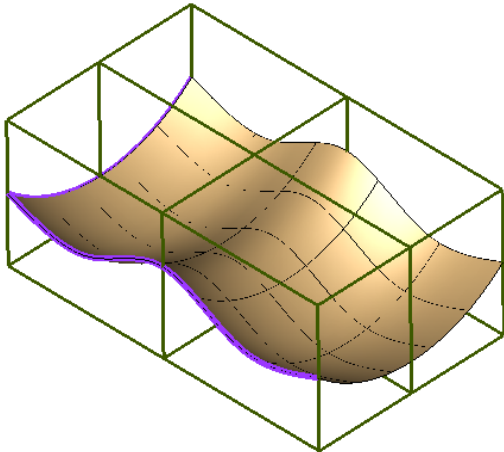
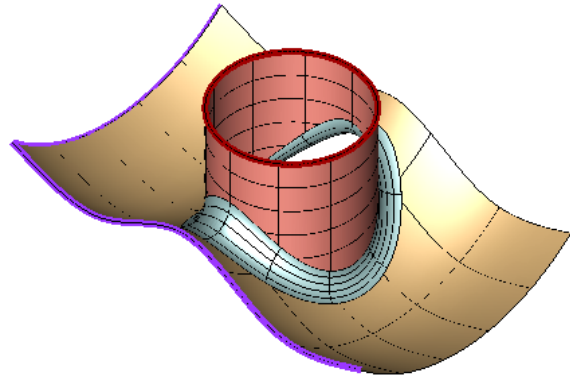


Fillet Surface

There are times when you may need to create a fillet surface between two intersecting surfaces.

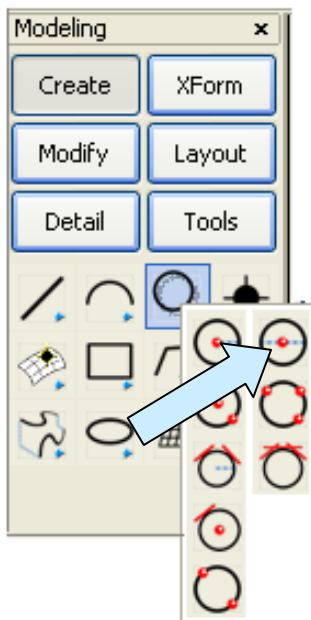
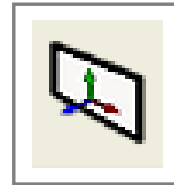
The surface in blue in the illustration to the right is an example of this. Let's look at the steps required to make this construction.



We'll start by opening up the file KC6202Surface that you saved in lesson KC6202.

Your screen should look like this:

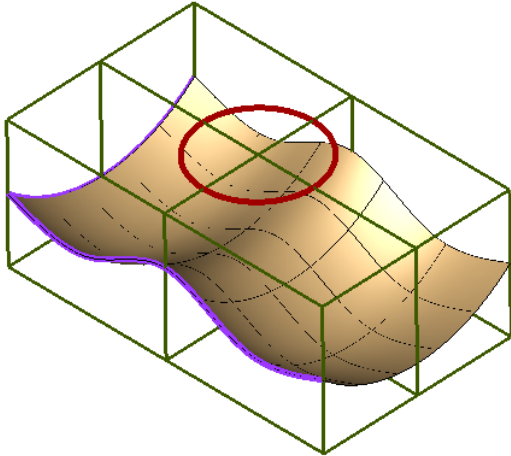
Establish a construction plane on the top surface of the grid.



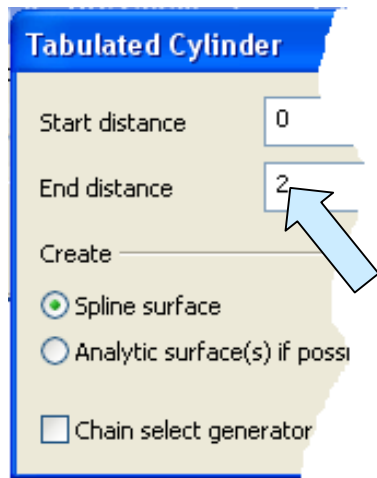
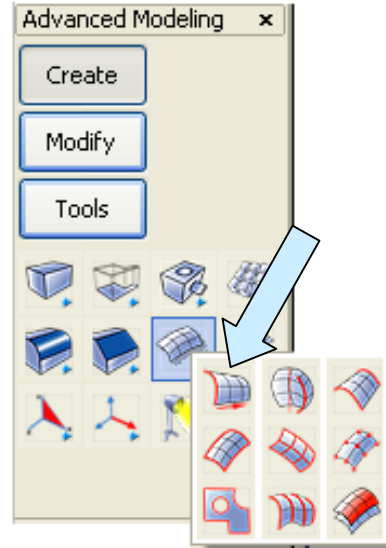
Next, click on the CREATE CIRCLE BY DIAMETER Icon.

Type 1.75 for the diameter and using the CtrMid Option, click on one of the centerlines on the top face of the grid.

Your construction should look like this:



Click on the TABULATED CYLINDER SURFACE Icon.



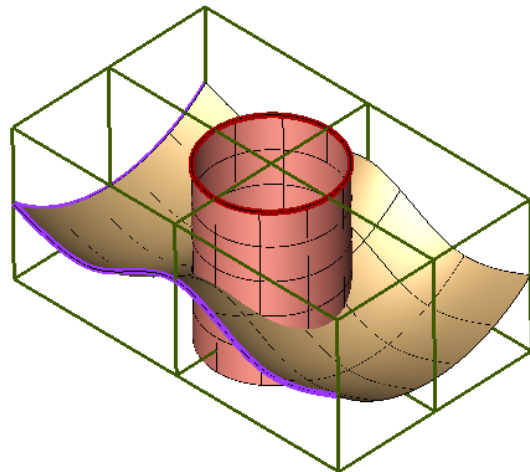
A Dialog Box appears.

Use 0 for the Start Distance. Type 2 for the End Distance and hit the ENTER Key.

Select the circle that you just created. You are asked for a direction vector. Click on the 2Points Option on the Conversation Bar.

Using the EndEnt Option, click on the top, right, front corner of the grid and the bottom, right, front corner of the grid. (Any two vertical points on a line will work.)

Your construction should look like this:

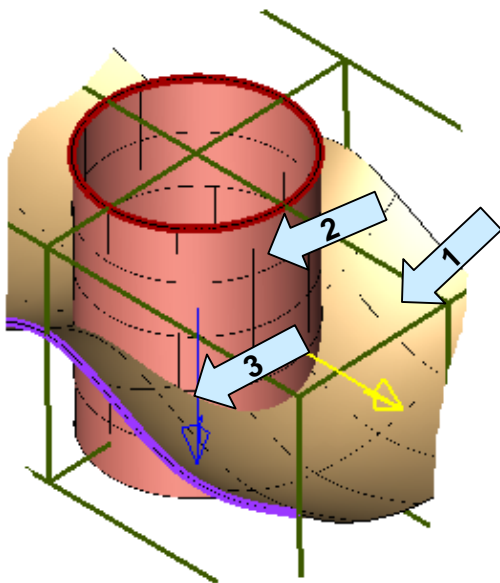
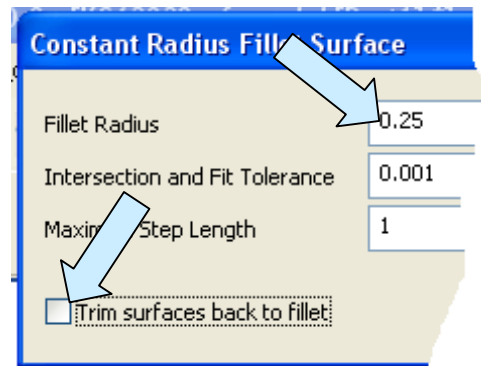




Now, click on the FILLET SURFACE Icon.

A Dialog Box appears. Type 0.25 for the Fillet Radius.

We do not want a check on the Trim Surface Back to Fillet Option. Hit the ENTER Key.

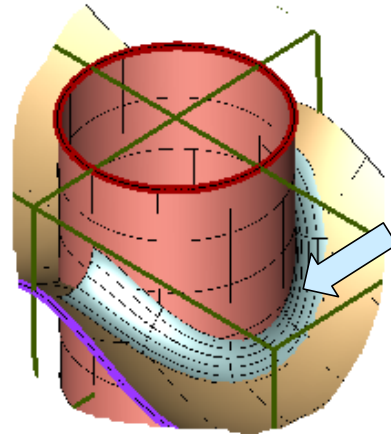
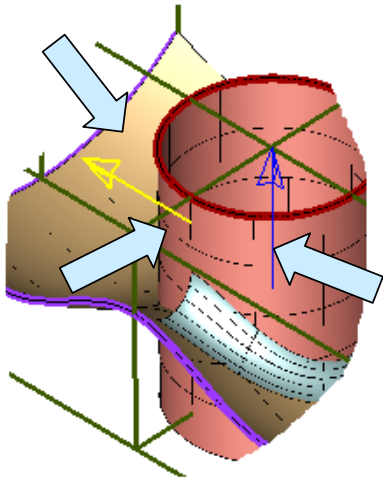


First, click on the right side of the large surface.

Then, click on the right side of the tabulated cylinder surface.

Notice that vectors appear indicating the positioning of the fillet. Click on the downward-facing vector so that it toggles upward. (There are four possible fillet surfaces that can be created between these two surfaces. We want the one that lies outside of the cylindrical surface on the upper side of the broad surface.)

A fillet surface is created that extends 180 degrees around the cylindrical surface.



Continue using the Fillet Surface Tool.

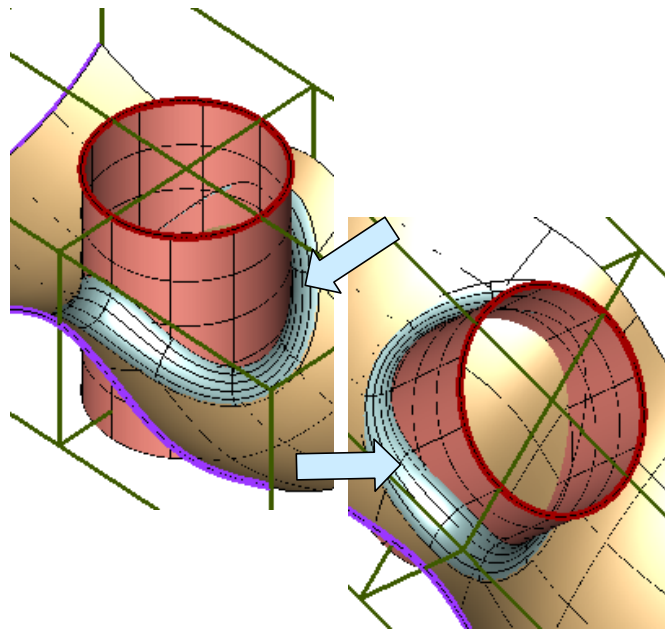
Select the left side of the broad surface and then the left side of the cylindrical surface.

Two vectors appear. Click on the downward-facing vector to flip it upward and hit the ENTER Key.

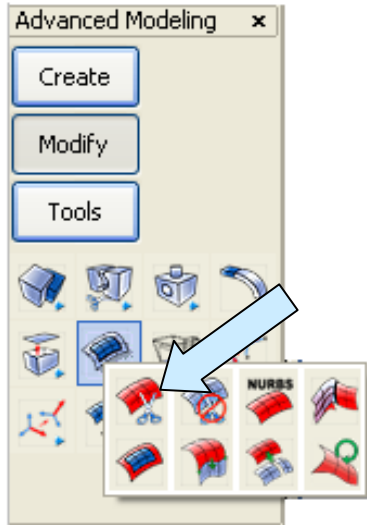
A second fillet surface is created that extends around the other 180 degrees of the cylinder.

I've illustrated this in two different views to the right so you can see the entire construction.

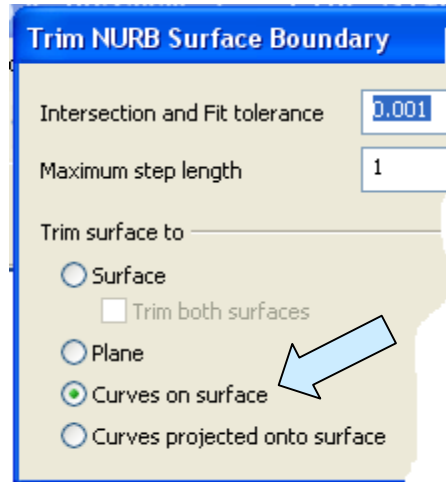
Note: In this construction we did not select the trim surface to fillet option since we needed the broad surface for the second fillet surface construction.



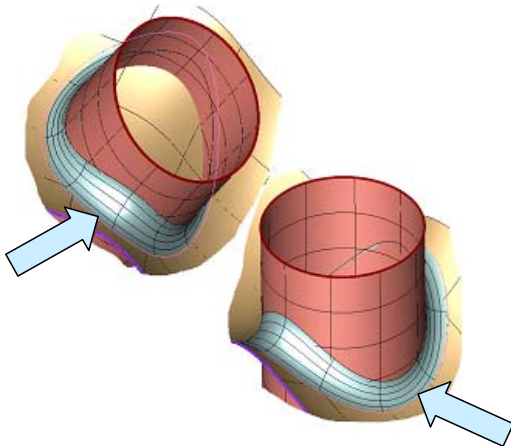
In our next step, we'll perform the trims to eliminate the portion of the tabulated cylinder surface below the fillet surface and the center portion of the undulating surface bounded by the fillet surface.



Click on the TRIM SURFACE Icon.



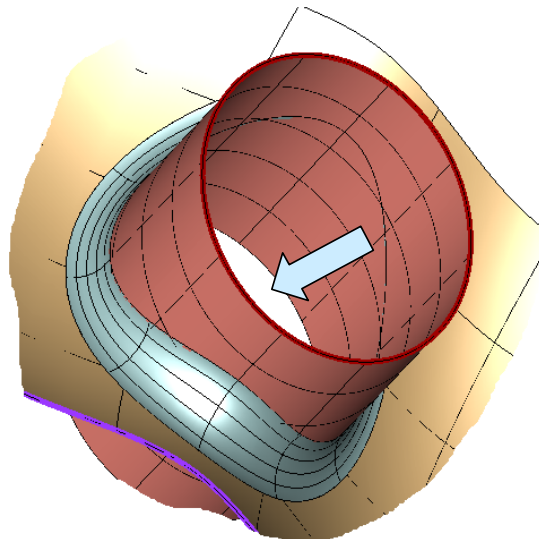
A Dialog Box appears. We'll use the Curves on Surface Option. Hit the ENTER Key.

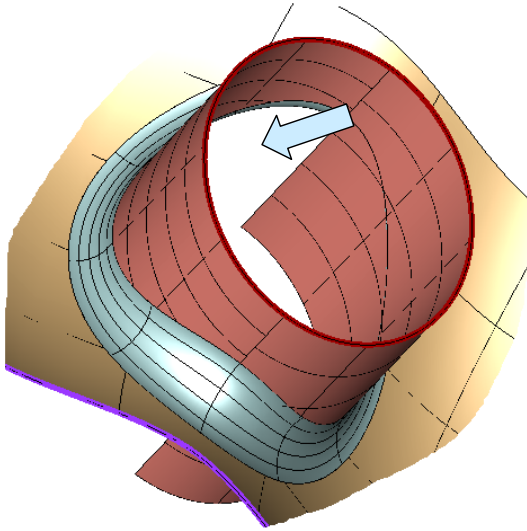


Click on the broad, undulating surface.

Then, click on the two curves that define the intersection of this surface with the fillet surface.

This “knocks-out” the center section of the undulating surface bounded by the fillet surface edges.





Continue using the TRIM SURFACE Tool.

This time, click on the upper portion of the tabulated cylinder surface on the left side.

Then, click on the curve that defines the upper edge of the fillet surface and this side of the tabulated cylinder surface. Notice that half of the tabulated cylinder surface below the undulating surface disappears.

Now, click on the upper right portion of the tabulated cylinder surface. Then, click on the curve that defines the upper edge of the fillet surface with this side of the tabulated cylinder surface.

Your completed construction is shown to the right.

Save this file as "Page79."

