

6) Attach other screenshots or files that you consider useful

1. Visualizations in BIMVision (before conversion)

Myran – Dataset

IFC

- ▶ Detailed geometric and semantic information
- ▶ LOD 300 with building interior
- ▶ Architectural model of BIM




Figure 1.1.1

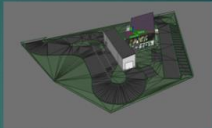
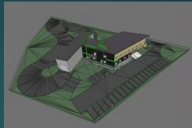


Figure 1.1.2 (a)



(b)

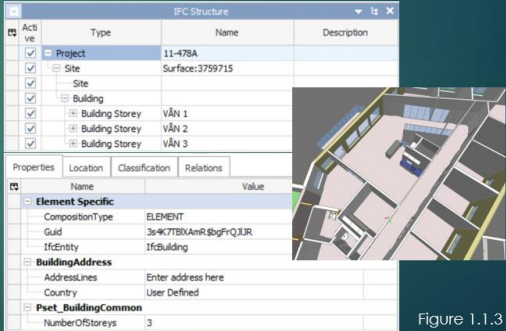


Figure 1.1.3

Visualizations: BIMVision

Active	Type	Name	Description
<input checked="" type="checkbox"/>	Project	11-478A	
<input checked="" type="checkbox"/>	Site	Surface:3759715	
<input checked="" type="checkbox"/>	Building		
<input checked="" type="checkbox"/>	Building Storey	Vlån 1	
<input checked="" type="checkbox"/>	Building Storey	Vlån 2	
<input checked="" type="checkbox"/>	Building Storey	Vlån 3	

Properties	Location	Classification	Relations	Value
Element Specific				
CompositionType		ELEMENT		
Guid		3e4c7b5a4a4b4d4e4f4g4h4i4j4k4l4m4n4o4p4q4r4s4t4u4v4w4x4y4z4		
IfcEntity		IfcBuilding		
BuildingAddress				
AddressLines		Enter address here		
Country		User Defined		
Pset_BuildingCommon				
NumberOfStoreys		3		

2. Conversion through FME Quick Translator

a. Visualization in FME Data Inspector

Myran – Experiment 1

IFC to CityGML

- ▶ *Separate Feature Type* parameter was set for IFC Reader and Coord. System EPSG:3013 for CityGML writer
- ▶ Result is irregular geometrical shapes
- ▶ All elements are converted into *GenericCityObject*

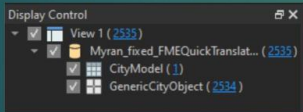
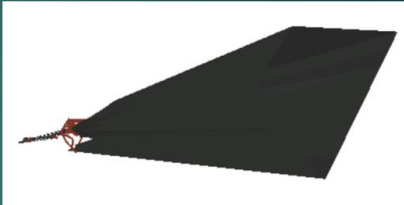


Figure 2.1.1



(b)




Figure 2.1.2 (a)

Visualizations: FME Data Inspector
Conversion tool: FME Quick Translator

b. Translation Errors (logs from FME Quick Translator)

```
618 Errors | 216 Warnings | Information | W | I | Q | R | S | T | U | V | W | X | Y | Z | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

734 Worker 21928 > (281840.0999761449,6581996.690165961,600)
735 Worker 21928 > -----
736 Worker 21928 > Surface Number: 2
737 Worker 21928 > Geometry Type: IFMEFace
738 Worker 21928 > Name(UTF-16LE): 'surfaceMember'
739 Worker 21928 > Number of Geometry Traits: 3
740 Worker 21928 > GeometryTrait(encoded: UTF-16LE): 'citygml_lod_name' has value 'surfaceMember'
741 Worker 21928 > GeometryTrait(encoded: UTF-16LE): 'gml_geometry' has value 'Polygon'
742 Worker 21928 > GeometryTrait(encoded: UTF-16LE): 'gml_id' has value 'fme-gen-26dbc47c-dda6-4a75-b5f1-5e4398ec71b1'
743 Worker 21928 > Sidedness: '1-sided'
744 Worker 21928 > Front Appearance Reference: '<inherited_or_default_appearance>'
745 Worker 21928 > Area:

=====
No matching transformation specification found for feature:
+++++
Feature Type: 'IfcWindowStyle'
Attribute(encoded: UTF-8) : 'ConstructionType' has value 'NOTDEFINED'
Attribute(encoded: UTF-8) : 'GlobalId' has value '13oX6Tgq5AiOpgYt1M9J2n'
Attribute(encoded: UTF-8) : 'Name' has value 'FD12-01'
Attribute(encoded: UTF-8) : 'OperationType' has value 'NOTDEFINED'
Attribute(encoded: UTF-8) : 'ParameterTakesPrecedence' has value 'No'
Attribute(boolean) : 'Sizeable' has value 'No'
Attribute(encoded: UTF-8) : 'Tag' has value '2230682'
Attribute(string) : 'fme_geometry' has value 'fme_aggregate'
Attribute(string) : 'fme_type' has value 'fme_collection'
Attribute(64 bit unsigned integer): 'ifc_instance_name' has value '153215'
Attribute(string) : 'ifc_type' has value 'ifc_collection'
Attribute(encoded: UTF-8) : 'ifc_unique_id' has value '13oX6Tgq5AiOpgYt1M9J2n_153215'
Coordinate System: 'EPSG:3013'
Geometry Type: IFMEAggregate
Name(UTF-8): 'IfcWindowStyle'
Front Appearance Reference: '<inherited_or_default_appearance>'
Back Appearance Reference: '<inherited_or_default_appearance>'
Number of Geometries: 1
-----
Geometry Number: 0
Geometry Type: Geometry Instance
Name(UTF-8): 'IfcPropertySet'
Front Appearance Reference: '<inherited_or_default_appearance>'
Back Appearance Reference: '<inherited_or_default_appearance>'
Local Origin: (281755.0236940925,6581943.155777277,0)
Transformation Matrix:
[nan nan nan nan]
... Last line repeated 2 times ...
|0 0 0 1|
Geometry Definition Reference: '300'
-----
Geometry Definition for Reference: '300'
Geometry Type: IFMENull
Name(UTF-8): 'Ytterdörr - fönster - parametrar - kategorier: FD12-01:2230700'
Number of Geometry Traits: 3
GeometryTrait(encoded: UTF-8) : 'GlobalId' has value '2sWfY_I1lCaOSacVghhRaQ'
GeometryTrait(64 bit unsigned integer): 'ifc_instance_name' has value '153214'
GeometryTrait(encoded: UTF-8) : 'ifc_unique_id' has value '2sWfY_I1lCaOSacVghhRaQ_153214'
=====
Error encountered while copying traits to generated solids. Some solid components may be missing traits, appearances, measures or attributes
... Last line repeated 4 times ...
Logging limit reached for the preceding message. Further instances of this message will not be logged
Reading source feature # 2500
```

```

No matching transformation specification found for feature:
+++++
Feature Type: 'IfcDoorStyle'
Attribute(encoded: UTF-8)      : 'ConstructionType' has value 'NOTDEFINED'
Attribute(encoded: UTF-8)      : 'GlobalId' has value '1J_hyp6oDEIglkvBpTDwSI'
Attribute(encoded: UTF-8)      : 'Name' has value 'D10-01'
Attribute(encoded: UTF-8)      : 'OperationType' has value 'NOTDEFINED'
Attribute(boolean)             : 'ParameterTakesPrecedence' has value 'No'
Attribute(boolean)             : 'Sizeable' has value 'No'
Attribute(encoded: UTF-8)      : 'Tag' has value '2153616'
Attribute(string)              : 'fme_geometry' has value 'fme_aggregate'
Attribute(string)              : 'fme_type' has value 'fme_collection'
Attribute(64 bit unsigned integer): 'ifc_instance_name' has value '10048'
Attribute(string)              : 'ifc_type' has value 'ifc_collection'
Attribute(encoded: UTF-8)      : 'ifc_unique_id' has value '1J_hyp6oDEIglkvBpTDwSI_10048'
Coordinate System: 'EPSG:3013'
Geometry Type: IFMEAggregate
Name(UTF-8): 'IfcDoorStyle'
Front Appearance Reference: '<inherited_or_default_appearance>'
Back Appearance Reference: '<inherited_or_default_appearance>'
Number of Geometries: 2
-----
Geometry Number: 0
  Geometry Type: Geometry Instance
  Name(UTF-8): 'IfcPropertySet'
  Front Appearance Reference: '<inherited_or_default_appearance>'
  Back Appearance Reference: '<inherited_or_default_appearance>'
  Local Origin: (281755.0236940925,6581943.155777277,0)
  Transformation Matrix:
    |nan nan nan nan|
... Last line repeated 2 times ...
  |0  0  0  1|
  Geometry Definition Reference: '67'
  -----
  Geometry Definition for Reference: '67'
    Geometry Type: IFMENull
    Name(UTF-8): 'Dörr_v2015:D10-01:2201503'
    Number of Geometry Traits: 3
    GeometryTrait(encoded: UTF-8)      : 'GlobalId' has value 'OKjxtkWpLDWw3Eo6Wzlg3a'
    GeometryTrait(64 bit unsigned integer): 'ifc_instance_name' has value '10046'
    GeometryTrait(encoded: UTF-8)      : 'ifc_unique_id' has value 'OKjxtkWpLDWw3Eo6Wzlg3a_10046'
  -----
  Geometry Number: 1

```

c. Discussion

In this IFC to CityGML transformation process, we have added Coord. System parameters in Transformation Parameters as EPSG 3013. Translation is successful, however, the geometry is misrepresented with possible global to local geometrical positing issue as shown in Figure 2.1.2. All features of IFC to CityGML objects were transformed except features of IfcTypeObject (i.e. IfcDoorStyle and IfcWindowStyle) were not transformed (as shown in logs).

FME Quick Translator supports geometrical transformation and less semantic details, no hierarchy is kept for the elements and all object are transformed as *GenericCityObject*, Figure 2.1.1.