3DVDT

Scan to BIM Solutions

BIM Level of Detail Definitions for As-Built Surveys

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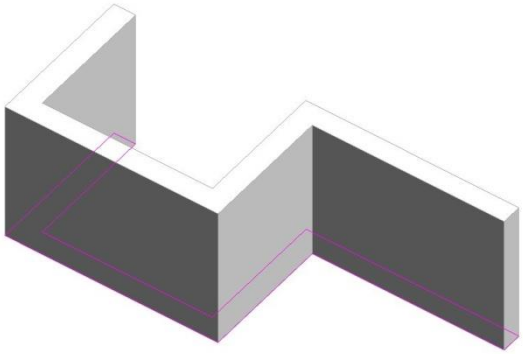
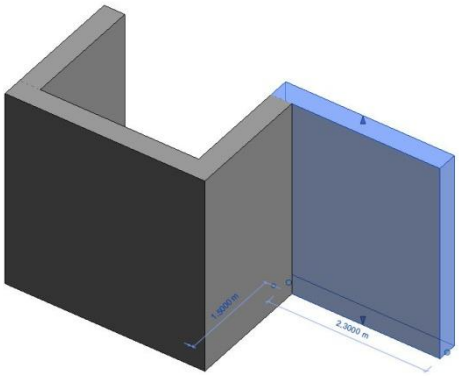
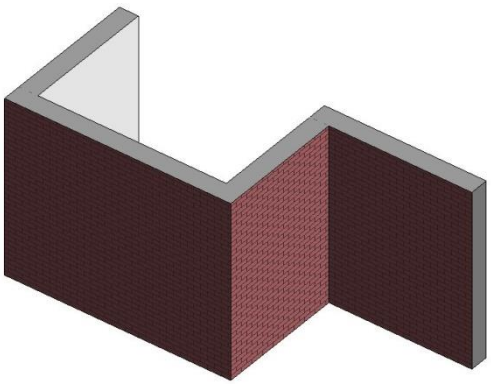
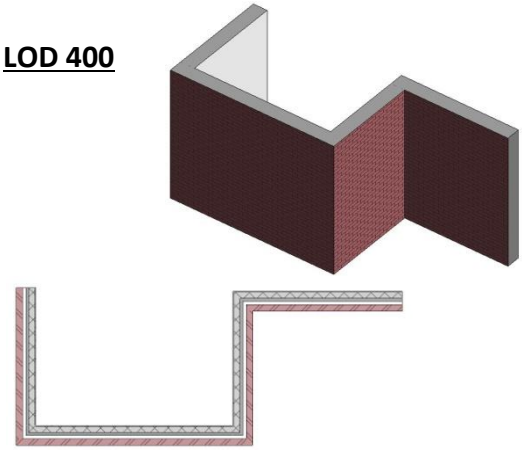
Contents

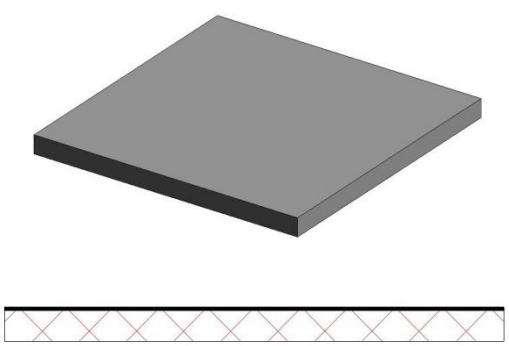
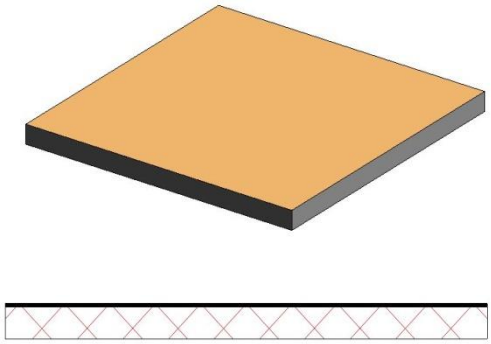
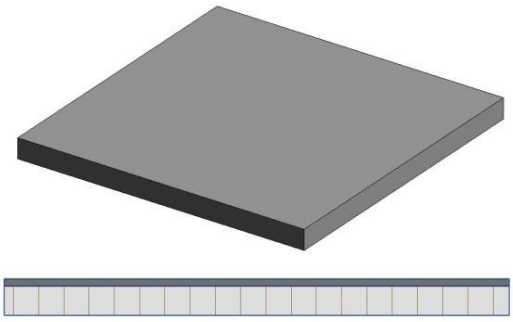
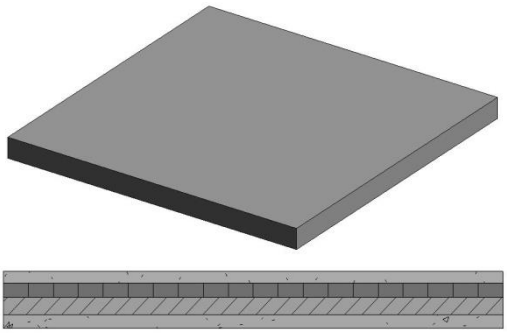
1. Architectural Elements

Please note that we can accommodate for any combination of these LOD categories, optional extras and any level of detail in between these descriptions as per project specific requirements.

1.01 Walls

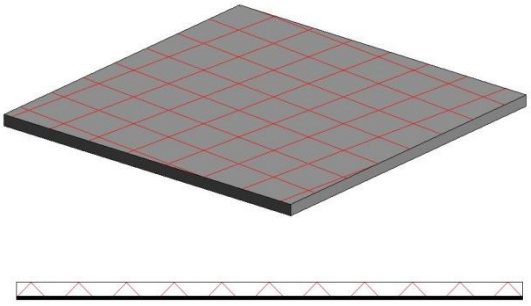
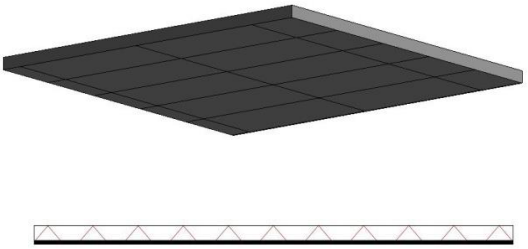
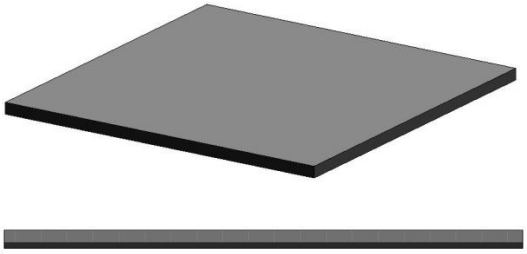
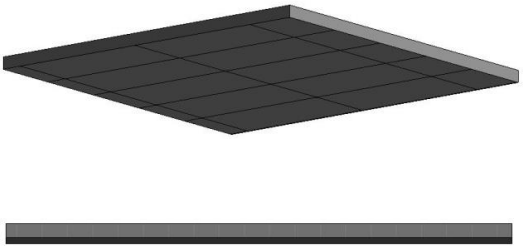
LOD 100  Basic extrusion as model in-place component representing overall wall footprints.	**LOD 200**  Generic Revit system wall types with no materials or internal structure.
LOD 300  Generic Revit system wall types shown with materials "painted" on external surfaces only. No internal structure. ***Internal material surfaces optional extra.***	**LOD 400**  Revit system family wall types shown with full structure. ***Please note third party structural information will need to be provided by the client for this LOD.***

1.02 Floors

LOD 100  Generic floor with no materials or internal structure. If thickness is unknown the surveyed side will be displayed in the floor structure.	**LOD 200**  Generic floor with surface materials "painted" but no internal structure. If thickness is unknown the surveyed side will be displayed in the floor structure.
LOD 300  Floor shown with separate joist and board thickness shown. This will only be shown where structure is visible on site. ***Joist span may be noted as text annotation in plan view if requested.***	**LOD 400**  Floor shown with full internal structure. Third party information would need to be provided by the client to meet this LOD. ***Please note this LOD would significantly increase modeling time.***

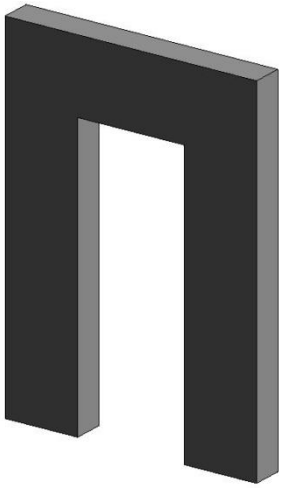
Note: See Floor Horizontal Void example.

1.03 Ceilings

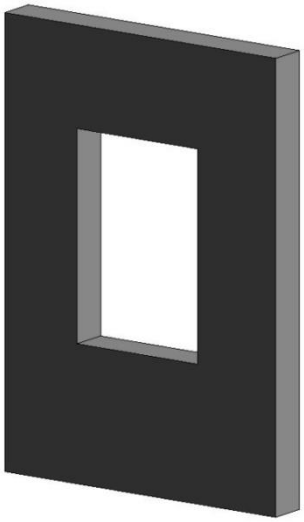
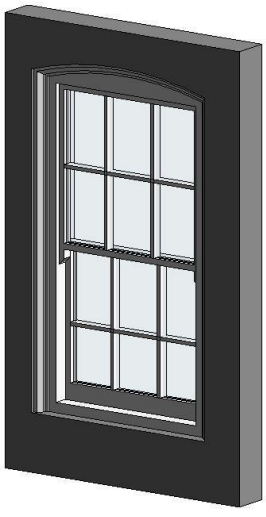
LOD 100  Generic ceiling with no materials or internal structure. If thickness is unknown the surveyed side will be displayed in the ceiling structure.	**LOD 200**  Generic ceiling with surface materials "painted" but no internal structure. If thickness is unknown the surveyed side will be displayed in the ceiling structure.
LOD 300  Ceiling shown with separate joist/grid and panel thickness shown. This will only be shown where structure is visible on site. ***Joist span may be noted as text annotation in plan view if requested.***	**LOD 400**  Ceiling shown with full internal structure and materials. Third party information would may need to be provided by the client to meet this LOD. ***Please note this LOD would significantly increase modeling time.***

Note: See Ceiling Horizontal Void example.

1.04 Doors

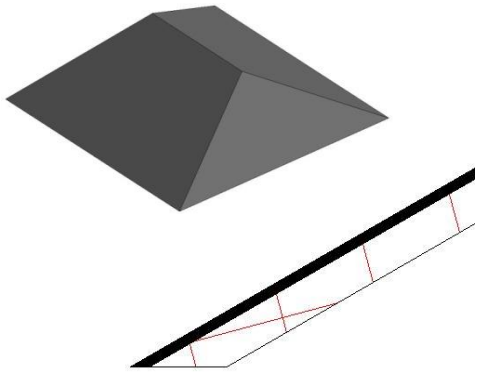
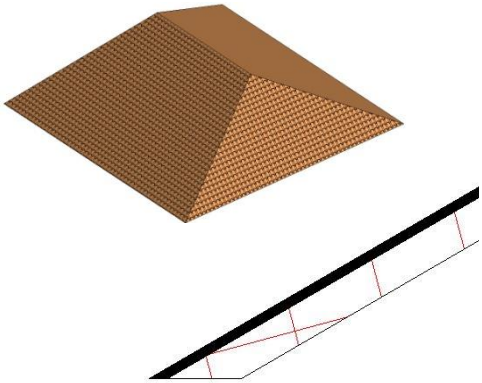
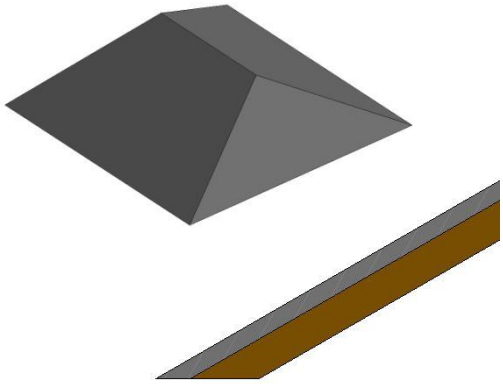
LOD 100  Basic structural opening only.	**LOD 200**  Generic door from our standard library showing correct frame position and door swing.
LOD 300  Door taken from our standard component library to match general fenestration/arrangement.	**LOD 400**  Door modeled with accurate paneling, lintel and door hardware. ***Please note that this level of detail will increase modeling time significantly.***

1.05 Windows

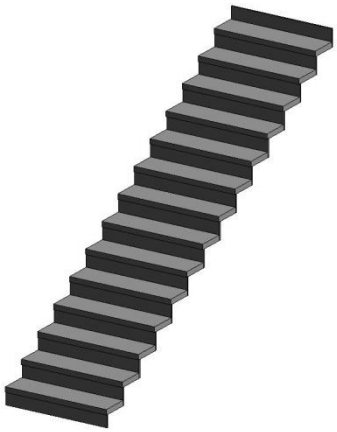
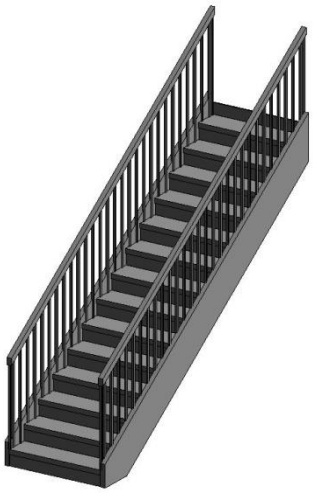
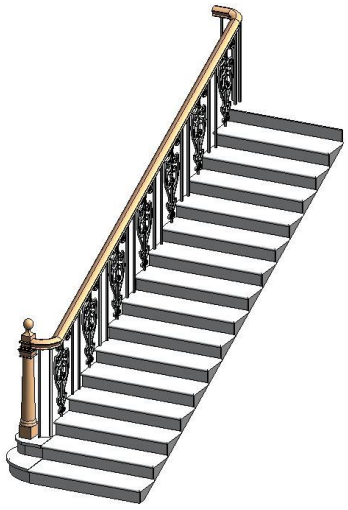
LOD 100  Basic structural opening only.	**LOD 200**  Generic window taken from our standard library to show size, location and frame position only.
LOD 300  Window taken from our standard component library to match general fenestration/arrangement.	**LOD 400**  Accurate representation of window showing frame and mullion details specific to the project. ***Please note that this level of detail will increase modeling time significantly.***

Note: In some cases windows may be modeled as glazed curtain walls.

1.06 Roofs

LOD 100  Roof will show correct arrangement, eaves and ridge positions. Roof will be shown as either an overall thickness or as an unknown thickness/structure roof type. No structure or materials shown.	**LOD 200**  As in LOD 100 but with additional "painted" materials on external faces.
LOD 300  Roof will show correct arrangement, eaves and ridge positions. Structure will indicate the relative tile and rafter thicknesses. ***Please note this information can only be included where visible on site with no intrusive works.***	**LOD 400**  Roof external face will be modeled as a Revit system family roof, with individual rafters modelled separately within roof space. ***Please note that this information can only be included where visible on site with no intrusive works and that this LOD will increase modeling time significantly.***

1.07 Staircases

LOD 100  Stairs will be shown as a generic type with the correct number of treads and risers shown. No railings or stringers will be modeled.	**LOD 200**  As in LOD 100 but with generic representative railings at correct height and stringers included.
LOD 300  Stairs will be modeled as closest match to the true style and arrangement including more accurate stringers and rails taken from our standard libraries.	**LOD 400**  Stairs, stringers and railings will be modeled to accurately replicate the true form as measured. ***Please note this LOD will significantly increase modeling time.***

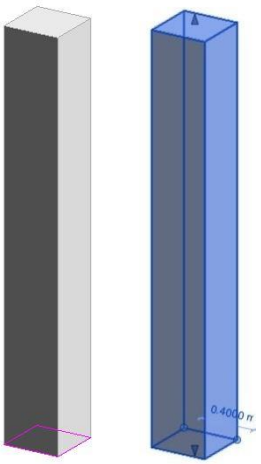
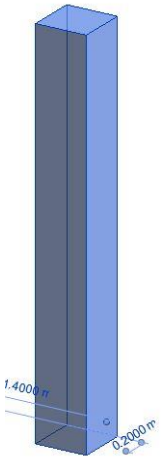
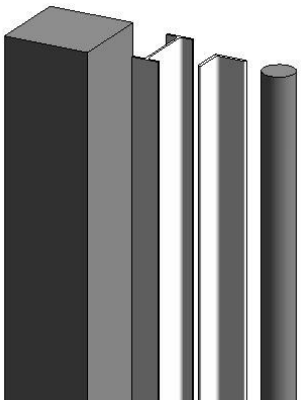
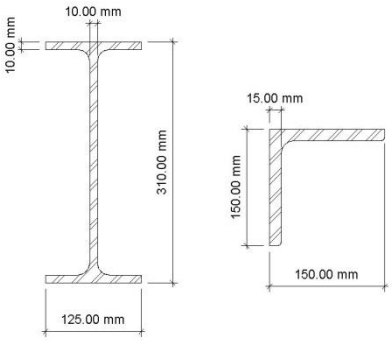
1.08 Architectural Ornamentation (i.e. Cornicing, Skirting and Moulding)

LOD 100 Detailing which extrudes from the host surface by over 8” will be modeled. It will be modeled as a basic block or simplified profile only.	**LOD 200** Detailing will be shown where it extrudes by more than 4” from the host surface. It will be modeled to represent the general profile shape of the profile in a simplified profile.
LOD 300 Detailing will be modeled where it extrudes more than 2” from the host surface and will be modeled accurate to its true profile.	**LOD 400** We can provide models to a high level of detail. Any detail over LOD 300 should be discussed as per specific requirements at the time of cost estimating. ***Optional high level detail.***

Note: If structurally relevant, some objects outside of LOD scope may be modeled, whereas some objects within the LOD scope may be excluded.

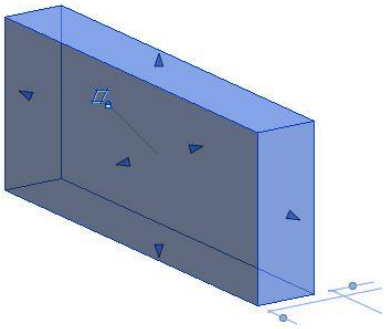
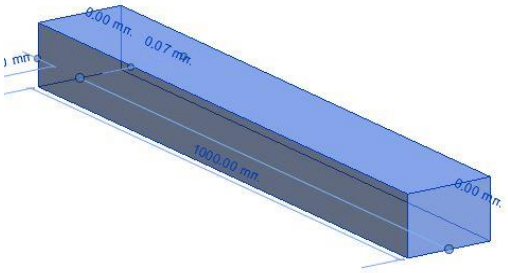
2. Structural Elements

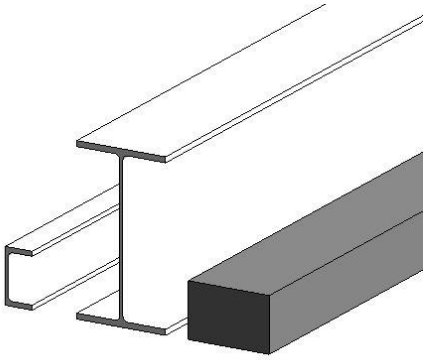
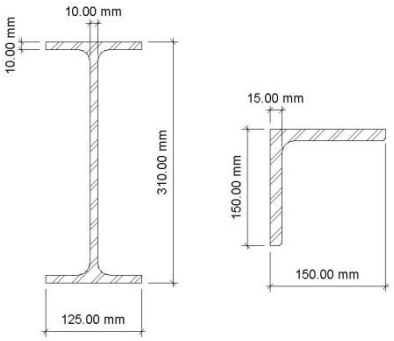
2.01 Columns

LOD 100  Columns may be modeled as basic model in-place extrusions as a column category or as Revit system walls for any wall piers.	**LOD 200**  All columns may be modeled as a square/rectangular profile to represent the overall size of the column only.
LOD 300  Columns will be modelled as their true profile type and will be modelled to the nearest ¼" in size.	**LOD 400**  ***Columns will be identified. Third party survey information will need to be provided by the client for this LOD. Please note that this LOD will increase survey/modeling time significantly.***

Note: In some cases lower LOD levels may be used where the non-intrusive survey cannot confirm if the element is a true structural column.

2.02 Beams, Bracing, Joists, Rafters and Purlins

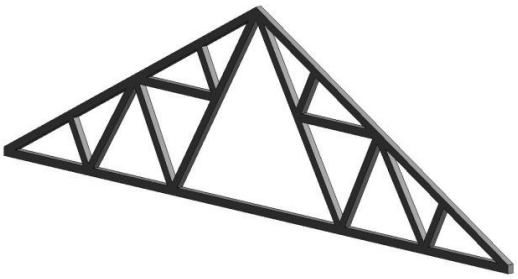
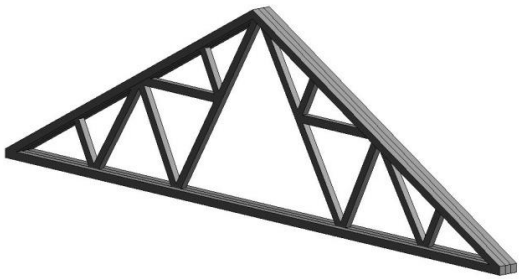
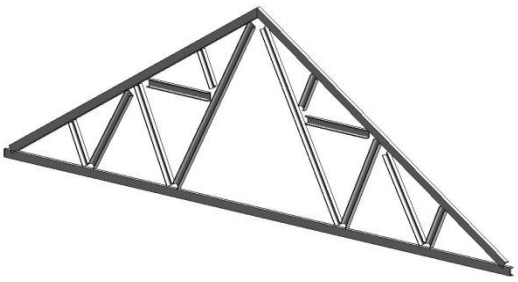
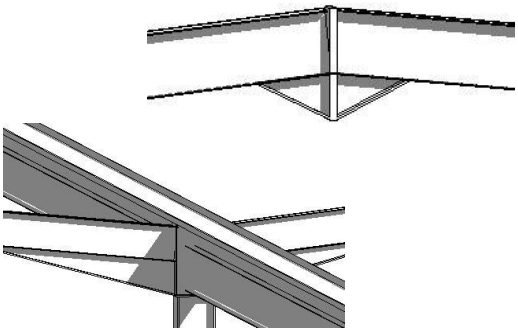
<table>
<tr>
<td><u>LOD 100</u>
 
Beams may be modeled as basic model in-place extrusions categorized as Ceiling. Multiple elements may be modeled as one in-place family such as a group of rafters.</td>
<td><u>LOD 200</u>
 

All beams may be modeled as a square/rectangular profile to represent the overall size of the beam only.</td>
</tr>
<tr>
<td><u>LOD 300</u>
 
Beams will be modeled as their true profile type and will be modeled to the nearest ¼” in size.</td>
<td><u>LOD 400</u>
 

Beams will be identified. Third party survey information will need to be provided by the client for this LOD. Please note that this LOD will increase survey/modeling time significantly.</td>
</tr>
</table>

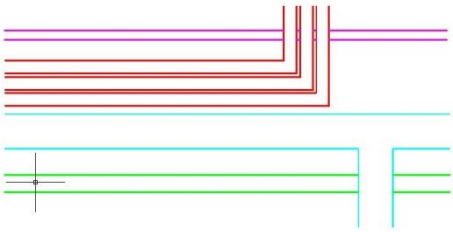
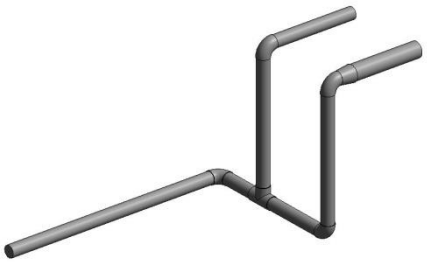
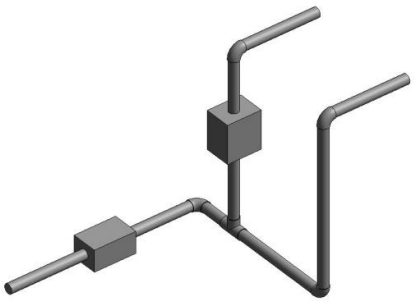
Note: In some cases lower LOD levels may be used where the non-intrusive survey cannot confirm if the element is a true structural beam.

2.03 Trusses

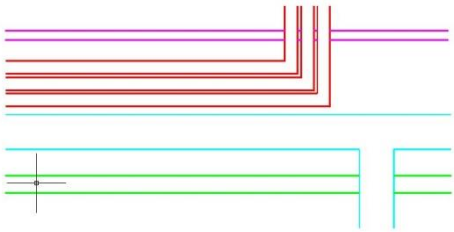
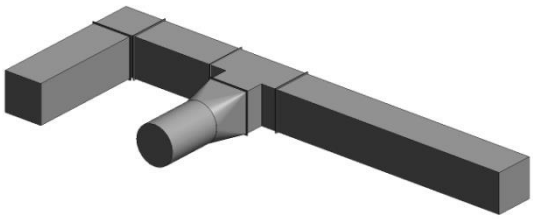
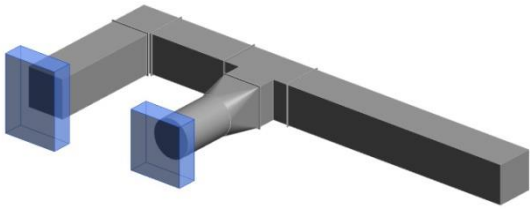
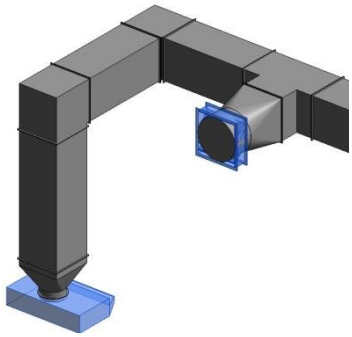
LOD 100  Trusses will be modeled as an extrusion categorized as Structural Framing. This will show the truss arrangement and one overall thickness.	**LOD 200**  As in LOD 100 trusses will be modeled as an extrusion categorized as Structural Framing. However, the model will represent differing sectional widths of the web/chords.
LOD 300  Trusses will be created as full Revit Truss families and will accurately represent the true arrangement and web/chord profiles. ***Where trusses are too complex to be created in a Revit system truss family or only part of the truss is visible, other modeling methods may be used.***	**LOD 400**  Trusses will be modeled as in LOD 300 but will include connection and bracing elements. These components may be modeled in-place categorized as Structural Framing. ***Please note that this LOD may increase modeling time significantly.***

3. MEP Elements

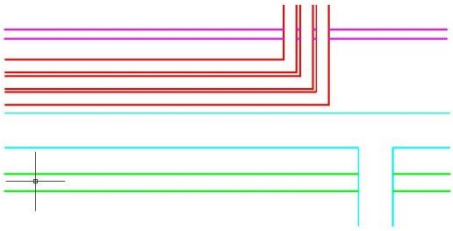
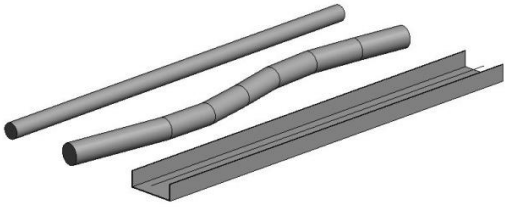
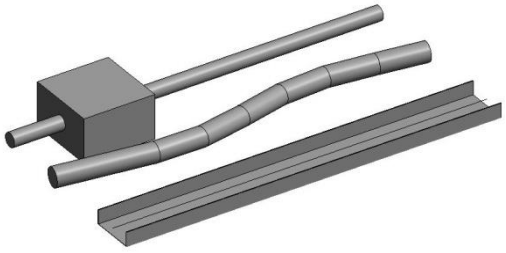
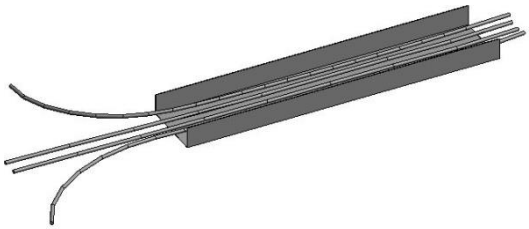
3.01 Pipes

LOD 100  Pipes will be shown in the model as a 2D CAD overlay. Only pipes over 1-1/2” in diameter will be shown.	**LOD 200**  Pipes will be modeled using the MEP system tools in Revit. They will be modeled as a "generic" pipe type. No system types will be indicated and fittings will be representative only. Only pipes over 1-1/2” in diameter will be modeled.
LOD 300  Pipes will be modeled using the standard MEP system tools within Revit. They will be modeled as a "generic" pipe type only. No system types will be indicated and fittings will be representative only. Any Pipe Accessories will be modeled as basic block forms indicating overall size and *position only. Pipes over 1-1/4” in diameter will be modeled.*	**LOD 400**  As in LOD 300 however all fittings and accessories will be modeled accurately. All pipe sizes will be modeled. ***If service types are required then third party information would need to be supplied by the client. This would increase modeling time significantly.***

3.02 Ducting

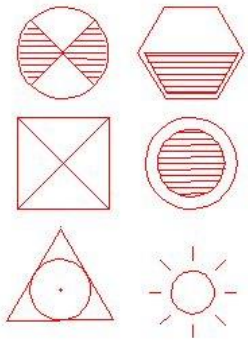
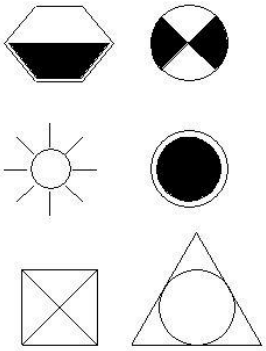
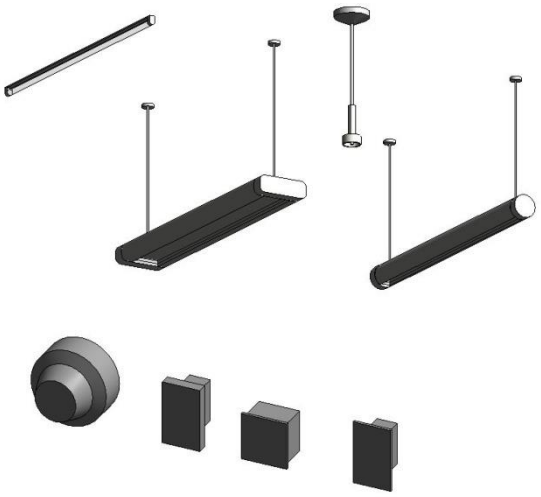
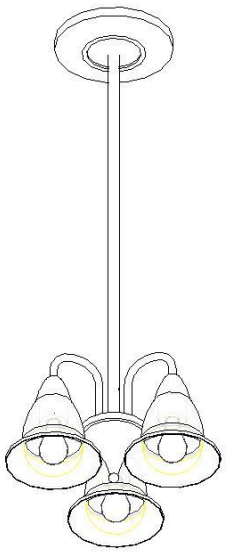
LOD 100  Ducting will be shown in the model as a 2D CAD overlay. Only Ducting over 6" will be shown.	**LOD 200**  Ducting will be modeled using the standard MEP system tools in Revit. They will be modeled as a default type only. No system types will be indicated and fittings will be representative only. Only ducting over 6" will be modeled.
LOD 300  Ducting will be modeled using the standard MEP system tools within Revit. They will be modeled as a default duct type only. No system types will be indicated and fittings will be representative only. Any Pipe Accessories will be modeled as basic block forms indicating overall size and position only. All ducting sizes will be modeled.	**LOD 400**  As in LOD 300 however all fittings and accessories will be modeled accurately. All sizes of ducting will be modeled. ***If service types are required then third party information would need to be supplied by the client. This would increase modeling time significantly.***

3.03 Cables, Conduits and Cable Trays

LOD 100  Cables, conduits and cable trays will be shown in the model as a 2D CAD overlay only. Only conduits over 4" and cable trays over 6" in diameter will be shown. No individual cables except major HV cables will be shown. Large cable bundles may be shown as a single item indicating their overall size.	**LOD 200**  Cables, conduits and cable trays will be modeled using the standard MEP system tools in Revit. Only conduits over 1-1/2" and cable trays over 6" in diameter will be modeled. No individual cables except major HV will be modeled. Large cable bundles may be modeled as a single item indicating their overall size.
LOD 300  As in LOD 200, with the addition that conduits and cable trays of all sizes will be modeled. Junction boxes and electrical equipment will be modeled in basic block form only to represent overall size.	**LOD 400**  As in LOD 300 however junction boxes and electrical equipment will be modelled more accurately. Individual cables can also be modeled if requested. ***If service types are required then third party information would need to be supplied by the client. This would increase modeling time significantly.***

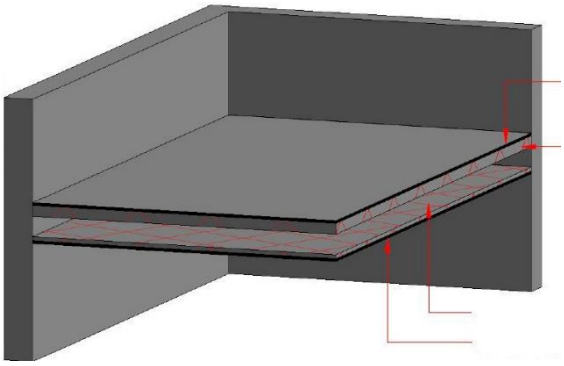
Note: In some cases ducting may be used to represent closed cable trays. In these cases a ducting type will be created named "Cable Tray".

3.04 Lights, Sockets and Switches

LOD 100  Lights, Sockets and Switches will be indicated as 2D CAD annotation blocks in the plan view only.	**LOD 200**  Lights, Sockets and Switches will be represented be a 2D Revit families shown in the plan view only.
LOD 300  Lights, Sockets and Switches will be shown as generic Revit families from our standard libraries. They will match the correct categories and general type but will not display the accurate geometry.	**LOD 400**  If specifically requested, certain elements such as light fittings can be modelled to match their correct geometry. ***Please note this will take significantly more modeling time.***

4. Void Examples

4.01 Ceiling & Floor Void

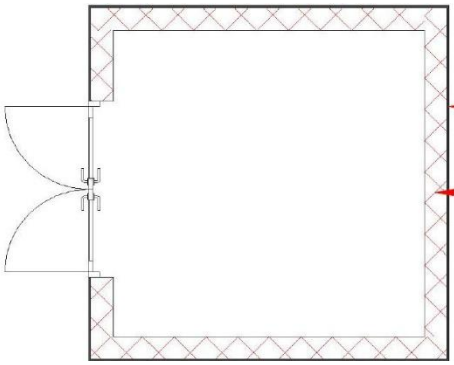


Surveyed side floor

Unknown thickness layer shown hatched

Unknown thickness ceiling
Surveyed side ceiling

4.02 Room/Area Not Surveyed



Surveyed side wall

Unknown thickness of wall shown hatched