SECTION 4 : FDM PRINTING MODELLING BASICS
### Minimum Supported Wall Thickness
Recommended: 0.8 mm
A supported wall is a wall connected along two or more sides to other volumes.

### Maximum Unsupported Overhang Length
Recommended: 1 - 2 mm
An overhang is a piece of the model that extends out perpendicular to the build platform. Overhangs less than 1mm are likely to deform whilst printing.

### Minimum Unsupported Overhang Angle
Recommended: 30 - 45° from level

### Minimum Vertical-Wire Diameter
Recommended: 0.8mm (7 mm tall)
All vertical wires below 0.8mm will likely fail.

### Minimum Embossed Detail
Recommended: 0.8 mm
Any embossed detail less than 0.1mm will not show up on your print.

### Minimum Engrave Detail
Recommended: 0.8 mm
Any engrave detail less than 0.1mm will not show up on your print.

### Minimum Clearance
Recommended: 0.6 mm
Clearance is the space left between moving parts. Leave a clearance to avoid parts fusing together.

### Minimum Hole Diameter
Recommended: 0.8 mm (2x nozzle)
Any hole smaller than 0.8mm will likely close over.

### Maximum Horizontal Support Span/Bridge
Recommended: 25 mm (5 mm width × 3 mm thick)
All spans greater than this will require support material. Ensure you leave enough space to remove material.
# SECTION 4.2 : MODELLING GUIDE

<table>
<thead>
<tr>
<th>WALLS MUST HAVE A THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8 mm</td>
</tr>
<tr>
<td>Objects that do not have a thickness will not be recognised in slicing software.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERSECTING OBJECTS MUST BE BOOLEANED OR JOINED INTO ONE SINGLE OBJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objects that are not fully &quot;solid&quot; may fail. Slicing software can often generate infill incorrectly resulting in a failed print.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SINGLE SURFACES CANNOT BE PRINTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>all surfaces present in a model must either be offset and given a printable thickness or deleted.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MAXIMUM SHEET SIZE</th>
</tr>
</thead>
</table>

- Objects that are not fully closed may fail. Slicing software can often generate infill incorrectly resulting in a failed print.

- A "normal" is a perpendicular reference point to the surface of a model. All normals of a model must face the same direction – outwards from model surface. You may need to flip a surface to fix this issue.

- No inverted normals can be present within a model.