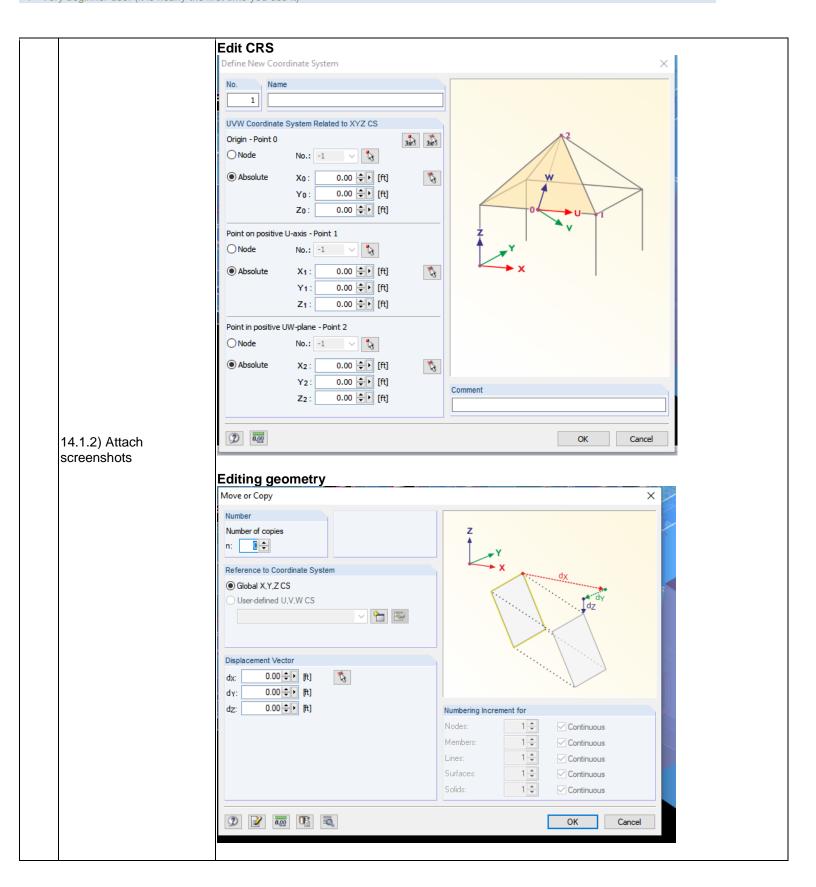
Proprietary
Other
1 - Very beginner user (it is nearly the first time you use it)

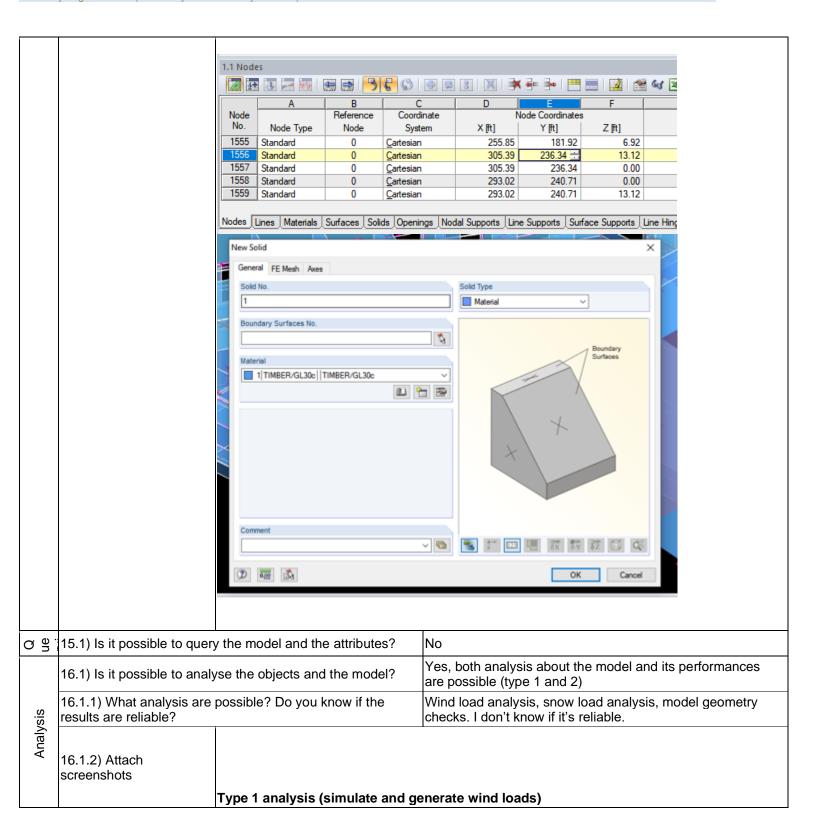
	2.1) Are the world (projecte when locating the model in reference system?	ed) coordinates taken into account the software's coordinate	No		
		of the model coordinate reference	At the blue reference point		
	system as imported in the	software?	At the blue reference point		
Georeferencing	2.1.2) Attach screenshots		1 X		
Ğ			6		
			Connect		
		Standard			
		Sandard			
		[Unes Materials Surfaces Solids Openings Nodal Supports Line Supports Surface Supports Line Hinges Cross-Sections Member Hinge	Nonther Eccentricities Member Divisions Member Bastic Foundations Member Nontineastics Sets of Members Intersections TE Nich Refinements 1/4 1 Nich Refinements 1/4		
			SMAP GROU CLATTES DISNAP GENES DAF CS GREW XVZ Pare: XV X 0.004 Y-1.004 Z-0.004		
	2.1.3) What is the coordina projection and what unit of representation?		Local right-handed coordinate system with feet as unit of measurement		
	2.1.4) Attach screenshots		See screenshot from 2.1.2		
	3.1) Are the "real-world" electronsidered when locating to	evation values (heights) he model in the software (z)?	No		
ن ے ا		n value of the origin of the model	0		
Height		m as imported in the software?			
Ĭ	3.1.2) Attach screenshots		See figure from 2.1.2		
	3.1.3) What is the height re	eference system?	Local in feet		
	3.1.4) Attach screenshots		See figure from 2.1.2		
	North?	correctly with respect to the true	Yes		
	5.1) Does the model maintain its correct dimensions and proportions?		Yes		
	6.1) Is the eventual translation consistent with the IFC definitions?		The software does not have the necessary tools to determine this information		
Hier	7.1) Are the hierarchical re hierarchy?	lationships consistent with the IFC	The software does not have the necessary tools to determine this information		
Attri bute	8.1) Are the attributes presand consistent?	ent in the IFC entities retained	The software does not have the necessary tools to determine this information		
Rel	9.1) Are the relationships b	petween the objects retained?	The software does not have the necessary tools to determine this information		

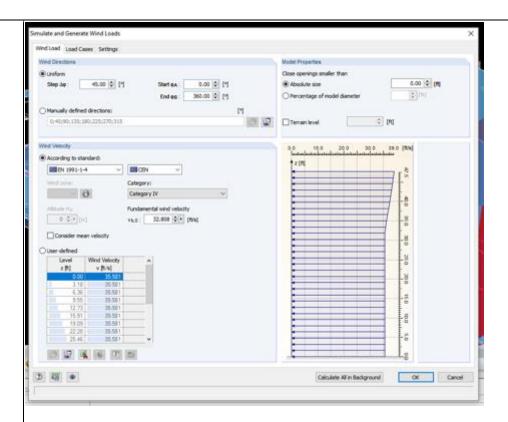
Dlubal RFEM – Windows 10 Home

Proprietary
Other
1 - Very beginner user (it is nearly the first time you use it)

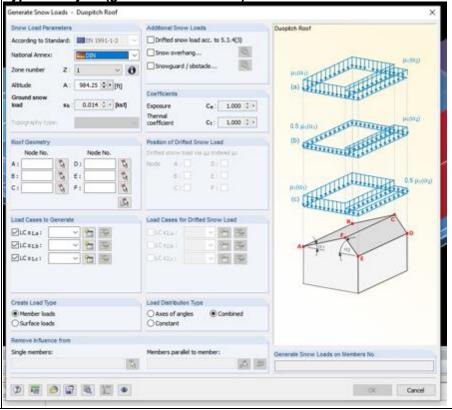
Ф _С	10.1) Is geometry read correctly?	Yes		
z o	11.1) Did the normals change?	No		
6/3	12.1) Is it possible to view the model in 3D?	Yes		
2D/3 D	13.1) Is it possible to view the model in 2D?	No		
	14.1) Is it possible to edit the model (attributes, geometry, other)?	Yes		
Editing	14.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?	You can create a user defined coordinate system. Move, mirror, rotate geometry, edit nodes or create new nodes, lines, solids etc The attributes can't be seen and thus also not edited.		



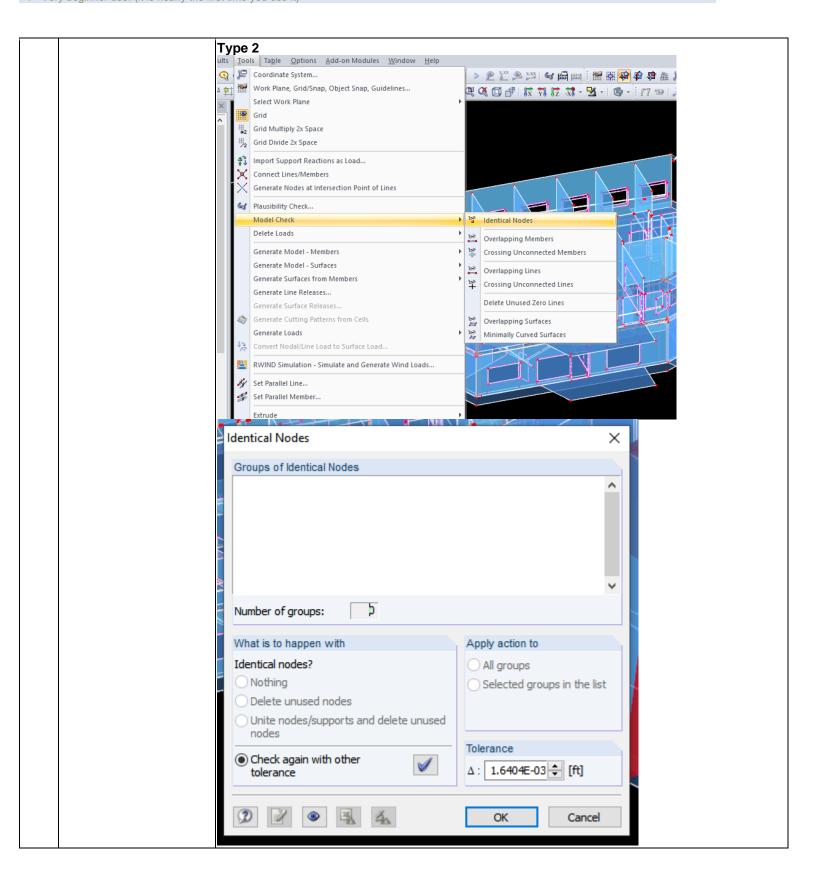




Type 1 analysis (generate snow loads)



Other



	16.1.3) Time required to permodel itself (type 1)	rform the analysis about the	It's almost immediate		
	16.1.3) Time required to pe model performances (type2	rform the analysis about the	It's almost immediate		
	16.2) short comments to the	e previous question (optional)	Not sure if anything happened with type 2 analysis, as I didn't see anything changing		
	You arrived at the end of th the file in the software".Nov	e phase 1: "Import and manage v choose:	The software has also export abilities to IFC		
Export	17.1) Are any pre-processing the software to enable a co	ng or setting changes needed in nsistent export?	No		
	18.1) Is it possible to choos (MVD) to be used when exp	se the IFC model view definition porting the data?	No		
	19) How long does it take for IFC?	or the data to be exported to	C's almost immediate Solot sure if anything happened with type 2 analysis, as I lidn't see anything changing The software has also export abilities to IFC Solot No No Sess than a minute Wn.ifc S-20 minutes C's almost immediate C's a		
		Test with UpT	own.ifc		
	How long does it take, appr visualise if the software allo		5-20 minutes		
	How long does it take, appr model to see more detail	roximately, to:Zoom into the	it's almost immediate		
	How long does it take, appr	roximately, to:Pan the model	it's almost immediate		
	How long does it take, appr	roximately, to:Rotate the model	it's almost immediate		
	How long does it take, appr	roximately, to:Query an object	it's almost immediate		
	Please report on any errors the software gives when importing the file.	#1882243, #2801731, #2904950, #2905047, #2905126 #2905971, #2906063, #2906146, #2906395, #2906488 #3005315, #3005393, #3315551, #3315643, #3315721 #4957557, #4958315, #4959346, #4960731, #4962644 #4968293, #4969328, #4970084, #4971880, #4972957 #4974670, #4975496, #4975600, #4975664, #4975675 #4976314, #4976451, #4976538, #4976856, #4977182 #4978610, #4978707, #4978793, #4978963, #4979025 #4980213, #4980301, #4980389, #4980477, #4980564 #4986280, #498109, #4988214, #4988300, #4988404 #4989841, #4990101, #4999104, #4990201, #4999028 #4990329, #4991435, #49991523, #4991611, #4991639 #49993284, #4993372, #4993436, #4994347, #4994352 #4995420, #4995504, #4995951, #4995655, #4995823 #499520, #4995504, #4995991, #4996452, #4996515 #4996218, #4996280, #4997008, #4997099, #4995151	stored because they are not relevant for structural analysis: , #2905291, #2905384, #2905467, #2905714, #2905807, , #2927066, #2927159, #2928012, #2928105, #3005219, , #3315812, #3316165, #3316256, #3320792, #4957152, , #49373549, #4973654, #4973741, #4973846, #4973990, , #49775853, #4975958, #4973741, #4973846, #4973990, , #4977587, #4977881, #497881, #49766149, #4976249, , #4977527, #4977881, #4978956, #4980039, #49980126, , #4980652, #4981795, #4983733, #4984491, #4985522, , #4980652, #4981795, #4988733, #498491, #4985522, , #49980652, #4991874, #4991861, #49989545, , #4999344, #4990479, #4990625, #499068, #4990747, , #4991787, #4991874, #4991818, #4993878, #4993796, , #4995000, #4995096, #4995182, #4993878, #4993966, , #4995000, #4995096, #4995182, #4995270, #4995388, , #499509, #4995972, #4996034, #4996096, #4996157, , #4997804, #4997865, #4997986, #4997884, , #4997804, #4997865, #4997986, #4997884, , #4997804, #4997865, #4997986, #4997884, , #4997804, #4997865, #4997986, #4998047,		
	24.1) Does the model main proportions?	tain its correct dimensions and	Yes		
O ≔ :	25.1) Is the eventual transladefinitions?	ation consistent with the IFC	The software does not have the necessary tools to determine this information		
er ch	26.1) Are the hierarchical re IFC hierarchy?	elationships consistent with the	The software does not have the necessary tools to determine this information		

Attri bute	27.1) Are the attributes present in the IFC entities retained and consistent?	The software does not have the necessary tools to determine this information		
Rel atio	28.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information		
(D) (a)	29.1) Is geometry read correctly?	Yes		
Z o	30.1) Did the normals change?	No		
6	31.1) Is it possible to view the model in 3D?	Yes		
2D/3 D	32.1) Is it possible to view the model in 2D?	No		
Export	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC		
Exp	36) How long does it take for the data to be exported to IFC?	less than a minute		
Test v	vith Savigliano.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	less than a minute		
ø	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate		
Performance	How long does it take, approximately, to:Pan the model	it's almost immediate		
Ë	How long does it take, approximately, to:Rotate the model	it's almost immediate		
erfc	How long does it take, approximately, to:Query an object	it's almost immediate		
ď	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	the software does not allow this		
	38) Please report on any errors the software gives when importing the file.	Same as for Myran and UpTown		
	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	No		
	40.1.1) Where is the origin of the model coordinate reference system as imported in the software?	At the blue reference point		
Georeferencing	40.1.2) Attach screenshots			
	40.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?	Local right-handed with feet as unit of measurement		

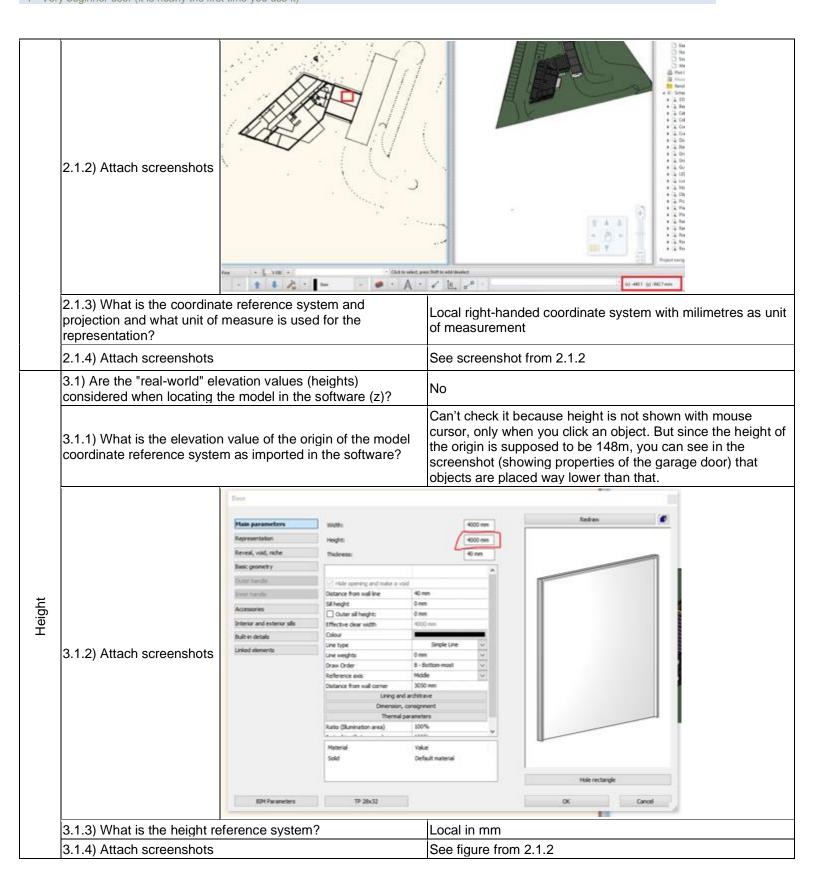
Dlubal RFEM – Windows 10 Home

Proprietary
Other
1 - Very beginner user (it is nearly the first time you use it)

	40.1.4) Attach screenshots	X: 198.71 ft Y: -31.35 ft Z: 49.21 ft Also see screenshot of 40.1.2				
Hei ght	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	No				
# 4:I	42.1) Is the model oriented correctly with respect to the true North?	Yes				
	43.1) Does the model maintain its correct dimensions and proportions?	Yes				
	44.1) Is the eventual translation consistent with the IFC definitions?	The software does not have the necessary tools to determine this information				
	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools to determine this information				
	46.1) Are the attributes present in the IFC entities retained and consistent?	The software does not have the necessary tools to determine this information				
Rel atio	47.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information				
(D) (a)	48.1) Is geometry read correctly?	Yes				
Z o	49.1) Did the normals change?	Yes				
2/3	50.1) Is it possible to view the model in 3D?	Yes				
2D/3 D	51.1) Is it possible to view the model in 2D?	No				
Export	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC				
Exp	36) How long does it take for the data to be exported to IFC?	less than a minute				

ARCHLine.XP

	Software Name								
e E	[version] ARCHLine.XP [2019]			Software	Software house CadLine Ltd				
Software	Proprietary or open source software?			Kind of	Kind of software				
Ň	proprietary			BIM					
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia Quadro T1000		16 GB	512 GB	60 GB	
Certification	IFC import certification status	Import certification date	Import certification program	certification		Export certification date	Export certification program		
Certif	certified in (date)	23-06-2015	CV 2.0	certified in (date)		23-06-2015	CV2.0-Arch		
			Test	with My	ran.ifc			·	
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model			less than a minute					
Φ	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate				
anc	How long does it take, approximately, to:Pan the model				it's almo	st immediate			
Performance	How long does it take, approximately, to:Rotate the model				it's almost immediate				
erfo	How long does it take, approximately, to:Query an object					less than a minute			
۵	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship				the software does not allow this				
	Please report on any errors the software gives when importing the file.								
Georeferenci ng		model in the sof	dinates taken into tware's coordinate		No				
Geore	2.1.1) Where is the origin of the model coordinate reference system as imported in the software?			See the screenshot					



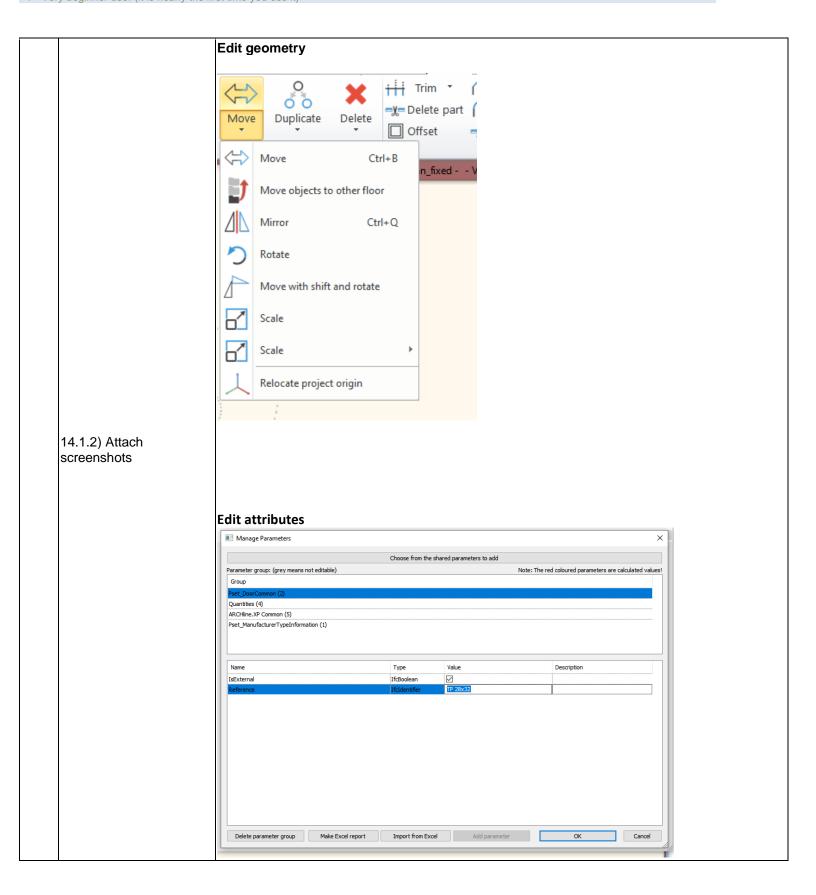
ARCHLine.XP – Windows 10 Home

Proprietary

BIM

1 - Very beginner user (it is nearly the first time you use it)

	4.1) Is the model oriented correctly with respect to the true North?	Yes
	5.1) Does the model maintain its correct dimensions and proportions?	Yes
IFC defi	6.1) Is the eventual translation consistent with the IFC definitions?	Yes
Hier	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes
	8.1) Are the attributes present in the IFC entities retained and consistent?	Yes
Rel atio	9.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information
O e G	10.1) Is geometry read correctly?	Yes
Z o s	11.1) Did the normals change?	No
/3	12.1) Is it possible to view the model in 3D?	Yes
2D/3 D	13.1) Is it possible to view the model in 2D?	Yes
Editing	14.1) Is it possible to edit the model (attributes, geometry, other)?	Yes
Edit	14.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?	Attributes and geometry can be edited



α a.	15.1) Is it possible to query	the model and the attributes?	No	
	16.1) Is it possible to analy	se the objects and the model?	Yes, analysis about the modelled building performances (energy, noise, shadows) are possible (type 2)	
	16.1.1) What analysis are results are reliable?	possible? Do you know if the	Shadow analysis is possible.	
Analysis	16.1.2) Attach screenshots	Colour Colour Style na Colour Colo	me for time text: Arial 200	
	model itself (type 2)	erform the analysis about the ne phase 1: "Import and manage	less than a minute	
	the file in the software".No	w choose:	The software has also export abilities to IFC	
Export	the software to enable a co	<u> </u>	No	
Exp	18.1) Is it possible to choos (MVD) to be used when ex	se the IFC model view definition conting the data?	No	
	19) How long does it take t	for the data to be exported to	less than a minute	
		Test with Up	Town.ifc	
Perf orm	How long does it take, app visualise if the software all		more than one hour	

ARCHLine.XP – Windows 10 Home

Proprietary

BIM

1 - Very beginner user (it is nearly the first time you use it)

	How long does it take, appr model to see more detail	oximately, to:Zoom into the	it's almost immediate		
	How long does it take, appr	oximately, to:Pan the model	it's almost immediate		
	How long does it take, appr	oximately, to:Rotate the model	less than a minute		
	How long does it take, appr	oximately, to:Query an object	less than a minute		
Pro porti	24.1) Does the model main proportions?	tain its correct dimensions and	Yes		
IFC defi	25.1) Is the eventual transladefinitions?	ation consistent with the IFC	Yes		
Hier arch	26.1) Are the hierarchical re IFC hierarchy?	elationships consistent with the	Yes		
Attri	27.1) Are the attributes presand consistent?	sent in the IFC entities retained	Yes		
Rel atio	28.1) Are the relationships I	petween the objects retained?	The software does not have the necessary tools to determine this information		
(D) (a)	29.1) Is geometry read corr	ectly?	Yes		
z o	30.1) Did the normals chan	ge?	No		
6/3	31.1) Is it possible to view the	he model in 3D?	Yes		
2D/3 D	32.1) Is it possible to view the	he model in 2D?	Yes		
Export	You arrived at the end of the the file in the software".Now	e phase 1: "Import and manage v choose:	The software has also export abilities to IFC		
Exp	36) How long does it take for IFC?	or the data to be exported to	more than one hour		
Test v	vith Savigliano.ifc				
	How long does it take, appr visualise if the software allo		it crashes without completing the operation		
Performance	Please report on any errors the software gives when importing the file.		ed. Expected: IFC2X3. Read: IFC4.		

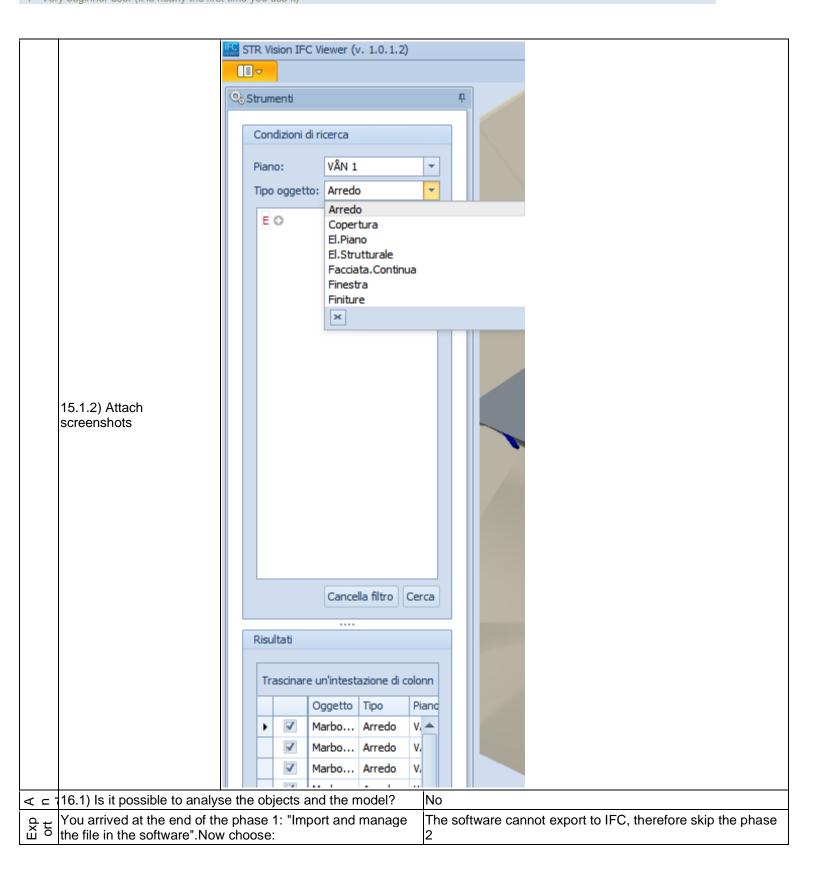
Proprietary
BIM
1 - Very beginner user (it is nearly the first time you use it)

STR Vision IFC Viewer

are	Software Name [version]	STR Vision IFC 1.0.1.2]	Viewer [v.	Software	e house		TeamSystem	
Software	Proprietary or open source software?			Kind of s	Kind of software			
ŭ	proprietary			3D View	/er			
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia C T1000	Quadro	16 GB	512 GB	60 GB
Certificati	IFC import certification status	Import certification date	Import certification program	IFC export certification status		Export certification date	Export certification program	
ပိ	not certified							
Test w	vith Myran.ifc							
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model			less thar	n a minute			
	How long does it model to see mor		ely, to:Zoom into tl	he	it's almost immediate			
Φ	How long does it take, approximately, to:Pan the model				it's almost immediate			
anc	How long does it take, approximately, to:Rotate the model				it's almost immediate			
] E	How long does it take, approximately, to:Query an object				it's almo	st immediate		
	How long does it linked to the quer			objects	it's almost immediate			
	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?				The software does not have the necessary tools to determine this information			
Hei ght	3.1) Are the "real- considered when	world" elevation volume	values (heights) el in the software	(z)?	The software does not have the necessary tools to determine this information			
Orie ntati	4.1) Is the model North?	oriented correctly	with respect to th	e true	Yes			
	5.1) Does the model maintain its correct dimensions and proportions?			and	The software does not have the necessary tools to determine this information			
IFC defi	6.1) Is the eventual translation consistent with the IFC definitions?			С	Yes			
	5 7.1) Are the hierarchical relationships consistent with the IFC hierarchy?			Yes				
	8.1) Are the attributes present in the IFC entities retained and consistent?			Yes				
	9.1) Are the relati	•	the objects retain	ed?	Yes			
	10.1) Is geometry				Yes			
	11.1) Did the norr	_			No			
202	12.1) Is it possible to view the model in 3D?				Yes			

STR Vision IFC Viewer v.1.0.1.2 – Windows 10 Home Proprietary BIM 1 - Very beginner user (it is nearly the first time you use it)

	13.1) Is it possible to view the model in 2D?	No
Editi	14.1) Is it possible to edit the model (attributes, geometry, other)?	No
er	15.1) Is it possible to query the model and the attributes?	Yes
Qu yir	15.1) Is it possible to query the model and the attributes?15.1.1) What kinds of query are possible?	You can search by object type



STR Vision IFC Viewer v.1.0.1.2 – Windows 10 Home Proprietary BIM 1 - Very beginner user (it is nearly the first time you use it)

Test v	Test with UpTown.ifc			
How long does it take, approximately, to:Import (and visualise if the software allows it) the model		it crashes without completing the operation		
Test v	Test with Savigliano.ifc			
Perf orm	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it crashes without completing the operation		

RDF IFC Viewer

<u>lie</u>	Software Name [version] RDF IFC Viewer [1.01] Softw			Software	re house RDF			
Software	Proprietary or ope	Proprietary or open source software?			Kind of software			
Ň	open source			3D view	er			
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia C T1000	Quadro	16 GB	512 GB	220 GB
Certificatio	IFC import certification status	Import certification date	Import certification program	IFC export certification status		Export certification date	Export certification program	
Cel	not certified			not cert	ified			
			Test	with My	ran.ifc			
		take, approximate ftware allows it) th			it's almo	st immediate		
- Jce	How long does it take, approximately, to:Zoom into the model to see more detail				it's almo	st immediate		
Performance	How long does it take, approximately, to:Pan the model				it's almost immediate			
erfo	How long does it take, approximately, to:Rotate the model				it's almost immediate			
	How long does it take, approximately, to:Query an object				it's almo	st immediate		
		take, approximate ied one through a		objects	it's almost immediate			
Georef erenci	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?				The software does not have the necessary tools to check this information			
	2.2) short comme	ents to the previou	us question (optio	nal)	Coordina	ates can't be seer	n in the software	е
Height	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?			(z)?	The software does not have the necessary tools for checking it			
₩	3.2) short comments to the previous question (optional)				Coordinates can't be seen in the software			е
	4.1) Is the model oriented correctly with respect to the true North?			The software does not have the necessary tools to determine this information				
suo	5.1) Does the model maintain its correct dimensions and proportions?		The software does not have the necessary tools to determine this information					
Proporti	Q.		Visually it seems correct, but the software has no measurement tools			e has no		
	g6.1) Is the eventual translation consistent with the IFC definitions?			Yes				
Hiera	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?			h the	Yes			

_ (D	8.1) Are the attributes present in the IFC entities retained and consistent?	Yes
_	9.1) Are the relationships between the objects retained?	Yes
	10.1) Is geometry read correctly?	Yes
	11.1) Did the normals change?	No
	12.1) Is it possible to view the model in 3D?	Yes
2D/3 D	, , ,	No
iti 3	14.1) Is it possible to edit the model (attributes, geometry,	
Editi ng	other)?	No
Q ¬ g	15.1) Is it possible to query the model and the attributes?	No
∀ □ ₹	16.1) Is it possible to analyse the objects and the model?	No
	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC
Export	17.1) Are any pre-processing or setting changes needed in the software to enable a consistent export?	No
Ë	18.1) Is it possible to choose the IFC model view definition (MVD) to be used when exporting the data?	No
	19) How long does it take for the data to be exported to IFC?	it's almost immediate
	Test with UpT	own.ifc
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	1-5 minutes
) Se	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate
าลท	How long does it take, approximately, to:Pan the model	it's almost immediate
Performance	How long does it take, approximately, to:Rotate the model	it's almost immediate
Perl	How long does it take, approximately, to:Query an object	it's almost immediate
	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	it's almost immediate
Prop ortio	24.1) Does the model maintain its correct dimensions and proportions?	The software does not have the necessary tools to determine this information
IFC defini	25.1) Is the eventual translation consistent with the IFC definitions?	Yes
era hy	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes
	27.1) Are the attributes present in the IFC entities retained and consistent?	Yes
	28.1) Are the relationships between the objects retained?	Yes
-	29.1) Is geometry read correctly?	Yes
_		No
ļ — — —	31.1) Is it possible to view the model in 3D?	Yes
	, , , , , , , , , , , , , , , , , , , ,	

RDF IFC Viewer 1.01 – Windows 10 Home
Open source
3D viewer
1 - Very beginner user (it is nearly the first time you use it)

	22.1) In it passible to view the model in 2D2	No				
	32.1) Is it possible to view the model in 2D? You arrived at the end of the phase 1: "Import and manage	No				
t	the file in the software". Now choose:	The software has also export abilities to IFC				
Export	36) How long does it take for the data to be exported to IFC?	it's almost immediate				
ωÛ	36.1) Comments to the previous question (optional)	I think the export is not real export (because there are no editing functionalities), but just saving the original file				
Test with Savigliano.ifc						
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	less than a minute				
nce	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate				
mal	How long does it take, approximately, to:Pan the model	it's almost immediate				
Performance	How long does it take, approximately, to:Rotate the model	it's almost immediate				
	How long does it take, approximately, to:Query an object	it's almost immediate				
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	it's almost immediate				
Georefe rencing	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship 40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	The software does not have the necessary tools to check this information				
Heig ht	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	The software does not have the necessary tools for checking it				
	42.1) Is the model oriented correctly with respect to the true North?	The software does not have the necessary tools to determine this information				
	43.1) Does the model maintain its correct dimensions and proportions?	The software does not have the necessary tools to determine this information				
	44.1) Is the eventual translation consistent with the IFC definitions?	Yes				
45 C	45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes				
Attrib utes	46.1) Are the attributes present in the IFC entities retained and consistent?	Yes				
Re lati	47.1) Are the relationships between the objects retained?	Yes				
Geo metr	48.1) Is geometry read correctly?	Yes				
Nor mals	49.1) Did the normals change?	No				
3D	50.1) Is it possible to view the model in 3D?	Yes				
2D/3D	51.1) Is it possible to view the model in 2D?	No				

RDF IFC Viewer 1.01 – Windows 10 Home Open source 3D viewer 1 - Very beginner user (it is nearly the first time you use it)

	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software has also export abilities to IFC
Expor	55) How long does it take for the data to be exported to IFC?	it's almost immediate
	55 1) Comment to the previous question (optional)	I think it's not really exporting but rather saving the original file

Infraworks

ē	Software Name [version] Autodesk Infraworks [2020] Software		Software	re house Autodesk				
Software	Proprietary or ope	en source softwar	e?	Kind of	Kind of software			
Ň	proprietary			Infrastru	ıcture de	sign		
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space
Computer	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia Quadro T1000		16 GB	512 GB	220 GB
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC expectations and status		Export certification date	Export certification program	
Cer	not certified			not cert	ified			
	Test with My			yran.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				less than a minute			
90	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate			
man	How long does it take, approximately, to:Pan the model				it's almost immediate			
Performance	How long does it take, approximately, to:Rotate the model				it's almost immediate			
	How long does it take, approximately, to:Query an object				the software does not allow this			
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship			the software does not allow this				
Georeferenci	when locating the	model in the soft	dinates taken into ware's coordinate		No			
Geore	2.1.1) Where is the origin of the model coordinate			At the b	lue reference poir	nt		

	2.1.2) Attach screenshots	
	2.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?	Local in metres
	2.1.4) Attach screenshots	See 2.1.2
+	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	No
g	3.1.1) What is the elevation value of the origin of the model	
Height		0



		The coffee and decrease the control of the control
Relation ships	9.1) Are the relationships between the objects retained?	The software does not have the necessary tools to determine this information
Rela	9.2) short comments to the previous question (optional)	Can't check single objects
	10.1) Is geometry read correctly?	Yes
	11.1) Did the normals change?	No
	12.1) Is it possible to view the model in 3D?	Yes
2D/3 D	13.1) Is it possible to view the model in 2D?	No
	14.1) Is it possible to edit the model (attributes, geometry,	
Editi ng	other)?	No
Ø ⊃ 8	15.1) Is it possible to query the model and the attributes?	No
∢ ⊆ ₹	16.1) Is it possible to analyse the objects and the model?	No
Ехро	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot export to IFC, therefore skip the phase 2
	Test with UpT	own.ifc
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	1-5 minutes
	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate
o o	How long does it take, approximately, to:Pan the model	it's almost immediate
ance	How long does it take, approximately, to:Rotate the model	it's almost immediate
Performance	How long does it take, approximately, to:Query an object	
		the software does not allow this
	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	the software does not allow this
	24.1) Does the model maintain its correct dimensions and proportions?	Yes
	25.1) Is the eventual translation consistent with the IFC definitions?	The software does not have the necessary tools for checking it
Hiera rchy	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools for checking it
rib	27.1) Are the attributes present in the IFC entities retained and consistent?	The software does not have the necessary tools for checking it
sh	28.1) Are the relationships between the objects retained?	The software does not have the necessary tools for checking it
	29.1) Is geometry read correctly?	Yes
Z ō 8	30.1) Did the normals change?	No
202	31.1) Is it possible to view the model in 3D?	Yes

		<u>, </u>		
	32.1) Is it possible to view the model in 2D?	No		
ort	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities to IFC		
Export	36) How long does it take for the data to be exported to IFC?	The software cannot export to IFC, therefore skip the phase 2		
	Test with Savio	gliano.ifc		
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it's almost immediate		
eoc	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate		
mar	How long does it take, approximately, to:Pan the model	it's almost immediate		
Performance	How long does it take, approximately, to:Rotate the model	it's almost immediate		
ď	How long does it take, approximately, to:Query an object	the software does not allow this		
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	the software does not allow this		
	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	No		
	40.1.1) Where is the origin of the model coordinate reference system as imported in the software?	At the blue reference point		
Georeferencing	40.1.2) Attach screenshots			
	40.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?	Local, seems to be in decimetres (when comparing measurement tool to change of coordinates when you move the mouse)		
	40.1.4) Attach screenshots	See 40.1.2		
Heig	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	No		

	41.1.1) What is the elevation value of the origin of the model coordinate reference system as imported in the				
	software?	0			
41.1.2) Attach screenshots					
	41.1.3) What is the height reference system?	Local in metres			
	41.1.4) Attach screenshots	See 41.1.2			
Orie ntati	42.1) Is the model oriented correctly with respect to the true North?	Yes			
	43.1) Does the model maintain its correct dimensions and proportions?	Yes			
IFC defini	44.1) Is the eventual translation consistent with the IFC definitions?	The software does not have the necessary tools for checking it			
4) [45.1) Are the hierarchical relationships consistent with the IFC hierarchy?	The software does not have the necessary tools for checking it			
ute	46.1) Are the attributes present in the IFC entities retained and consistent?	The software does not have the necessary tools for checking it			
Relat ionsh	47.1) Are the relationships between the objects retained?	The software does not have the necessary tools for checking it			
Geo	48.1) Is geometry read correctly?	Yes			
Nor mals	49.1) Did the normals change?	No			
ε ,	50.1) Is it possible to view the model in 3D?	Yes			
2D/3 D	51.1) Is it possible to view the model in 2D?	No			
Expo	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot export to IFC, therefore skip the phase 2			

bimspot

ē	Software Name [version] bimspot [beta] Software		oftware house							
Software	Proprietary or open source software?			Kind of s	oftware					
Ň	proprietary			ВІМ						
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space		
Computer	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia C T1000	uadro	16 GB	512 GB	220 GB		
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC export certification status		certification		Export certification date	Export certification program	
Cer	not certified			not cert	ified					
			Test	with My	ran.ifc					
	How long does it visualise if the so				it crashes without completing the operation					
			Test w	vith UpT	own.ifc					
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				it crashes without completing the operation					
Test with Savigliano.ifc										
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				it crashe	es without comple	ting the operati	on		

DDS-CAD

	<u> </u>								
re	Software Name [version]	DDS-CAD [x64	build 23/9-2019]	Software	vare house Nemetschek				
Software	Proprietary or ope	en source softwar	re?	Kind of	Kind of software				
Ň	proprietary			BIM					
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia C T1000	ridia Quadro 000 16 GB		512 GB	135 GB	
Certification	IFC import certification status	Import certification date	Import certification program	IFC expectations and status		Export certification date	Export certification program		
Certifi	certification in progress		MEP Reference Exchange	certifica progress			MEP Reference Exchange		
		,	Test	with My	ran.ifc	,			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				it's almost immediate				
ce	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate				
man	How long does it take, approximately, to:Pan the model				it's almo	ost immediate			
Performance	How long does it take, approximately, to:Rotate the model				it's almo	ost immediate			
₾.	How long does it take, approximately, to:Query an object				it's almo	ost immediate			
	How long does it linked to the quer		ely, to:Inspect the or relationship	objects	it's almost immediate				
Georef erenci		2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?		account	The software does not have the necessary tools to check this information				
	2.2) short comme			The software does not have the possibility to inspect coordinates			to inspect		
ght	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?			z)?	The software does not have the necessary tools for checking it				
Height	3.2) short comments to the previous question (optional)			nal)	The software does not have the possibility to inspect coordinates				
Orientation				ware does not ha ne this informatio	ve the necessary ton	cools to			

	4.2) short comments to the previous question (optional)	The software does not have the possibility to inspect coordinates	
	5.1) Does the model maintain its correct dimensions and proportions?	Yes	
	6.1) Is the eventual translation consistent with the IFC definitions?	Yes	
Hierarchy	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes	
Hier	7.2) short comments to the previous question (optional)	The objects are contained within the correct storey	
tes	8.1) Are the attributes present in the IFC entities retained and consistent?	The software does not have the necessary tools to determine this information	
Attributes	8.2) short comments to the previous question (optional)	Even though it should be possible to check the attributes, I can't see them because of a bug in the software. The "properties pop-up" won't show.	
Relationship s	9.1) Are the relationships between the objects retained?	Yes	
Geometry	10.1) Is geometry read correctly?	Yes	
Normals	11.1) Did the normals change?	No	
3D	12.1) Is it possible to view the model in 3D?	Yes	
2D/3D	13.1) Is it possible to view the model in 2D?	No	
Editi	14.1) Is it possible to edit the model (attributes, geometry, other)?	No	
o e :	15.1) Is it possible to query the model and the attributes?	No	
An aly	16.1) Is it possible to analyse the objects and the model?	No	

Export	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot export to IFC, therefore skip the phase 2		
	Test with Up	Town.ifc		
r	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	less than a minute		
, e	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate		
Performance	How long does it take, approximately, to:Pan the model	it's almost immediate		
forn	How long does it take, approximately, to:Rotate the model	it's almost immediate		
Pel	How long does it take, approximately, to:Query an object	it's almost immediate		
	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	it's almost immediate		
	24.1) Does the model maintain its correct dimensions and proportions?	Yes		
- := ·	25.1) Is the eventual translation consistent with the IFC definitions?	Yes		
Hierarch y	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?	Yes		
H _e	26.2) short comments to the previous question (optional)	The objects are classified under the correct storeys		
utes	27.1) Are the attributes present in the IFC entities retained and consistent?	Bugged		
Attributes	27.2) short comments to the previous question (optional)	The software has a bug which causes me to be unable to inspect object properties		
<u>~ ⊕ ;</u>	28.1) Are the relationships between the objects retained?	Yes		
(D) (a) (d)	29.1) Is geometry read correctly?	Yes		
Z 5 8	30.1) Did the normals change?	No		
2D/3 D	31.1) Is it possible to view the model in 3D?	Yes		
	32.1) Is it possible to view the model in 2D?	No		
Expo	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot export to IFC, therefore skip the phase 2		
	Test with Savi	gliano.ifc		
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it crashes without completing the operation		

Blender

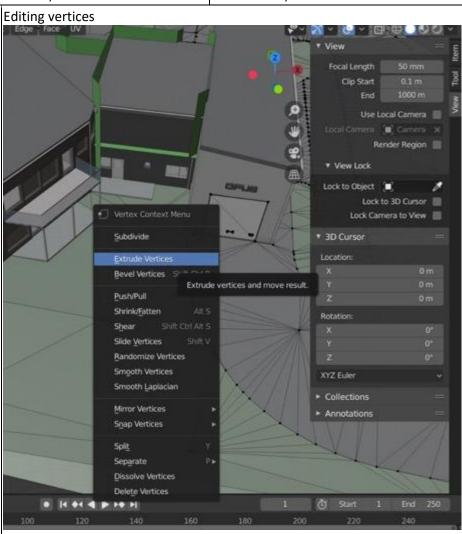
ē	Software Name [version] Blender [2.81a]			Software	Software house Bricsys				
Software	Proprietary or ope	en source softwa	re?	Kind of s	Kind of software				
Ň	open source			3D crea	tion suite				
uter	Model and year	Operating system	CPU	GPU		Memory (RAM)	Hard drive capacity	Hard drive free space	
Computer	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia Quadro T1000		16 GB	512 GB	135 GB	
Certificatio n	IFC import certification status	Import certification date	Import certification program	IFC expectations of the control of t		Export certification date	Export certification program		
Ce	not certified			not certi	fied				
			Test	with My	ran.ifc				
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model				1-5 minutes				
ce	How long does it take, approximately, to:Zoom into the model to see more detail				it's almost immediate				
mar	How long does it take, approximately, to:Pan the model				it's almost immediate				
Performance	How long does it take, approximately, to:Rotate the model				it's almost immediate				
۵	How long does it take, approximately, to:Query an object				it's almo	st immediate			
	How long does it linked to the quer		ely, to:Inspect the a relationship	objects	it's almost immediate				
Georeferencing	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?			account	No				
Gec	2.1.1) Where is the origin of the model coordinate reference system as imported in the software?				The origin of the model as a whole is at (0, 0, 0). The coordinates of the reference point are approximately (4, 1, 6).				

	2.1.2) Attach screenshots	Transform Location: X			
	2.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?	Local right-handed, in metres			
	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	No			
Height	3.1.1) What is the elevation value of the origin of the model coordinate reference system as imported in the software?	For the whole model it's 0, for the reference point it's 5,9m			
T	3.1.2) Attach screenshots	See 2.1.2			
	3.1.3) What is the height reference system?	Local in metres			

	3.1.4) Attach screenshots	Transform Location: X
	4.1) Is the model oriented correctly with respect to the true North?	Yes
	5.1) Does the model maintain its correct dimensions and proportions?	Yes
IFC definitions	6.1) Is the eventual translation consistent with the IFC definitions?	The software does not have the necessary tools for checking it Object types are not explicitly shown. You can only see the
	6.2) short comments to the previous question (optional)7.1) Are the hierarchical relationships consistent with the IFC hierarchy?	given names of objects, but not the actual IFC definition. Yes
Hierarchy	7.2) short comments to the previous question (optional)	You can see in a tree how all objects are related to each other, including hierarchy.
ribute s	8.1) Are the attributes present in the IFC entities retained and consistent?	The software does not have the necessary tools to determine this information
Attribus	8.2) short comments to the previous question (optional)	Custom properties are empty
ion	9.1) Are the relationships between the objects retained?	Yes
Relation ships	9.2) short comments to the previous question (optional)	You can see in a tree how all objects are related to each other, including hierarchy.
(D) (a)	10.1) Is geometry read correctly?	Yes
Z 0 '	11.1) Did the normals change?	No
2D/3 D	12.1) Is it possible to view the model in 3D?	Yes
Editi 2I	13.1) Is it possible to view the model in 2D?14.1) Is it possible to edit the model (attributes, geometry, other)?	No Yes

14.1.1) What editing is possible (attributes, geometry, georeferencing, please add details)?

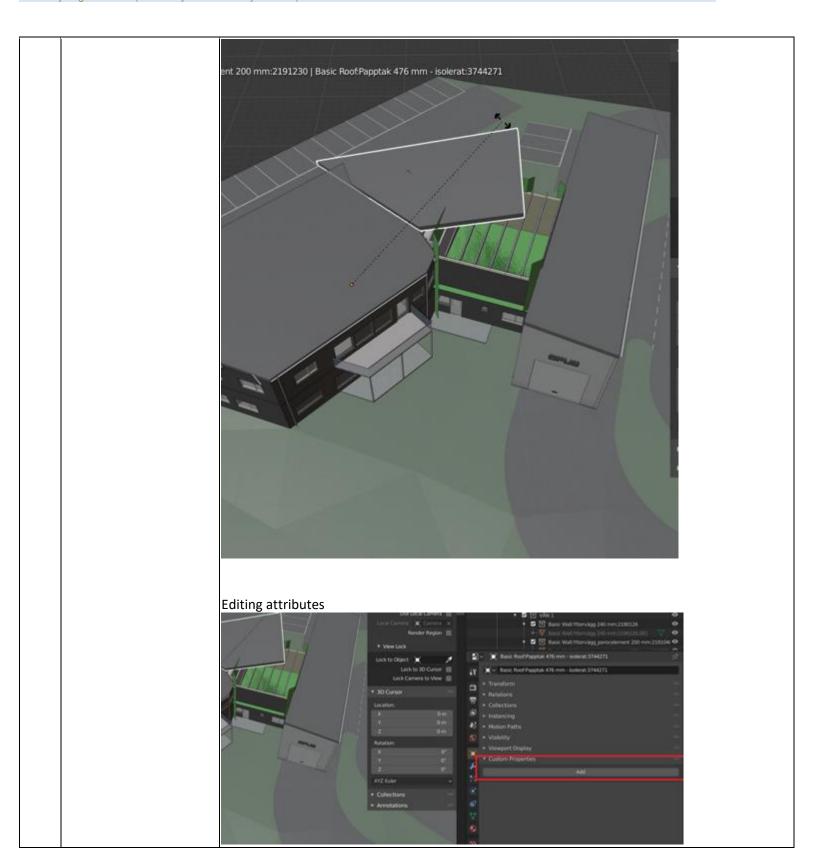
You can edit attributes and geometry (move, rotate, scale, edit vertices).

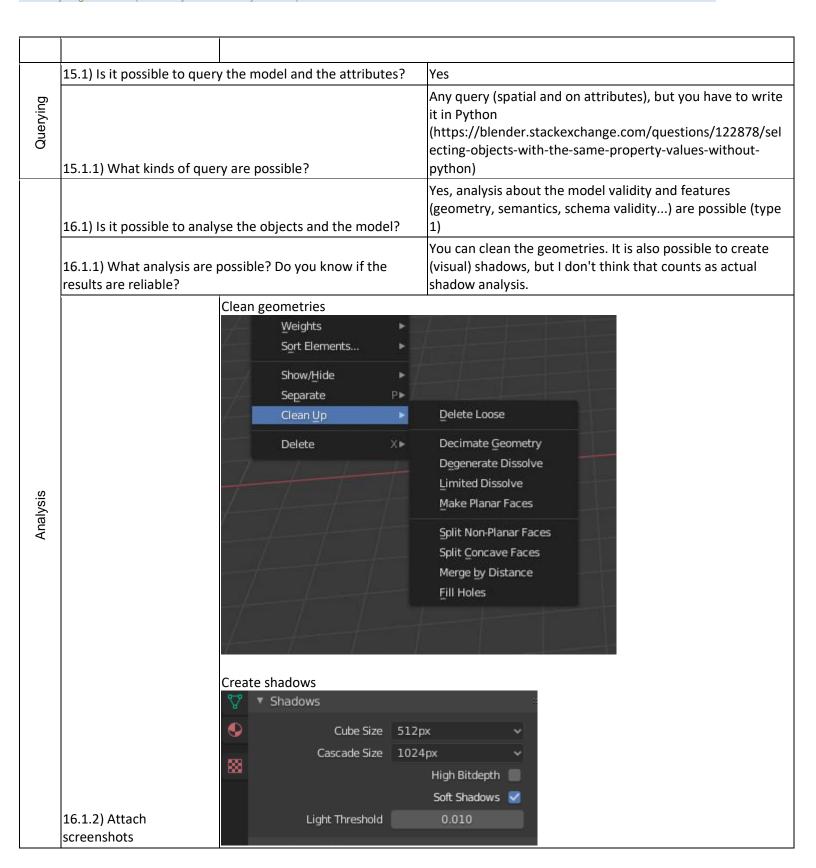


14.1.2) Attach screenshots

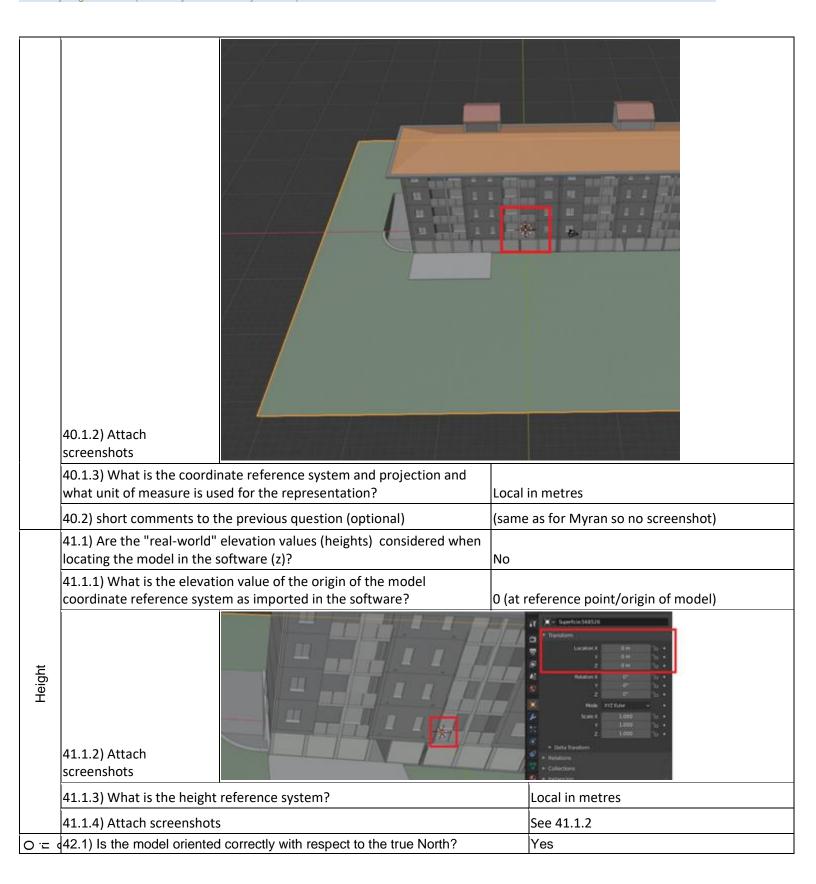
Rotating object

Open source
3D creation suite
1 - Very beginner user (it is nearly the first time you use it)





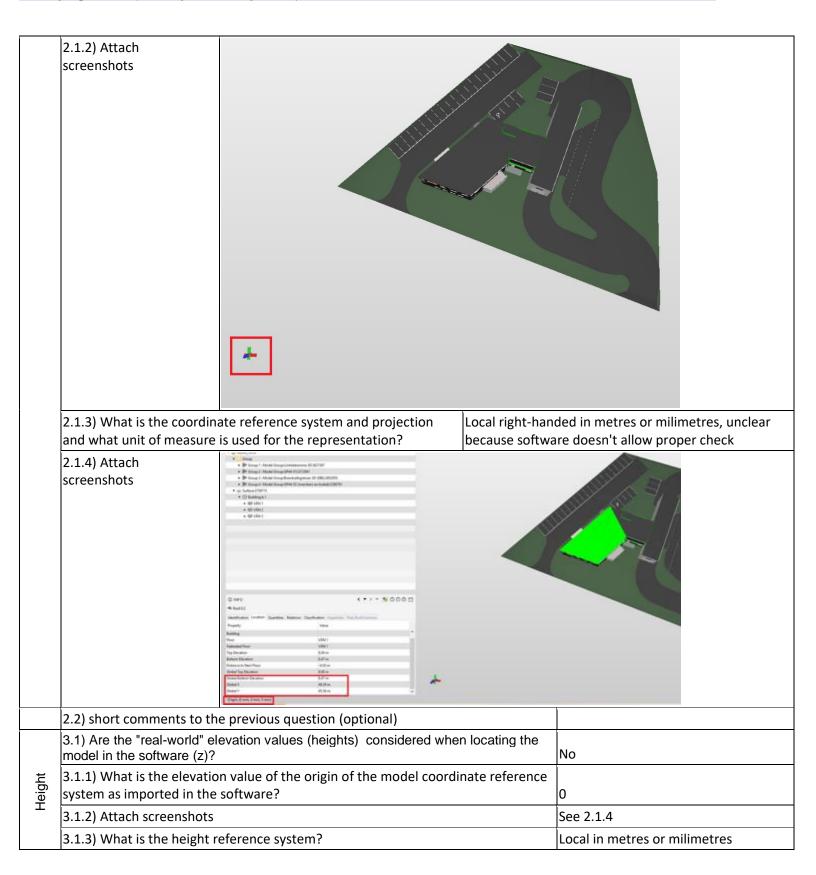
	16.1.3) Time required to perform the analysis about the model itself (type 1)	it's almost immediate		
	16.1.3) Time required to perform the analysis about the model performances (type2)	No analysis of type 2 are possible		
Expo	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot export to IFC, therefore skip the phase 2		
	Test with Up1	Town.ifc		
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	it crashes without completing the operation		
	Test with Savigliano.ifc			
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	5-20 minutes		
	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost immediate		
nce	How long does it take, approximately, to:Pan the model	it's almost immediate		
Performance	How long does it take, approximately, to:Rotate the model	it's almost immediate		
Perf	How long does it take, approximately, to:Query an object	it's almost immediate		
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	it's almost immediate		
	38) Please report on any errors the software gives when importing the file.	5-20 minutes		
Georeferencin g	40.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?	No		
Geore	40.1.1) Where is the origin of the model coordinate reference system as imported in the software?	The origin of the model as a whole is at (0, 0, 0), which starts at the reference point.		



۵ - ۵	43.1) Does the model maintain its correct dimensions and proportions?)	Yes	
IFC definitions	44.1) Is the eventual translation consistent with the IFC definitions?	The software does not have the necessary tools for checking it		
IF defin	44.2) short comments to the previous question (optional)		Object classification is not shown	
E E	45.1) Are the hierarchical relationships consistent with the IFC hierarcl	hy?	Yes	
S	46.1) Are the attributes present in the IFC entities retained and consistent?		No	
Attributes	46.1.1) What changes / inconsistencies / errors / other issues were no	ted?	Same as Myran: custom properties are just empty	
¥	46.2) short comments to the previous question (optional)		No	
조 <u>=</u> #	47.1) Are the relationships between the objects retained?	Yes		
Geo	48.1) Is geometry read correctly?	Yes		
Nor mals	49.1) Did the normals change?	No		
/3	50.1) Is it possible to view the model in 3D?		Yes	
2D/3 D	51.1) Is it possible to view the model in 2D?		No	
Expo	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot export to IFC, therefore skip the phase 2		

Solibri Anywhere

Software	Software Name Solibri Anywhere [9.10.4.13]			Software house				
	[version]	Solibri Anywn	ere [9.10.4.13]	Software house				
	Proprietary or open source software?			Kind of software				
	proprietary			3D viewer				
Computer	Model and year	Operating system	CPU	GPU	Memory (RAM)		Hard drive capacity	Hard drive free space
	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia Quadro T1000	16 0	ЭВ	512 GB	130 GB
Certification	IFC import certification status	Import certification date	Import certification program	IFC export certification status	Exp certi date	ification	Export certification program	
Certif	certified in (date)	2013-10-30	CV 2.0	not certified				
	Test with Myran.ifc							
	How long does it software allows it	visualise if the less than a n			ninute			
a)Ce	How long does it take, approximately, to:Zoom into the model to se detail				nore	it's almost immediate		
maı	How long does it take, approximately, to:Pan the model					it's almost immediate		
Performance	How long does it take, approximately, to:Rotate the model				it's almost immediate			
P _A	How long does it take, approximately, to:Query an object				it's almost immediate			
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship				he	it's almost immediate		
efere og	2.1) Are the world (projected) coordinates taken into account when locating the model in the software's coordinate reference system?				No			
Georefere ncing	2.1.1) Where is the origin of the model coordinate reference system as imported in the software?				Seems to be at the reference point			

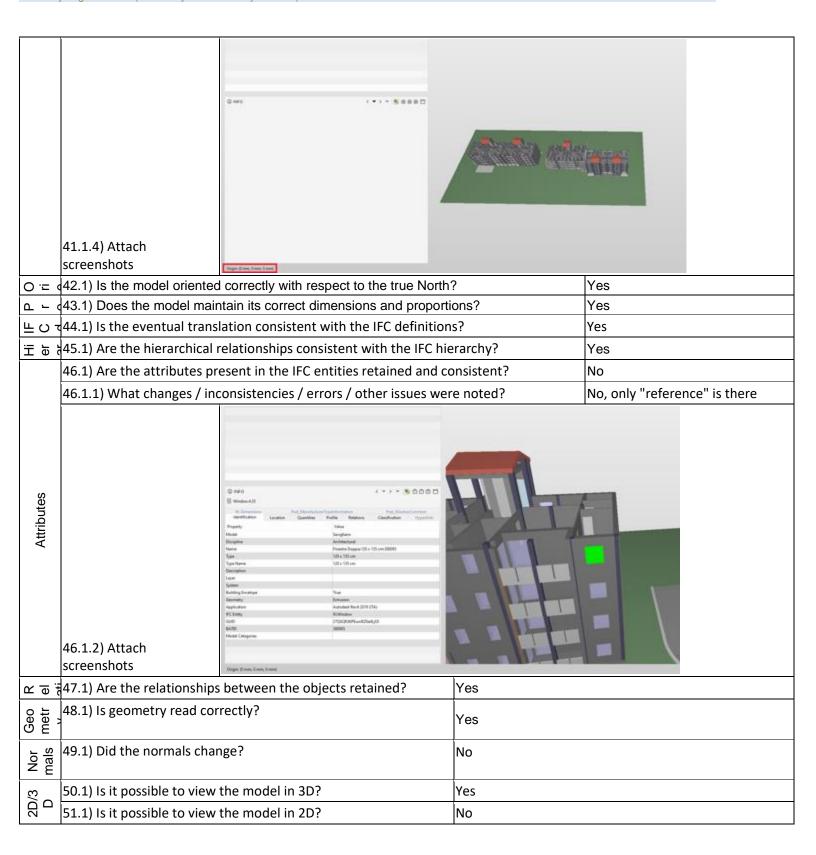


_	14.451.01		lv.		
	4.1) Is the model oriented correctly with response	Yes			
	5.1) Does the model maintain its correct dime	Yes			
-	6.1) Is the eventual translation consistent with		Yes		
Ē	7.1) Are the hierarchical relationships consis	•			
	8.1) Are the attributes present in the IFC ent	ities retained and consisten	t? No		
		Only reference is retained, other			
	8.1.1) What changes / inconsistencies / error	d? attributes are not			
Attributes	© 1840 ☐ Store 28 € S	Fig. 1 Production of Control C			
조 <u>교</u>	9.1) Are the relationships between the object	cts retained?	Yes		
(D e)	10.1) Is geometry read correctly?		Yes		
	11.1) Did the normals change?		No		
9	12.1) Is it possible to view the model in 3D?	Yes			
2D/3 D	13.1) Is it possible to view the model in 2D?	No			
ш ≓ .:	14.1) Is it possible to edit the model (attribu	tes, geometry, other)?	No		
Ø = 1	15.1) Is it possible to query the model and th	ne attributes?	No		
	16.1) Is it possible to analyse the objects and the model?	Yes, analysis about the model validity and features (geometry, semantics, schema validity) are possible (type 1)			
	16.1.1) What analysis are possible? Do you know if the results are reliable?	It should be able to do a model validity check. However, I can't perform it, even when following guidelines. In the "checking" box, the model does not show up.			
Analysis	16.1.2) Attach screenshots				

	16.1.3) Time required to perform the analysis about the model			No analysis of type 1 are possible			
	itself (type 1) 16.1.3) Time required to perform the analysis about the n			No analysis of type 1 are possible			
	performances (type2)	the model	No analysis of type 2 are possible				
Expo	You arrived at the end of the phase 1: "Import file in the software".Now choose:	anage the	The software cannot export to IFC, therefore skip the phase 2				
	1	est v	vith UpTow	n.ifc			
ø.	How long does it take, approximately, to:Import (and visualise software allows it) the model				1-5 minutes		
	How long does it take, approximately, to:Zoom into the model to smore detail				it's almost immediate		
Performance	How long does it take, approximately, to:Pan the	ne mo	del		it's almost immediate		
forn	How long does it take, approximately, to:Rotate	e the r	nodel		it's almost immediate		
Pel	How long does it take, approximately, to:Query an object				it's almost immediate		
	How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship				it's almost immediate		
Pro porti	24.1) Does the model maintain its correct dimensions and proportions?				Yes		
止して	25.1) Is the eventual translation consistent with the IFC definitions?				Yes		
Hiera	26.1) Are the hierarchical relationships consistent with the IFC hierarchy?				Yes		
	27.1) Are the attributes present in the IFC entities retained and consistent?				No		
	27.1.1) What changes / inconsistencies / errors / other issues w noted?				Only the reference attribute is kept		
Attributes	27.1.2) Attach 27.1.2) Attach Sorreenshots	A W A W A W A W A W A W A W A W A W A W	0000 C	11 W 11			
sh at	28.1) Are the relationships between the objec	ts	V		near		
Relat ionsh	retained?		Yes				
ပြာ မ	29.1) Is geometry read correctly?	,	Yes				
z ō 8	g30.1) Did the normals change?		No				

2D/3 D	31.1) Is it possible to view the model in 3D?	Yes				
2D	32.1) Is it possible to view the model in 2D?	No				
Editi ng	33.1) Is it possible to edit the model (attributes, geometry, other)?		me I gave during the test with Myran.ifc			
Quer	34.1) Is it possible to query the model and the attributes?	The answers are the same	he answers are the same I gave during the test with Myran.ifc			
Anal	35.1) Is it possible to analyse the objects and the model?	The answers are the same I gave during the test with Myran.ifc				
Exp	You arrived at the end of the phase 1: "Import and manage the file in the software".Now choose:	The software cannot expo	cannot export to IFC, therefore skip the phase 2			
	Test w	vith Savigliano.ifc				
	How long does it take, approximately, to:Import (and allows it) the model	d visualise if the software	less than a minute			
Performance	How long does it take, approximately, to:Zoom into detail	the model to see more	it's almost immediate			
ma	How long does it take, approximately, to:Pan the mo	it's almost immediate				
lu	How long does it take, approximately, to:Rotate the	model	it's almost immediate			
P _A	How long does it take, approximately, to:Query an o	object	it's almost immediate			
	How long does it take, approximately, to:Inspect the queried one through a relationship	it's almost immediate				
Sing	40.1) Are the world (projected) coordinates taken i locating the model in the software's coordinate ref	No				
Georeferencing	40.1.1) Where is the origin of the model coordinate imported in the software?	At the reference point				
Geol	40.1.3) What is the coordinate reference system ar unit of measure is used for the representation?	Can't show it on a screenshot because it's inside the building				
Height	41.1) Are the "real-world" elevation values (heights locating the model in the software (z)?	No				
	41.1.1) What is the elevation value of the origin of reference system as imported in the software?	0				
=	41.1.2) Attach screenshots					
	41.1.3) What is the height reference system?	Local in metres or milimetres (similarly to Myran)				

1 - Very beginner user (it is nearly the first time you use it)



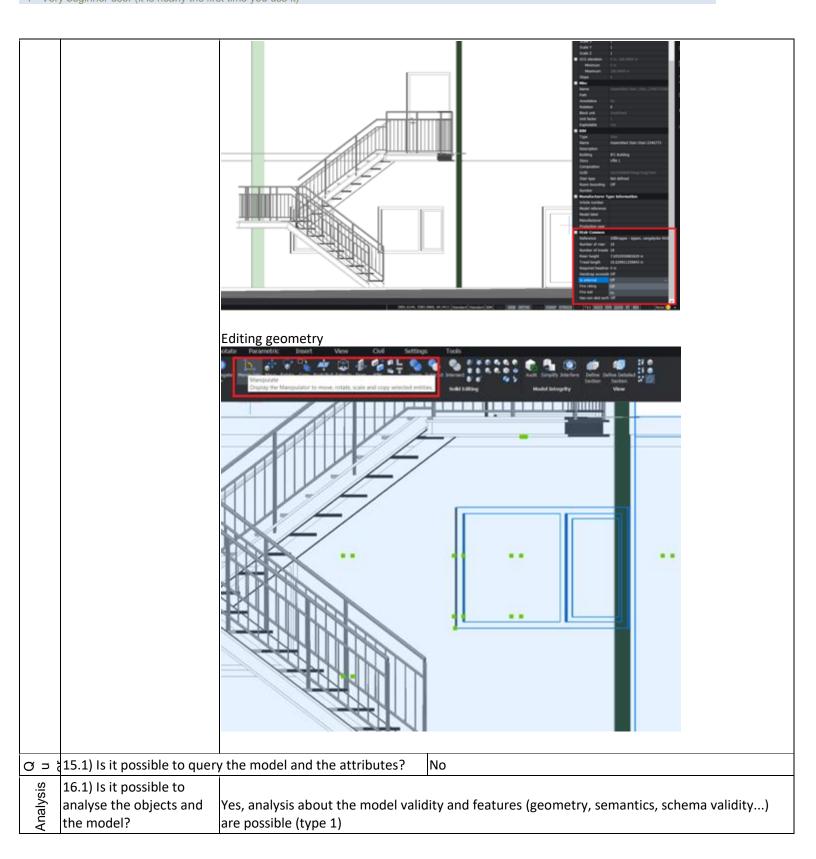
Solibri Anywhere 9.10.4.13 – Windows 10 Home Proprietary 3D viewer 1 - Very beginner user (it is nearly the first time you use it)

You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	cannot export to IFC, therefore skip the
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BricsCAD Ultimate

BricsCAD Ultimate									
Software	Software Name [version] BricsCAD Ultimate [V20]			Software house Bricsys					
offw	Proprietary or open source software?			Kind of software	Kind of software				
Ö	proprietary			CAD					
ıter	Model and year	Operating system	CPU	GPU	Memory	(RAM)	Hard drive capacity	Hard drive free space	
Computer	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia Quadro T1000	16 GB		512 GB	107 GB	
Certification	IFC import certification status	Import certification date	Import certification program	IFC export certification status	Export certificat date	ion	Export certification program		
Certi	certified in (date)	2017-10-11	CV 2.0	certified in (date)	2016-10)-14	CV2.0-Arch		
			Test	with Myran.ifc					
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model			I visualise if the	less th	an a mir	nute		
ance	How long does it take, approximately, to:Zoom into the model to more detail				it's aln	it's almost immediate			
rma	How long does it take, approximately, to:Pan the model				it's almost immediate				
Pe	How long does it take, approximately, to:Rotate the model				it's almost immediate				
	How long does it take, approximately, to:Query an object				it's aln	nost imn	nediate		
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship					the software does not allow this			
	2.1) Are the world model in the softv	account when loo	ating the	No					
	-	reference system a	as	At the	reference point	(0, 0, 0)			
	•						<u> </u>		
Georeferencing	imported in the software? 2.1.2) Attach screenshots At the reference point (0, 0, 0)								

	T			1		
	2.1.3) What is the coordinate reference system and projectic what unit of measure is used for the representation?			Local right handed in inches		
		ed for the representation?		Local right-handed in inches		
	2.1.4) Attach screenshots			See 2.1.2		
	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?			No		
	3.1.1) What is the elevation value of the origin of the model					
	coordinate reference system as imported in the software?			0		
	3.1.2) Attach screenshots			See 2.1.2		
	3.1.3) What is the height reference system?			Local in inches		
Height	Height			And the second of the second o		
	3.1.4) Attach screenshots			White the same of the control of the		
	4.1) Is the model oriented correctly with respect to the true North?			Yes		
	5.1) Does the model maintain its correct dimensions and proportions?					
	g6.1) Is the eventual translation consistent with the IFC definitions?					
Hierarch y	7.1) Are the hierarchical relationships consistent with the IFC hierarchy?		Yes			
Η̈́	7.2) short comments to the previous question (optional)			ntained in the correct storeys at least		
ı <u>-</u> . w	8.1) Are the attributes preand consistent?	sent in the IFC entities retained	Yes			
<u>~ ⊕ ;</u>	9.1) Are the relationships b	petween the objects retained?	Yes			
(D) (a)	10.1) Is geometry read cor	rectly?	Yes			
Z 0 :				No		
2D/3 D	12.1) Is it possible to view the model in 3D?		Yes			
2C C	13.1) Is it possible to view the model in 2D?			No		
	14.1) Is it possible to edit the model (attributes, geometry, other)?		Yes			
Editing		ssible (attributes, geometry, d details)?	You can edit attributes and geometry (scale, move, rotate)			
	14.1.2) Attach screenshots Editing attributes					



1						
	16.1.1) What analysis are					
	possible? Do you know if the results are reliable?	,				
	the results are reliable:	od can check the integrit	y or the mo	uei		
	16.1.2) Attach screenshots					
	16.1.3) Time required to pe	rform the analysis about				
the model itself (type 1) it crashes without completing the operation				without completing the operation		
	16.1.3) Time required to perform the analysis about the model performances (type2) No analysis of type 2 are possible					
	You arrived at the end of the manage the file in the software.		The software has also export abilities to IFC			
t	17.2) short comments to the (optional)	previous question	Apparently need a license for export			
ы	18.1) Is it possible to choose definition (MVD) to be used data?		No			
	19) How long does it take fo exported to IFC?	or the data to be	less than a	a minute		
		Test w	ith UpTov	vn.ifc		
	How long does it take, approte the software allows it) the m	oximately, to:Import (and voodel	isualise if	20 minutes-1 hour		
	How long does it take, approximately, to:Zoom into the model to see more detail			it's almost immediate		
nan	How long does it take, appro	oximately, to:Pan the mod	el	it's almost immediate		
Performance	How long does it take, appro	oximately, to:Rotate the m	odel	it's almost immediate		
Pe	How long does it take, appr	oximately, to:Query an ob		it's almost immediate		
	How long does it take, approximately, to:Inspect the ollinked to the queried one (Element 3) through a relation			the software does not allow this		
	24.1) Does the model maint proportions?	.1) Does the model maintain its correct dimensions and		Yes		
ပ <u>i</u> E ရ	25.1) Is the eventual transla	ation consistent with the I				
÷ e =	definitions?			Yes		

а <i>-</i>	26.1) Are the hierarchical relationships consistent	with the IFC			
Hiera rchy	hierarchy?		Yes		
Attrib utes	27.1) Are the attributes present in the IFC entities retained and consistent?		Yes		
Att	consistent?		163		
오 교 ;	28.1) Are the relationships between the objects re	etained?	Yes		
uo 5	29.1) Is geometry read correctly?		Yes		
Geom	30.1) Did the normals change?		No		
2D/3 D	31.1) Is it possible to view the model in 3D?		Yes		
2D/ D	32.1) Is it possible to view the model in 2D?		Yes		
Editi	33.1) Is it possible to edit the model (attributes, gother)?	eometry,	The answers are the same I gave during the test with Myran.ifc		
/i			The answers are the same I gave during the test with		
Queryin			Myran.ifc		
	34.1) Is it possible to query the model and the att				
Anal	35.1) Is it possible to analyse the objects and the model?		The answers are the same I gave during the test with Myran.ifc		
Ì	You arrived at the end of the phase 1: "Import and				
Export	file in the software".Now choose:		The software has also export abilities to IFC		
û	36) How long does it take for the data to be export	ed to IFC?	it crashes without completing the operation		
	Test	with Saviglia	ano.ifc		
	How long does it take, approximately, to:Import (and visualise if the software allows it) the model	1-5 minutes			
	How long does it take, approximately, to:Zoom into the model to see more detail	it's almost imi	mediate		
ance	How long does it take, approximately, to:Pan the model	it's almost imi	mediate		
Performance	How long does it take, approximately, to:Rotate the model	it's almost imi	mediate		
9	How long does it take, approximately, to:Query an object	it's almost imi	mediate		
	How long does it take, approximately, to:Inspect the objects linked to the queried one through a relationship	the software does not allow this			
D	40.1) Are the world (projected) coordinates				
Cin	taken into account when locating the model in				
erer	,	No			
Georeferencing	40.1.1) Where is the origin of the model				
Gec	coordinate reference system as imported in the software?	At the referen	nce point		
	SUITWAIE!	At the releiel	ice point		

	40.1.2) Attach screenshots				
	40.1.3) What is the coordinate reference system and project what unit of measure is used for the representation?	ction and	Local right-handed in inches		
	40.2) short comments to the previous question (optional)		Also see Myran screenshots		
	41.1) Are the "real-world" elevation values (heights) considuhen locating the model in the software (z)?		No		
1 (1)	41.1.1) What is the elevation value of the origin of the mod coordinate reference system as imported in the software?	el	0		
	41.1.3) What is the height reference system?		Also see Myran screenshots		
0 := 0	42.1) Is the model oriented correctly with respect to the true	North?	Yes		
	43.1) Does the model maintain its correct dimensions and proportions?		Yes		
	44.1) Is the eventual translation consistent with the IFC definitions?	Yes			
R e	47.1) Are the relationships between the objects retained?	Yes			
netry nals	48.1) Is geometry read correctly?	Yes			
Geometry Normals	49.1) Did the normals change?	No			
/3	50.1) Is it possible to view the model in 3D?				
2D/; D	51.1) Is it possible to view the model in 2D?	No			
Export	You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose:	The software has also export abilities to IFC			
Exp	55) How long does it take for the data to be exported to IFC?	less than a	a minute		

Lexocad

4)	Software Name [version] Lexocad [v26]			Software house Cadwork					
Software				Kind of software					
So	proprietary			CAD					
ıter	Model and year	Operating system	CPU	GPU	PU Memory (RAM)		Hard drive free space		
Computer	Lenovo Thinkpad P1 Gen 2 (2019)	Windows 10 Home 64-bit	Intel i7-9750H @ 2.60GHz	Nvidia Quadro	16 GB	512 GB	76 GB		
Certification	IFC import certification status	Import certification date	Import certification program	IFC export certification status	Export certification date	Export certification program			
Certif	certified in (date)	2016-10-04	CV 2.0	certification in progress		CV2.0-Arch			
	(dato)		Test	with Myran.if	ic				
	How long does it the software allow		ely, to:Import (and		1-5 minutes				
ormance	How long does it take, approximately, to:Zoom into the model see more detail				it's almost immediate				
	How long does it take, approximately, to:Pan the model				it's almost immediate				
	How long does it	take, approximat	ely, to:Rotate the n	nodel	it's almost immedia	te			
ď	How long does it	take, approximat	ely, to:Query an ob	oject	it's almost immedia	te			
	How long does it to the queried on		ely, to:Inspect the o	objects linked	the software does r	not allow this			
	2.1) Are the world account when loc coordinate refere	cating the model i	dinates taken into n the software's	No					
	2.1.1) Where is the reference system	•		It's not possible to see the origin, because I can only see coordinates of objects. However, it seems to be at the reference point.					
Georeferencing	2.1.2) Attach screenshots 2.1.2 Attach 2.1.3 Attach 2.1.4 Attach 2.1								
2.1.3) What is the coordinate what unit of measure is used					Local, in metres				

	2.1.4) Attach screenshots	5		See 2.1.2		
-	2.2) short comments to the previous question (optional)			In the settings of the software it is indicated that unit of measurement is metres		
	3.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?			No		
as a	3.1.1) What is the elevation value of the origin of the model coordinate reference system as imported in the software?			Can't check it, but it's probably 0		
	3.1.3) What is the height reference system?			Local		
		correctly with respect to the true	North?	Yes		
	5.1) Does the model mair proportions?	ntain its correct dimensions and		Yes		
ļ.	6.1) Is the eventual transl	ation consistent with the IFC defi	nitions?	Yes		
	7.1) Are the hierarchical r hierarchy?	relationships consistent with the I	FC	Yes		
Sema	8.1) Are the attributes pre consistent?	esent in the IFC entities retained a	and	Yes		
	9.1) Are the relationships	between the objects retained?		Yes		
Geomet ry	10.1) Is geometry read co	prrectly?	Yes			
Gec	11.1) Did the normals cha	ange?	No	lo		
3D	12.1) Is it possible to view the model in 3D?			Yes		
- ' '	13.1) Is it possible to view		No			
	14.1) Is it possible to edit geometry, other)?	the model (attributes,	No			
	15.1) Is it possible to que	ry the model and the attributes?	Yes	s		
	15.1.1) What kinds of que	ery are possible?	Only on ob	oject type		
	15.1.2) Attach screenshots 15.1.2) Attach screenshots					
An aly eie	16.1) Is it possible to anal	lyse the objects and the model?	No	No		
0 t		the phase 1: "Import and manage	e The sof	The software cannot export to IFC, therefore skip the phase 2		

How long does it take, approximately, to:Import (and visualise if the software allows it) How long does it take, approximately, to:Zoom into the model to see more detail How long does it take, approximately, to:Pan the model How long does it take, approximately, to:Rotate the model How long does it take, approximately, to:Rotate the model How long does it take, approximately, to:Rotate the model How long does it take, approximately, to:Rotate the model Less than a minute less than a minute less than a minute	e				
the model How long does it take, approximately, to:Zoom into the model to see more detail less than a minutes	e				
	e				
How long does it take, approximately, to:Pan the model How long does it take, approximately, to:Rotate the model 1-5 minutes					
How long does it take, approximately, to:Rotate the model 1-5 minutes	e				
<u> </u>	e				
How long does it take, approximately, to:Query an object					
How long does it take, approximately, to:Inspect the objects linked to the queried one (Element 3) through a relationship	e				
o 문 (24.1) Does the model maintain its correct dimensions and e proportions?					
25.1) Is the eventual translation consistent with the IFC definitions? Yes					
26.1) Are the hierarchical relationships consistent with the IFC hierarchy?					
hierarchy? 27.1) Are the hierarchical relationships consistent with the IFC hierarchy? 27.1) Are the attributes present in the IFC entities retained and consistent? Yes Yes					
28.1) Are the relationships between the objects retained? Yes					
E > 29.1) Is geometry read correctly?	Yes				
Yes 29.1) Is geometry read correctly? Yes 30.1) Did the normals change?	No				
g 31.1) Is it possible to view the model in 3D?					
The state of th					
The answers are the same I gave with Myran.ifc	re during the test				
The answers are the same I gave with Myran.ifc	e during the test				
The answers are the same I gave with Myran.ifc	e during the test				
You arrived at the end of the phase 1: "Import and manage the file in the software". Now choose: The software cannot export to I the phase 2 The software cannot export to I the phase 2 The software cannot export to I the phase 2 The software cannot export to I the phase 2	The software cannot export to IFC, therefore skip the phase 2				
36) How long does it take for the data to be exported to IFC? 20 minutes-1 hour					
Test with Savigliano.ifc					
How long does it take, approximately, to:Import (and visualise if the software allows it) the model 1-5 minutes					
How long does it take, approximately, to:Import (and visualise if the software allows it) the model How long does it take, approximately, to:Zoom into the model to see more detail How long does it take, approximately, to:Pan the model it's almost immediate					
How long does it take, approximately, to:Pan the model it's almost immediate					

	How long does it take, approximately, to:Rotate the model	t's almost immediate		
	How long does it take, approximately, to:Query an object	it	t's almost immediate	
	How long does it take, approximately, to:Inspect the objects linked to queried one through a relationship	he software does not allow this		
	40.1) Are the world (projected) coordinates taken into account whe locating the model in the software's coordinate reference system?		No	
	40.1.1) Where is the origin of the model coordinate reference syste imported in the software?	At the reference point		
Georeferencing	40.1.2) Attach screenshots			
	40.1.3) What is the coordinate reference system and projection and what unit of measure is used for the representation?	Local in	in metres	
	40.2) short comments to the previous question (optional)	Screens	shot would be similar to the one for Myran	
ŧ	41.1) Are the "real-world" elevation values (heights) considered when locating the model in the software (z)?	No		
Height	41.1.1) What is the elevation value of the origin of the model			
=	coordinate reference system as imported in the software?	0		
	,	Screens	shot would be similar to the one for Myran	
Orie ntati	42.1) Is the model oriented correctly with respect to the true North?	Yes		
۵ - ۵	43.1) Does the model maintain its correct dimensions and proportion	ns?	Yes	
上して	44.1) Is the eventual translation consistent with the IFC definitions?)	Yes	
~ 교 등	47.1) Are the relationships between the objects retained?		Yes	
E > S	48.1) Is geometry read correctly?		Yes	
Geom	49.1) Did the normals change?	No		
	50.1) Is it possible to view the model in 3D?		Yes	
2D/3 D	51.1) Is it possible to view the model in 2D?		No	
Export	You arrived at the end of the phase 1: "Import and manage the file ir software". Now choose:	the	The software has also export abilities to IFC	
<u>û</u>	55) How long does it take for the data to be exported to IFC?	less than a minute		

Lexocad v26 – Windows 10 Home

Proprietary
CAD
1 - Very beginner user (it is nearly the first time you use it)