



# Table Leg Tutorial - Making Solids from Surfaces

*Using Cobalt<sup>™</sup>, Xenon<sup>™</sup>, Argon<sup>™</sup>*

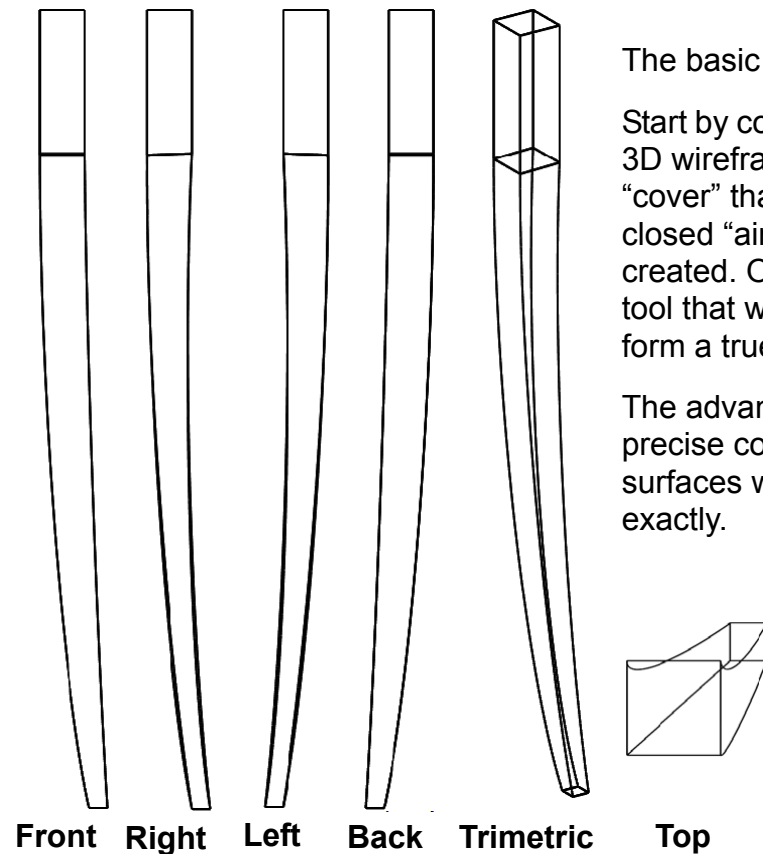
## Creating Table Legs

Very often we come across shapes that look very simple at first glance, but turn out to have a subtle yet complex shape.

The combination of Solids and Surfaces in the Ashlar-Vellum 3D modeling software allows for a very easy yet powerful method for dealing with these kinds of situations.



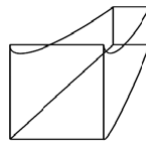
### TABLE LEG VIEWS



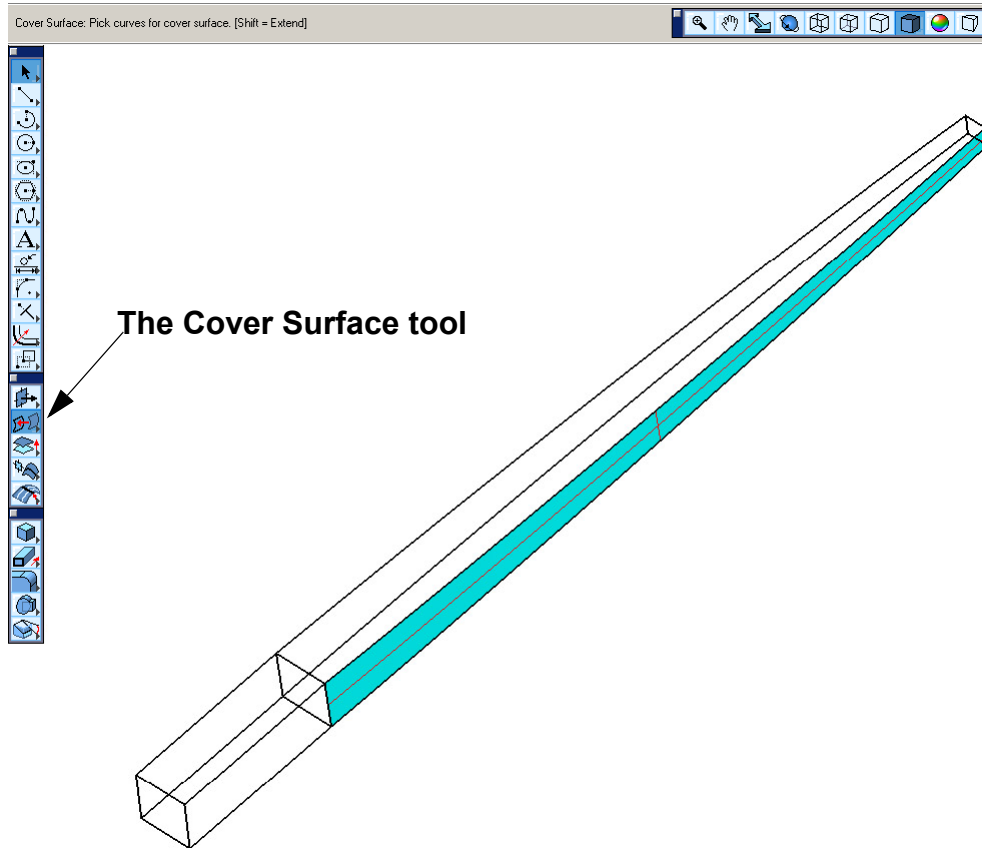
The basic approach to this method is simple.

Start by completely defining the shape with a 3D wireframe “cage,” then use surfaces to “cover” that wireframe until a completely closed “airtight” volume of surfaces is created. Once that is done, use a special tool that will stitch the surfaces together and form a true solid object from them.

The advantage of this approach is in very precise control of the shape since the surfaces will match the wire frame created exactly.

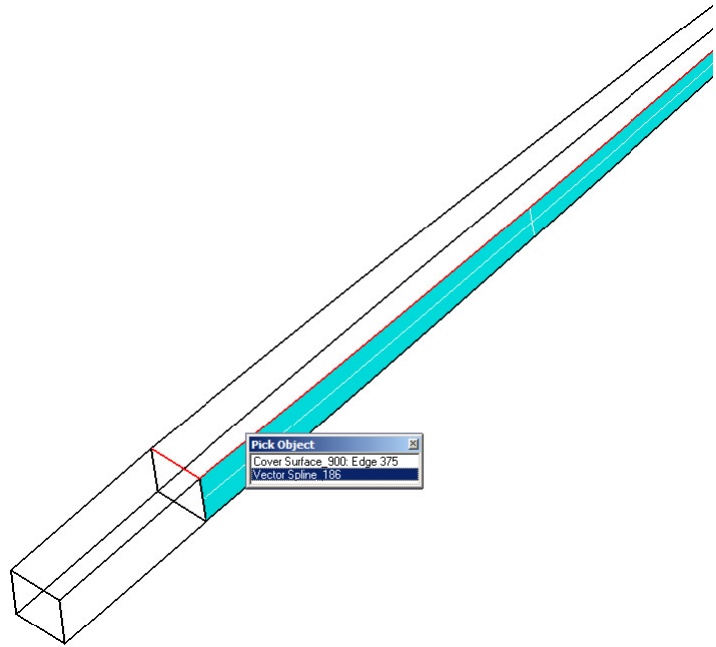


1. Open the file *table\_leg\_wireframe.co* (a .co file can be opened in Cobalt, Xenon and Argon).
2. Use the **Cover Surface** tool to put surfaces on all sides of the leg, one area at a time.
  - Make sure to hold the SHIFT key (for multiple select) and select the four lines or curves that define a closed boundary.



The rules for the **Cover Surface** tool are:

- There must be at least 2 curves that somehow connect end-point to end-point with each other and form a closed loop. A simple rectangle is a good example.
- There should be no gaps between the curves; they should touch at their end-points.

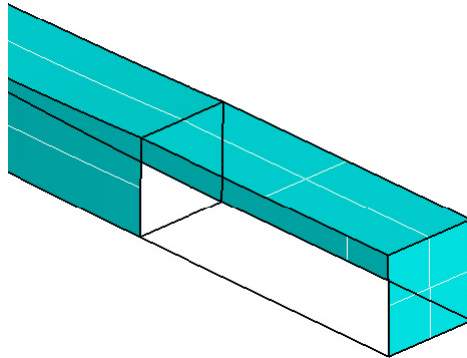
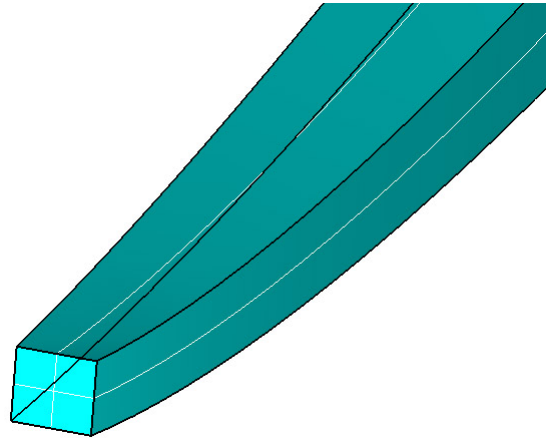


When selecting the boundaries for the surfaces, select either curves or the edges of existing surfaces as the boundary.

It is better to choose curves. This way the surfaces are linked to the wire frame and if the wire frame is changed then the surfaces will update.

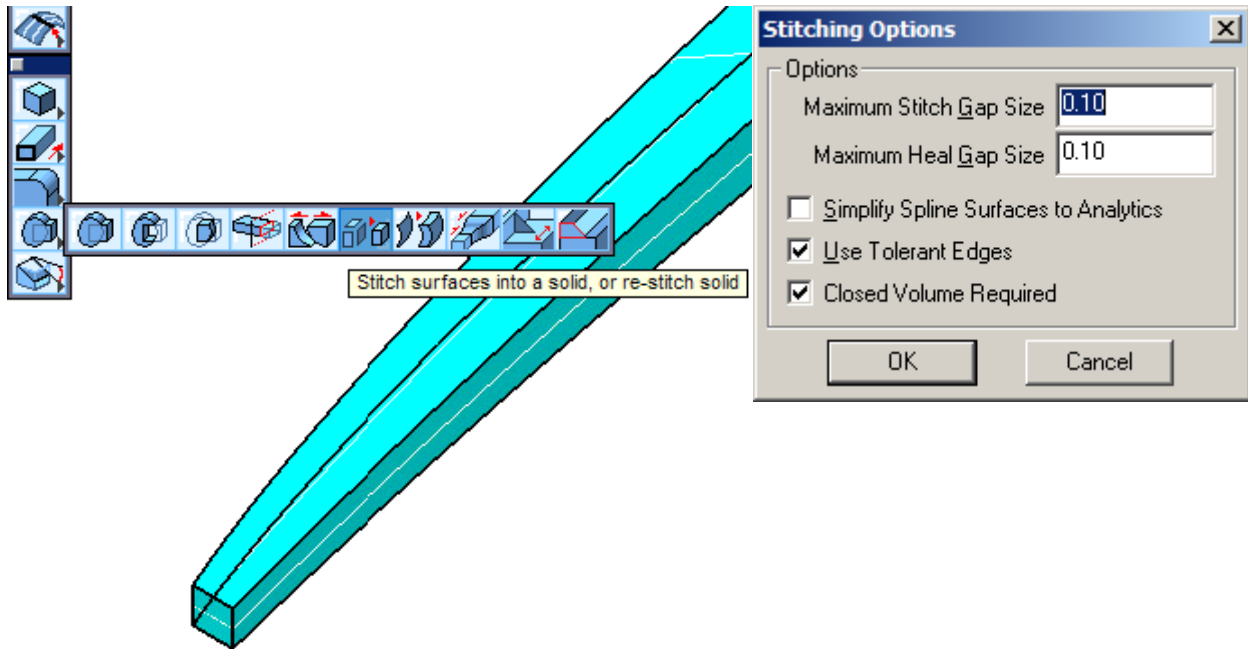
Keep working around the wire frame shape, placing a cover surface on all facets. Think of it as creating a patchwork quilt. Create patches of surfaces that will eventually create a closed body.

Don't miss any surfaces, such as the ends that need to be capped. Remember that the goal is to create a completely closed volume so that it can be stitched into a solid. Stitching basically means starting with a hollow shape made from surfaces (there should be no gaps) that are then filled with material to make it a single solid body.



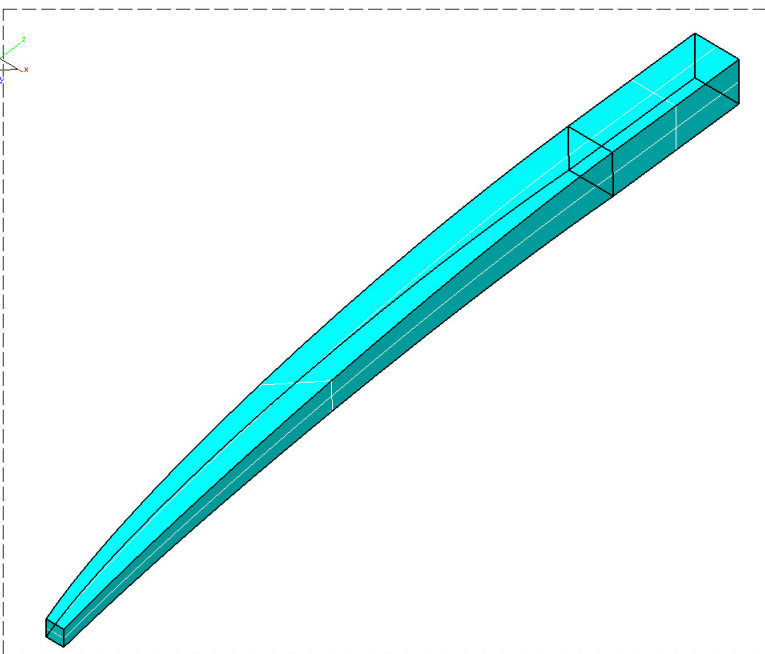
Also don't put any surfaces on the interior of the object.

Once the entire shape is surfaced, it is ready to be stitched into a solid.



A tip on Stitching:

- Press the CTRL (Windows) key or OPTION (Macintosh) key after selecting the **Stitch** tool, to show advanced options. There is an option called Use Tolerant Edges which alters the edges of the model to close gaps and create a solid. This increases the reliability of the stitch tool and makes it work in more situations. However, it can sometimes cause problems later on when trying to round the edges, for example. Try to stitch the objects first with this option off. If it doesn't work, then turn this option on and try again.



To Stitch the surfaces into a solid, just drag a selection box around all of the surfaces.

The table leg should now be a solid. Use the Edit Object box to verify that it is indeed a solid, just read the description it displays of the selected object.

