

Test Case 19 – Space inside another space

Test Description: Space enclosing other space is common to find in many commercial buildings. Such layout challenges BIM software to correctly identify the inner room spaces whose bounding surfaces are internal (partition walls).

Spaces / Rooms:

There are two spaces in this test model. It is named as “level_1_space_1” and “level_1_space_2”.

Special Consideration:

1. The model is 10’ height and 10’ wide.
2. The inner room is 5’ x 5’ and located at the center of the outer room.
3. The wall thickness is 8”
4. The both thicknesses of roof and slab on grade are 1’.
5. All the walls face to an orientation shall be named as: “[orientation]_wall_[custom index]”
6. All the other surfaces shall be named as their function, such as “interior_wall_[custom index]”
7. 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 and the curve space dimensions.

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

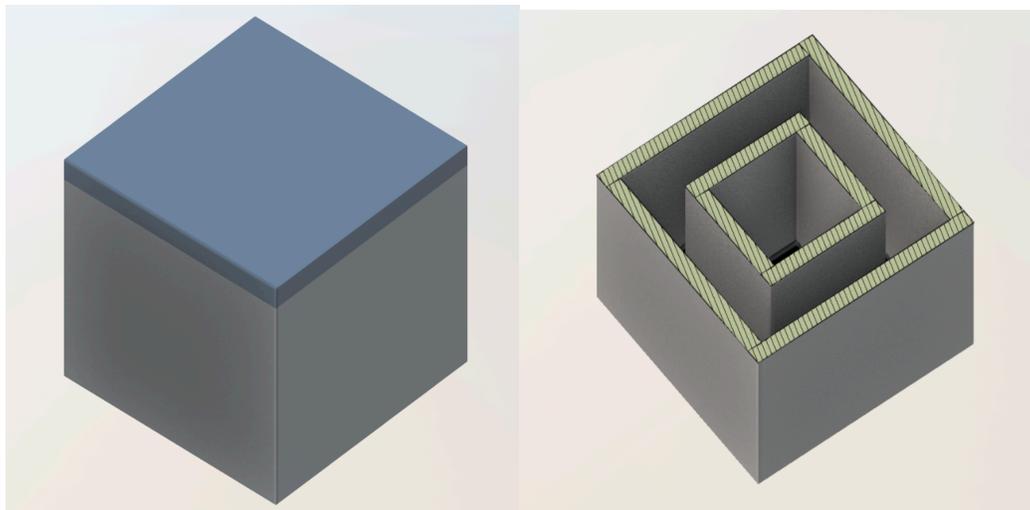


Figure 1. Isometric View

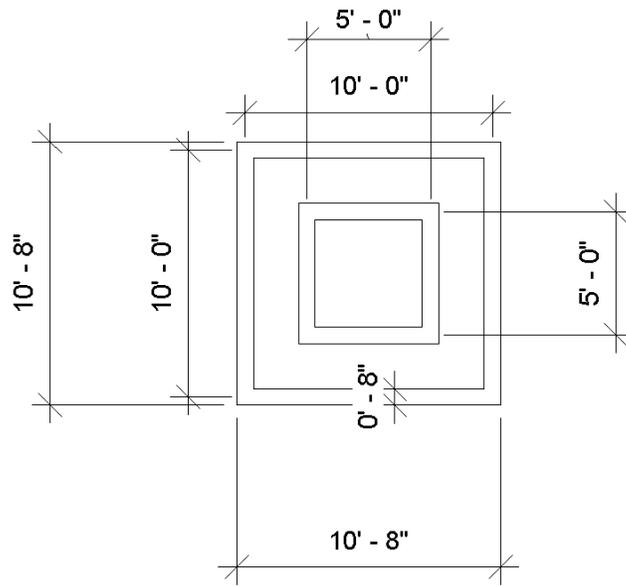


Figure 2. Floor Plan

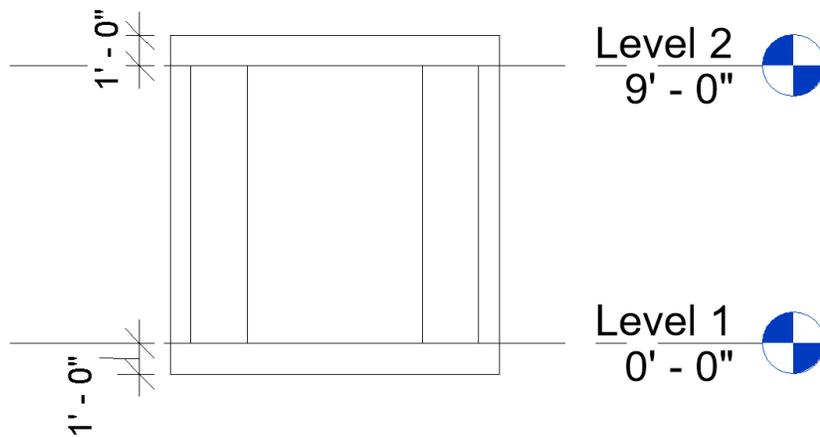


Figure 3. Elevation

Expected Outcome:

The exported gbXML should have a height of 10' and width of 10'. Also, the inner space is successfully exported with the dimension of 5' x 5'. There should be no shade surfaces exported in this model.

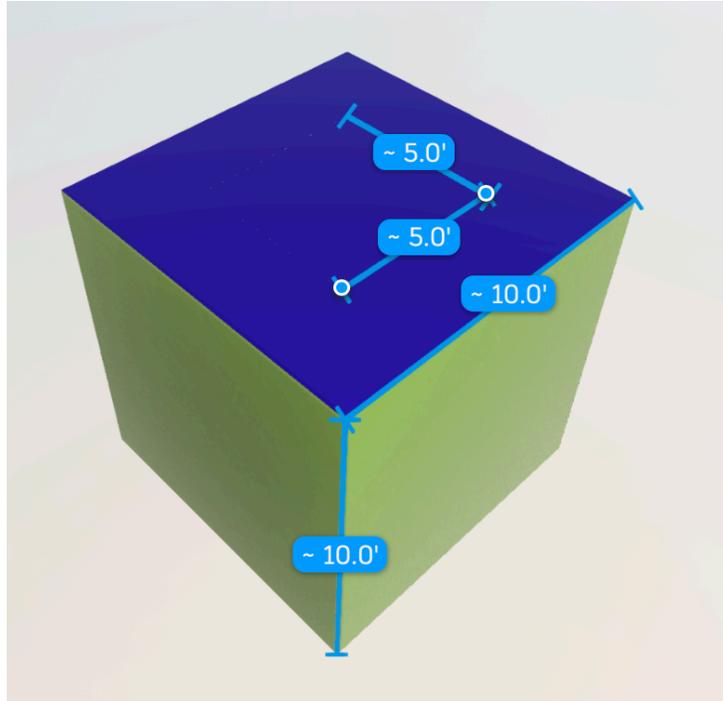


Figure 4. Exported gbXML model

Common Outcomes and Test Results:

BIM software often failed to identify the boundary condition for the inner space. Consequently, the export function may produce gbXML model that is out of dimensions (Figure 5).

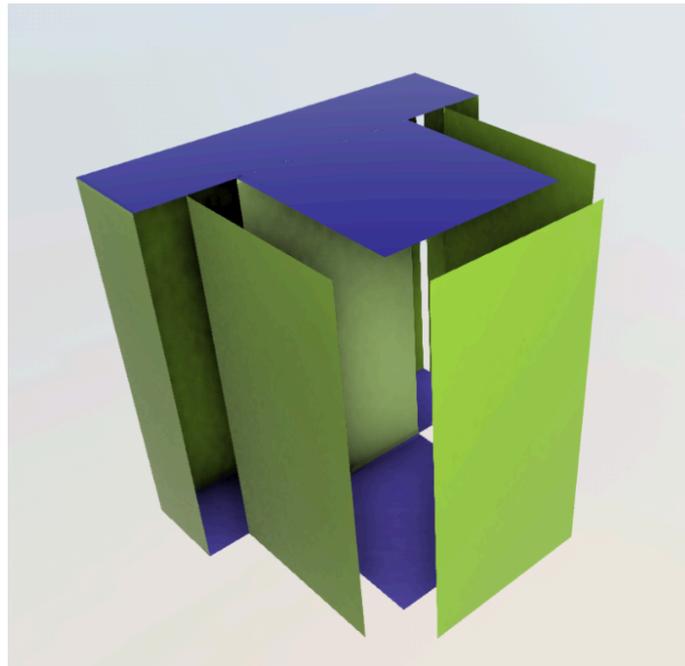


Figure 5. Failed gbXML model when testing space inside another space.