# What is needed for a successful gbXML import into the VE?

Whatever software you use to create the gbXML, the gbXML itself must obey these rules to successfully import (using the import utility as currently configured):

- The file must be a gbXML file (not all XML files are gbXML files).
- For each surface bounding the space, either: each Campus / Building / Space node must have a ShellGeometry / ClosedShell / Polyloop node, or: there must be a surface in a Campus / Surface / PlanarGeometry / Polyloop node.
- The bounding surfaces must, together, completely enclose the space (i.e. no gaps). This means that holes must be modelled as holes in a surface - even if a hole completely fills a surface.
- Each edge of each surface must match an edge in another surface - i.e. each end point of each edge must coincide with one or other end point of the other edge or lie along the other edge. The tolerance is 1mm.

In addition, these rules are desirable:

- Each Campus / Building / Space node should have a unique id attribute or Name node.
- Each Campus / Surface / PlanarGeometry / Polyloop node should have the attributes surfaceType and constructionIdRef properly assigned.
- Although the gbXML import does not yet take advantage of any material layers defined within a construction, if this information is included it could be useful in a later version of the software.

*Currently gbXML from Autodesk Revit Architecture and Revit MEP and veXML (custom format) from Google SketchUp are supported by IES. Other types of gbXML can be imported but IES cannot guarantee what quality the imported geometry will be.*



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