Test Case 13 – Balcony

Test Description: Balcony is a platform that is part of an upper floor, with a balustrade only at the front. Besides an extra opening space to the building, balconies also provide shades to the lower floors. Therefore, it is important to capture this structure correctly in the gbXML model.

Spaces / Rooms:
There are two spaces in this test model. One space is located at the first floor, named as "level_1_space_1". The other one is located at the second floor, named as "level_2_space_1".
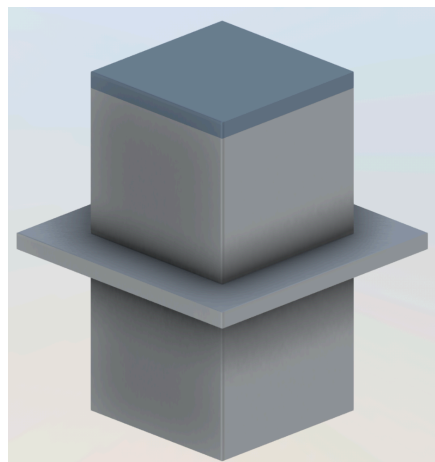
Special Consideration:
1. The model is 10' x 10' x 21' (including floor and roof thickness, using center line)
2. The model has two stories and each story is one space.
3. Wall thickness is 8"
4. The balcony platform is 16'8" x 16' 8" surround the floor on the second story. The thickness of the platform is 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. Walls locates between the slab floor and the roof.
Figure 2 shows the second-floor plan to indicate dimensions and directions of the space, with wall thickness, which are important for the gbXML space and surface definitions.
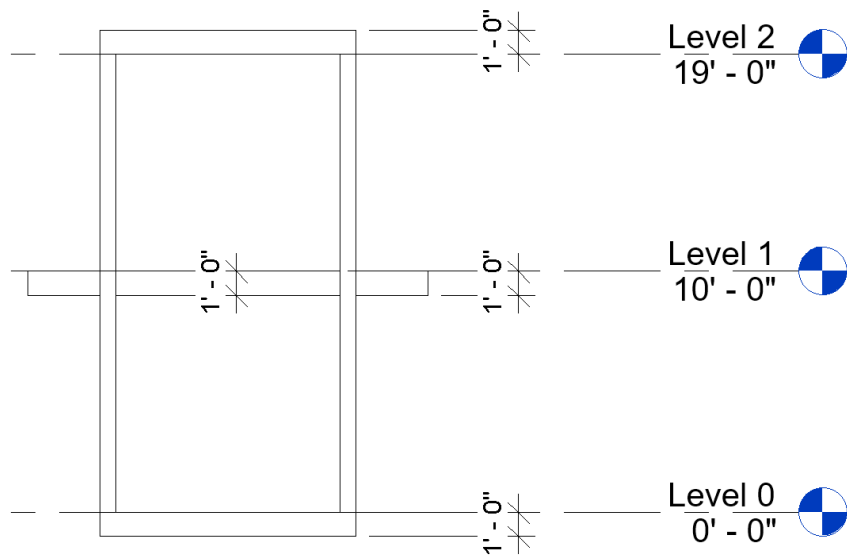Figure 3 shows an elevation view to indicate positions and dimensions of the slab floor, roof, ceiling and balcony.
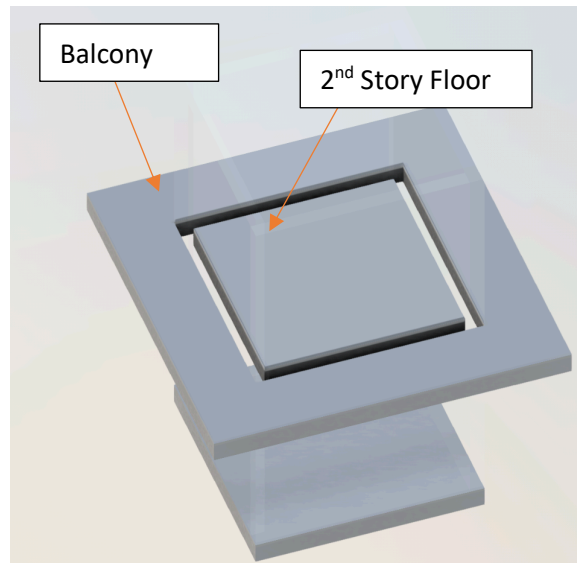

Figure 1. Isometric View

0' - 8"

10' - 0"

16' - 8"

10' - 0"

16' - 8"
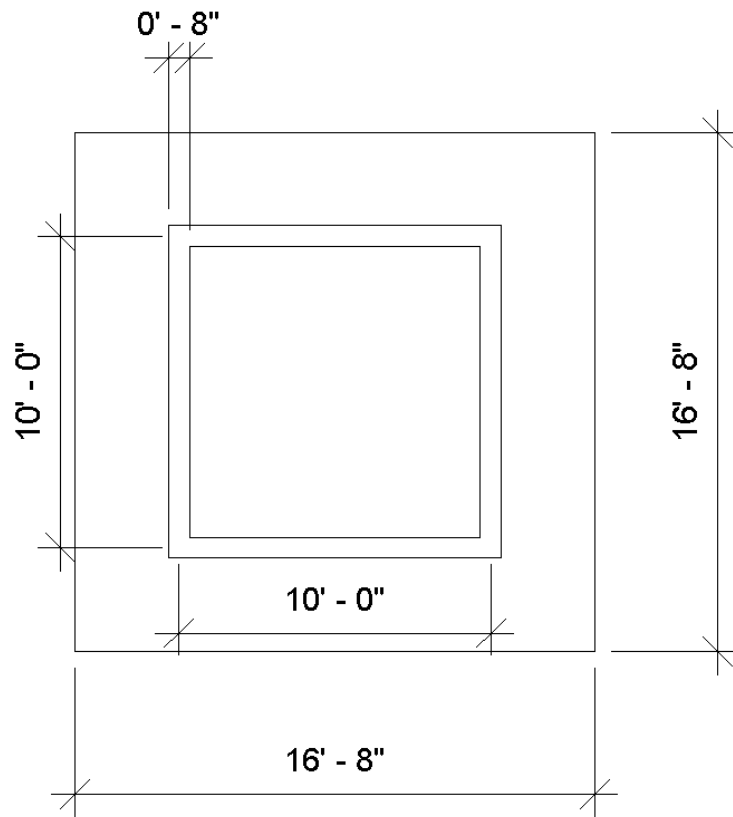
Figure 2. Second Floor Plan

1' - 0"

Level 2
19' - 0"

1' - 0"

1' - 0"

Level 1
10' - 0"

1' - 0"

Level 0
0' - 0"

Figure 3. Elevation

It should be noted that in this test case, the balcony was drawn separately from the floor on the second story.

Figure 4. Balcony is drawn using floor element but it is separately from the floor on the 2ⁿᵈ story.

Expected Outcome:
The exported gbXML should have surface height of 20' (using center line) and all vertical surfaces are exterior walls that exposed to sun light. The balcony should be translated into shade surface and has a width of 3'4" wrap around the second floor.
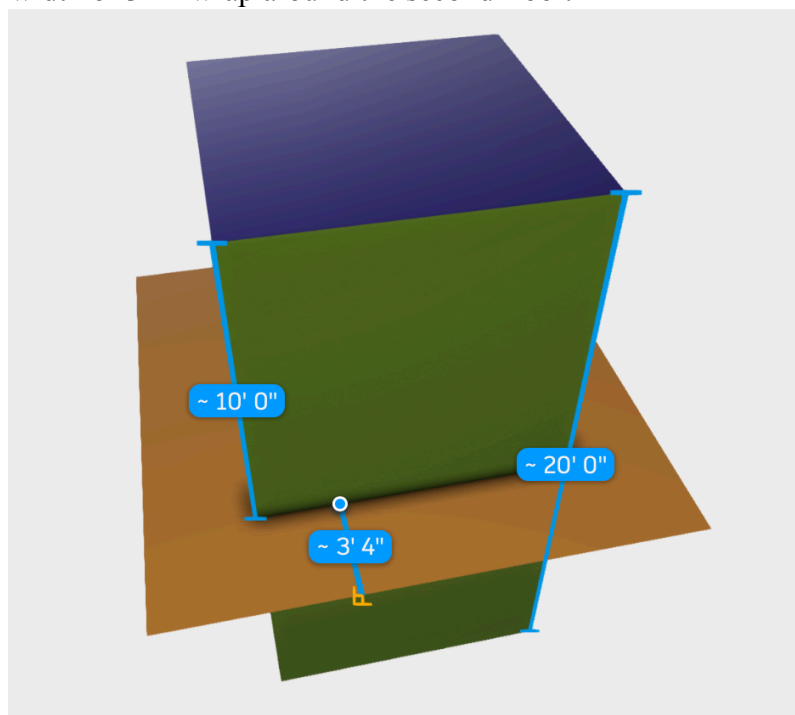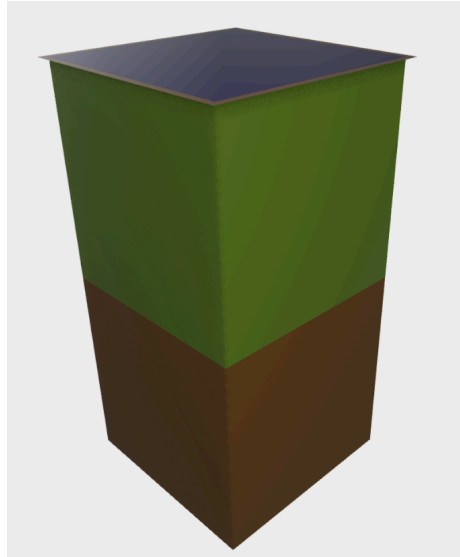

Figure 5. The gbXML model

Common Errors and Test Results:
Having a balcony on the higher floor could cause several issues on surfaces when exporting into gbXML model. Two typical errors are most frequently happened and listed below.

1. The wall surfaces in the lower floors turned to underground wall or shades, and the balcony disappeared

Figure 5. Lower floor wall surface turned to shades

2. Balcony does not attach to the surface, and the lower floor turned into underground wall
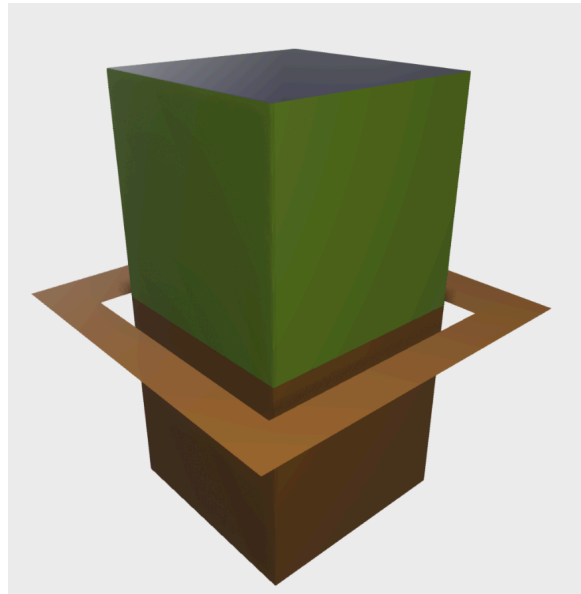
Figure 6. Balcony does not attach to the surface