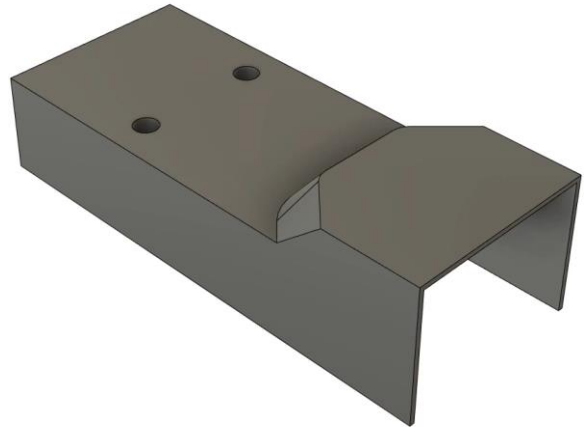


Lesson: Use Draft and Shell Features

In this lesson, you'll modify a part's solid geometry by adding draft and shelling it.

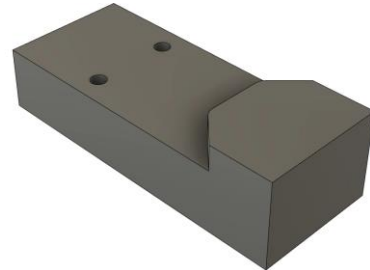
Learning Objectives

- Use Draft.
- Use Shell.

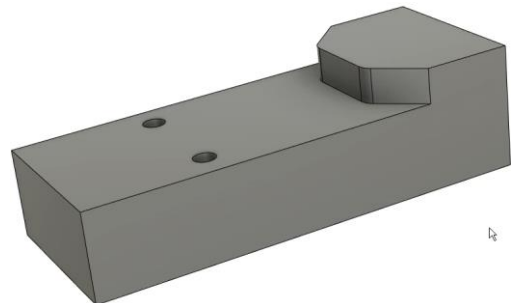


The completed exercise

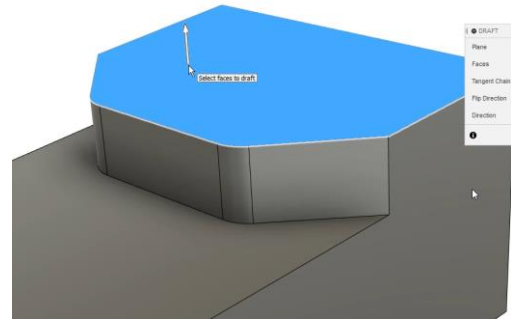
1. Continue with the *Direct Modeling* file from the previous module.



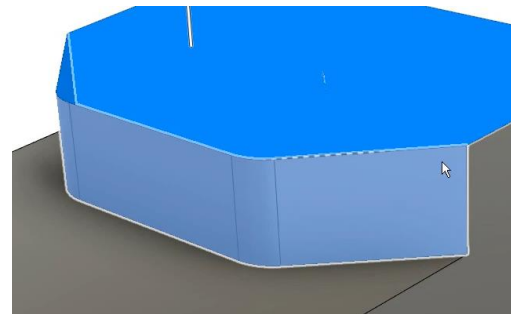
2. Make sure your geometry looks similar to the geometry shown in the image on the right.



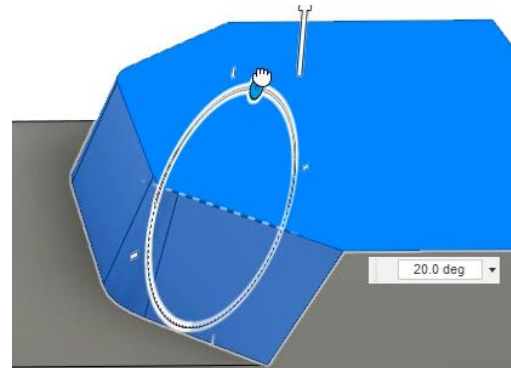
3. Click Modify> Draft, then select the part's top face as the dialog's Plane selection.



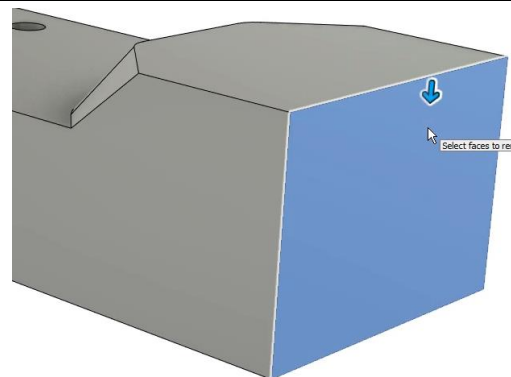
4. For the dialog's Faces selections, choose the faces shown in the image on the right.



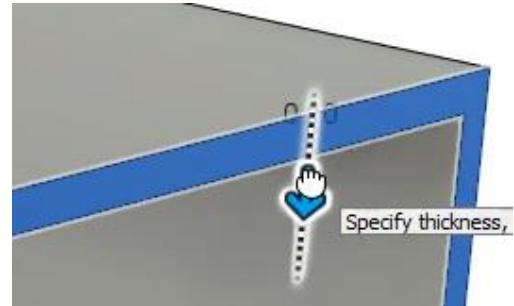
5. Use the on-screen manipulator to adjust the selected faces' draft angle. Notice the fillets are getting wider at their bases. Choose to add a 40° angle to the selected faces then click the dialog's OK.



6. The model can also be shelled to create a hollow part. Click Modify> Shell. For the dialog's Faces/Body selection, choose the face shown in the image on the right.



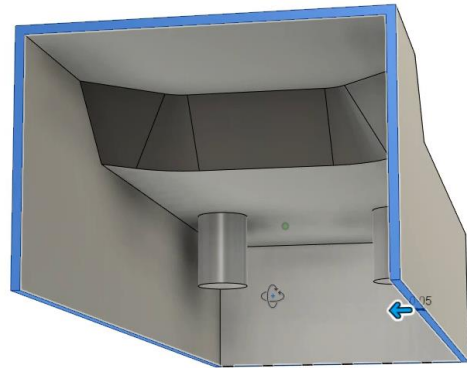
7. Drag the on-screen manipulator to adjust the model's wall thickness.



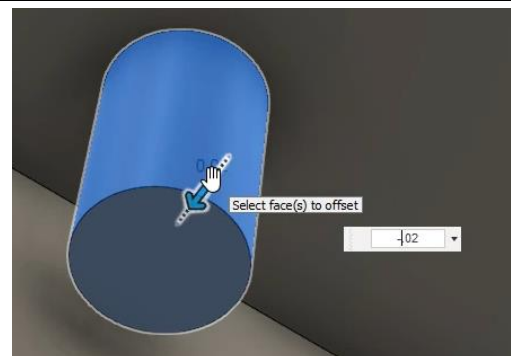
8. In the dialog, specify a wall thickness of **0.05** inches, then rotate the model to inspect the internal geometry.



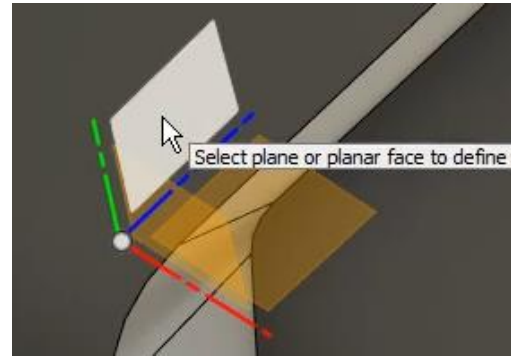
9. Additional faces can be added to the Faces/Body selection. Hold down Ctrl and select the model's bottom face. The second face is removed as the part is shelled. Click the dialog's OK to accept the Shell feature.



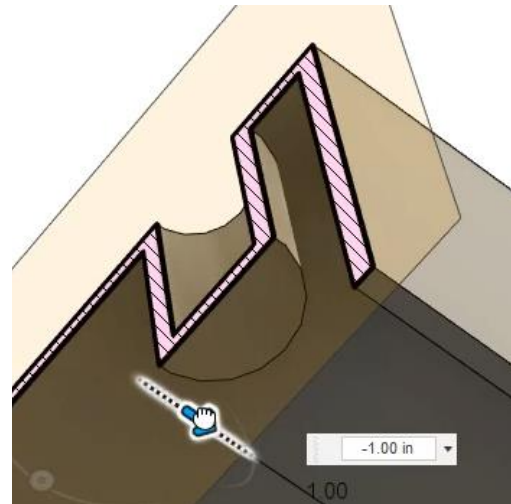
10. The Shell tool is a great way to begin creating geometry for injection molded parts. To modify a feature's wall thickness, select its faces and click Modify> Press Pull. For example, the hole's walls can be thinned by selecting the faces and specifying a **-.02** inch value. Click OK to accept the modification.



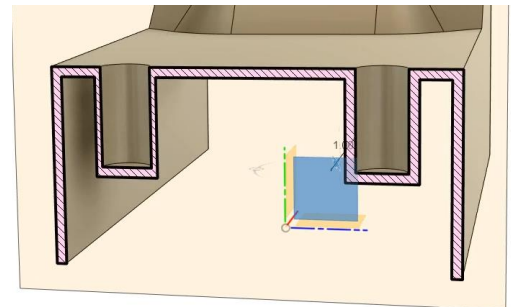
11. To inspect a model's wall thickness, click Inspect> Section Analysis. Choose to section the model using the YZ plane or the right plane.



12. Use the on-screen manipulator to drag the section plane until it intersects the model's bosses.



13. Rotate the part and notice that the modified boss has noticeably thinner walls than the unmodified boss. Click the dialog's OK to end the section analysis.



14. The section analysis is added to the Browser and is located inside the Analysis folder. Expand the Analysis folder and turn off the visibility for Section1 by clicking its eyeball icon. Save the file and continue to the next module.

