

gbXML Geometry Benchmark Tests

Test Case #12 - Multiple Adjacent Overlapping Conditions (2)

Introduction

Geometry benchmark tests help to ensure that, as building geometry produced by building designers becomes more complex, the geometry produced for energy and heating and cooling loads analysis maintains the integrity of information that is required for a proper and detailed analysis.

gbXML.org maintains this battery of benchmark tests for vendors and other interested parties to ensure compliance with gbXML.org's standards for geometry accuracy and completeness. These tests are prescriptive and serve as marks of excellence that identify the ability of a technology to translate geometry properly from its native format to gbXML

Test #8 Instructions and Requirements

Space Name	Your file
Space_0_0	confirmed <input type="checkbox"/>
Space_1_0	confirmed <input type="checkbox"/>
Space_2_0	confirmed <input type="checkbox"/>
Space_3_0	confirmed <input type="checkbox"/>
Space_4_0	confirmed <input type="checkbox"/>

This test (Test Case #12) is a slight variant of Test Case 6. It includes a second story volume intended to test the ability of a CAD/BIM tool to produce valid gbXML for complex relationships between enclosures. The (2) in the title reflects that this test is a variant of an original test (i.e. - Test Case 6)

Table 1

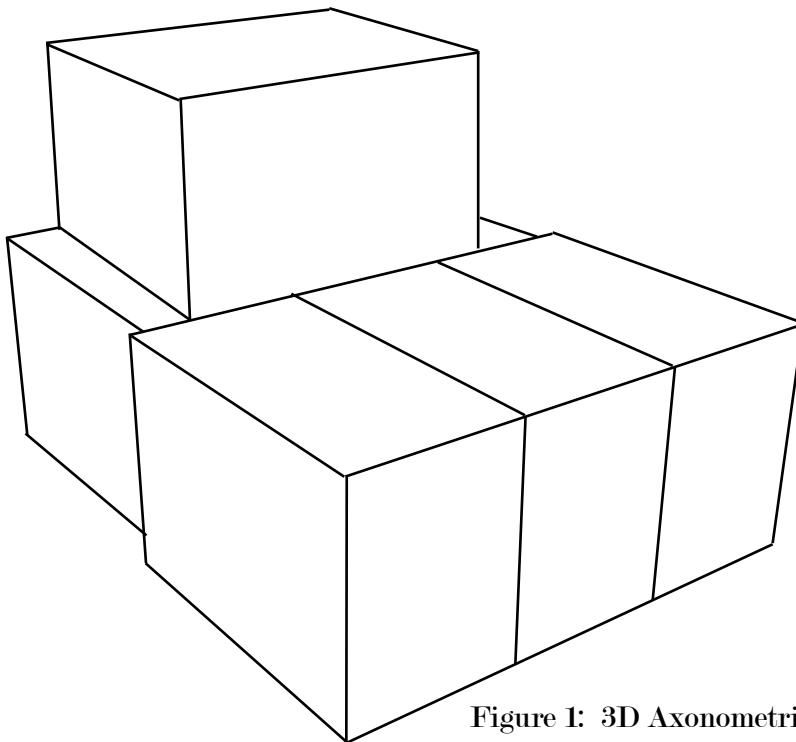


Figure 1: 3D Axonometric View

Level 1 Floor Plan and Dimensions

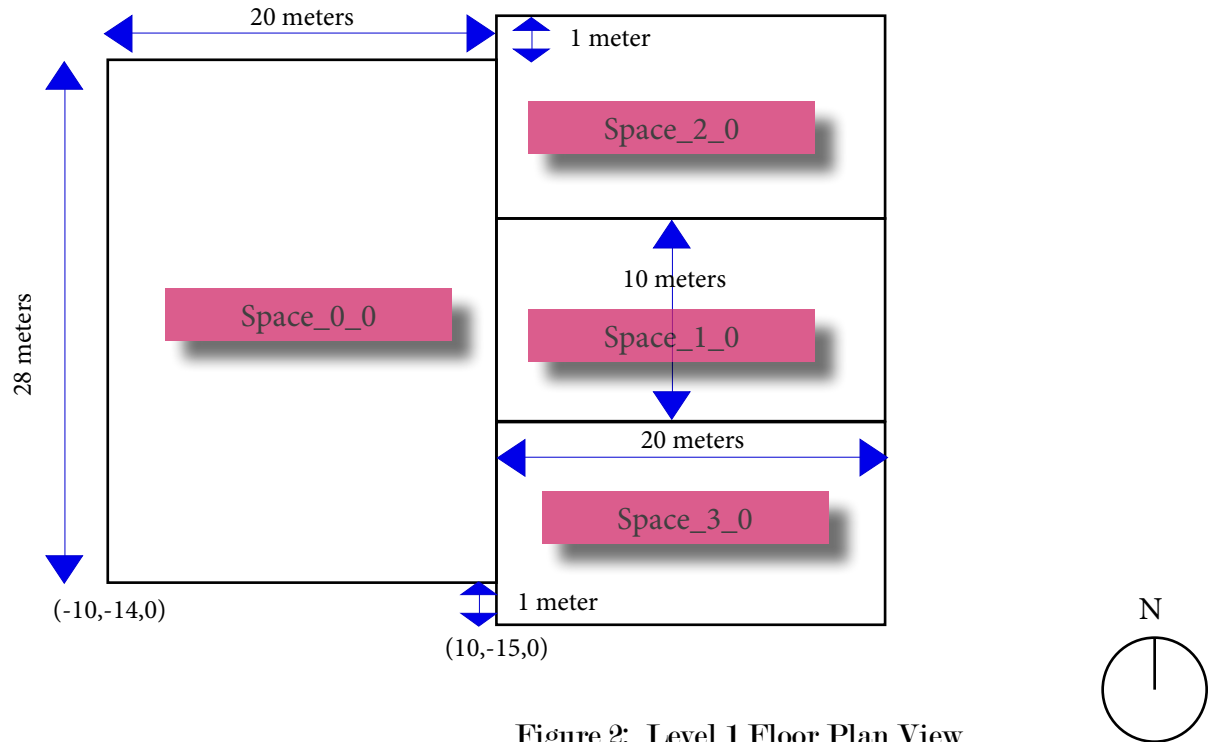


Figure 2: Level 1 Floor Plan View

The floor footprint of Level 1 is shown above for Test 12. It is identical to Test 6. Each of the smaller zones on the right are identical in size, so the dimensions are only shown once instead of repeating. The ends of the three stacked smaller zones protrude 1 meter on each end, as indicated above.

The x,y,z coordinates of the lower left corner of Space_0_0 (-10,-14,0) and Space_3_0 (10,-15,0) are shown in the figure above for your reference.

Level 2 Floor Plan and Dimensions

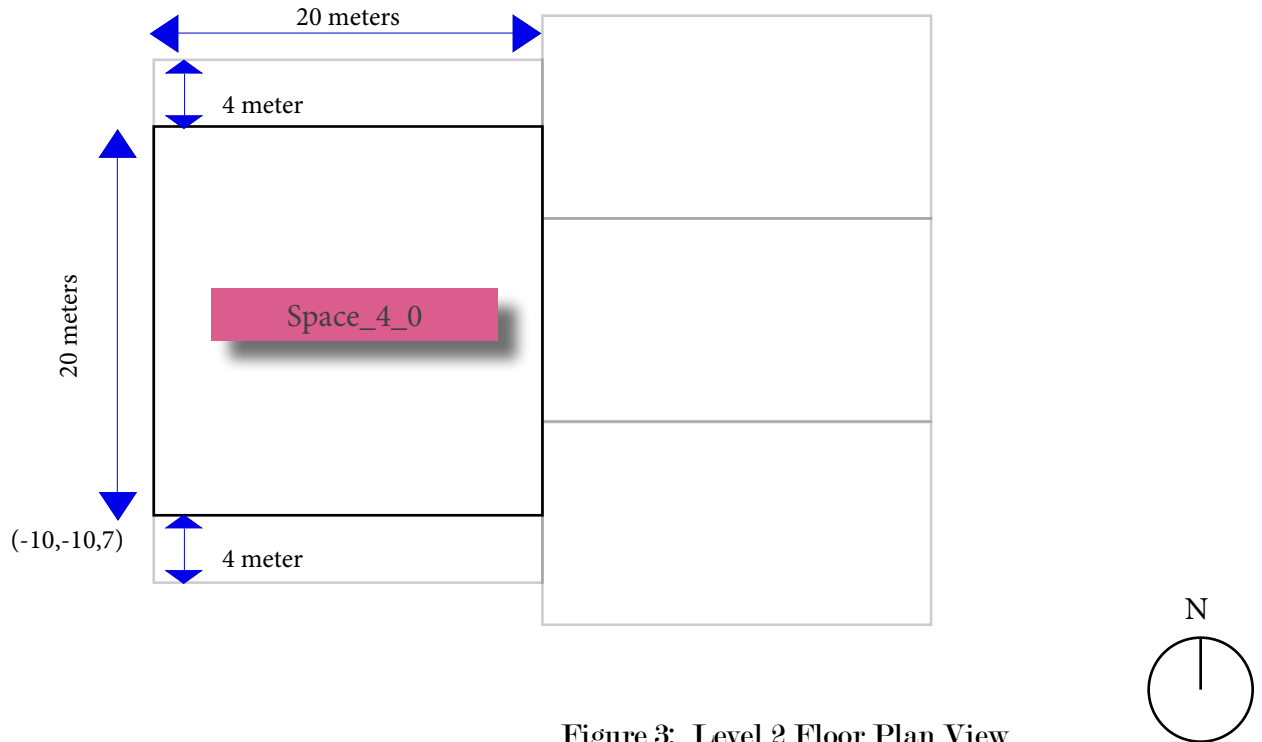


Figure 3: Level 2 Floor Plan View

The floor footprint of Level 2 is shown above for Test 12. The spaces on level 1 are shown in with the ghosted grey lines for your reference. Space_4_0 is a 20 x 20 meter space that sits directly on top of the Space_0_0. The lower left hand vertex x,y,z coordinates for Space_4_0 (-10,-10,7) are shown for your reference. The positioning of Space_4_0 in the N-S direction (y direction) is also quantified by the 4 meter callout dimensions.

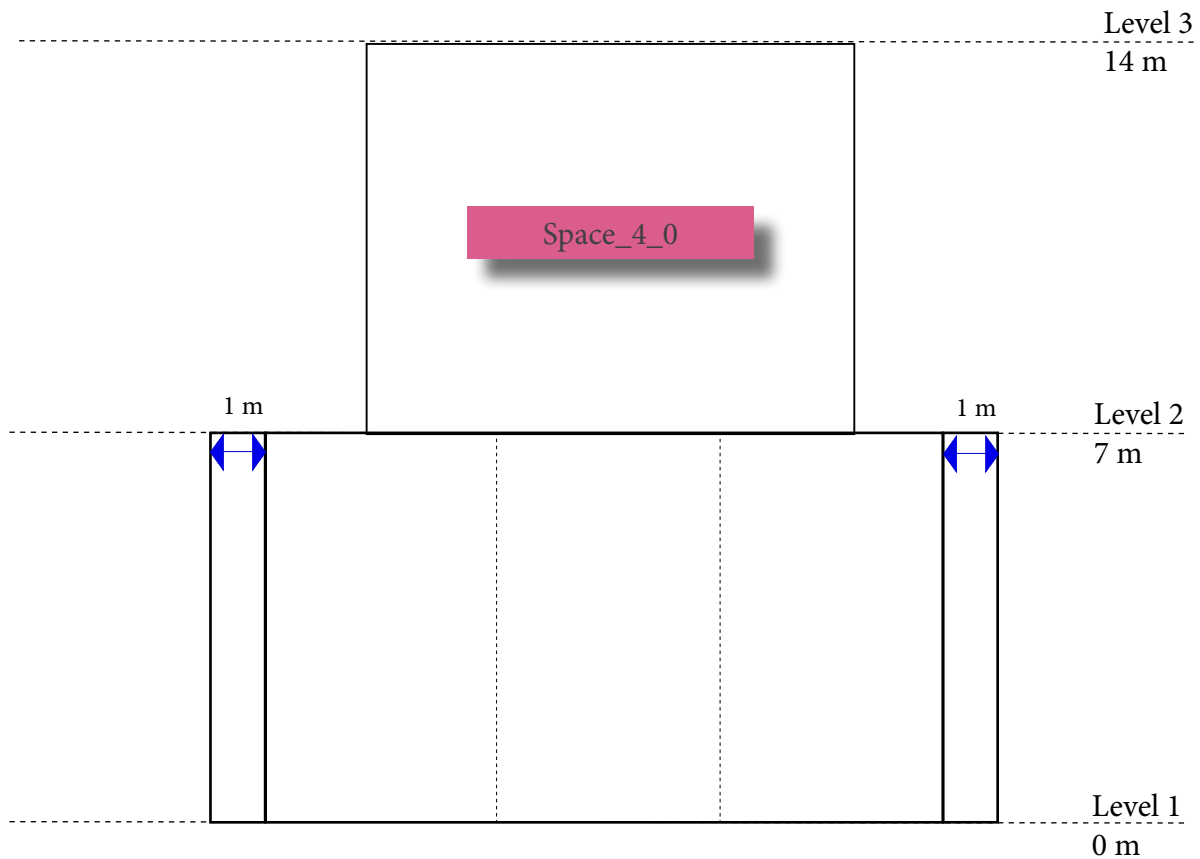


Figure 4: Test Case 12 in Section

A section cut through Space_0_0 and Space_4_0 looking east. As previously mentioned, Test 12 is identical to Test 6 with the exception of Space_4_0 on Level 2.

This diagram is basically to show the height of the spaces, and the lack of thickness in any of the surface definitions. The thinner dashed lines show the internal partitions of Space_1_0, Space_2_0 and Space_3_0, behind the opaque interior partition separating Space_0_0 from these three spaces. There are no internal openings or windows in any of the interior partitions. The 1 meter protrusions are shown on each side of Space_0_0.

Test #12 Common Outcomes and Test Results

Please review Test 6 for common outcomes. In addition, the inclusion of Space_4_0 forces the roof of Space_0_0 to be broken up into an internal ceiling and two 4m x 20m roof segments. One of the purposes of this test is to ensure that the breakup of this surface is occurring properly. The phase 2 validator will test for these events. Errors in case of these failures would be:

- 1. In this case, the Roof Count Test would fail, as would the Interior Ceiling Count Test.*
- 2. When comparing the roof area of your Test File with a standard file, this would also fail.*

Various permutations of the two cases above may occur, depending upon how the CAD/BIM file translates the geometry to gbXML.