Instructions for UV Mapping with BlenderBIM

First, an IFC project must be created or loaded. This option is available in the scene menu (Figure 5).

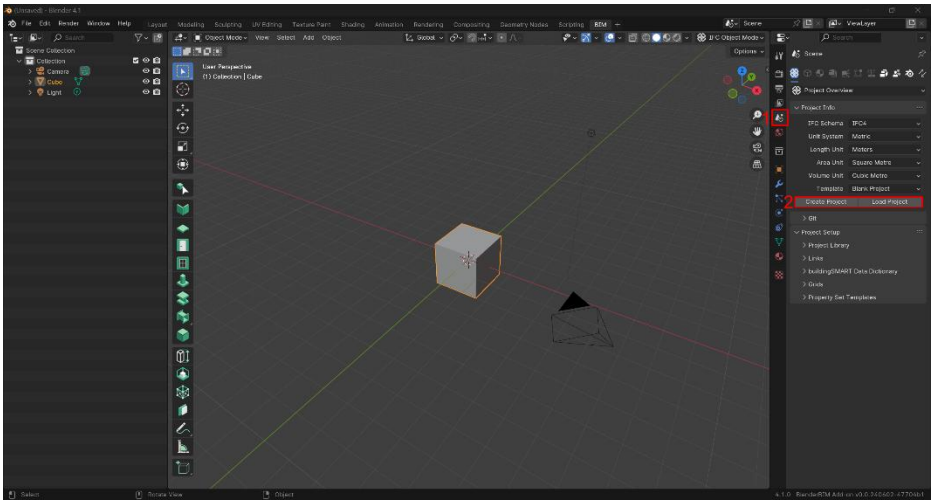

Figure 5: Creating and Loading the IFC Project

Next, a geometry can be created. In order to edit and save the geometry as an IFC model, an IFC class must first be assigned to it. To do this, the geometry needs to be selected. The assignment of the IFC class can be done under Object Information in the Scene menu (Figure 6).

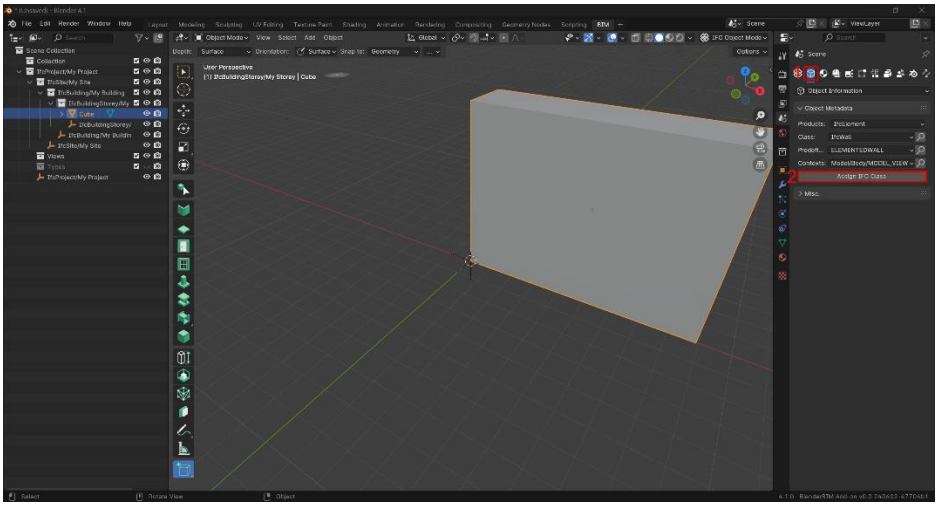

Figure 6: Assigning an IFC Class

Then, under Geometry and Materials, you will find Geometric Relationship and there, Vendor Workarounds. The option Force Triangulation must be enabled to allow texturing of the geometry (Figure 7). Since forced triangulation can only be set when a geometry has been created in the IFC project and the option only affects subsequent geometries with a UV map, the geometry can be deleted. A new geometry is then created and textured.

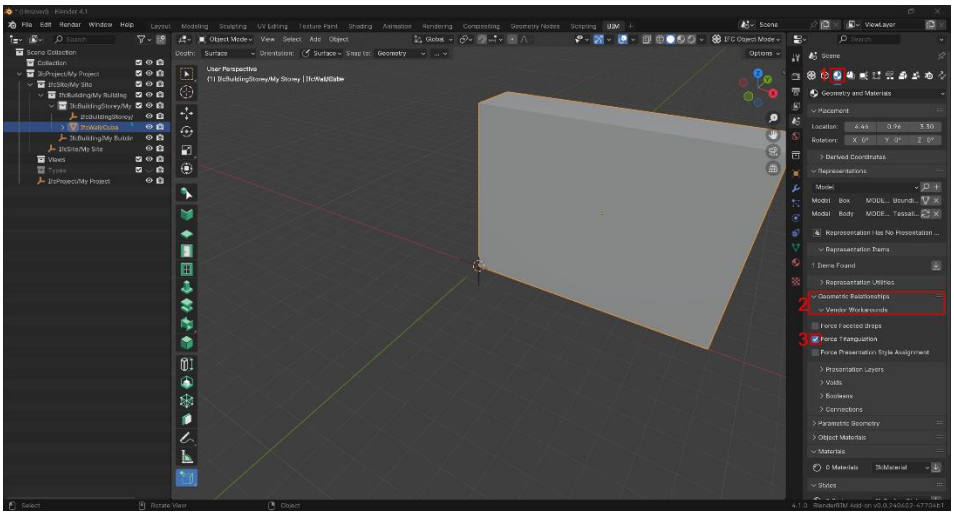

Figure 7: Preparation and Creation of Materials

A UV map for the selected geometry is created by splitting the surfaces into UV coordinates using "Smart UV Project" under the "UV Editing" tab (Figures 8 and 9).

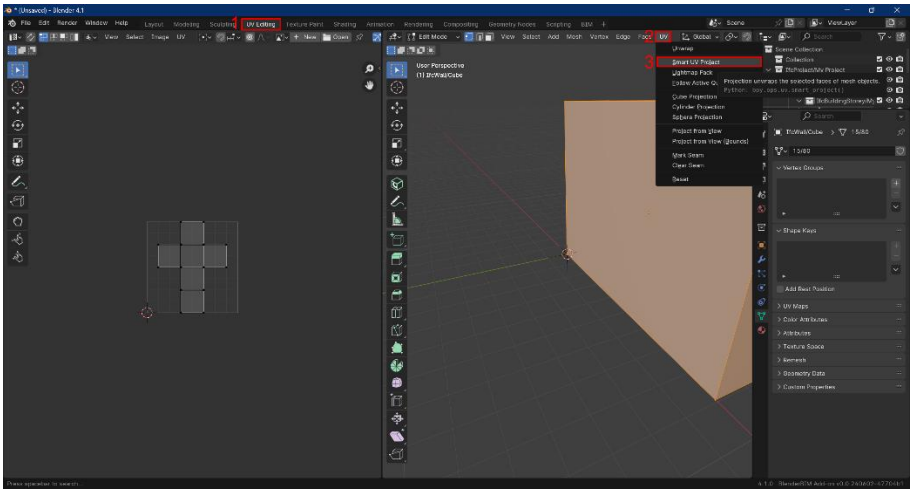

Figure 8: Creating a UV Map

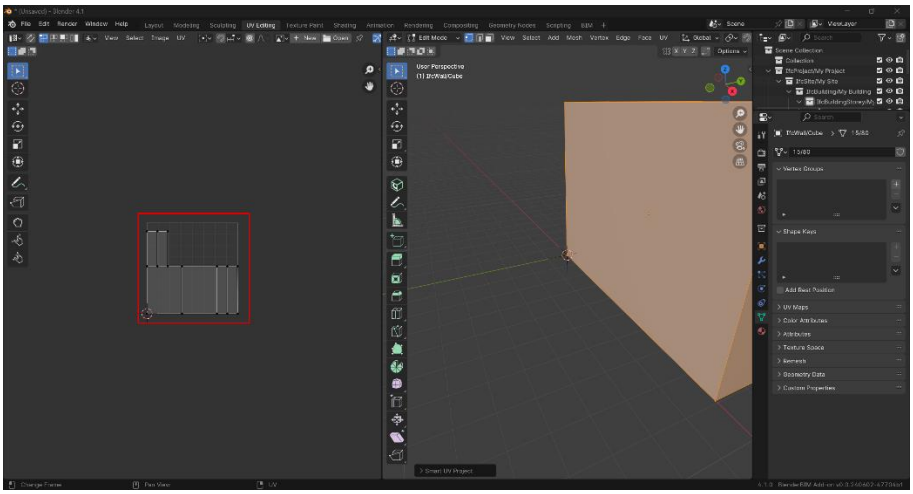

Figure 9: Final UV Map

After creating the UV map, the desired material is selected in the Shading tab. If no material was created earlier, it can be created here as well (Figure 10).

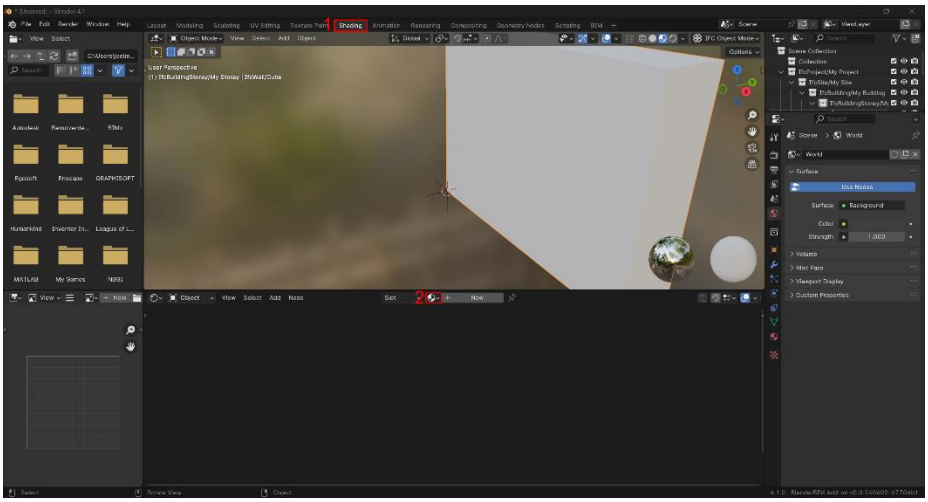

Figure 10: Loading a Material

After selecting a material, "Use Nodes" must be activated. Using the "UV Map" and "Image Texture" nodes, which can be found by pressing Shift + A in the Node Editor, the required UV map and desired texture can be applied to the geometry (Figure 11).

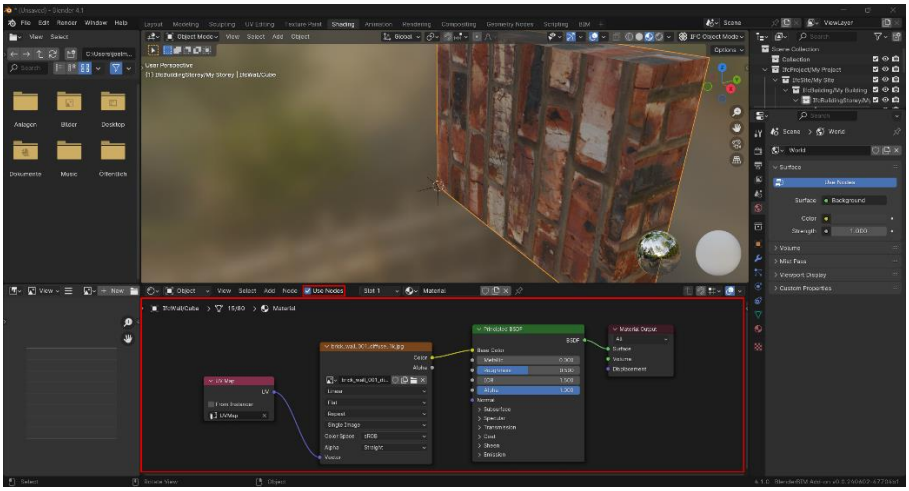

Figure 11: Texturing the Material

The geometry can now be assigned to an IFC class as in the previous step. By applying the IFC class, an IfcSurfaceStyle is created, which is suitable for applying textures. Since the style does not yet have a texture assigned, the desired texture can be selected and saved (Figure 12).

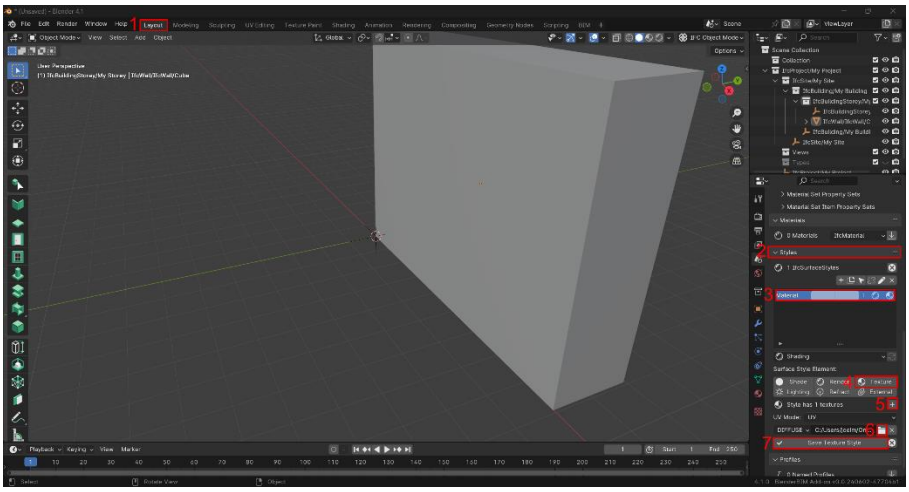

Figure 12: Adjusting the Texture

Next, a material can be created and assigned to the newly created style (Figure 13). If the IFC project already has materials, a material will automatically be assigned to the added object. In this case, only the style with the correct texture needs to be saved. If you still choose to create a new material and apply it to the object, the UV map of the object will be removed, and texturing may become more difficult.

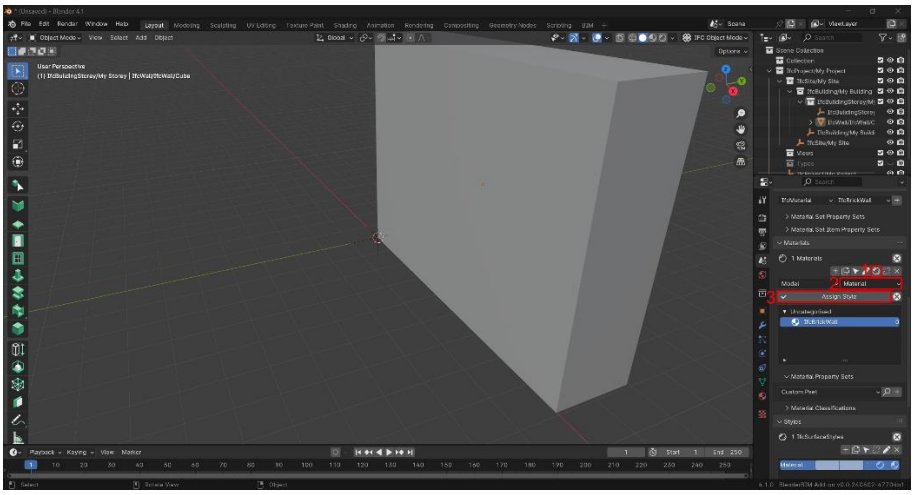

Figure 13: Creating a Material and Assigning the Style

To apply the material to the object, the material must be assigned to the object once again (Figure 14).

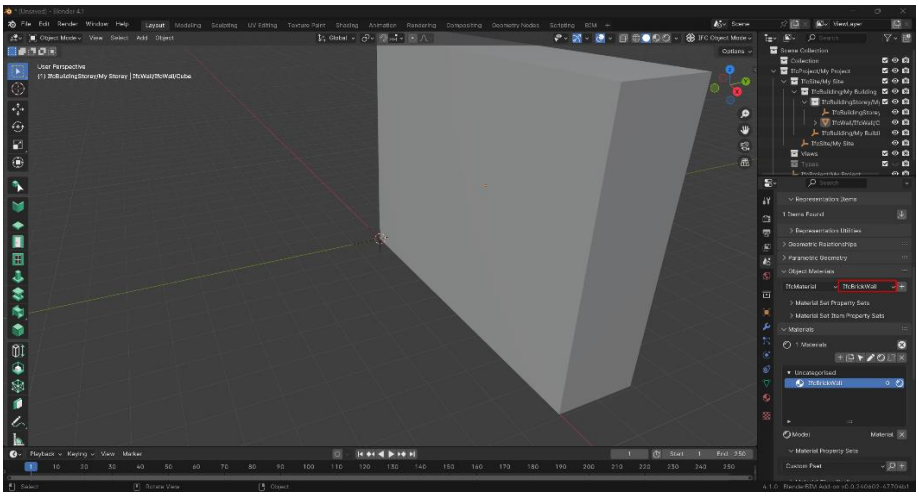

Figure 14: Applying the Material to the Object

To check if the texturing of the IFC model is working, an IFC viewer can be used. The KITModelViewer can open the created IFC file. To make the applied texture visible, the Display Mode must be set to Texture (Figure 15).

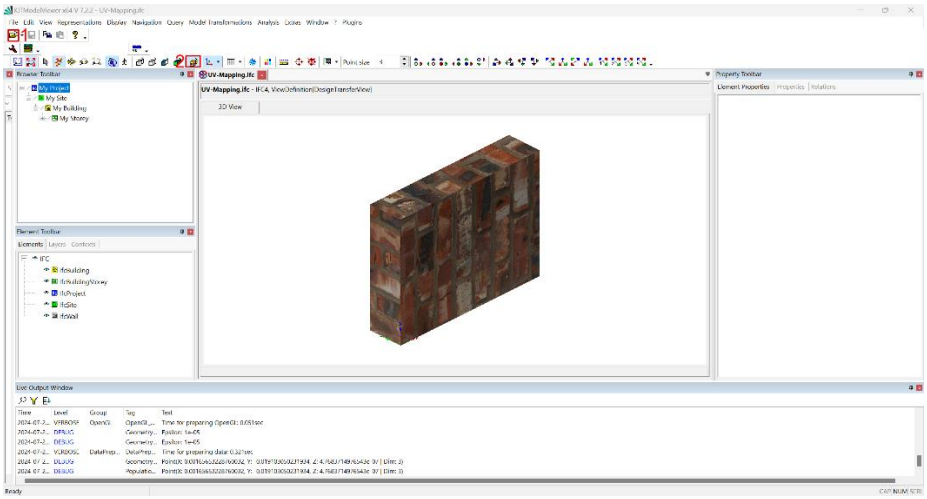

Figure 15: Checking the Result in KITModelViewer