



DATE: 09/15/2022  
PROJECT: Revit-gbXML-gbxmlMerge by Streamlit  
DRAWN BY: JPS

FROM: [Ripcord Engineering](#)  
TO: Revit Users

SUBJ: Revit-gbXML Workflow

REF: 1. Revit 2021  
2. [Ladybug Tool gbXML Viewer](#)  
3. [Ripcord Engineering gbxmlMerge](#)

#### Revit-gbXML Workflow:

1. Use Model Lines to outline exterior of background.
2. Use Space Separation Lines to partition interior volume.
3. Create exterior boundary w/building elements:
  - +Walls (by Dynamo)
  - +Floor (by Dynamo) >> Bottom floor only
  - +Roof (by Dynamo)
  - +Windows (by Designer) >> As required.
4. Place Spaces:
  - +Upper Limit >> By level.
5. Transform Spaces into Mass families and place (by Dynamo).
6. Export gbXML by Conceptual Masses (good geo / openings *not* included).
7. Export gbXML by Spaces (bad geo / openings included).
8. Merge Conceptual Masses & Spaces gbXML (good geo & openings).

Figure 1. Architectural background model.

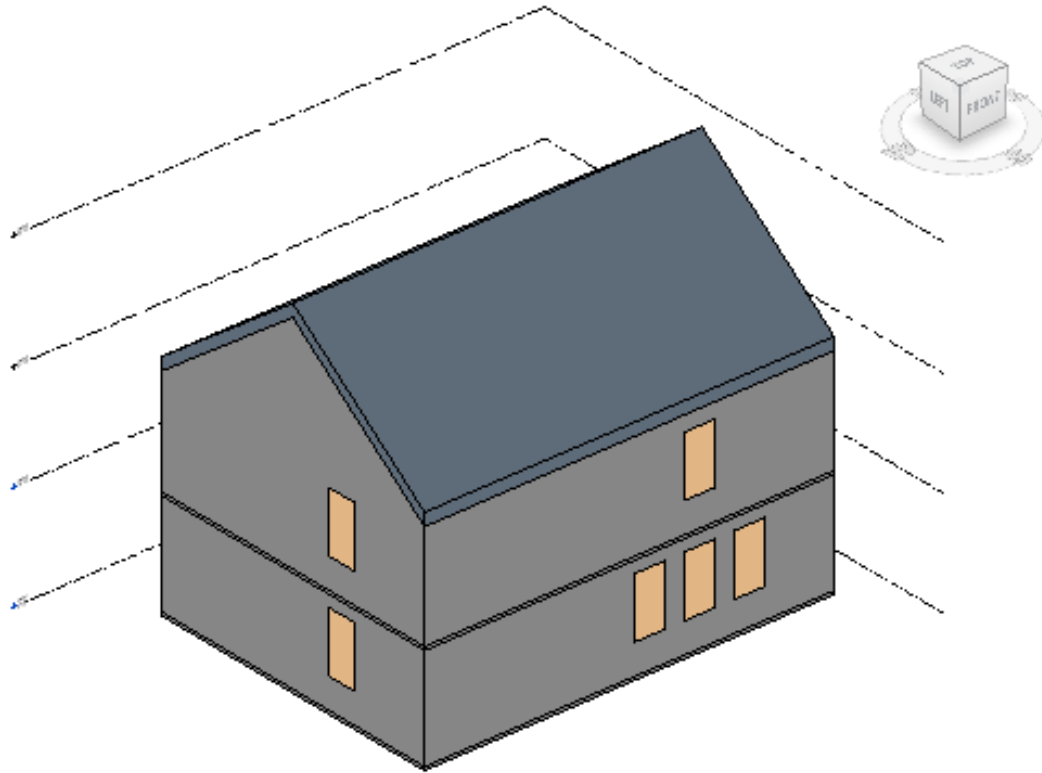


Figure 2. Use Model Lines to outline exterior of background - First floor.

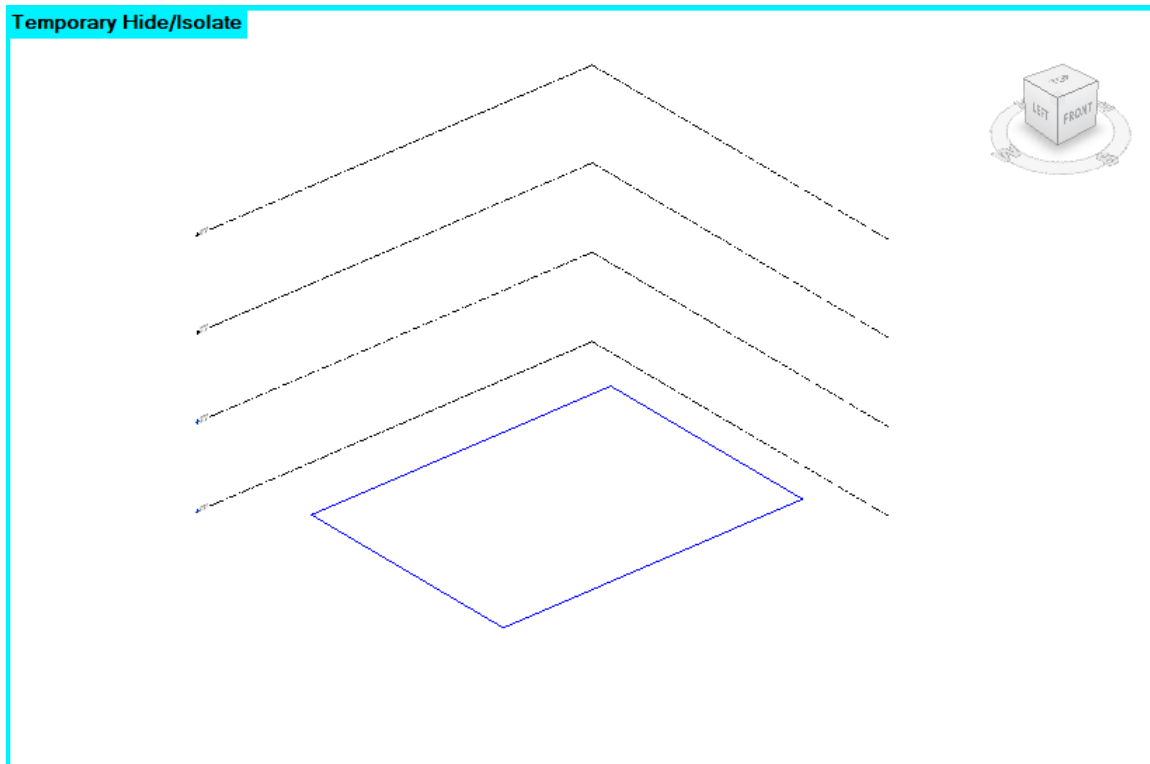


Figure 3. Use Model Lines to outline exterior of background - Second floor.

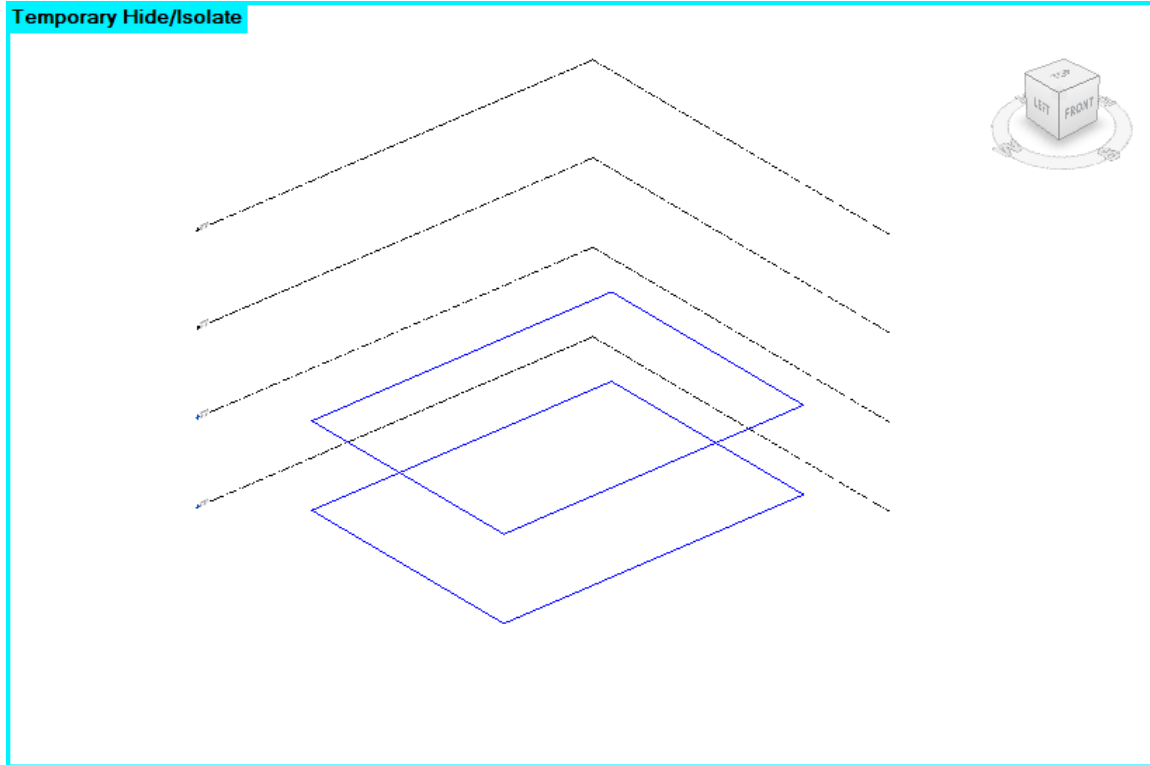


Figure 4. Use Space Separation Lines to partition interior volume - First floor.

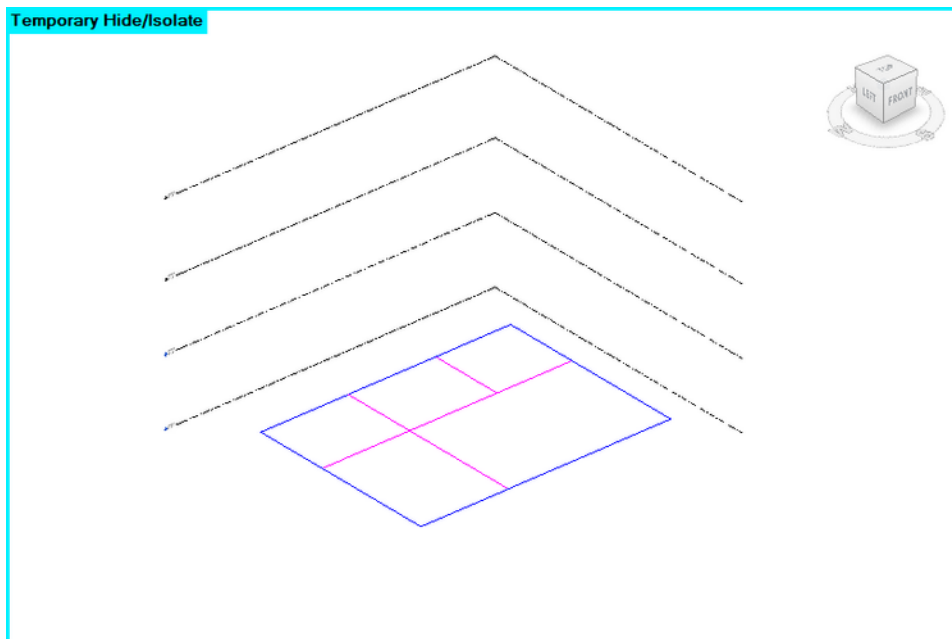


Figure 5. Use Space Separation Lines to partition interior volume - Second floor.

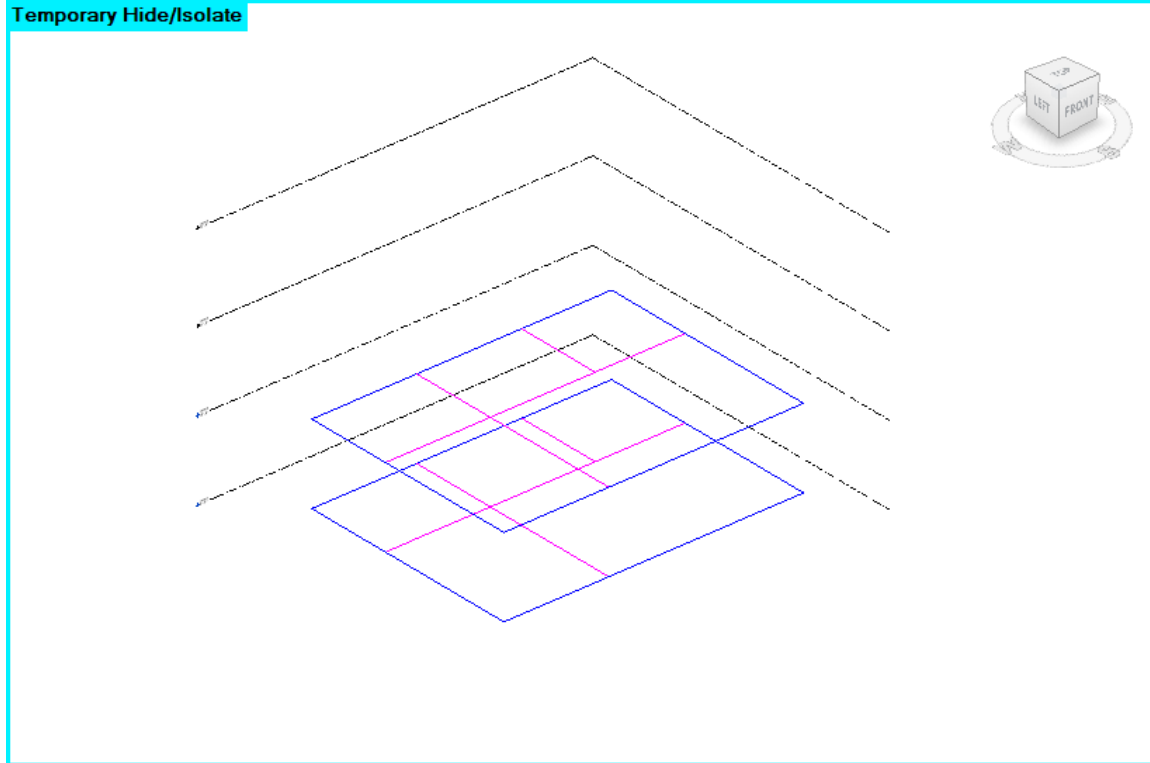


Figure 6. Dynamo - Create walls with exterior outline.

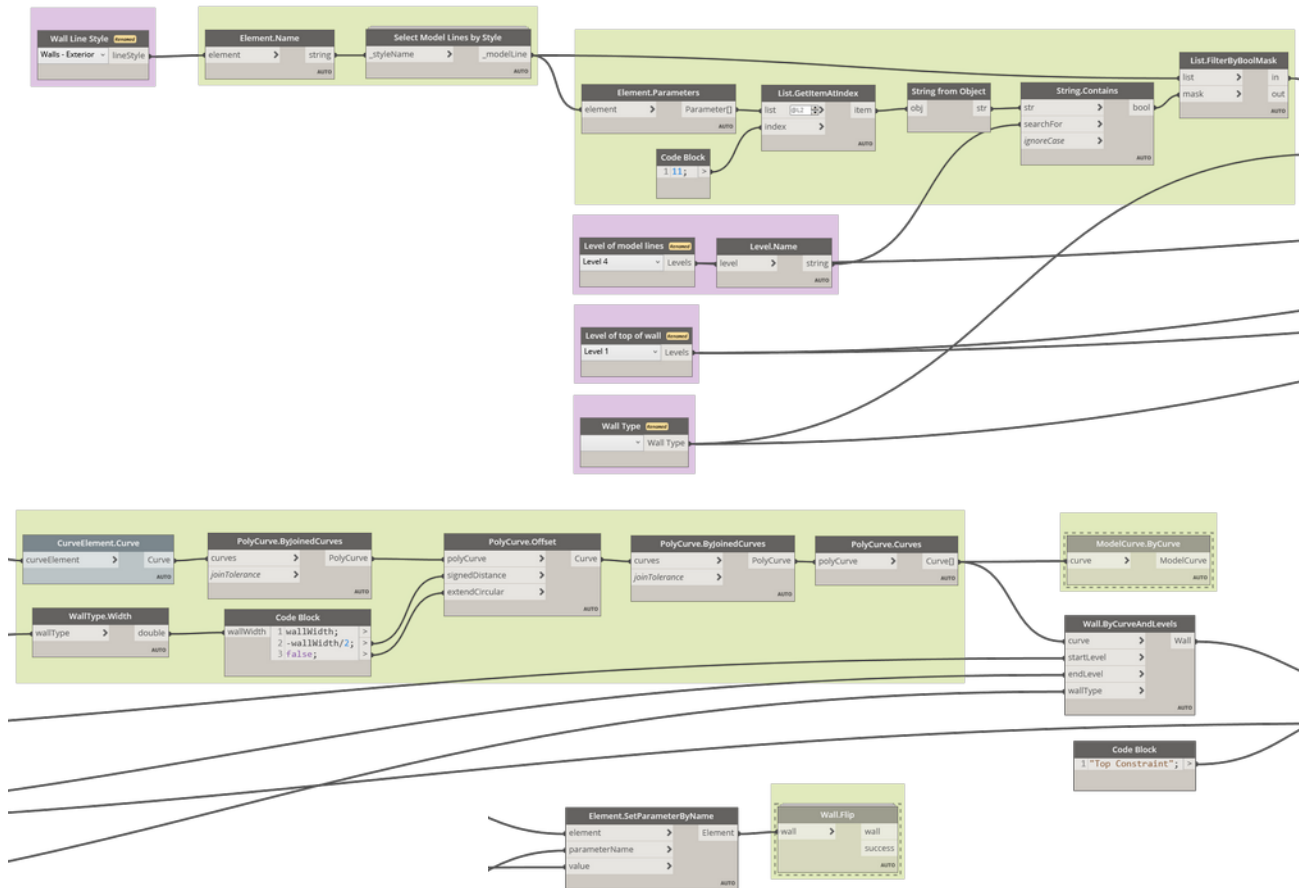


Figure 7. Create exterior boundary w/walls - First floor.

Temporary Hide/Isolate

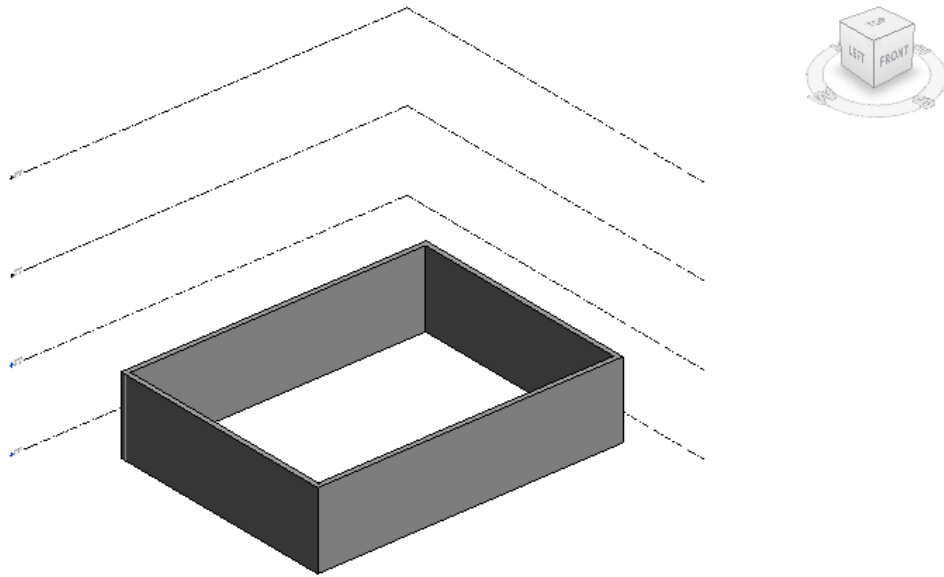


Figure 8. Create exterior boundary w/walls - Second floor.

Temporary Hide/Isolate

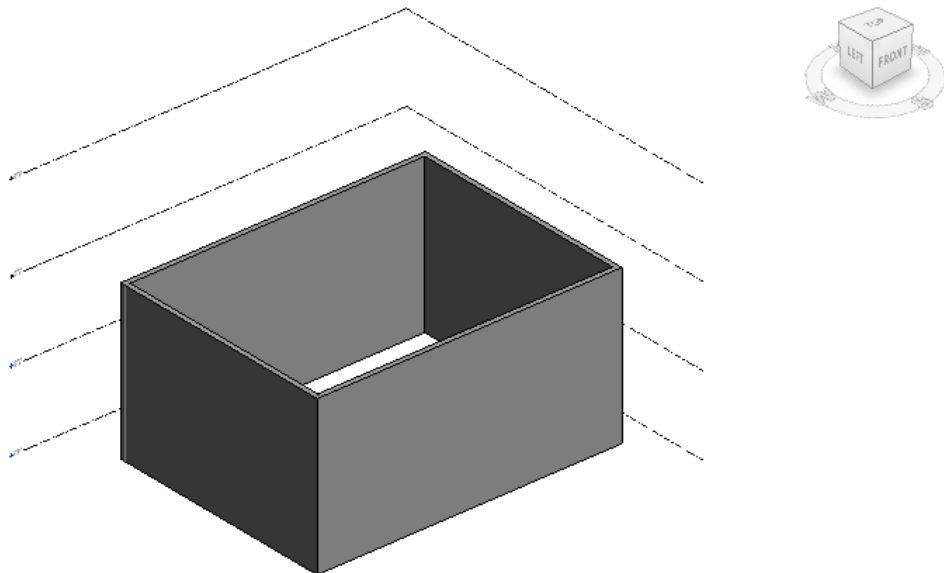


Figure 9. Dynamo - Create floor with exterior outline.

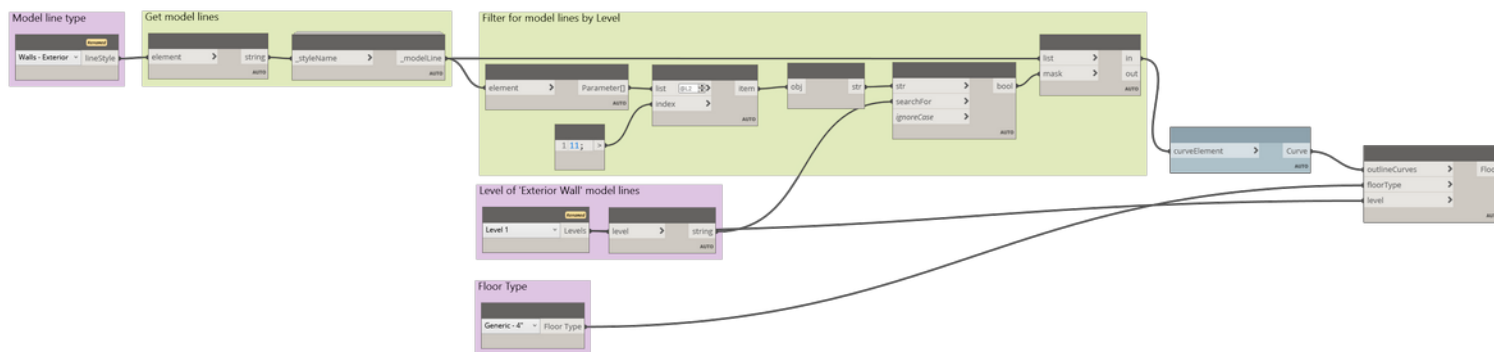


Figure 10. Create exterior boundary w/floor - **First floor only!**

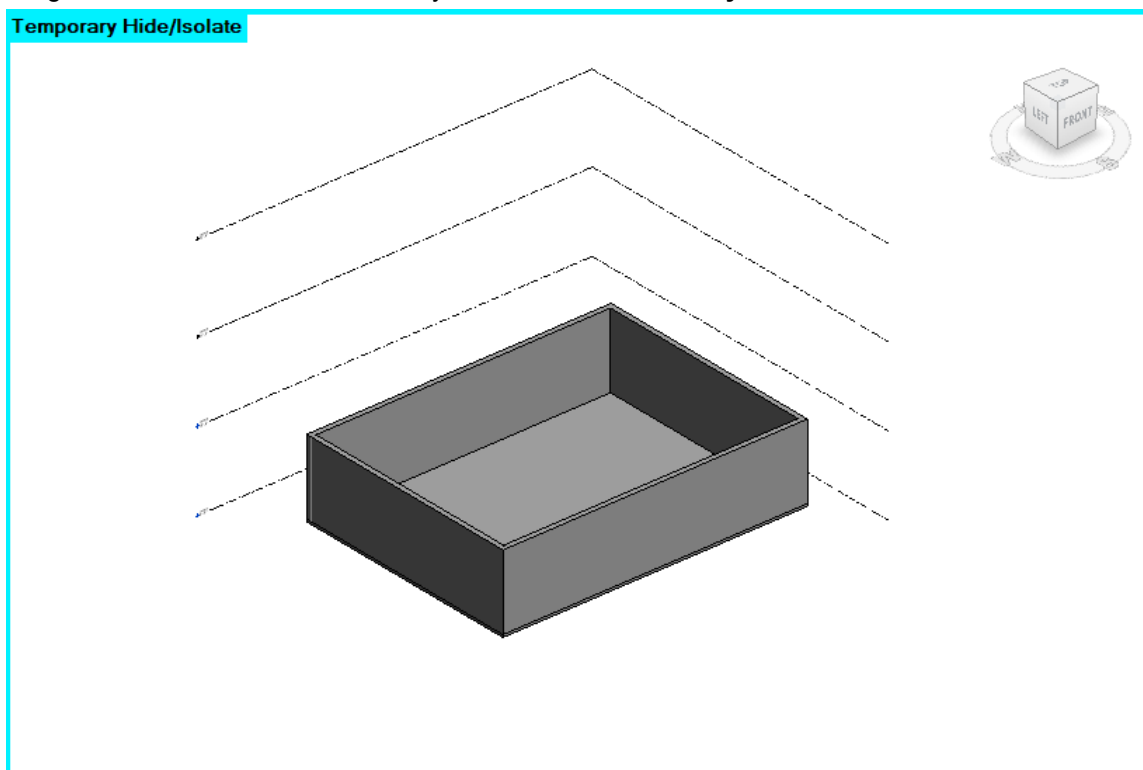


Figure 11. Dynamo - Create roof with exterior outline.

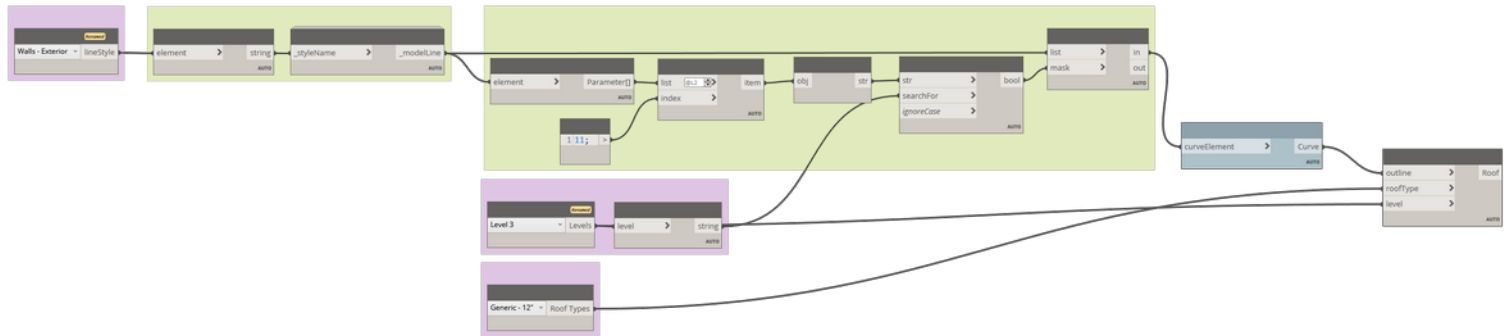


Figure 12. Create exterior boundary w/roof.

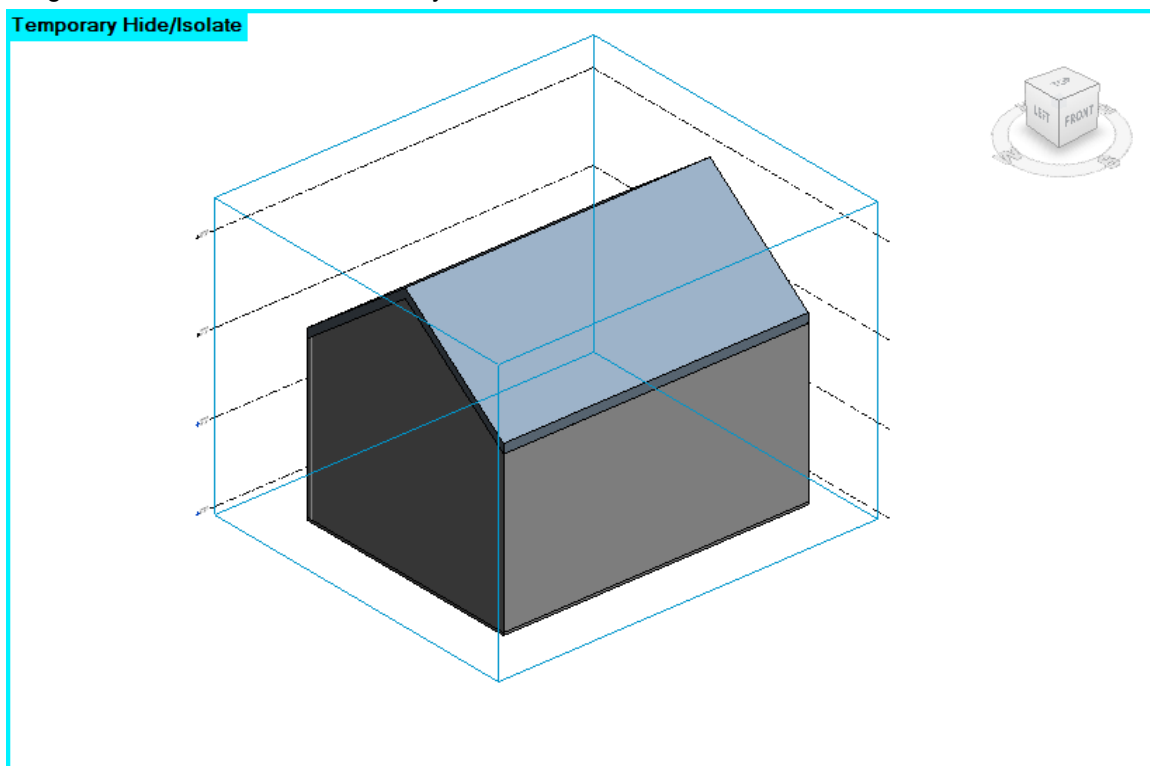


Figure 13. Place windows.

Temporary Hide/Isolate

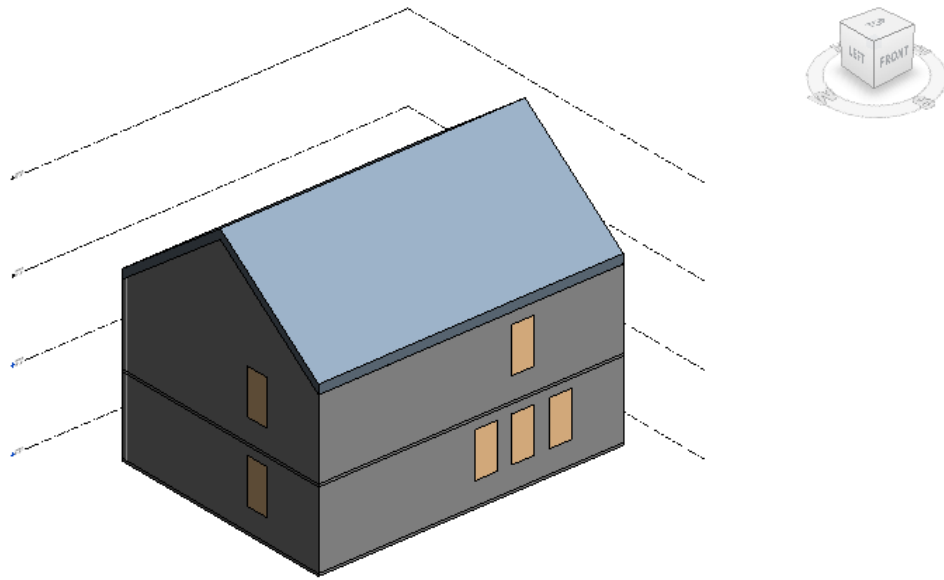


Figure 14. Place spaces - first floor.

Temporary Hide/Isolate

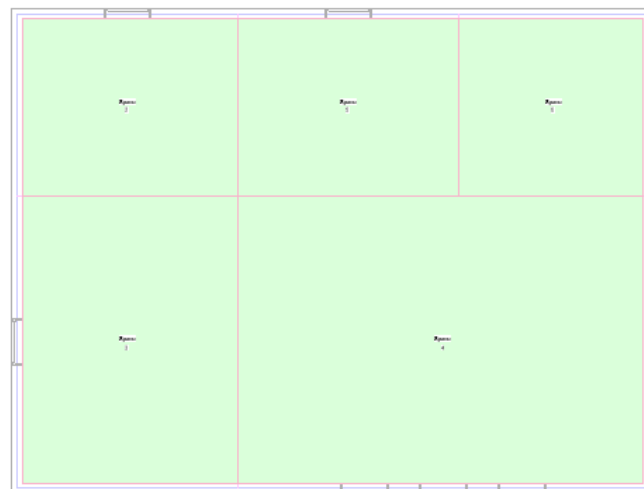




Figure 15. Place spaces - Second floor.

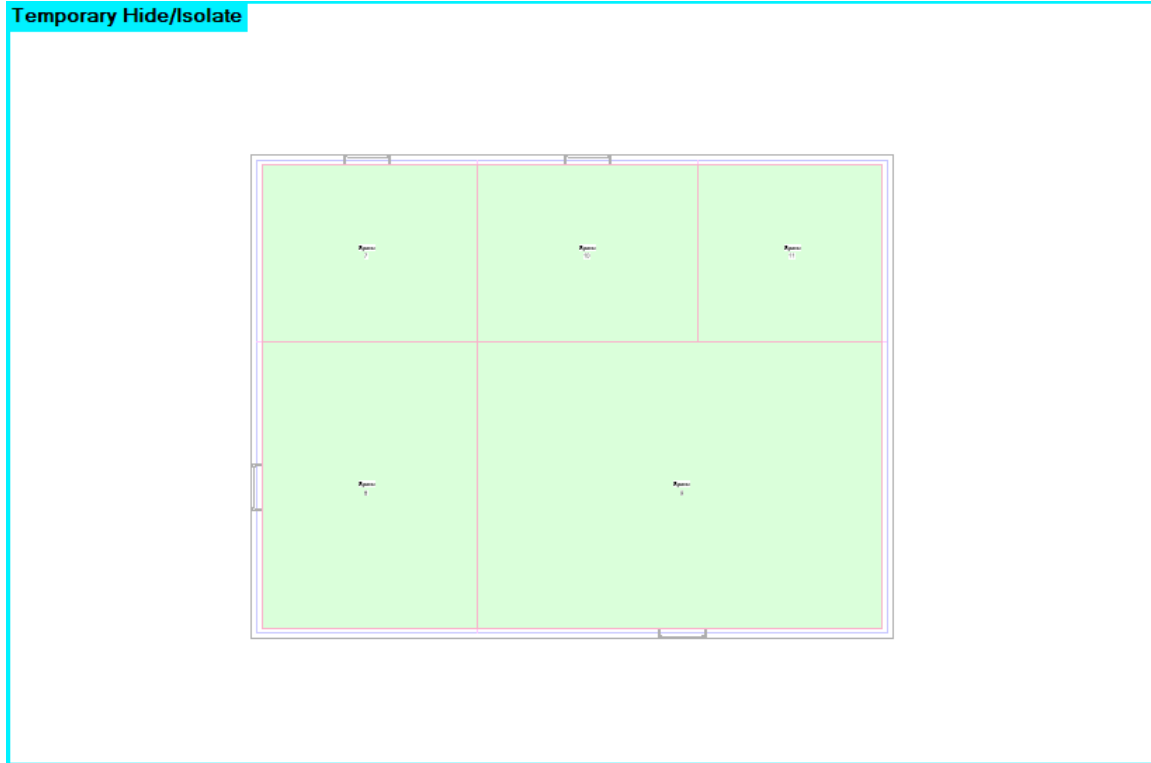


Figure 16. Dynamo - Create Conceptual Masses w/spaces.

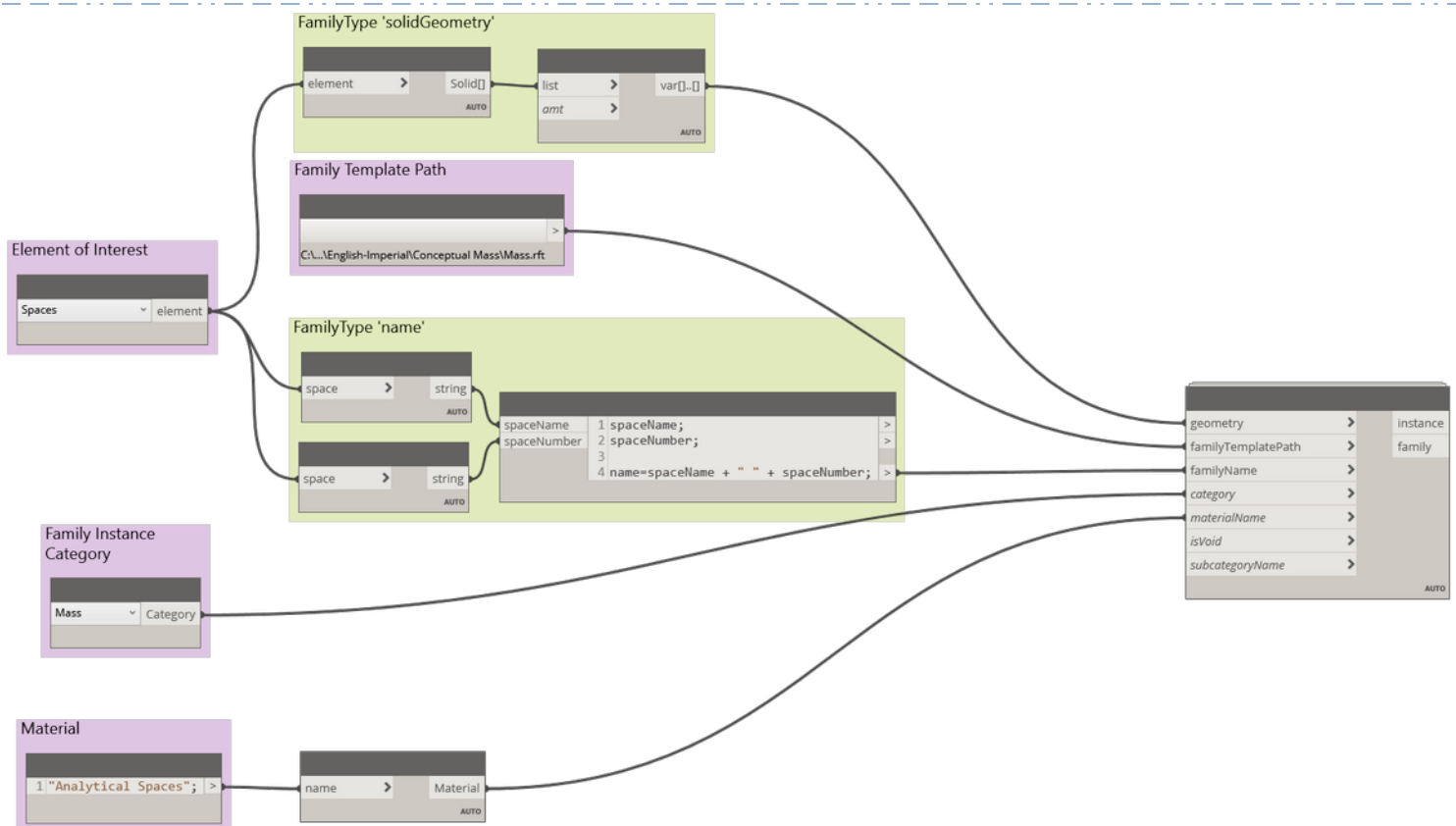


Figure 17. Space geometry transformed into Conceptual Masses.

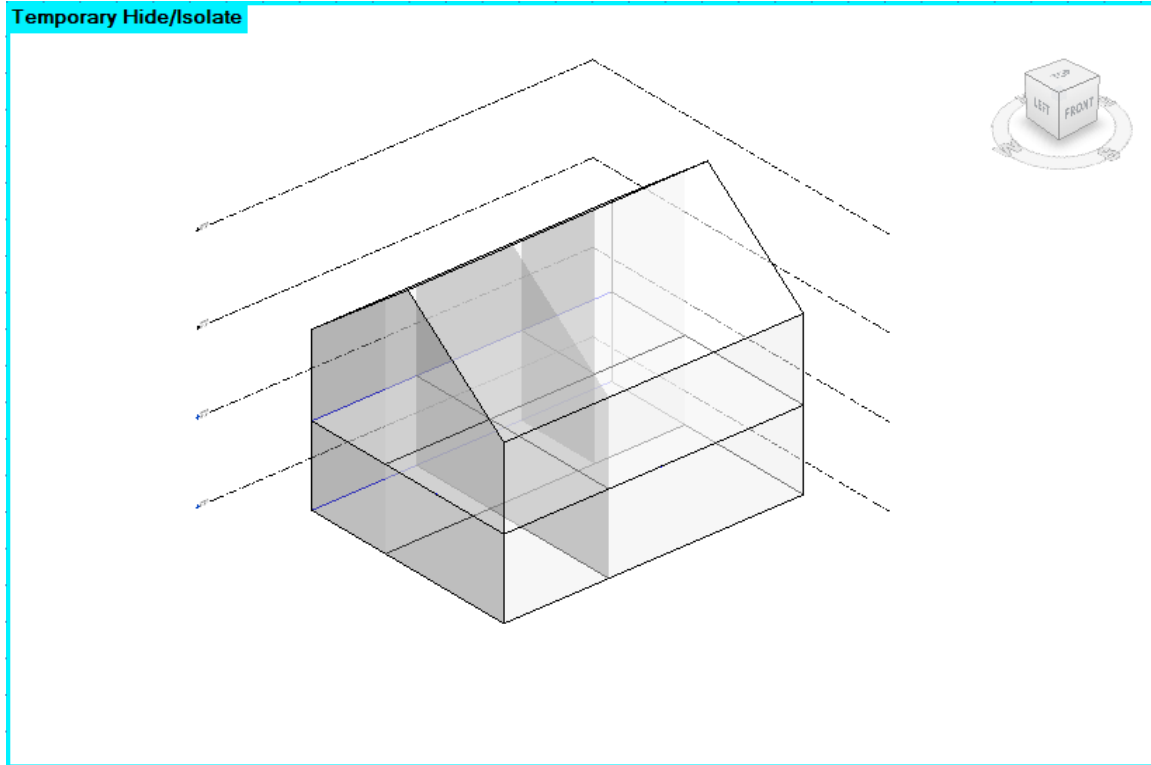


Figure 18. Set mass floors - Level 1.

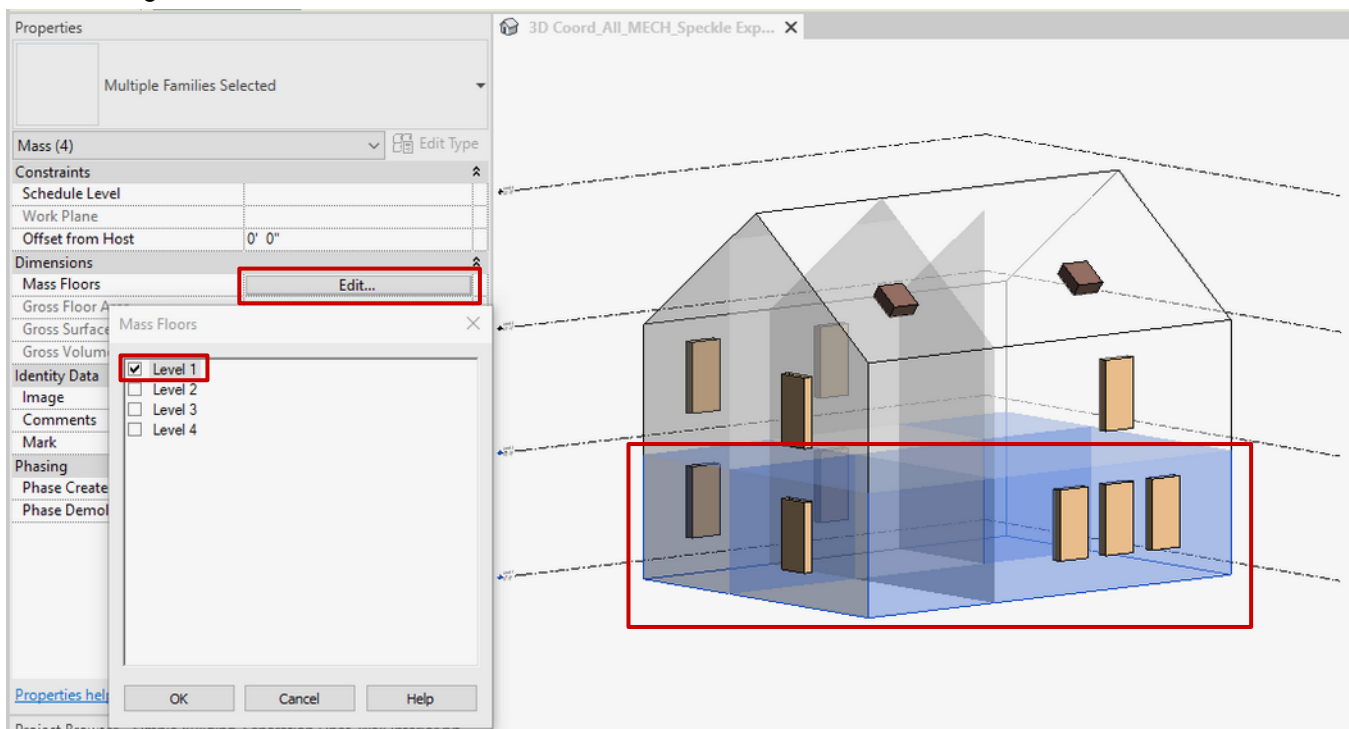


Figure 19. Set mass floors - Level 2.

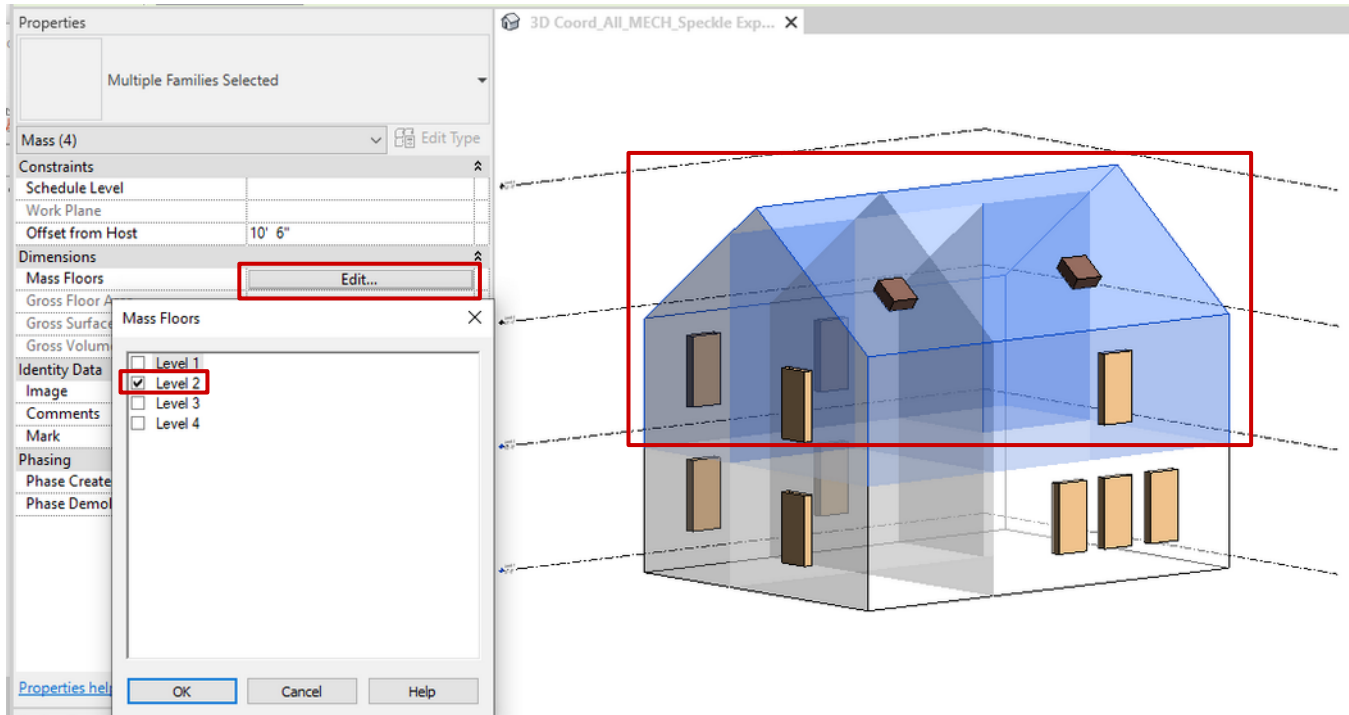


Figure 20. Export gbXML - Conceptual Masses.

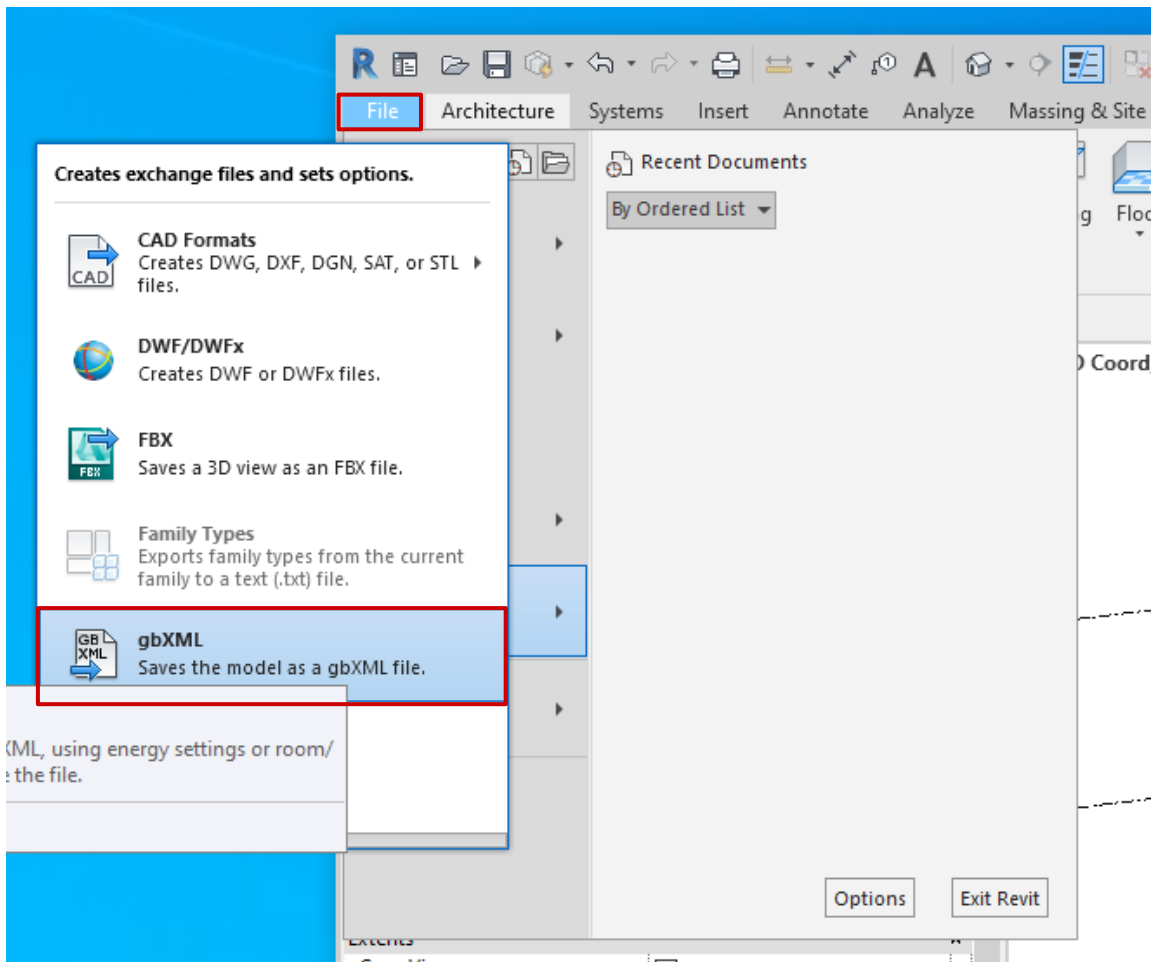


Figure 21. Energy Settings - Conceptual Masses.

Export gbXML

☒ Use Energy Settings
 

Edit...

☐ Use Room/Space Volumes
 

Which export method should I use?

OK

Cancel

Parts Visibility

Show Original

Visibility/Graphics Overrides

Edit...

Graphic Display Options

Edit...

Discipline

Coordination

Show Hidden Lines

By Discipline

Default Analysis Display Style

None

Sub-Discipline

All

Sun Path

☐

Extents

Crop View

☐

Crop Region Visible

☐

Annotation Crop

☐

Far Clip Active

☐

Far Clip Offset

1000' 0"

Scope Box

Project

Section Box

☒

Camera

Rendering Settings

Edit...

Locked Orientation

☐

Properties help

App

Project Browser - Simple Building\_Separation Lines\_Wall Interior

Views (USACE Discipline)

Coordination

Mechanical

Legends

Schedules/Quantities (all)

Sheets (all)

Energy Settings

Parameter	Value
<b>Energy Analytical Model</b>	
Mode	Use Conceptual Masses
Ground Plane	Level 1
Project Phase	New Construction
Analytical Space Resolution	0' 6"
Analytical Surface Resolution	0' 3"
Perimeter Zone Depth	0' 0"
Perimeter Zone Division	<input type="checkbox"/>
Average Vertical Void Height Threshold	6' 0"
Horizontal Void/Chase Area Threshold	1.00 SF
<b>Advanced</b>	
Other Options	Edit...

How do these settings affect energy analysis?

OK

Cancel

Export gbXML

☒ Use Energy Settings
 

Edit...

☐ Use Room/Space Volumes
 

Which export method should I use?

OK

Cancel

Parts Visibility

Show Original

Visibility/Graphics Overrides

Edit...

Graphic Display Options

Edit...

Discipline

Coordination

Show Hidden Lines

By Discipline

Default Analysis Display Style

None

Sub-Discipline

All

Sun Path

☐

Extents

Crop View

☐

Crop Region Visible

☐

Annotation Crop

☐

Far Clip Active

☐

Far Clip Offset

1000' 0"

Scope Box

Project

Section Box

☒

Camera

Rendering Settings

Edit...

Locked Orientation

☐

Properties help

App

Project Browser - Simple Building\_Separation Lines\_Wall Interior

Views (USACE Discipline)

Coordination

Mechanical

Legends

Schedules/Quantities (all)

Sheets (all)

Advanced Energy Settings

Parameter	Value
<b>Detailed Model</b>	
Target Percentage Glazing	0%
Target Sill Height	2' 6"
Glazing is Shaded	<input type="checkbox"/>
Shade Depth	2' 0"
Target Percentage Skylights	0%
Skylight Width & Depth	3' 0"
<b>Building Data</b>	
Building Type	Single Family
Building Operating Schedule	Default
HVAC System	Residential 14 SEER/8.3 HSPF Split Packaged Heat Pump
Outdoor Air Information	Edit...
<b>Room/Space Data</b>	
Export Category	Spaces
<b>Material Thermal Properties</b>	
Conceptual Types	Edit...
Schematic Types	<Building>
Detailed Elements	<input type="checkbox"/>

How do these settings affect energy analysis?

OK

Cancel

12 / 15

Figure 22. Exported gbXML - Conceptual Masses in gbXML Viewer<sup>2</sup>.

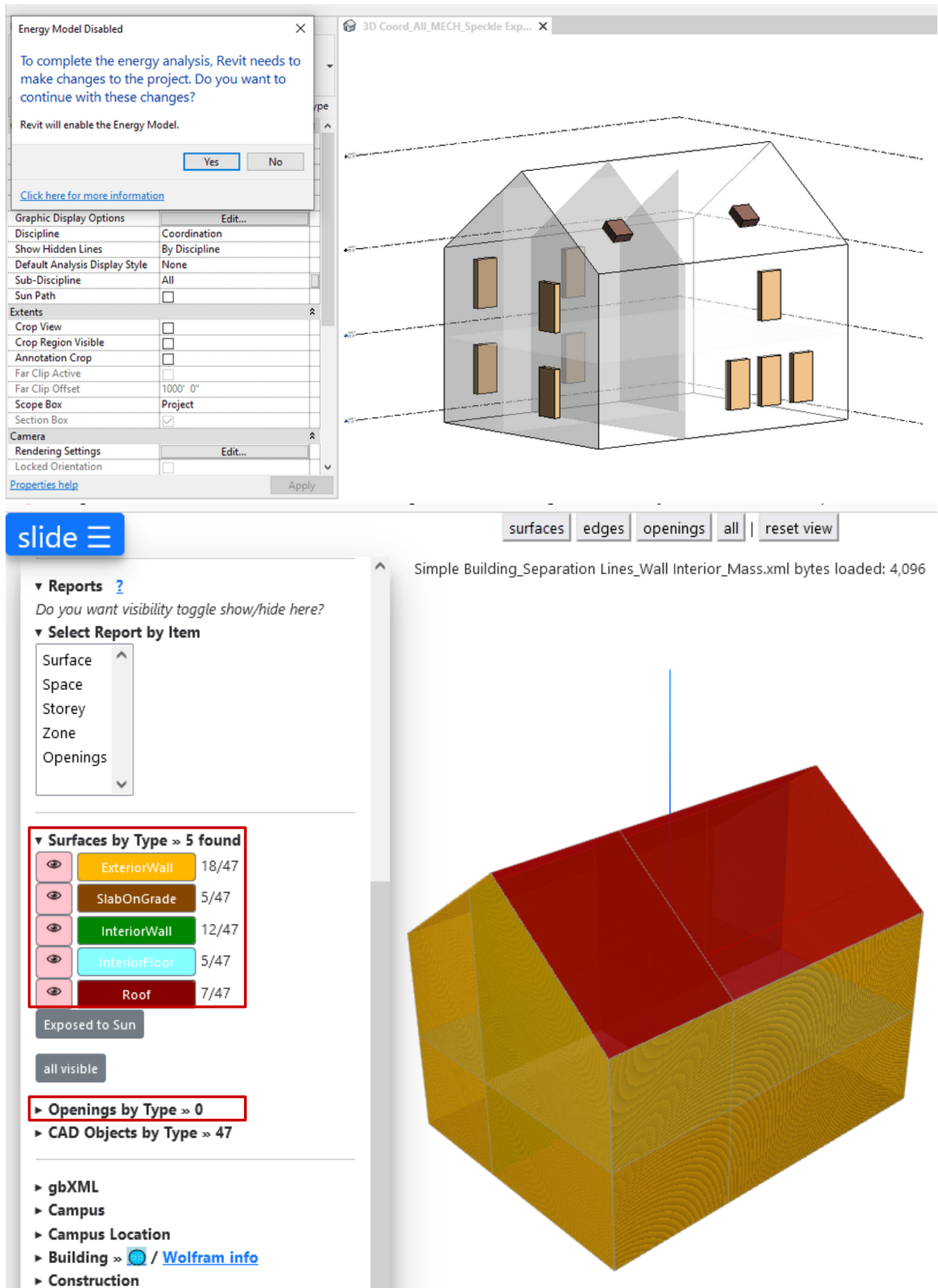


Figure 23. Exported gbXML - Spaces in gbXML Viewer<sup>2</sup>.

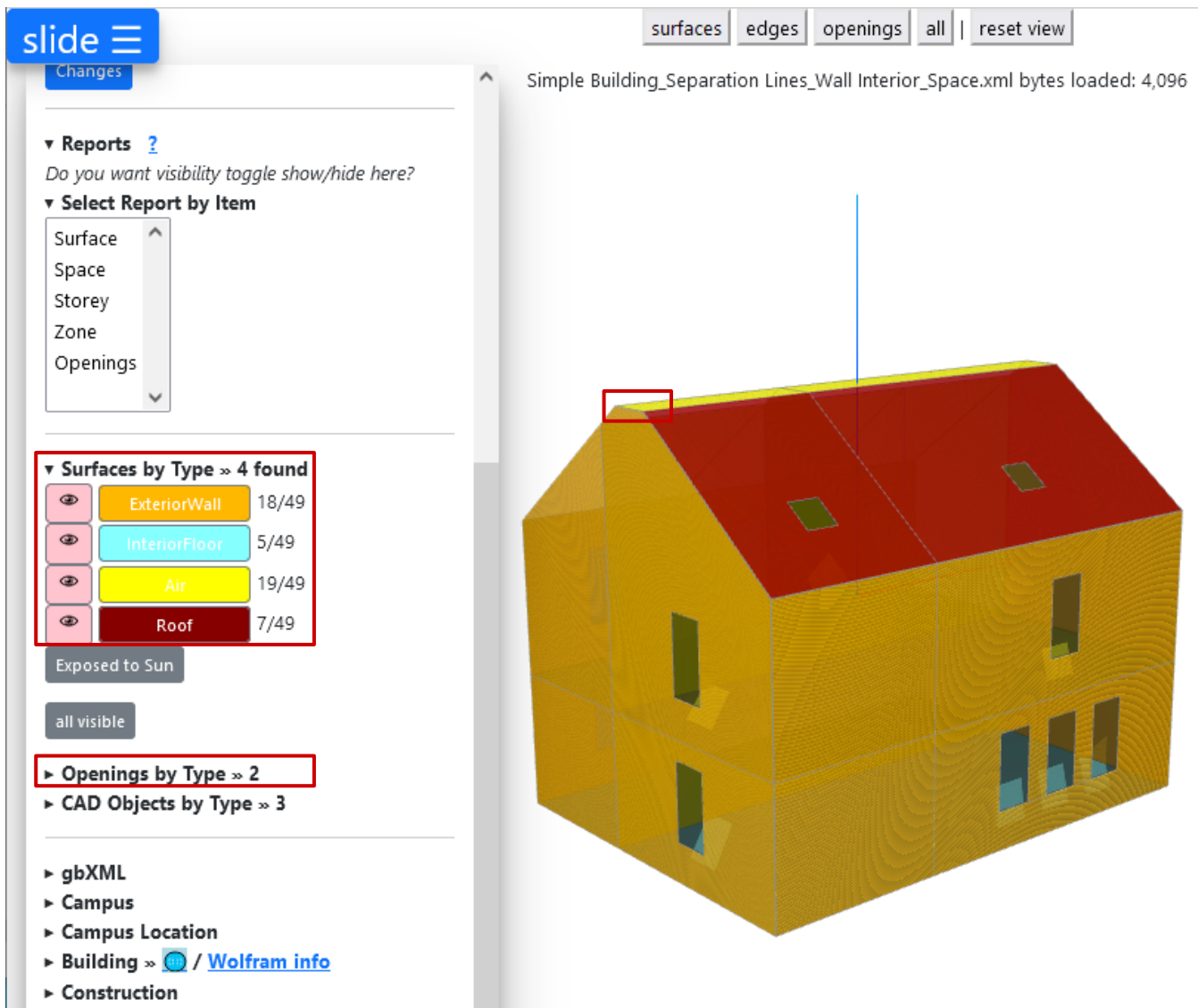
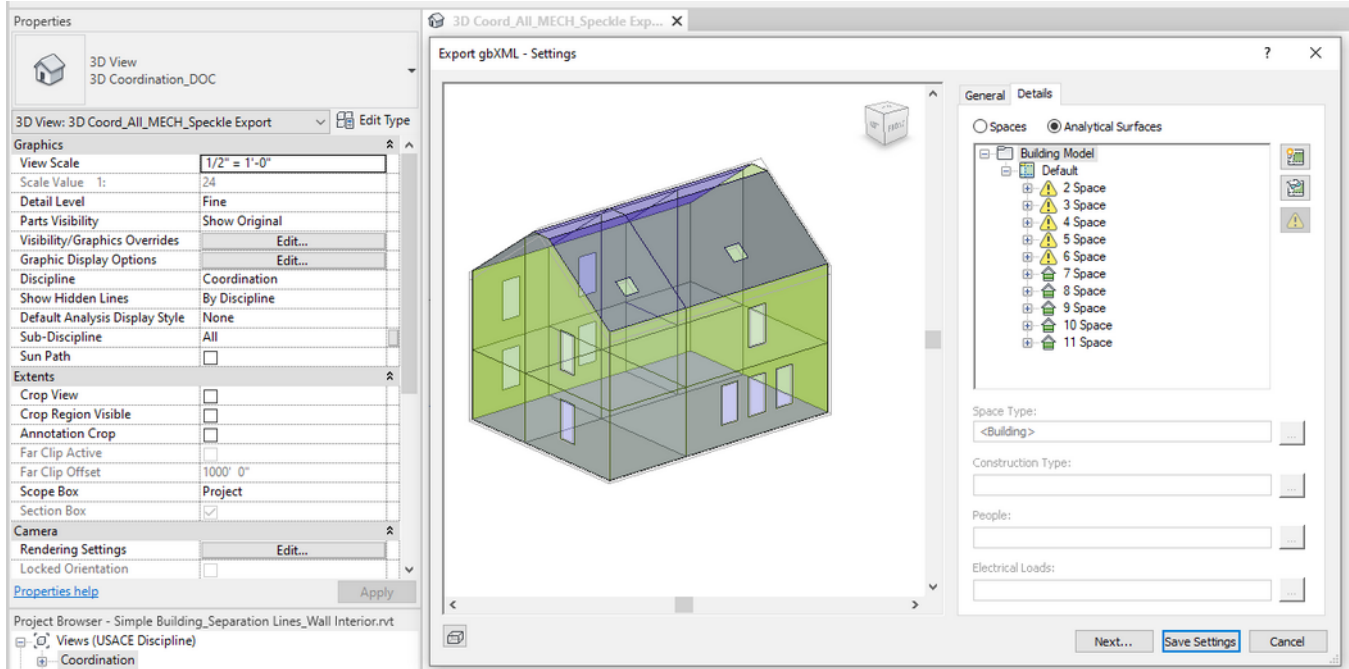




Figure 24. Merged gbXML - with Ripcord gbxmlMerge<sup>3</sup> in gbXML Viewer<sup>2</sup>.

gbxml without openings

Drag and drop file here  
Limit 200MB per file • XML

Browse files

Simple Building\_Separatio... X  
204.1KB

gbxml with openings

Drag and drop file here  
Limit 200MB per file • XML

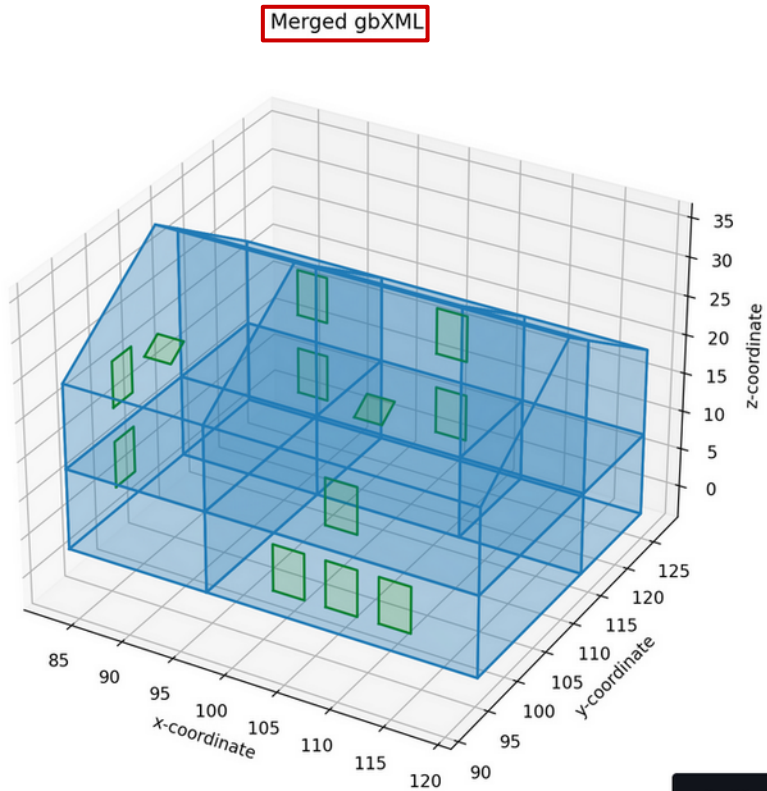
Browse files

Simple Building\_Separatio... X  
248.3KB

tolerance of opening from surface in gbXML  
length units

1.10 - +

Download Merged gbXML



Simple Building\_Separation Lines\_Wall Interior.xml bytes loaded: 4,096

▼ Reports ?  
Do you want visibility toggle show/hide here?

▼ Select Report by Item

- Surface
- Space
- Storey
- Zone
- Openings

▼ Surfaces by Type » 5 found

ExteriorWall	18/47
SlabOnGrade	5/47
InteriorWall	12/47
InteriorFloor	5/47
Roof	7/47

Exposed to Sun

all visible

► Openings by Type » 2

► CAD Objects by Type » 47

► gbXML

► Campus

► Campus Location

