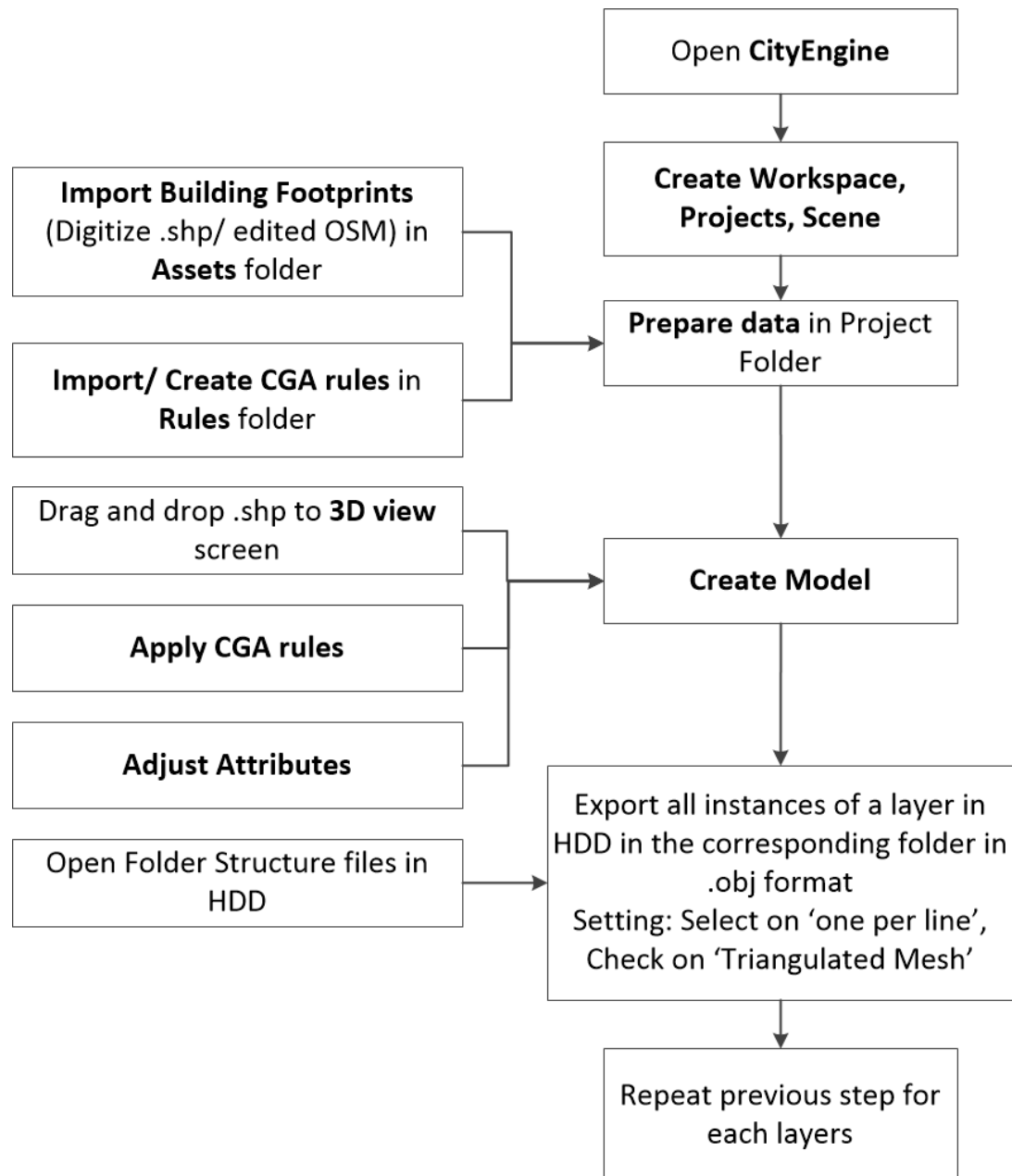


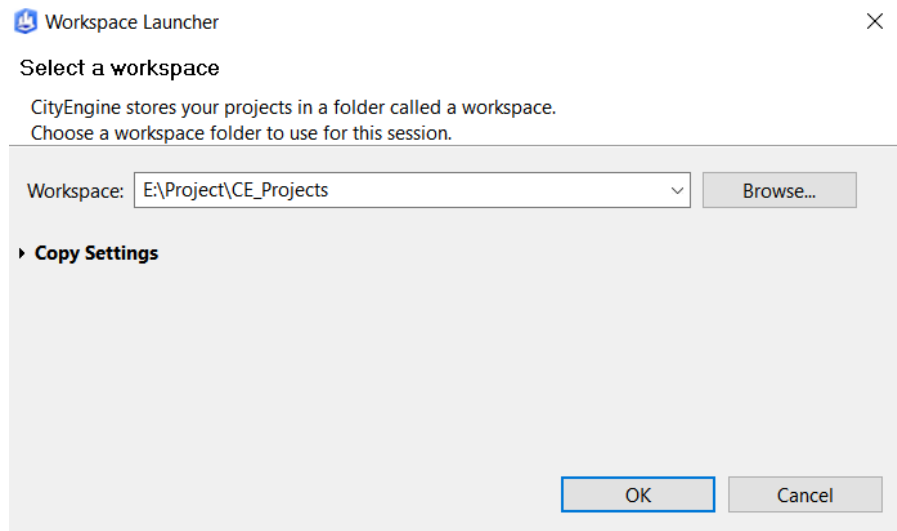
Procedure For Creating 3D Model in CityEngine



Step 1: Create Workspace, Projects, Scene in CityEngine

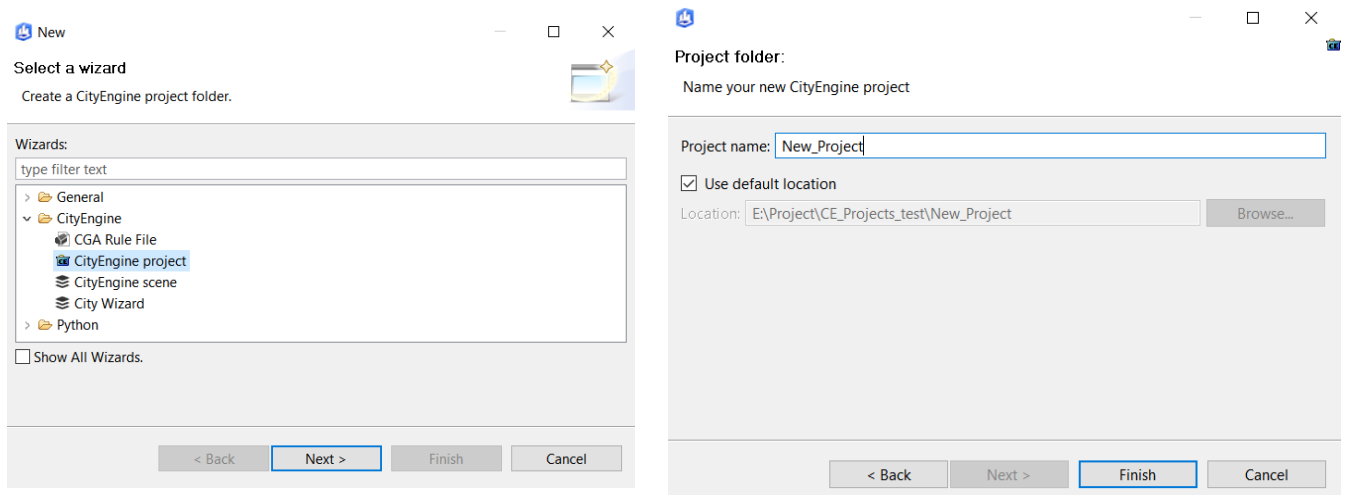
1. Create Workspace

- In the top **menu** click **File**, and hover over **Switch Workspace** then select **Others**
- In **Workspace Launcher** tab enter full folder path and click **OK**



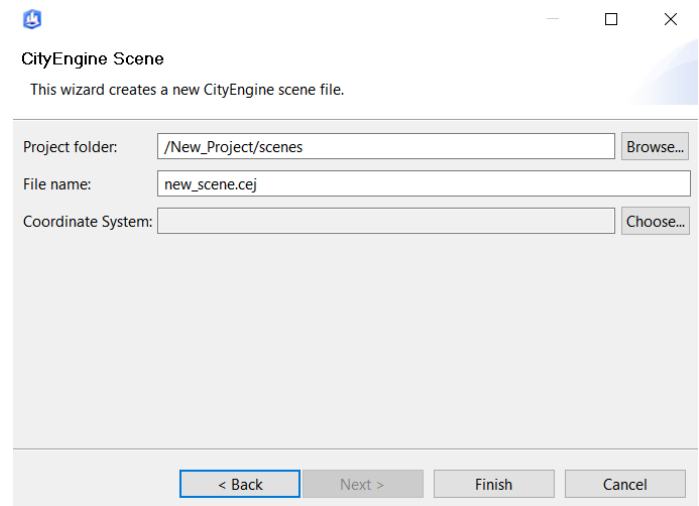
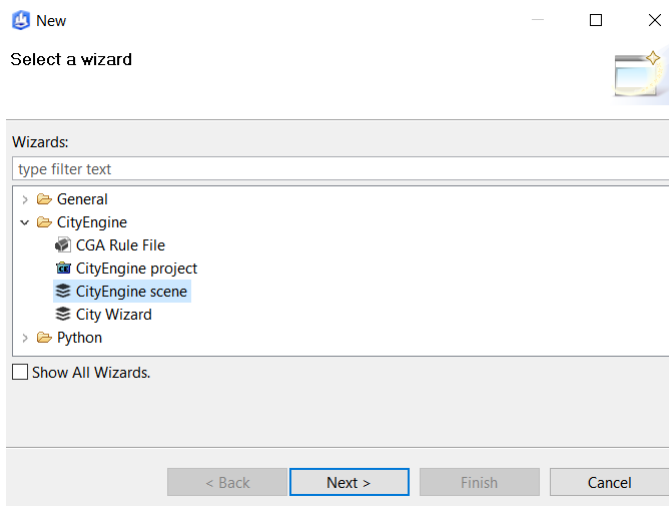
2. Create Project

- In the top **menu** click **File**, and click on **New**
- In **New** tab expand **CityEngine** and select **CityEngine project** and click **Next**
- Enter Project Name and click **Finish**



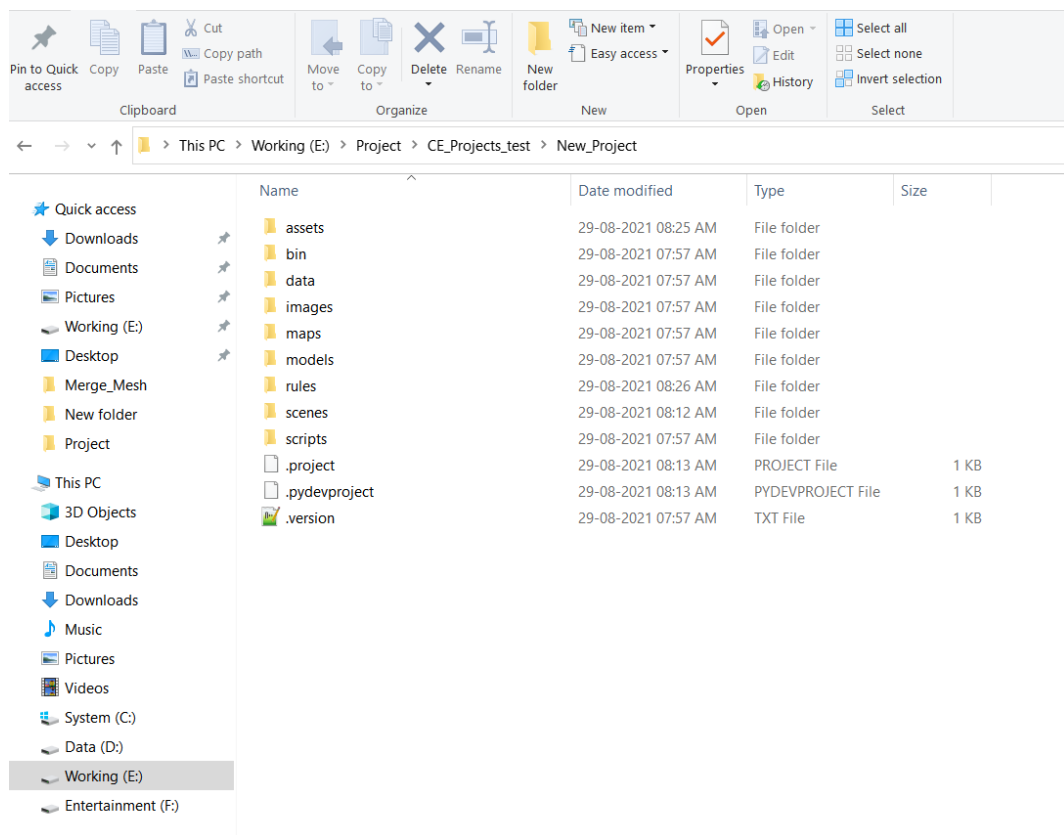
3. Create Scene

- In the top **menu** click **File**, and click on **New**
- In **New** tab expand **CityEngine** and select **CityEngine scene** and click **Next**
- Enter File Name and click **Finish**



Step 2: Prepare data in Project Folder

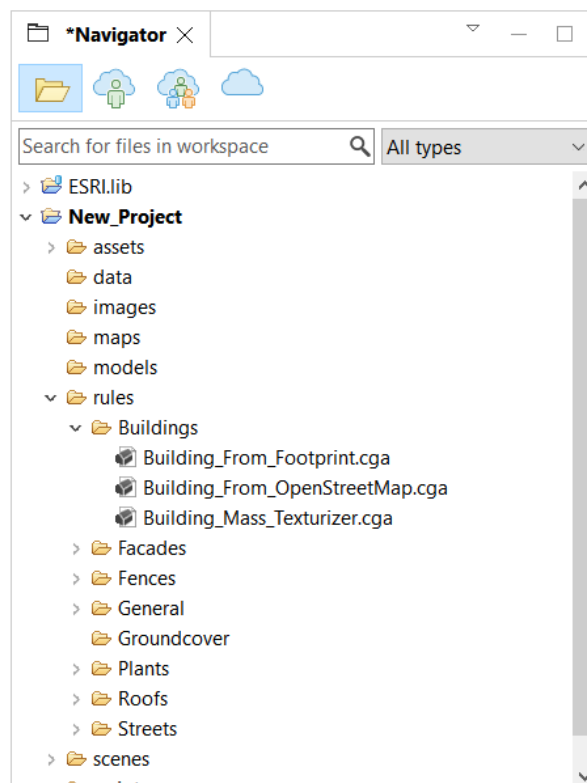
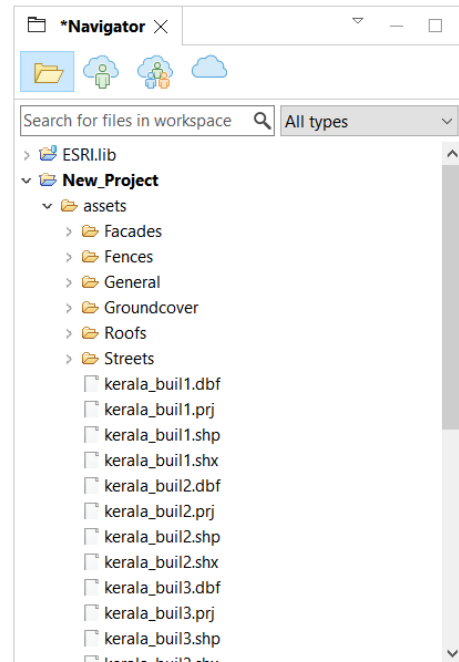
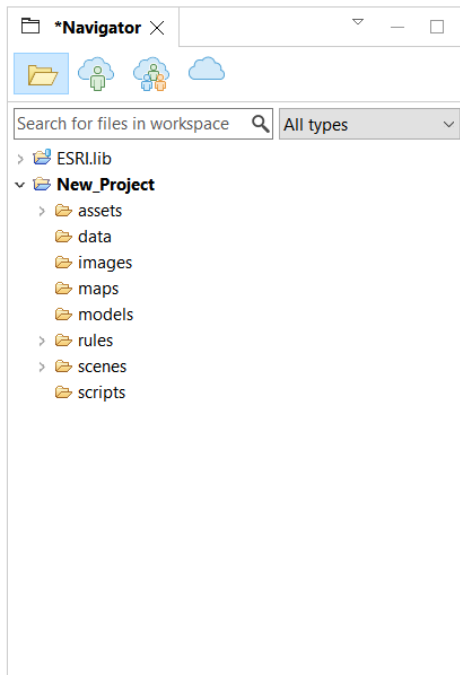
1. **Paste Building Footprints** (Digitize .shp/ edited OSM) in **Assets** folder in the selected project directory of your system
2. **Paste CGA rules files** in **Rules** folder
3. **Paste images and other required files** (which are used by CGA Rules) in the **Assets** folder

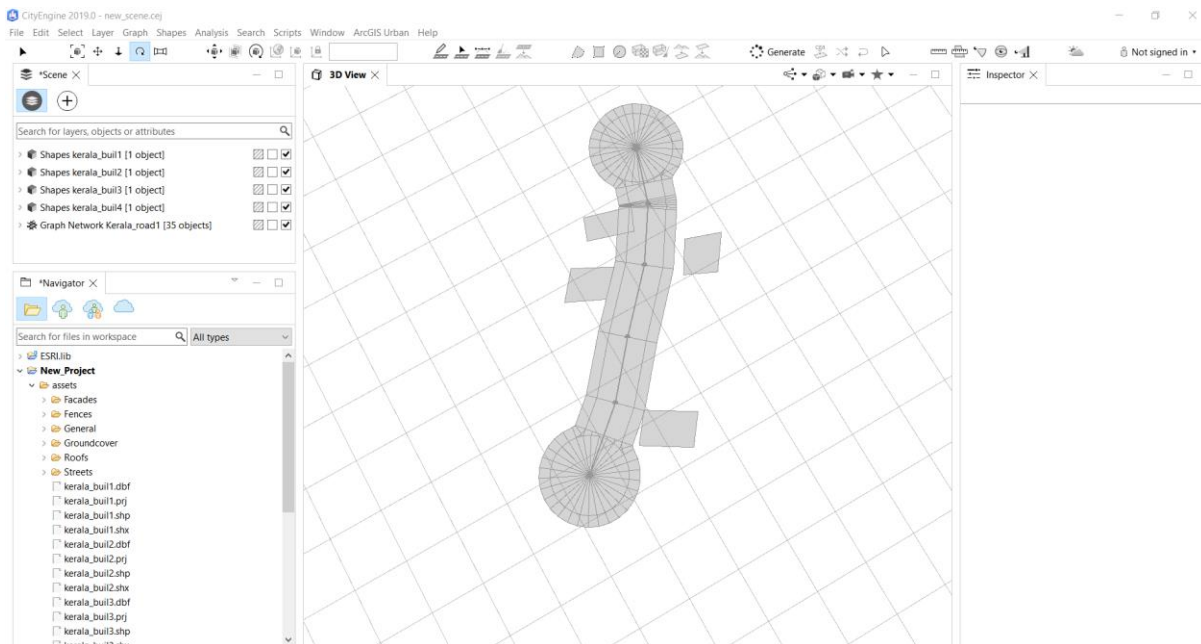


Step 3: Create Model

1. Create Layers

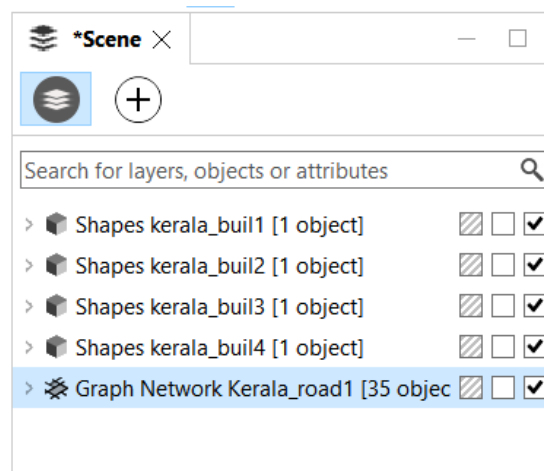
- In **Navigator tab** of CityEngine expand **Assets**
- Drag and drop **.shp files** (which are need to use) from Assets to **3D view** screen

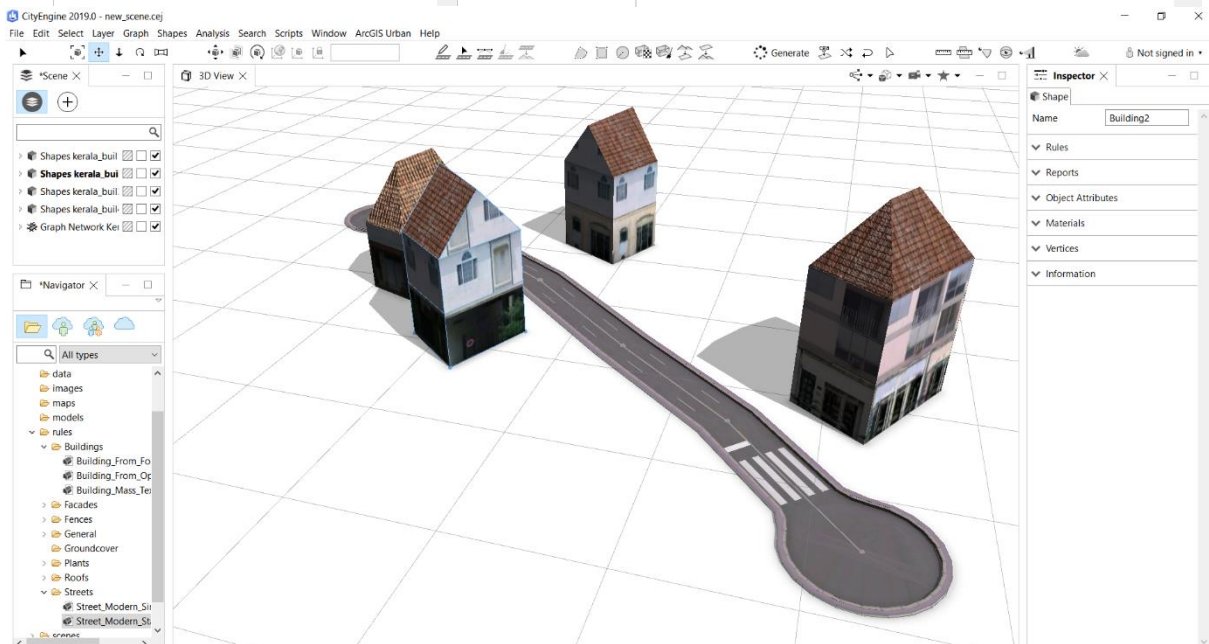
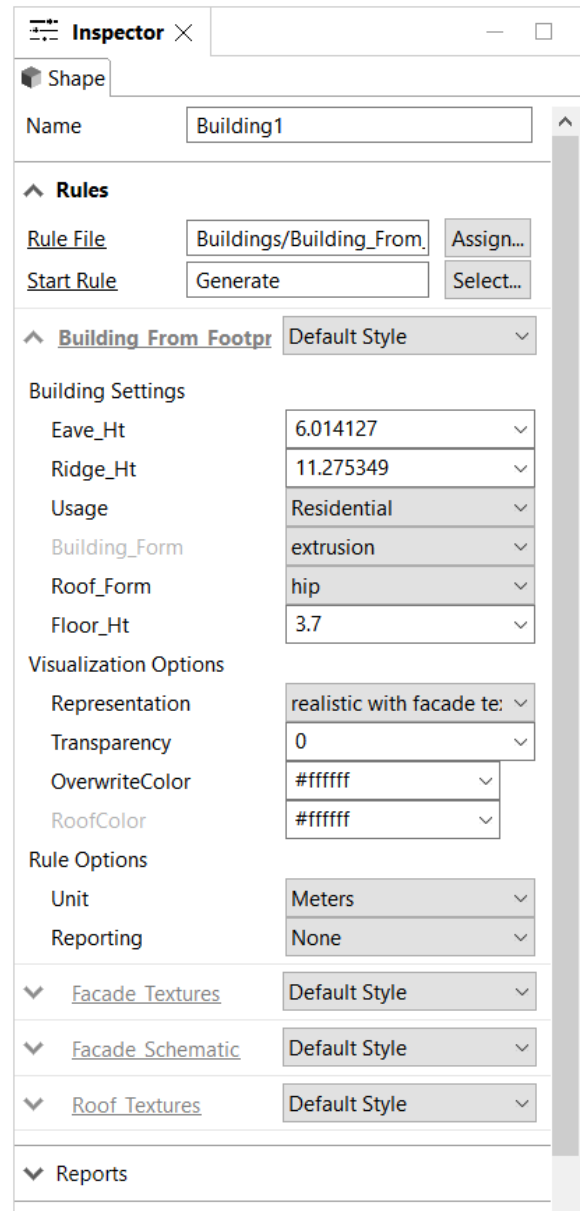
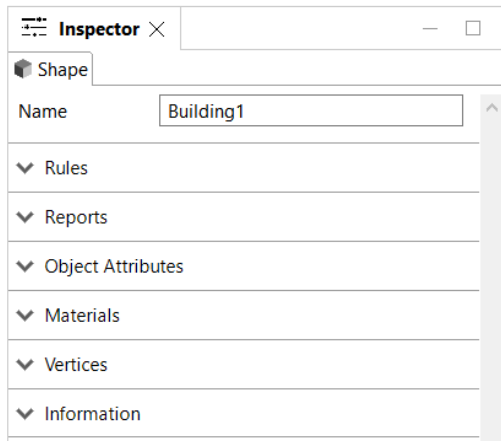




2. Apply CGA rules

- In **Navigator** tab of CityEngine expand **Rules**
- Drag and drop relevant **.cga** files from Rules to the **corresponding object** in **3D view** screen
 - Example: use CGA rules of building for layers of building
- Adjust Attributes**: attributes of the objects can be modified in Inspector section. First select the layer either form the **Scene** panel or double click on the object in **3D View panel**. Now details of the objects can be modified under **Rules, Object Attribution, Materials** etc.

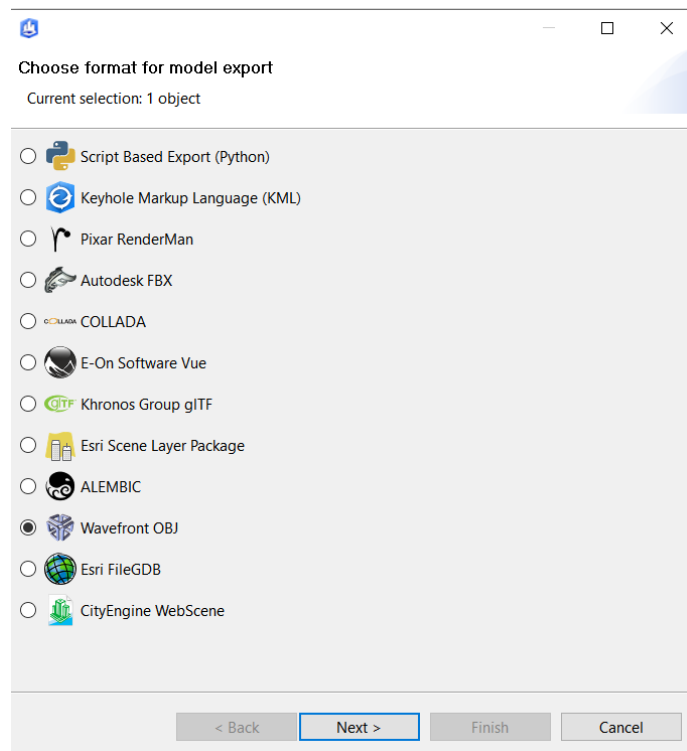




Step 4: Export all instances of a layer in HDD in the corresponding folder in .obj format

1. **Export a Layer**

a. **Select layers** which are need to export



b. In the top **menu** click **File**, and click on **Export Models**

c. Choose format for model export as **Wavefront obj**

d. Select Setting:

- i. Select **output path** → Select the correct class folder in HDD Folder, here .obj files will be saved
- ii. Enter **Base Name** → It will be added in name of the obj file s
- iii. Under **File Granularity** → Select on '**One file per start shape**
- iv. Under **Geometry setting** → Check on '**Triangulated Mesh**'
- v. Click on **finish**

Wavefront OBJ

Current selection: 1 object

Preset: ▼ ✓ 📄 ✖

Local Offset: None ▼

Global Offset

⌵ Center Reset X-Offset Y-Offset Z-Offset

Vertex Precision

Normal Precision

Texture Coordinate Precision

Merge Vertices Within Precision ☒

Merge Normals Within Precision ☒

Merge Texture Coordinates Within Precision ☒

Triangulate Meshes ☒

Faces With Holes Triangulate faces with holes ▼

^ **Material Settings**

Include Materials ☒

^ **Texture Settings**

Collect Textures ☒

Create Texture Atlases ☐

Texture Atlas Max Dimension (2^n) ▲▼

Texture Atlas Border ☒

^ **Advanced Settings**

Write Log ☒

Shape Name Delimiter

Existing Files Overwrite existing files ▼

Script Browse...

< Back Next > Finish Cancel

Wavefront OBJ

Current selection: 1 object

Preset: ▼ ✓ 📄 ✖

^ **General Settings**

Output Path Browse...

Base Name

Export Geometry Models with Shape Fallback ▼

Terrain Layers Export all selected terrain layers ▼

Simplify Terrain Meshes ☒

^ **Granularity Settings**

File Granularity One file per start shape ▼

Memory Budget (MBytes) ▲▼

Mesh Granularity Merge meshes by material ▼

^ **Geometry Settings**

Vertex Normals Write vertex normals ▼

Texture Coordinates Only write first layer of UVs ▼

Local Offset None ▼

Global Offset

⌵ Center Reset X-Offset Y-Offset Z-Offset

Vertex Precision

Normal Precision

Texture Coordinate Precision

Merge Vertices Within Precision ☒

Script Browse...

< Back Next > Finish Cancel

2. Repeat previous step to export each layer one by one in the respective HDD folder