Vaulted Ceilings

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Examples:
This tutorial explains a simple way of creating the base for a vaulted ceiling, like the ones showed in the last slide.
Now, look at the pictures:

The red lines mark the two lines we will need to get the shape of the ceiling done.
In the modeler, we will use 2 tools, the beizer and the disc tool.

But before you start doing that, we need to decide the sizes for the arcs.

Both splines will use the same heights, I used 5 meters.
The width of the green and blue lines is set by you, in my case, is set them the same width, 12 meters.

The width of the red line is calculated, using Pythagoras:

$$\sqrt{((\text{Blue width})^2 + (\text{green width})^2)} = \text{red width}$$
The measurements I chose were:

- Width 12 meters
- Height 5 meters
- Diagonal width 16.97 meters
First, use the beizer (create tab, curves) to create the arc marked here, 12 meters in width 5 of height.
With that done, now we need this line, 5 meters high, 16.97 wide. Use the disc tool, create an ellipse with that description. Select the polygon and press k, remove polygons. Remove the lower half. After that, select the points in order, and use make curve -> open curve, under the create tab.
Now, let’s place the arcs on the appropriate spots. Set in this diagram:
Looking at it in perspective mode. To get this arrangement duplicate one of the short arcs and rotate 90 degrees. The long arc rotates 45. Use the set value tool: key v or ctrl+v depending on the version of lightwave.
After that, we add two splines, joining the top of each short arc to the top of the long arc. Select the top polygon of two arcs and press ctrl+p. Add both lines.

Select and Merge the points pressing m where the three curves meet.
Once the shape is done, it’s time to add the surface. Select the curves in order and then press ctrl+f, or choose make spline patch under construct tab, patches.
The number in the parallel box defines how many stripes will make the part of the vault, I used 30, use at your own discretion.

Repeat the steps for the other side.
One more step, duplicating these polygons to get the full vault. There are plenty of ways to do it. We will call the polygon statistics window by pressing w key, and click the plus sign next to faces.

Copy the polygons to another layer, and there, in the multiply tab, duplicate options, select symmetrize, 4 degree of symmetry 4 and y axis.
If the ceiling is invisible from the bottom either flip the polygons with letter f or make it’s material double sided in the material editor, depending on your particular situation.