حكومة دبي
GOVERNMENT OF DUBAI

Appendix A: Revit BIM E-Submission Guideline

VER 1.2 October 2022

Contents

Section 1: Project Creation

When using Revit as a model authoring tool, it is recommended to use the Revit **Dubai BIM E-Submission Template for Revit**. Please visit the below link to download the Revit template.

Please Download Revit Template from https://buildindubai.gov.ae/bim

The templates consist of pre-defined properties, settings, views, objects, and schedules that will aid model consistency and efficiency, which will allow for the automation of modeling tasks and ensure a smoother process when uploading the model and the BIM E-Submission platform.

The template files will incorporate the following:

- Shared Parameters
- Naming conventions for levels, views, families etc. (outlined in Section 5.4)
- Element categorisation
- Schedules
- IFC export settings – Model view definition (MVD)

1.1 Open a new Revit project using the Dubai BIM E-Submission Template for Revit.

Browse to the template location and create a new project using the **Dubai BIM E-Submission Template**. Refer to *Figure 1*.

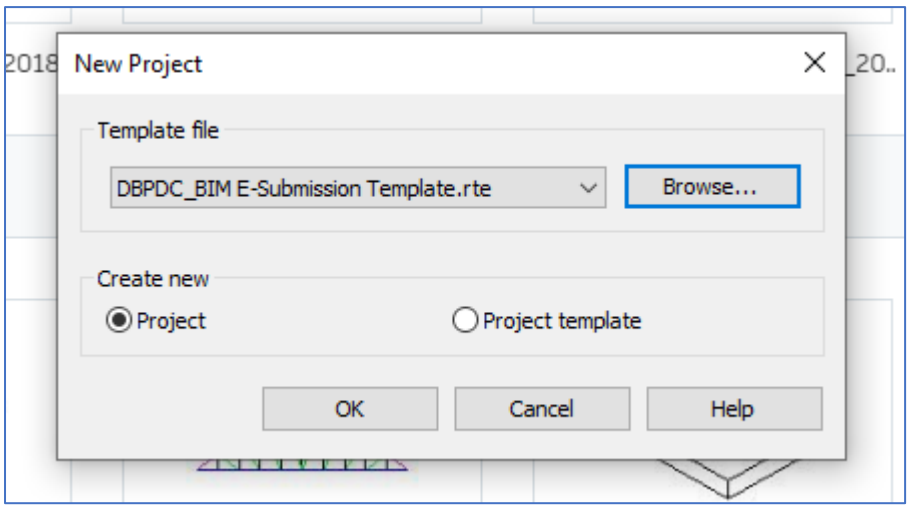

Figure 1 – Load Dubai BIM E-Submission Template to a new project

1.2 Fill the landing page with the required information.

Complete the landing page by filling in the empty fields with relevant project information. In addition, insert an image in the provided space, preferably a perspective view of the project. Refer to *Figure 2*.

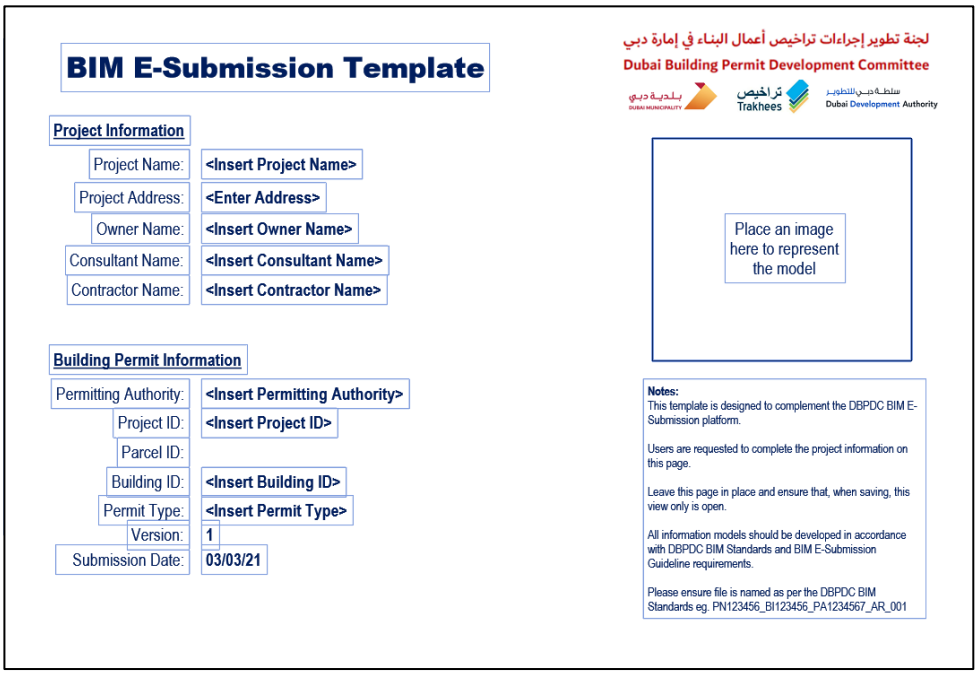

Figure 2 - Revit Template Landing Page

1.3 Commence model development using predefined views.

Based on the discipline required (Architecture, Structure, or MEP), users can select from predefined views (refer to *Figure 3)*. The user is free to create new views/levels based on the project design. Ensure any additional levels added to the project new adhere to the levels naming convention. Refer to **Section 8.4.1 in the Dubai BIM Standards** document.

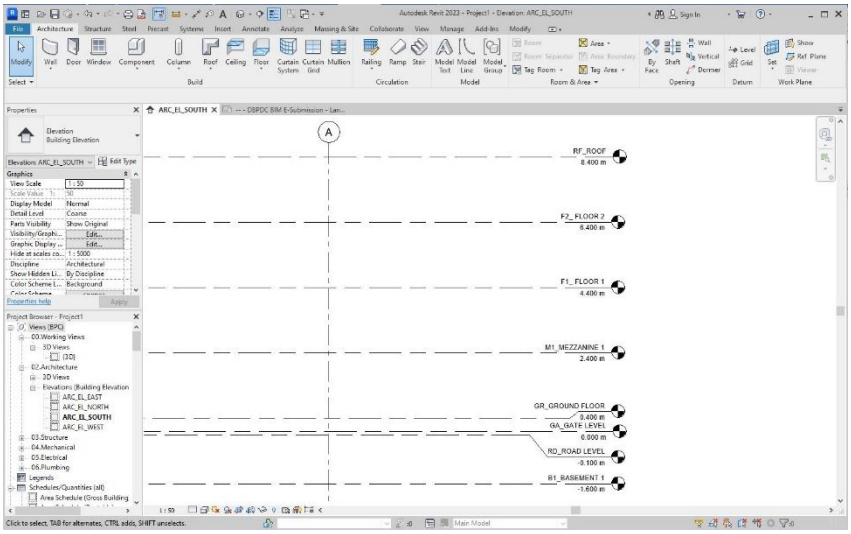

Figure 3 – Revit template predefined views

1.4 Revit Families

The user should utilize the existing loaded families within the template. When the user add additional families they should ensure to adhere to the Object Naming Convention, refer to **Section 8.2.2 in Dubai BIM Standards** document.

For the modeling best practices for architectural, structural, and MEP disciplines, please refer to **Section 2.3.1** of the **Dubai BIM E-Submission Guidelines**.

1.5 Model Parameters

To guarantee successful utilization of the automated code checking engine on the BIM E-Submission platform, it is important to populate all the required IFC parameters to elements based on the **Model Element Attribute Matrix**. Please refer to **BIM Standards, Appendix B** for the **Model Element Attribute Matrix.**

IFC Shared Parameters Link: https://bim.geodubai.ae/Documents/Template_Guidelines.zip

The shared parameter should be downloaded with the Revit template before starting a project, this shared parameter file should be loaded into the project in the beginning, refer to *Figure 04*. Assign the attributes to elements based on the **Model Element Attribute Matrix** as mentioned above, and use the existing schedules to confirm that all IFC parameters are correctly filled, refer to *Figure 05*.

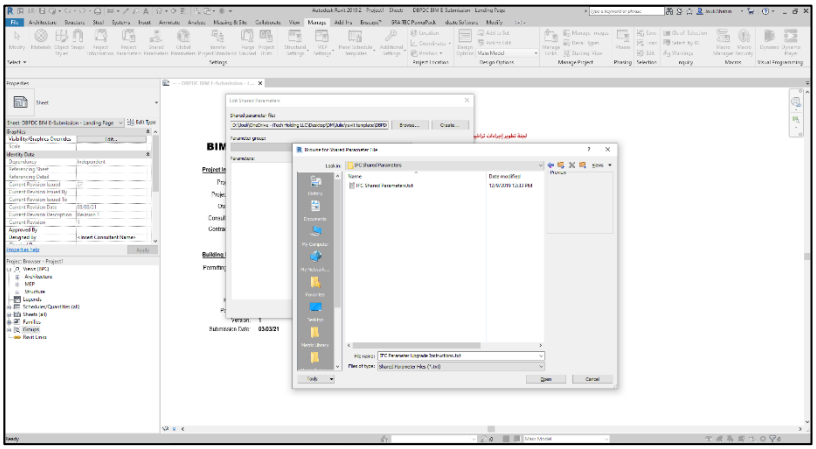

Figure 4 – Loading IFC shared parameter file.

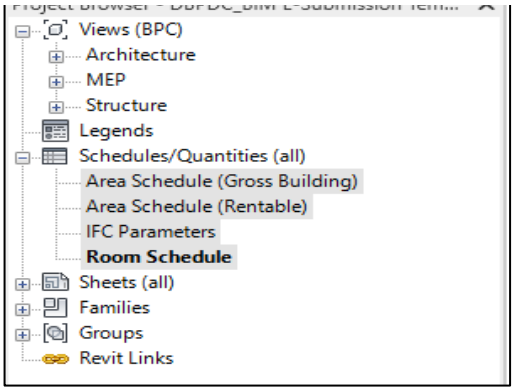

Figure 5 - IFC parameters and area verification schedules.

Note: using the **Dubai BIM E-Submission Template** is not mandatory, although users should ensure they are using the correct IFC export settings, property sets, and mapping tables in their project.

Section 2: Model Geo-referencing

All Revit models uploaded to the BIM E-Submission platform must be georeferenced for integration with the Dubai GIS database. This integration is handled automatically by the platform, but it is a prerequisite that all IFC models host valid georeferencing information. It is the responsibility of the model Author to follow any valid method for georeferencing the building information model. The below process is recommended for an accurate model georeferencing.

2.1 Download the Parcel Information

Users should download the parcel information using the GIS to BIM service which is part of the BIM E-Submission platform. The GIS to BIM will give the user a DXF file of the project parcel, which can be directly linked into Revit through **linkCad** option under **Insert** tab. Upon linking the parcel into to Revit environment, please follow the steps below:

1. Place the link in a right location with refer with project base point and internal origin
2. Then from manage tab select acquire coordinate and click the ink to acquire coordinate from the ink
3. Set the project orientation to True North from the project properties window and from manage tab us rotate to True North and rotate Revit environment with refer to the link. Refer to *Figure 7*.

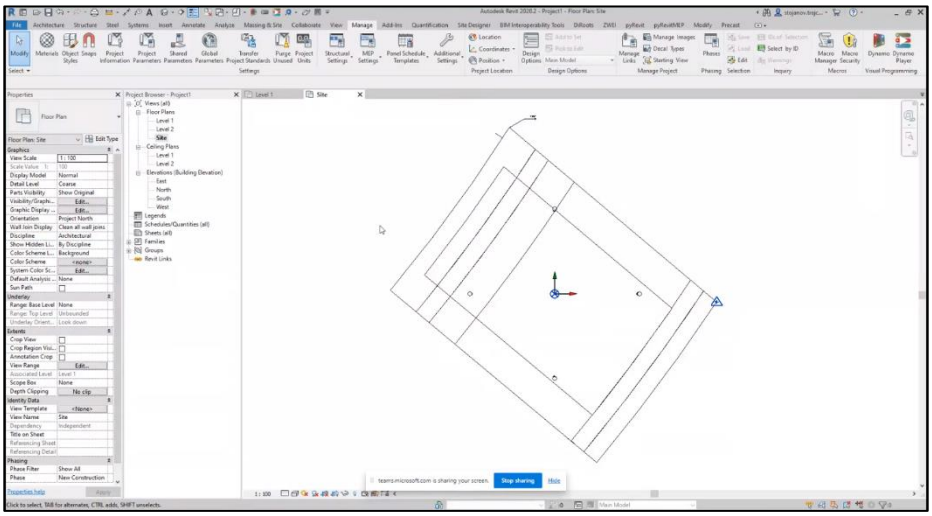

Figure 6 – Set up Revit Survey point location

4. Unclip the **Survey point** & move it from its origin to a corner of the project parcel which have an identified coordinate and check if the coordinates are correct. Refer to *Figure 6*.

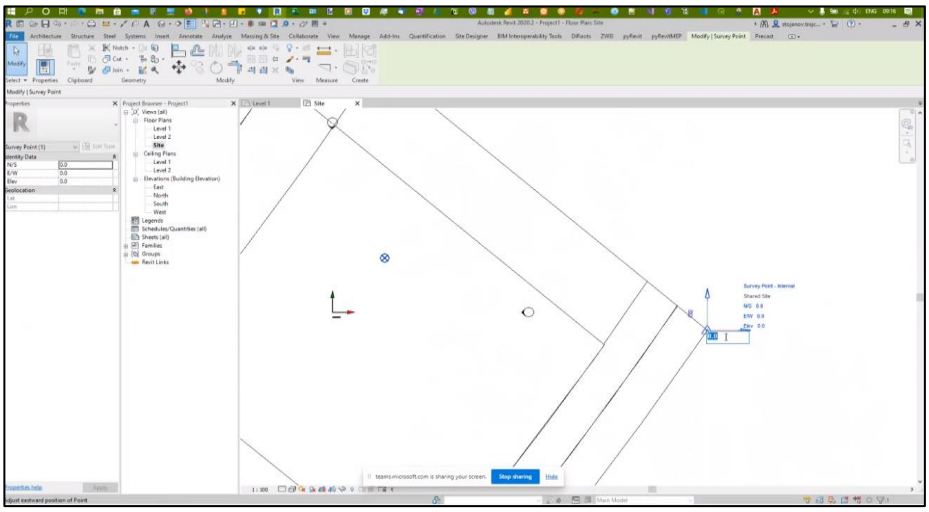

Figure 7 – Set up Revit survey point easting and northing values

5. Reclip the **Survey Point** and adjust the survey point and link if required
6. Place the project **Base Point** over **Internal Origin** at the intersection of Gridline 1 with Gridline A or any suitable location.
7. Set the project orientation back to **Project North** and proceed with the modeling.

Note: The above is one method of setting Georeferencing. The user can follow any other suitable methods for the georeferencing and make sure that the output is as per requirement.

Section 3: BIM model(s) split into multiple Revit files

When a BIM submission includes IFC models which are coming from multiple Revit files, it is important to ensure that the location of the **Internal Origin** point in all Revit files have the same location relative to the **Survey point**. This setup ensures that the IFC models exported from Revit share the same local coordinates systems. This is useful for cases when all IFC models are displayed or processed relative to the local coordinate system, not the real-world coordinate system (i.e. IfcSite coordinates).

Section 4: Export to IFC

3.1 Export your model to IFC using Dubai Building Permit IFC settings

Before starting the export command, make sure you are using the latest Revit IFC export Setup release for the used Revit version. You can find the latest release of the Revit IFC export Setup on the official Autodesk website.

You can export to IFC by following the steps below:

1. Download the **IFC property Set** file & the **IFC Parameters Mapping file** from the BIM e-Submission platform website. **P**lease visit the below link to find and download the above-mentioned files.

   https://bim.geodubai.ae/Documents/Template_Guidelines.zip

2. From the **Revit** file tab, select the **Export IFC** option, then select **Browse** and choose the location of your IFC model export.
3. Select **Modify Setup**, then Select **IFC2.3_Dubai Building Permit** or **IFC 4_Dubai Building Permit** as an export setup
4. Select **Property Sets** tab & browse to load both **Export user-defined property sets** and **Export parameter mapping table**, files which are mentioned above, refer to *Figure 08* and *Figure 09*.
5. Make sure the Base Coordinate is set as Shared Coordinate for the proper Geo-reference output
6. Select **OK**, then select the **Export** option to start exporting.
7. When exporting all model disciplines, ensure to zip all files into the same folder before uploading to the BIM E-Submission platform.

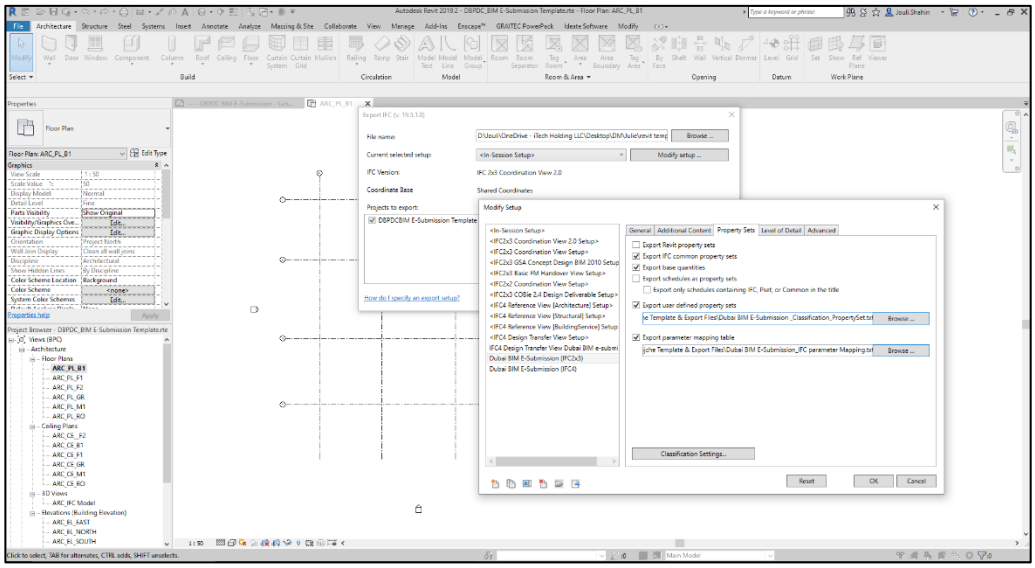

Figure 8 - Selecting Dubai Building Permit IFC export settings.

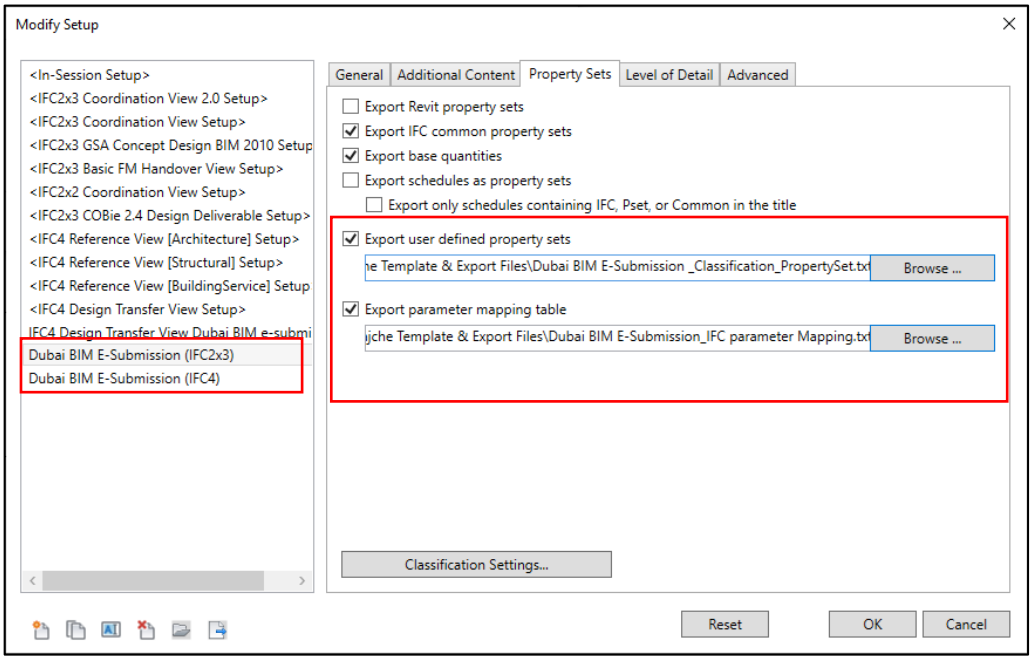

Figure 9 – Loading property sets and parameter mapping table into IFC export settings.