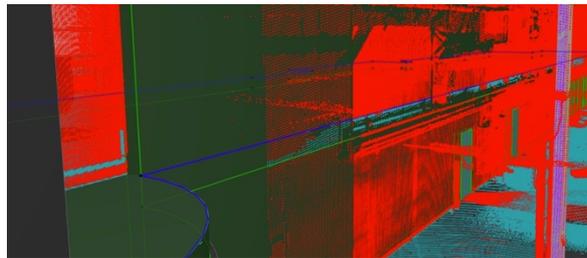


False Negatives

BIM & Scan AutoCorr™ requires users to utilise proper modelling techniques. We have done our best to briefly explain the geometry requirements for BIM & Scan AutoCorr™ model input files. Files can fail when processing them with BIM & Scan AutoCorr™. File failures such as segmentation errors, etc. occur from not modelling the geometry properly or relying on third party geometric objects that were not modelled properly. Below we describe a False Negative produced due to modelling error.

Investigation:
False Negative

Cause:
Modelling Error



Findings:

If you look close at the image above, one can see the slab going through the wall, and BIM & Scan AutoCorr™ recognised the slab as an IfcSlab (points coloured blue) and not the wall (remaining points on the wall surface that are red).

Why? Because an Informal Position according to IfcFace rules has occurred and this is problematic upon deserialization in tools like BIM & Scan AutoCorr™ that depend on modelling errors like this to not be in the STEP file upon reading/deserializing it. In short, two faces cannot share the same edge upon the computing/deserialization/reading of the geometry.

<http://www.buildingsmart-tech.org/ifc/IFC2x3/TC1/html/ifctopologyresource/lexical/ifcface.htm>

Solution:

The designer/modeller should have done one of two possible scenarios depending on the function/purpose design.

For example,:

1. If the slab design is, let's say, a hollow core slab and the design detailing calls for a connection to the load-bearing wall, then the slab should be properly connected on the inside of the load bearing wall, or
2. If the slab, let's say, were a poured on site slab such as a waffle slab design with the structural load being on columns attached to the slab and the walls are not load bearing in relation to supporting the slab, then the modeller should have modelled two separate walls for each floor, which is actually best practice when using BIM authoring tools for many reasons such as how authoring tools interpret wall geometry for task such as automating drawing, calculations of material volume per floor, etc.

Recommendation:

Designers/Modellers in the case for BIM & Scan AutoCorr™ and otherwise, when modelling walls you need to be aware of what type of wall it is, either from the drawing details, or during the conduction of the survey and data collection.

Two errors have occurred here from the human responsibility standpoint:

1. The designer should have check the design of the wall prior to modelling it.
2. In any case never model overlapping geometry because of all problems identified herein and many others as possible.