

Test Case 15 – Curtain Wall

Test Description: Curtain wall is a thin, aluminum framed building cladding system that is used to keep the interior of the building remains airtight. The system usually uses glass as the panel between its frame. This test case creates a curtain wall system in a 10'x10' building. The purpose is to test the capability of exporting the curtain wall into a gbXML model.

Spaces / Rooms:

There is only one space in this test model. It is named as “level_1_space_1”. The space shape is the same as the building shape.

Special Consideration:

1. The model is 10' x 10' x 10' (Center line)
2. The wall thickness is 8”
3. The both thicknesses of roof and slab on grade are 1’.
4. All the walls face to an orientation shall be named as: “[orientation]_wall_[custom index]”
5. All the other surfaces shall be named as their function, such as “interior_wall_[custom index]”
6. The custom index is an index to differentiate the same type surfaces. The tester can decide how to label the custom index.

Description of Test Model:

[Figure 1](#) shows a 3-dimensional isometric view of this test model.

[Figure 2](#) shows a typical floor plan to indicate dimensions and directions of the space, with wall thickness, which are important for the gbXML space and surface definitions.

[Figure 3](#) shows the south elevation view to indicate positions and dimensions of the slab floor, roof or ceiling elements.

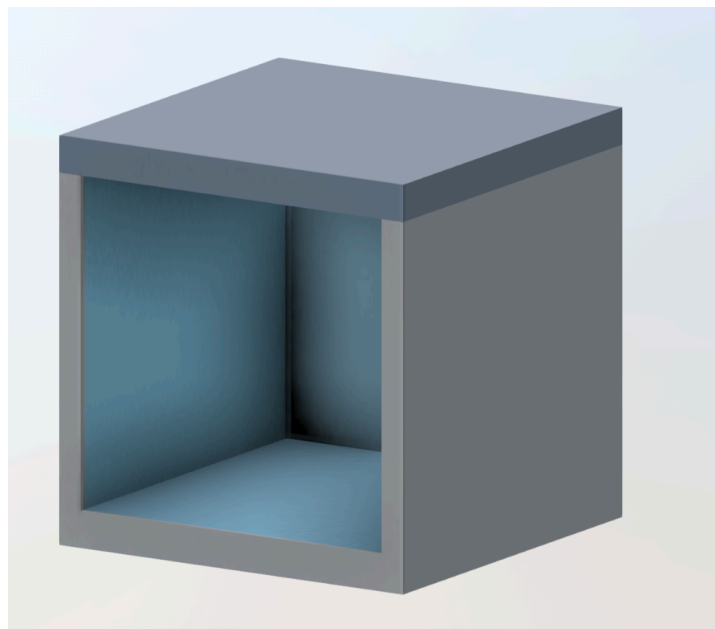


Figure 1. Isometric View

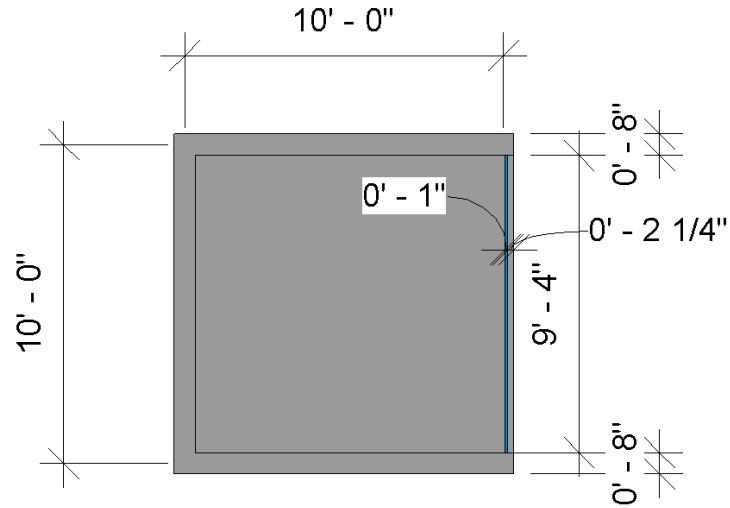


Figure 2. Floor Plan

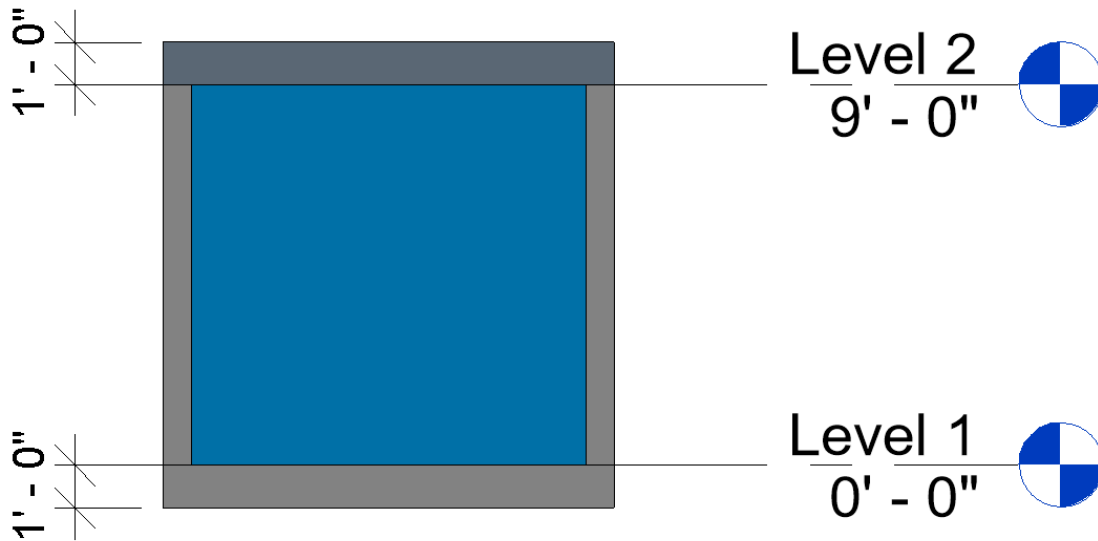


Figure 3. Elevation

Expected Outcome:

The dimension of the gbXML model is in 10'x10'x10'. The curtain wall façade should be defined as exterior wall. The opening area on this wall should cover almost the entire wall

surface. It is allowed to have up to **1% less** covering area. Figure 4 shows the exported gbXML model. Listing 1 illustrates the sample gbXML definitions of curtain wall in code.

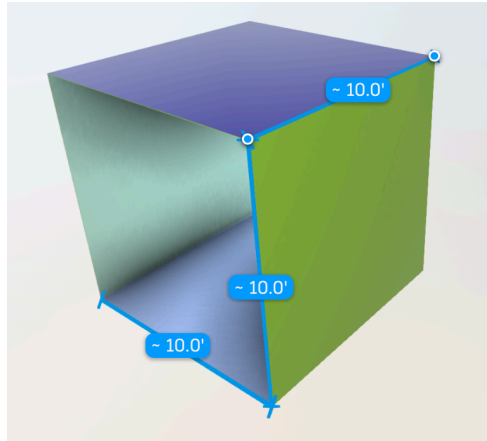


Figure 4. Exported gbXML model

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</Surface>

```

Listing 1. Sample gbXML definitions for the curtain wall.

Common Outcomes and Test Results:

Most of the time, the curtain wall system is translated but the total area does not match the design (Figure 5). Also, shades on roofs and walls randomly appear in the model.

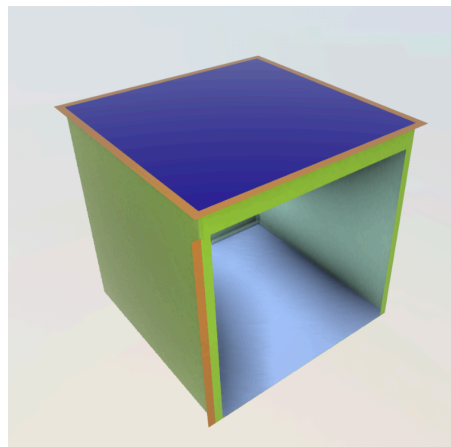


Figure 5. Exported curtain wall is smaller than the BIM model