



# KEYCREATOR<sup>®</sup>

## Tips & Tricks



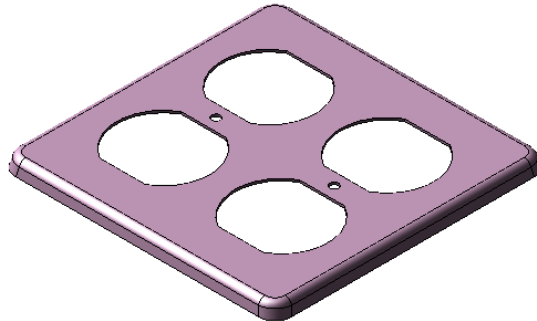
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## Doctor Walt's Tips and Tricks # 60

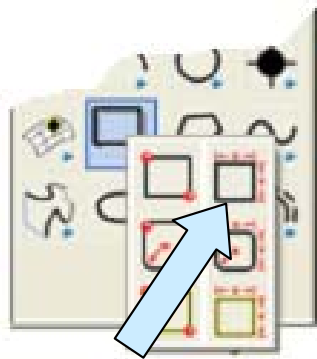
### A Formed Metal Cover

In this exercise, we'll create the formed metal electrical cover illustrated to the right. It has openings to accommodate two 120 volt duplex receptacles



If you have done any extensive electrical wiring around your home this part should look pretty familiar.

I selected this model because it provides a great example of how you can use the powerful Sweep Function in KeyCreator to slightly modify a part so it represents what you would get when you are actually forming metal.

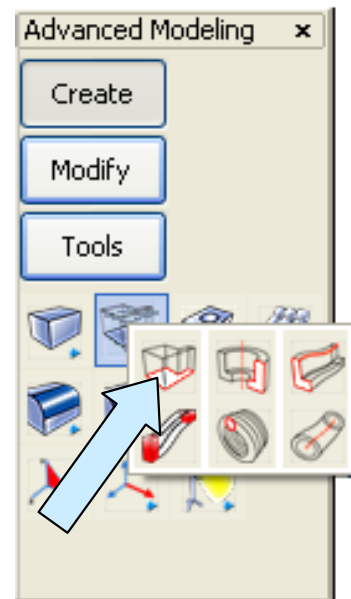


This model is also available for download as "CoverPlate4."

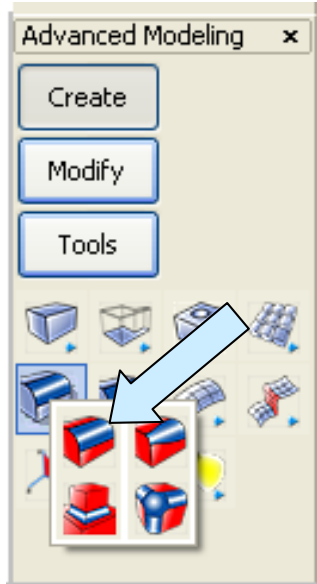
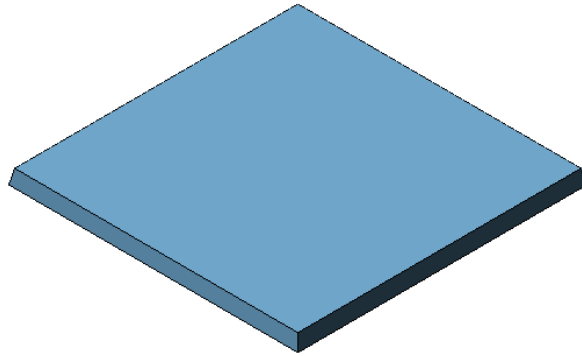
We'll start with a new file in View 7 with the CPlane equal to 1.

Select the CREATE RECTANGLE BY WIDTH HEIGHT Tool and create a 4 x 4 rectangle. Place it anywhere on the screen.

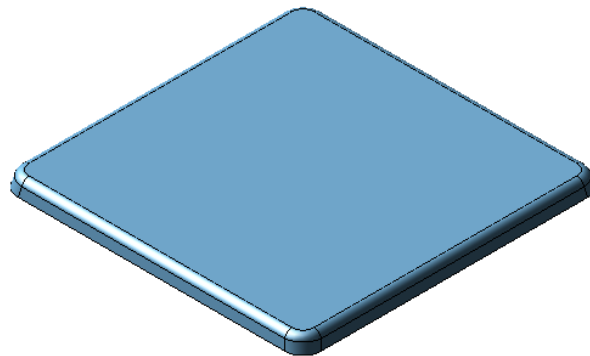
Then, select the EXTRUDE Icon and type 0.2 for the Length with a Draft Angle of 12 degrees and an Outward Condition.



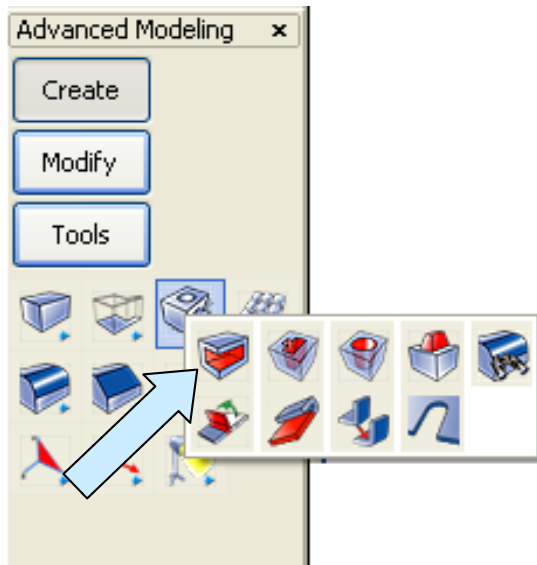
When you are done, you should have a solid that looks like this:



Use the **CONSTANT RADIUS BLEND** Icon to place 0.25 blends on the four, short, nearly vertical edges. Then, place a 0.1 cosmetic blend to run around the entire top edge.



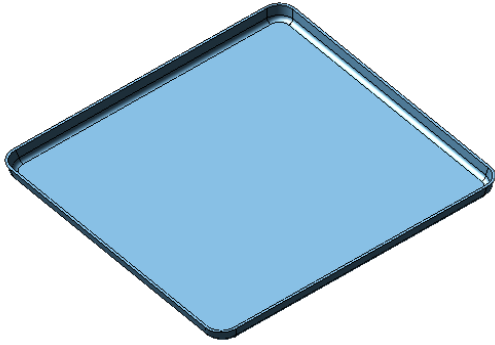
Your part should now look like this.



Use the **SHELL** Tool with a 0.032 shell value and select the bottom face.

We now have a thin wall part that looks like something that you would mold since the thin bottom edge is parallel to the broad top face.

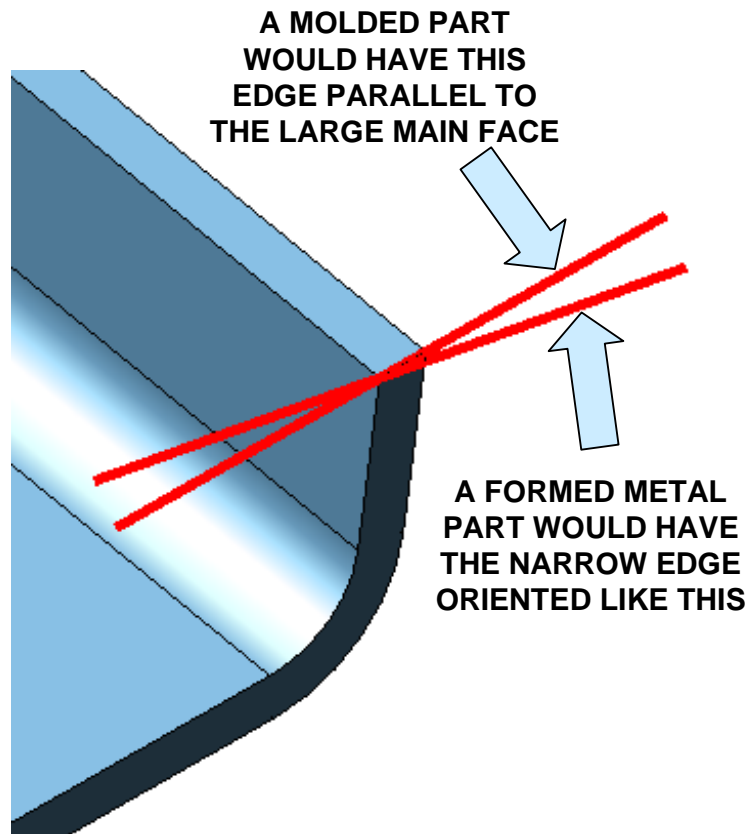
Note: The “CoverPlate4” part supplied to you looks like what we have at this point. It also has profiles supplied to punch out the openings for the duplex receptacles. I’ll let you do that on your own. Our purpose in this lesson is to look at a neat way to turn the part from a molded part into a formed metal part.



Let's click on the DYNAMIC ROTATION Icon and rotate the part around so that it looks like this:

If you look closely at your model, you'll see that the narrow edge of the part is indeed parallel to the main face of the part as indicated in the illustration to the right.

If we created this part by forming metal, we would want the narrow edge to be oriented so it was perpendicular to the side wall as indicated by the second red line.



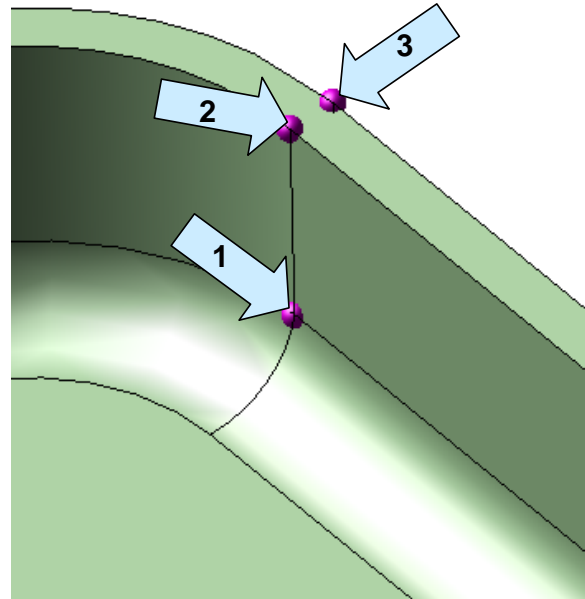
We can quickly make this modification using the Sweep Function. Start by selecting a color different from your model. I'm going to use Magenta.



Next, click on the CONSTRUCTION PLANE Icon.

Select the 3 Pos Option on the Conversation Bar.

Using the EndEnt Option, select the positions indicated by the arrows in the illustration to the right in the order shown. (The order is important. This will give you a CPlane canted at 12 degrees from the horizontal.)

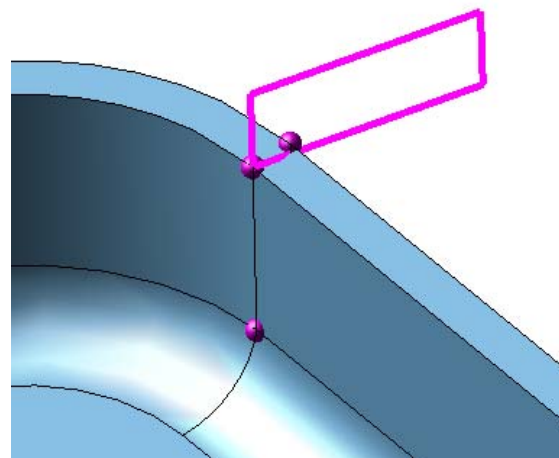


Now, click on the RECTANGLE BY CORNERS Icon.

Using the EndEnt Option, click on the position labeled 2 in the illustration above and drag a small rectangle out to the right and up. Use Cursor to place the second point.

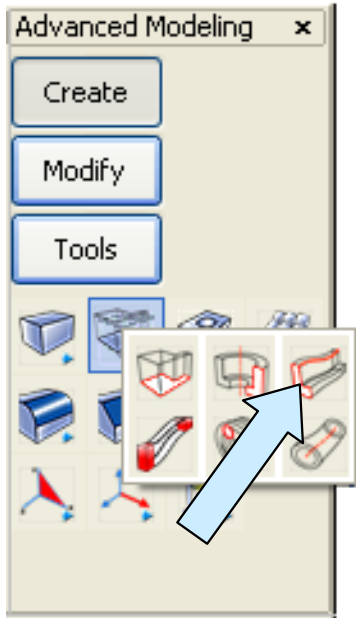
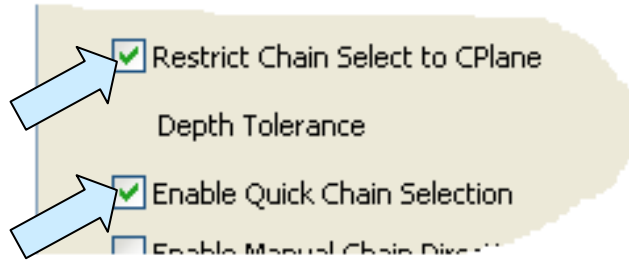
Your screen should look like this:

Click on the CONSTRUCTION PLANE Icon again and select two intersecting straight edges on the thin edge of the part.





**Note:** For the next step you must have these settings selected in TOOLS/OPTIONS/POSITIONING SELECTION/SELECT.

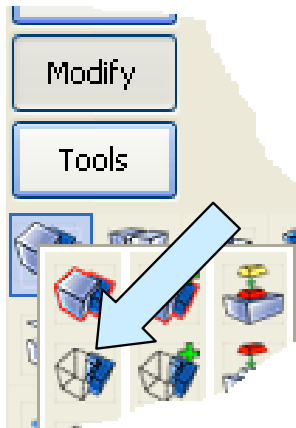
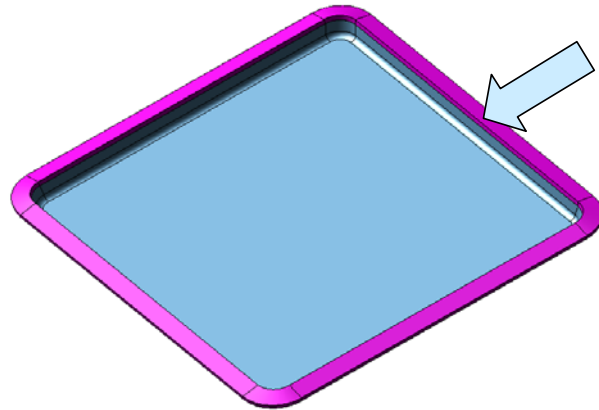


Click on the SWEEP Icon.  
When the Dialog Box appears, select 0 Draft Angle and 0 Twist. Hit the OK Button.

Select the rectangle that you created and hit the ENTER Key.

For the Path, click on the Chain Option on the Conversation Bar and then move the cursor over one of the rim edges. The entire path will highlight. Click on it while it is highlighted and hit the ENTER Key.

You will get a swept solid that looks like this:



Click on the BOOLEAN DIFFERENCE Icon.

Select the cover and then the swept solid. Hit the ENTER Key. You will now have a cover with a trimmed edge that is oriented perpendicular to the skirt edge as you would expect on a formed metal part!