gbXML Geometry Benchmark Tests
Test Case #11 - Barrel Vaulted Zone

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	*not required to be the same*
Space_0_1	*not required to be the same*

Table 1

This test (Test Case #11) is a two-zone model, one zone with a semi-circular curved exterior wall. This test, because it has a curved surface, must be meshed into a series of planar surfaces. Because meshing oftentimes cannot be controlled in uniform ways, this test does not have to undergo the Phase 1 validator tests. However, it will still be put through the Phase 2 validator, to ensure that the meshing produces an enclosed volume.

The location of the origin is not critical for this test, however the lower left corner coordinate is listed relative to the CAD/BIM origin

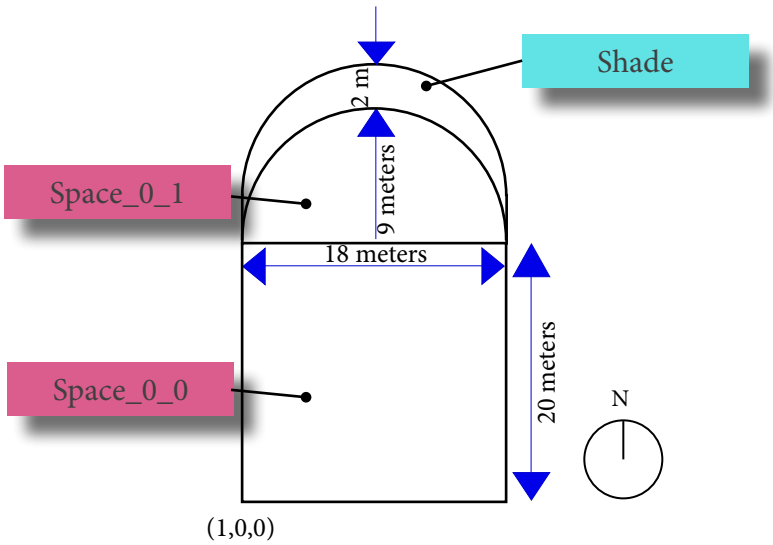

Figure 1: Level 1 Plan View

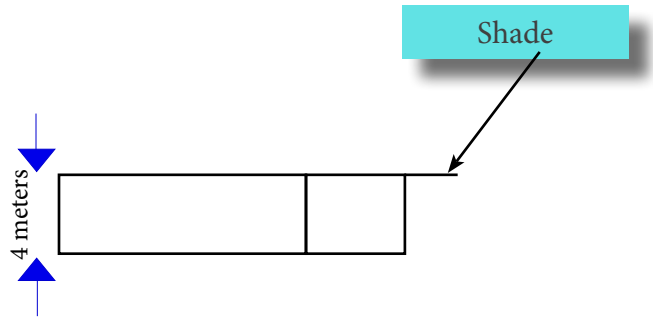

Figure 2: East Elevation

Figure 1 above shows a plan view of the model. This test case has been drawn using a tool that utilizes surfaces with zero thickness. Figure 2 shows a view of the eastern elevation. This figure is included to show the height of the spaces and the location of the shade .

A description of how the shade has been created is shown in Figure 3 below.

Shade Construction Detail

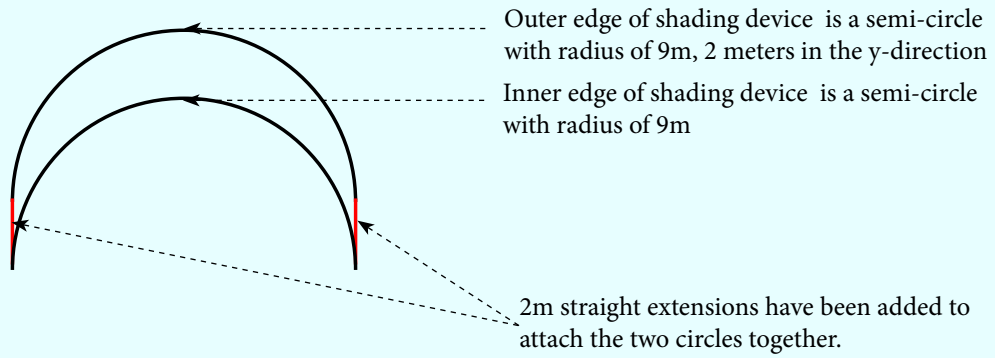

Figure 3: Shade Construction

Test #11 Common Outcomes and Test Results

This test has not been run often in the community and therefore common mishaps are not known at this time.

Additional tests in addition to enclosure tests will calculate the total surface area of the meshed shading device, and the total area of the curved surface, to ensure that thermodynamic equivalence is upheld.