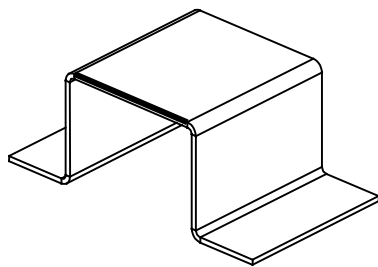


# Additional Walls

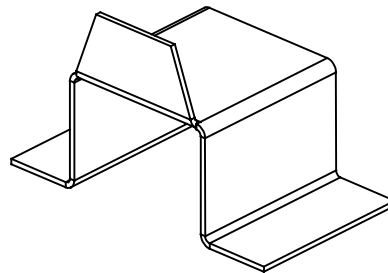
## Introduction

After the first wall is created, additional walls can be added to the part. These walls are attached to existing edges of the part and are listed below.

**Flat Wall** Additional walls that have a flat profile. Many pre-defined shapes are available. These walls can be created at an angle to the existing edge as shown below.

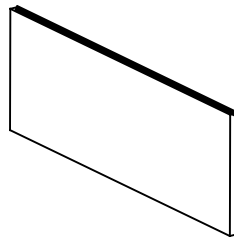


Before

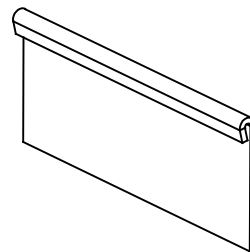


After

**Flange Wall** Additional walls that have a sketched profile as shown below. Many pre-defined shapes are available.

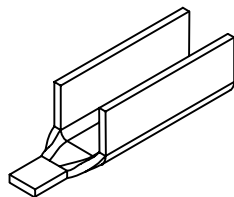


Before

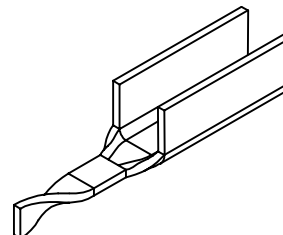


After

**Twist Wall** Additional walls that are twisted as shown below.



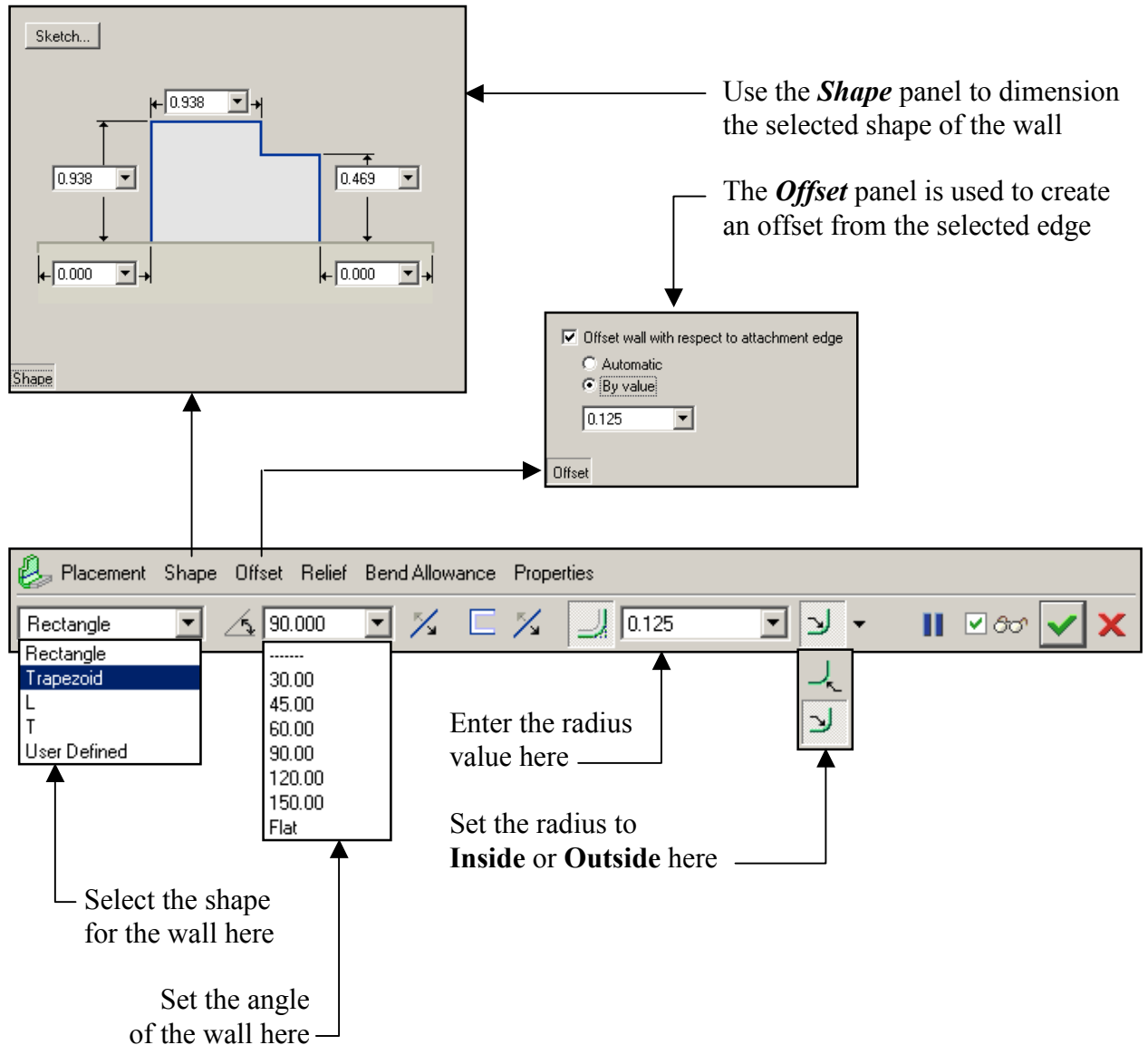
Before



After

## Flat Walls

When creating an attached **Flat Wall**, select the attachment edge *first*, then pick the **Flat Wall** icon, shown above. The system automatically previews the wall using system defaults for all the required options. Use the dashboard tool to complete the definition of the wall. The **Flat Wall** tool is shown below. The **Relief** and **Bend Allowance** panels are shown on the next page.



Use the **Shape** panel to dimension the selected shape of the wall

The **Offset** panel is used to create an offset from the selected edge

Select the shape for the wall here

Set the angle of the wall here

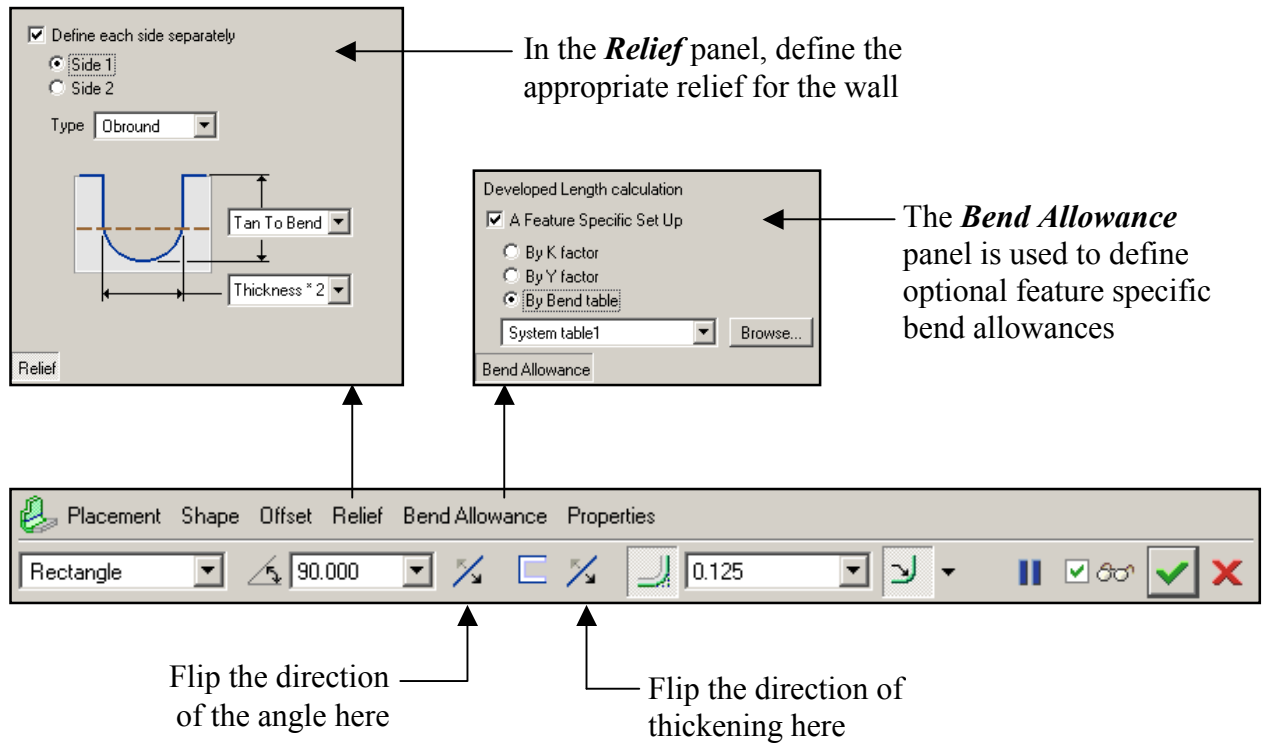
Enter the radius value here

Set the radius to **Inside** or **Outside** here

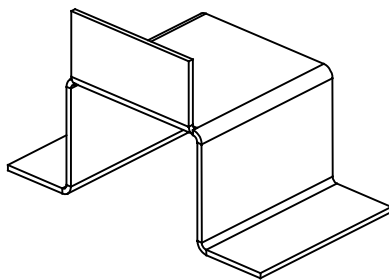
The screenshot shows the Flat Wall tool interface. At the top left is a 'Sketch...' panel showing a stepped wall profile with dimensions: 0.938 for the top width, 0.938 for the height, 0.469 for the second height, and 0.000 for the base offsets. Below the sketch is the 'Shape' panel. To the right is the 'Offset' panel with options: 'Offset wall with respect to attachment edge' (checked), 'Automatic' (unselected), and 'By value' (selected) with a value of 0.125. The main dashboard has tabs: Placement, Shape, Offset, Relief, Bend Allowance, Properties. The 'Shape' tab is active, showing a dropdown menu with 'Rectangle', 'Trapezoid', 'L', 'T', and 'User Defined'. A list of angles (30.00, 45.00, 60.00, 90.00, 120.00, 150.00, Flat) is shown below. The 'Offset' tab shows a radius of 90.000 and a direction dropdown set to 'Inside'. The 'Properties' tab shows a radius of 0.125 and a direction dropdown set to 'Inside'. Annotations with arrows point to these specific elements.

### Flat Walls (continued)

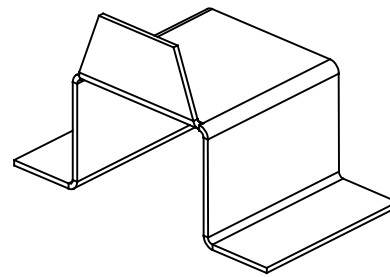
The **Relief** and **Bend Allowance** panels of the **Flat Wall** tool are shown below.



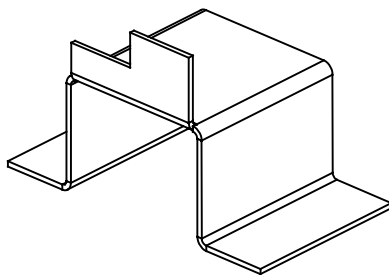
Examples of the four pre-defined **Flat Wall** shapes are shown below.



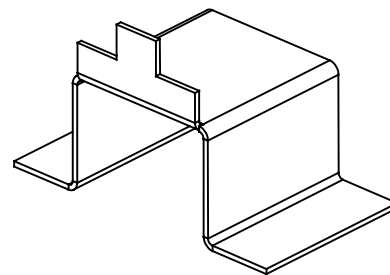
**Rectangle**



**Trapezoid**



**L**

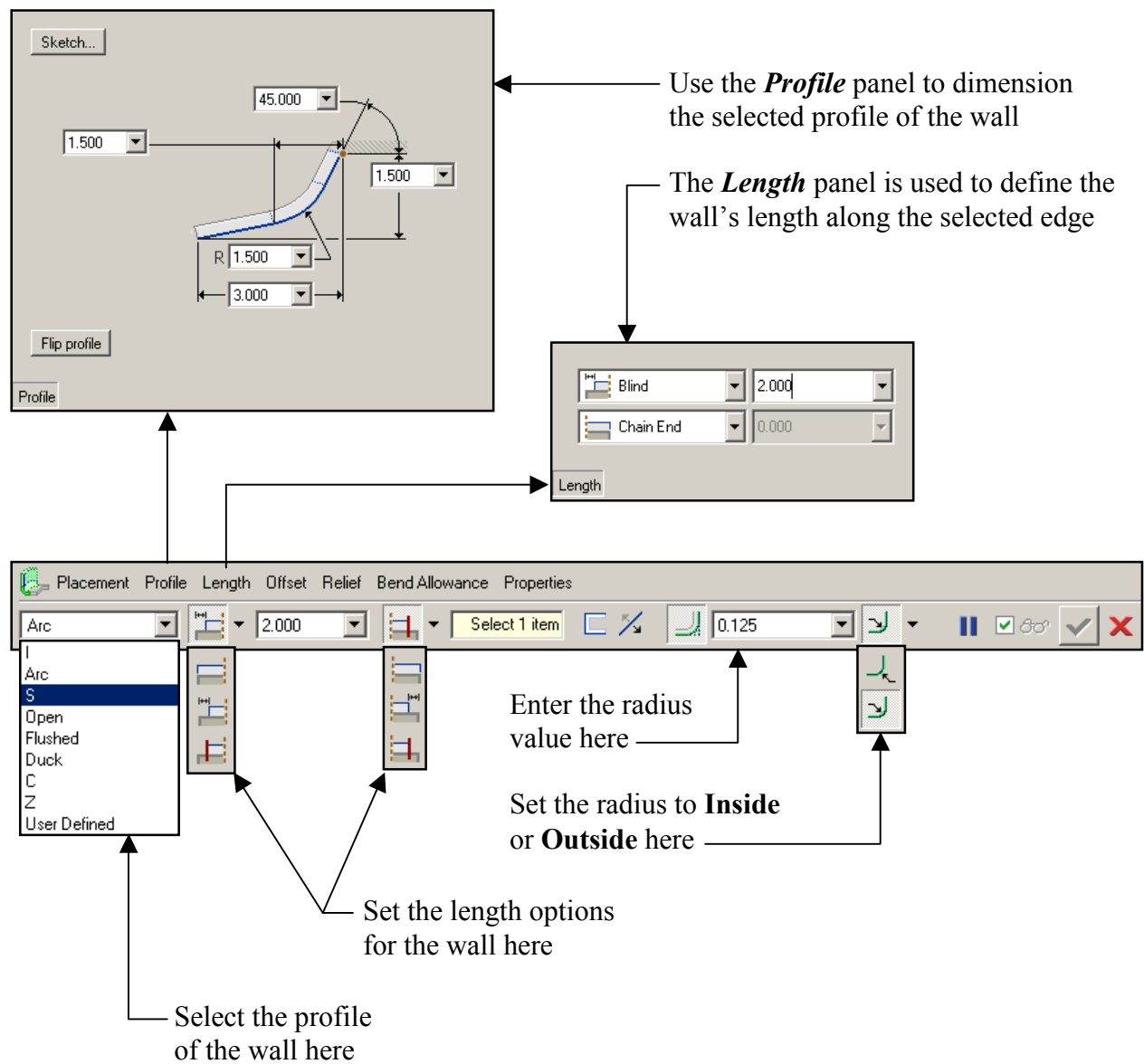


**T**

## Flange Walls

A new sheetmetal feature type is called **Flange Wall**. This new feature combines the old Extruded Walls, Swept Walls, and Hems into a single feature.

When creating a **Flange Wall**, select the attachment edge *first*, then pick the **Flange Wall** icon, shown above. The system automatically previews the wall using system defaults for all the required options. Use the dashboard tool to complete the definition of the wall. The **Flange Wall** tool is shown below. The *Offset*, *Relief*, and *Bend Allowance* panels are similar to those used in the new **Flat Wall** tool shown on the previous two pages.



Use the **Profile** panel to dimension the selected profile of the wall

The **Length** panel is used to define the wall's length along the selected edge

Enter the radius value here

Set the radius to **Inside** or **Outside** here

Set the length options for the wall here

Select the profile of the wall here

The dashboard includes the following panels and options:

- Profile Panel:** Contains a 'Sketch...' button, a 'Flip profile' button, and a 'Profile' button. It shows a 3D model of a flange wall with dimensions: 1.500, 45.000, 1.500, R 1.500, and 3.000.
- Length Panel:** Contains 'Blind' (2.000) and 'Chain End' (0.000) options.
- Main Dashboard:** Includes tabs for Placement, Profile, Length, Offset, Relief, Bend Allowance, and Properties. It features a dropdown menu (currently showing 'Arc'), a 'Select 1 item' button, a radius input field (0.125), and various icons for profile selection and wall creation.

### Flange Walls (continued)

The *Offset*, *Relief*, and *Bend Allowance* panels of the **Flange Wall** tool are shown below. Use the *Offset* panel to control the location of the new wall relative to the attachment edge as shown below.

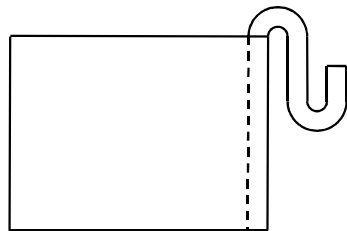
Use the *Offset* panel to control the wall's location relative to the edge (see the figure below)

In the *Relief* panel, define the appropriate relief for the wall

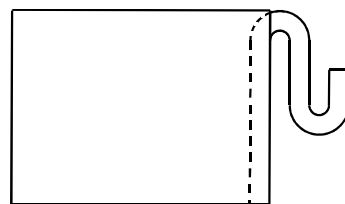
The *Bend Allowance* panel is used to define optional feature specific bend allowances

Placement Profile Length Offset Relief Bend Allowance Properties

Open [Profile Icon] 0.000 [Profile Icon] 0.000 [Profile Icon] 0.125 [Profile Icon] [OK] [Cancel] [Apply] [Close]



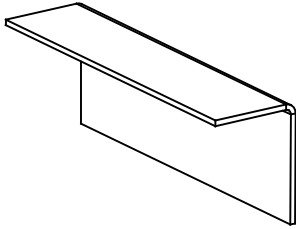
Flange Wall with No Offset



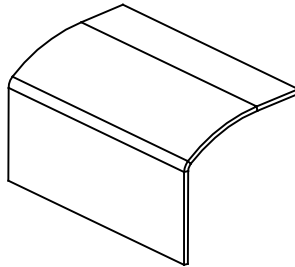
Flange Wall with Automatic Offset

### *Flange Walls (continued)*

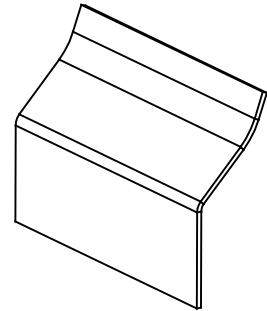
Examples of the seven pre-defined **Flange Wall** shapes are shown below.



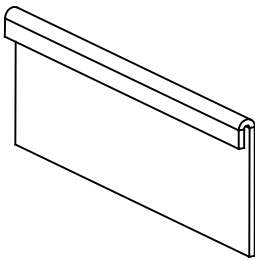
**I**



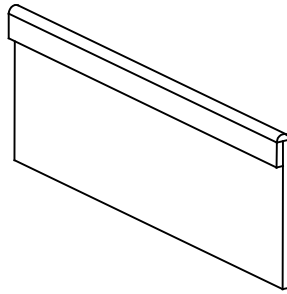
**Arc**



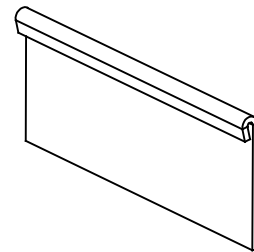
**S**



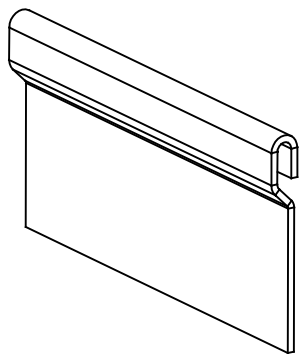
**Open**



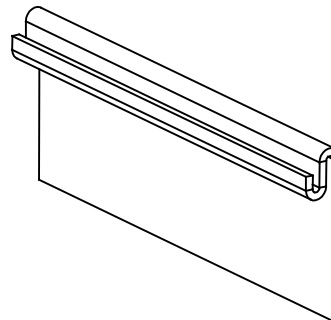
**Flushed**



**C**



**Duck**

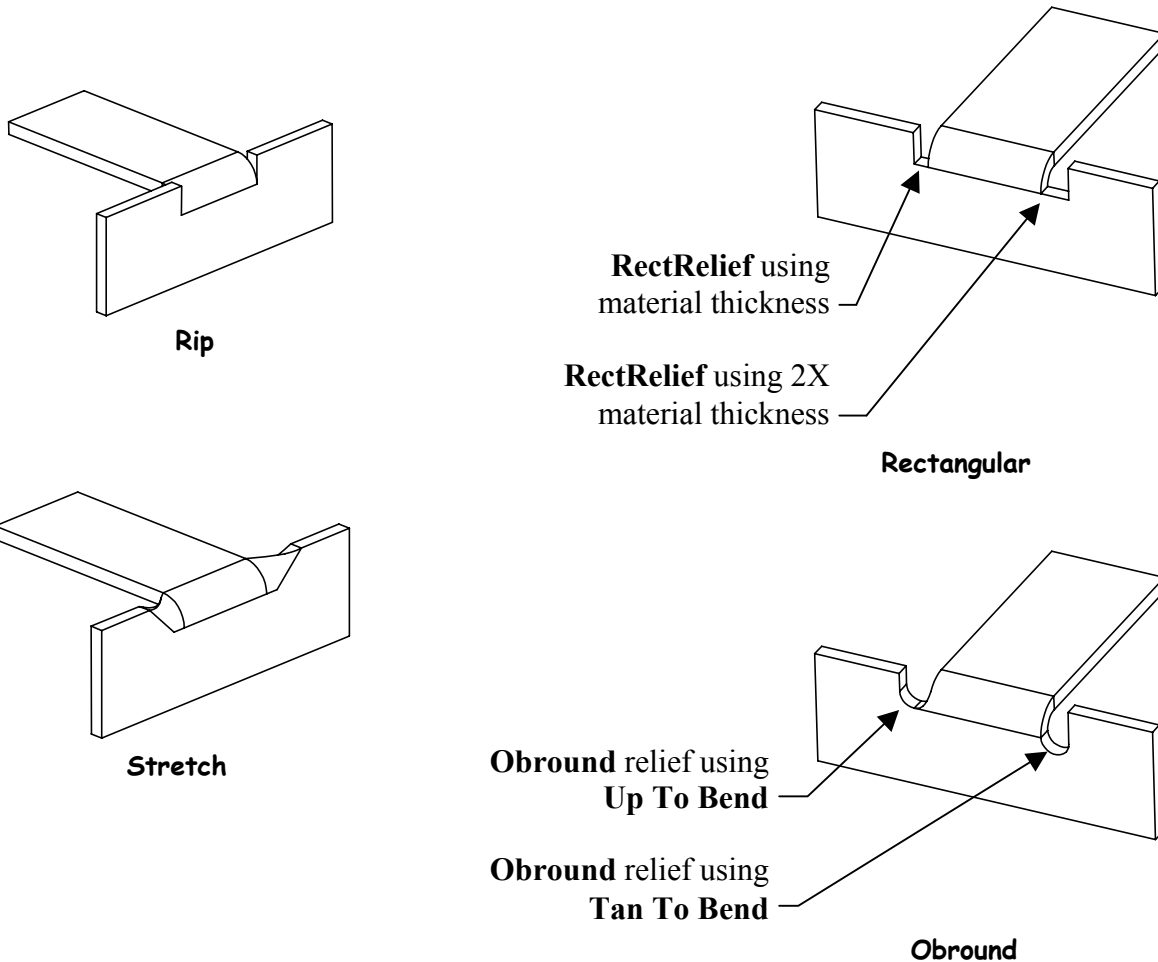


**Z**

## Relief

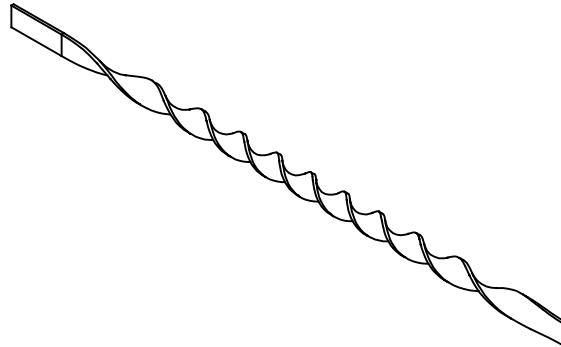
Additional walls can be added with automatic bend relief when necessary. Use the **Relief** panel of the dashboard tool to set the relief options as listed below. See pages 69 and 71.

- No Relief**                      No relief is applied.
- Rip**                                The part is sheared to allow the wall to bend as shown below.
- Stretch**                        A region of the part is stretched to simulate the deformation that occurs.
- Rectangular**                    Create a rectangular relief using a specified thickness and depth.
- Obround**                        Create a rounded end relief using a specified thickness and depth.
- Up To Bend**                    The relief stops at the end of the bend.
- Tan To Bend**                    For rounded end relief, the tangent of the rounded end is located at the end of the bend.
- Thickness**                      The width of the relief is equal to the material thickness of the part.
- Thickness \* 2**                    The width of the relief is equal to two times the material thickness of the part.



## Twist Walls

Additional walls can be added with a twist. Pick **Insert, Sheetmetal Wall, Twist**, then pick an edge to attach the new wall to. The system prompts for a datum point to define the center of the new wall, the width of the wall at the attachment edge, the width of the wall at the end of the twisted section, the length of the twisted section, the twist angle, and the developed length of the wall. An example of a twisted wall is shown below.



The **Twist Wall** dialog box contains the following required elements:

**Attach Edge** The edge to which the wall will be attached.

**Twist Axis** The centerline of the twist axis relative to the attachment edge. In most cases the **Middle** option is the correct choice.

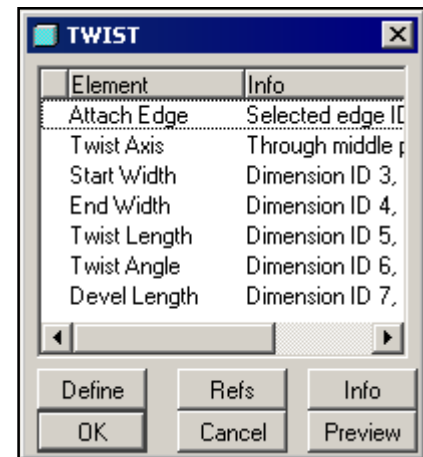
**Start Width** The start width of the wall. The wall will be centered about the axis.

**End Width** The end width of the wall. The wall will be centered about the axis.

**Twist Length** The length of the wall in the formed state.

**Twist Angle** The angle of the twist.

**Devel Length** The developed length of the region in the flattened state.

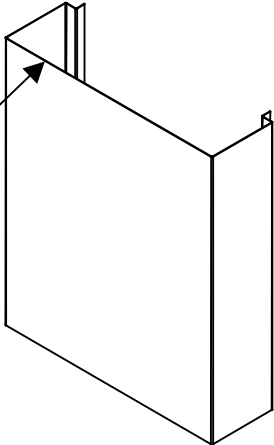



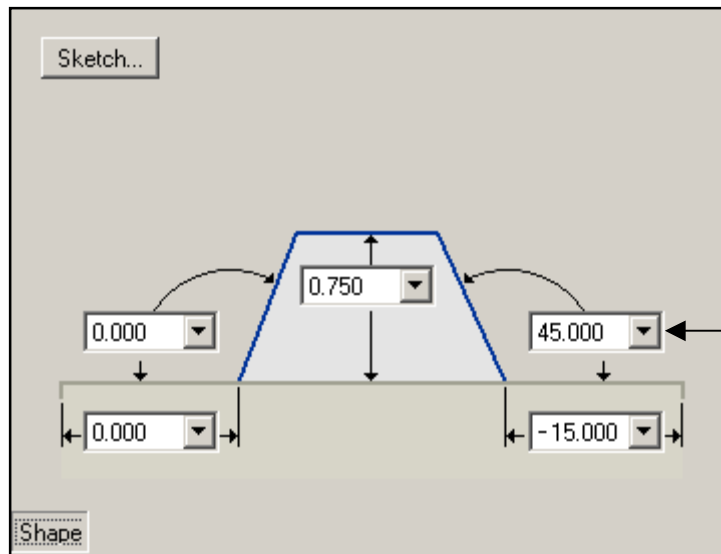
### Note

*The developed length is independent from the twist length. Remember to modify the developed length of this feature if the twist length is modified.*

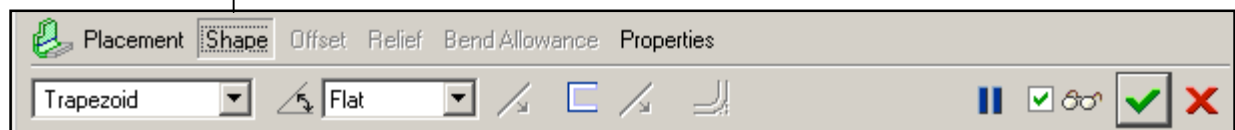
## EXERCISE 2 - ADDITIONAL WALLS

### Task 1: Create an attached flat wall.

- **Open** the part called '2203-015.prt'
- Set the selection filter to **Geometry**
- Pick the green edge here 
- Pick the **Flat Wall** icon 
- Pick **Trapezoid** in the dashboard tool as shown below
- Set the angle to **Flat** in the dashboard tool as shown below
- In the **Shape** panel of the dashboard tool, set each dimension as shown below
- Pick the checkmark to complete the feature



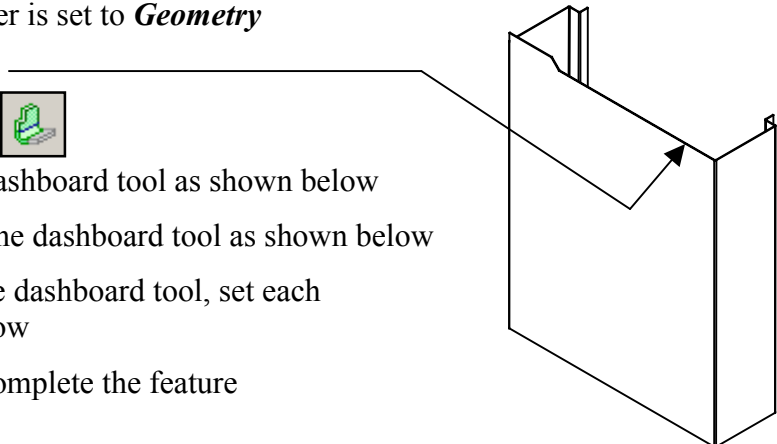

In the **Shape** panel, set each dimension as shown here

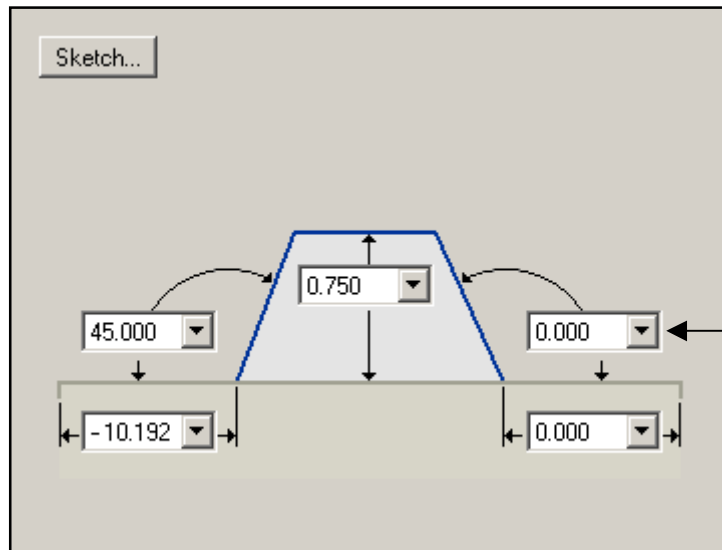


Set the shape to **Trapezoid** here

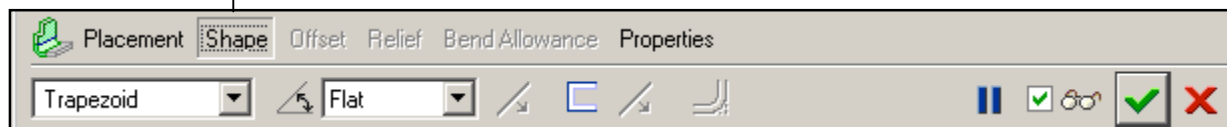
Set the angle to **Flat** here

**Task 2: Create another attached flat wall.**

- Be sure the selection filter is set to *Geometry*
- Pick the green edge here 
- Pick the **Flat Wall** icon 
- Pick **Trapezoid** in the dashboard tool as shown below
- Set the angle to **Flat** in the dashboard tool as shown below
- In the *Shape* panel of the dashboard tool, set each dimension as shown below
- Pick the checkmark to complete the feature




In the *Shape* panel, set each dimension as shown here

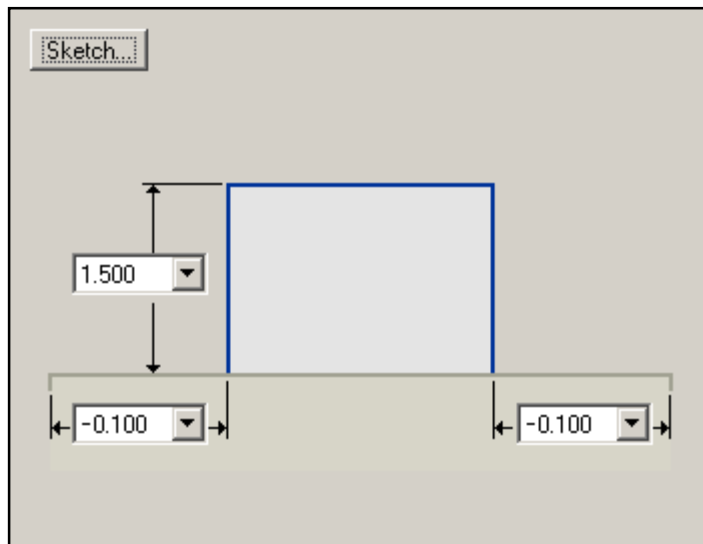
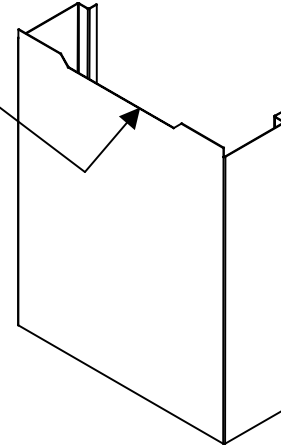


Set the shape to **Trapezoid** here

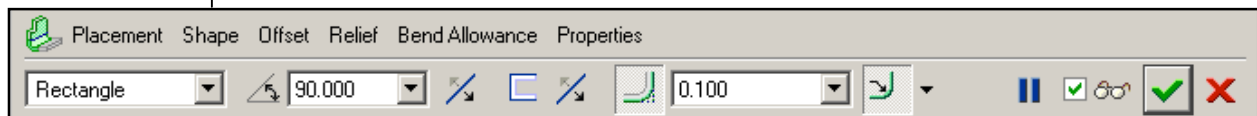
Set the angle to **Flat** here

**Task 3: Create another attached flat wall.**

- Be sure the selection filter is set to *Geometry*
- Pick the green edge here
- Pick the **Flat Wall** icon 
- Pick the **Flip** icon in the dashboard tool as shown below
- Enter < 0.100 > for the radius as shown below
- In the *Shape* panel of the dashboard tool, set each dimension as shown below



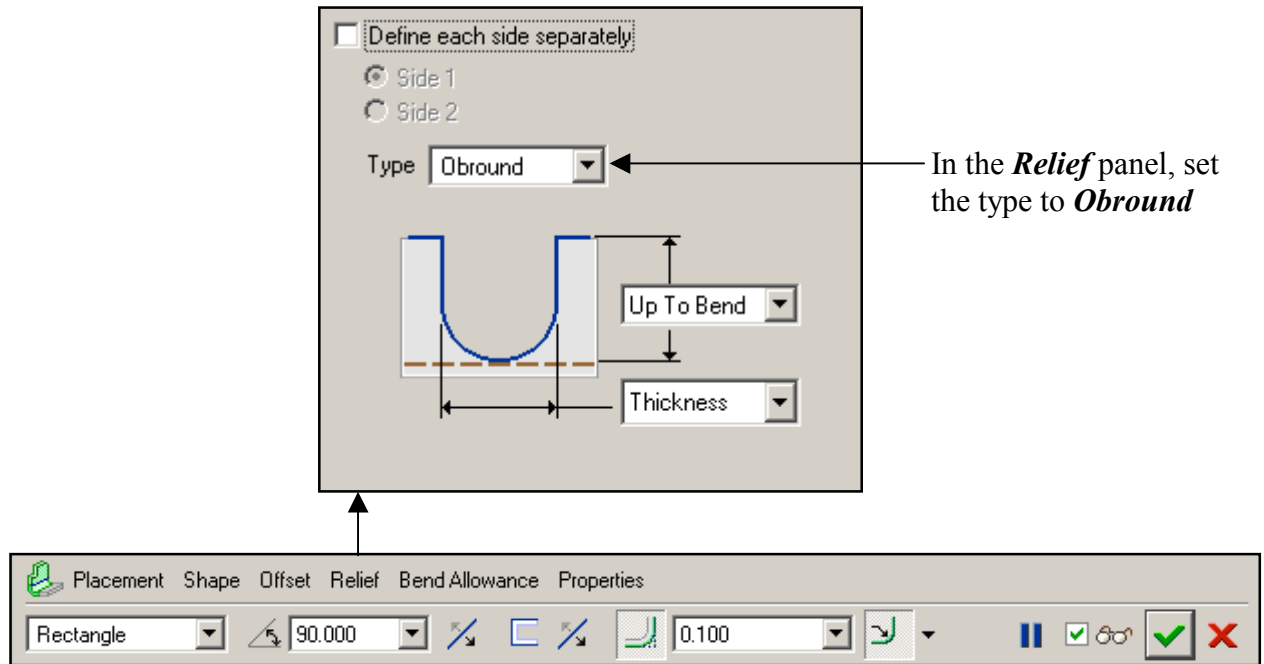
In the *Shape* panel, set each dimension as shown here



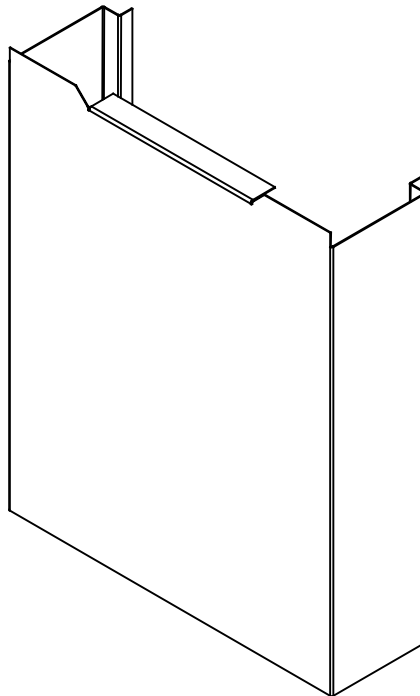
Pick here to flip the angle

Enter < 0.100 > here


- In the *Relief* panel of the dashboard tool, set the type to *Obround* as shown below

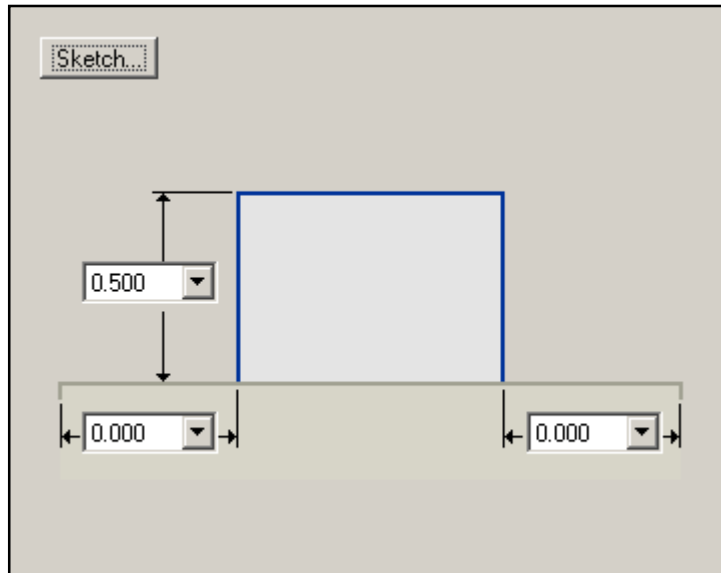
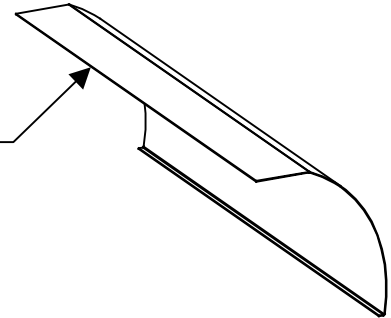


- Pick the checkmark to complete the feature
- The result is shown below
- **Save** the part and **Close** the window

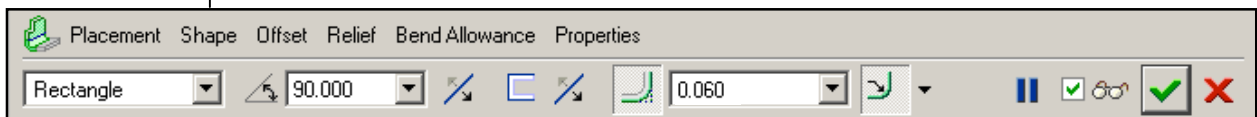


**Task 4: Create an attached flat wall.**

- **Open** the part called '2203-012.prt'
- Set the selection filter to **Geometry**
- Pick the green edge here \_\_\_\_\_
- Pick the **Flat Wall** icon 
- Pick the **Flip** icon in the dashboard tool as shown below
- In the **Shape** panel of the dashboard tool, set each dimension as shown below

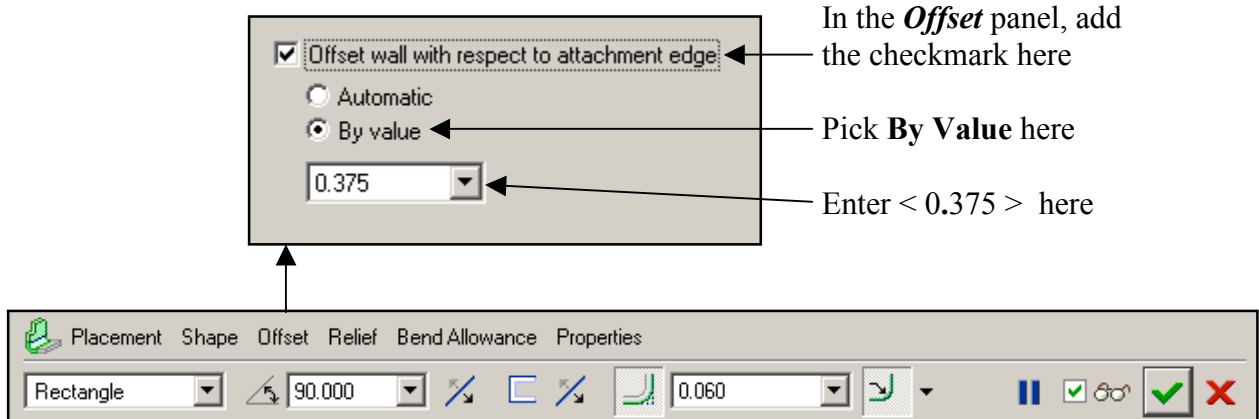


← In the **Shape** panel, set each dimension as shown here

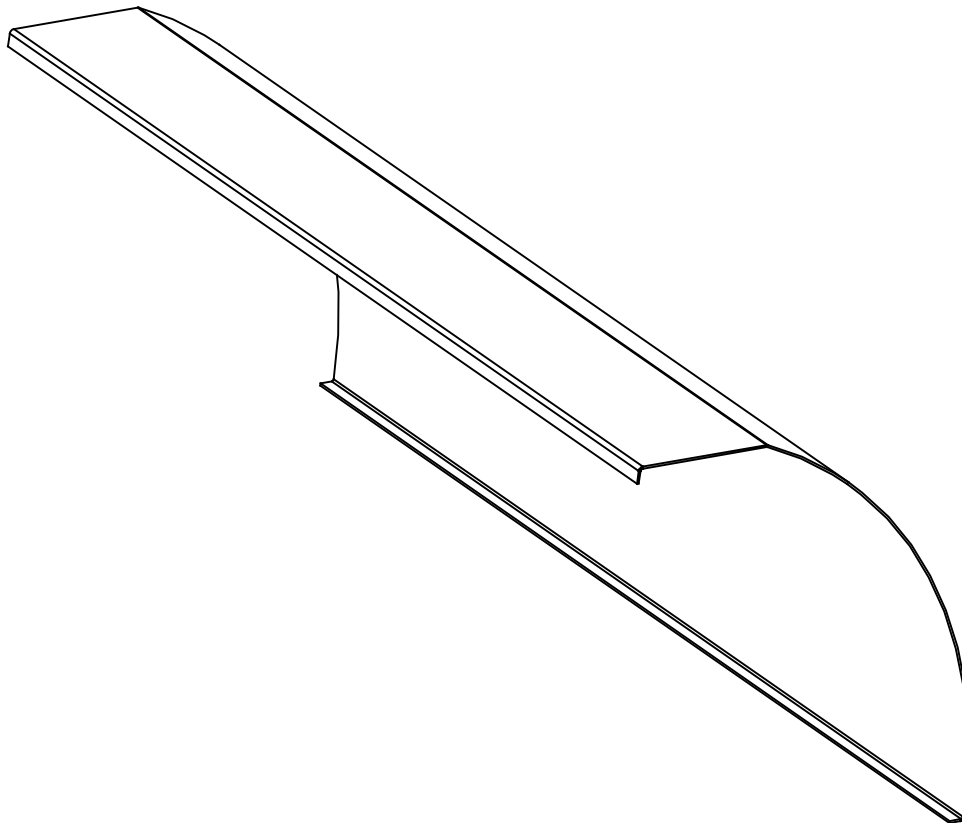


↑ Pick here to flip the angle

- In the **Offset** panel of the dashboard tool, add the checkmark and pick By Value, then enter < 0.375 > as shown below



- Pick the checkmark to complete the feature
- The result is shown below
- **Save** the part and **Close** the window

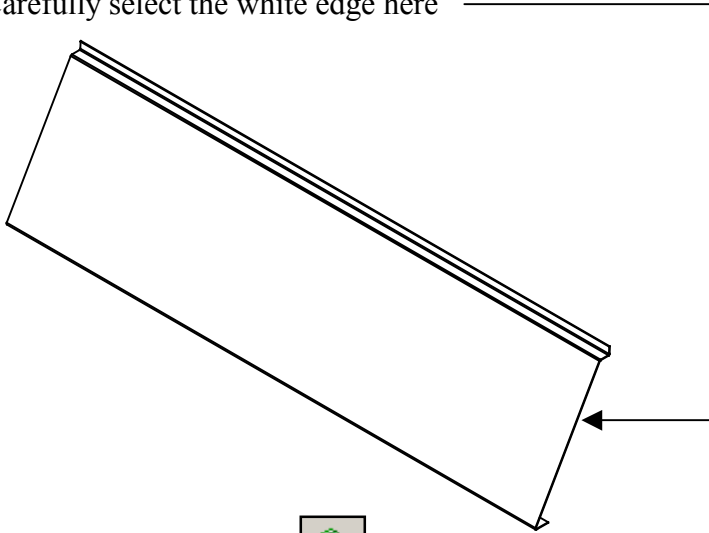


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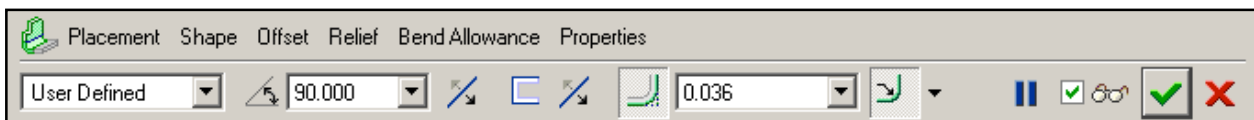
**Task 5: Create two user-defined flat walls.**


---

- **Open** the part called '2203-016.prt'
- Pick **View, Orientation, Standard Orientation**
- Set the selection filter to **Geometry**
- Carefully select the white edge here



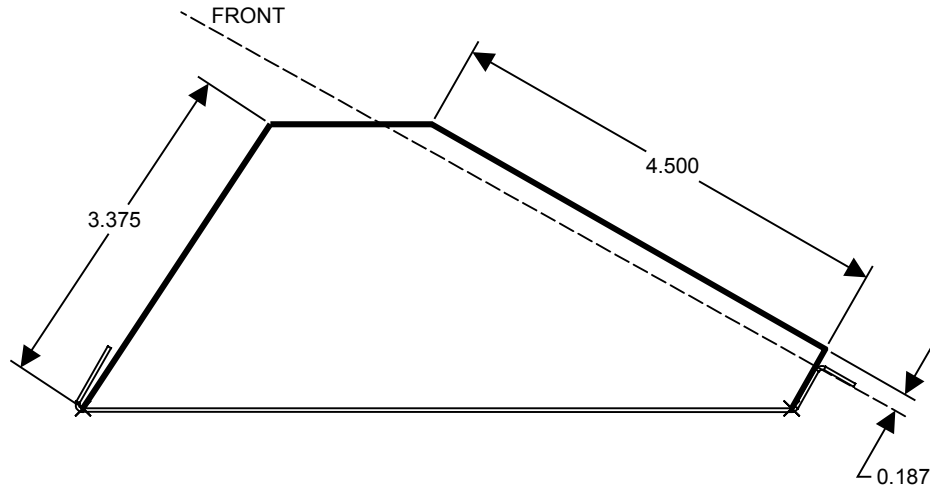
- Pick the **Flat Wall** icon 
- Pick **User Defined** in the dashboard tool as shown below



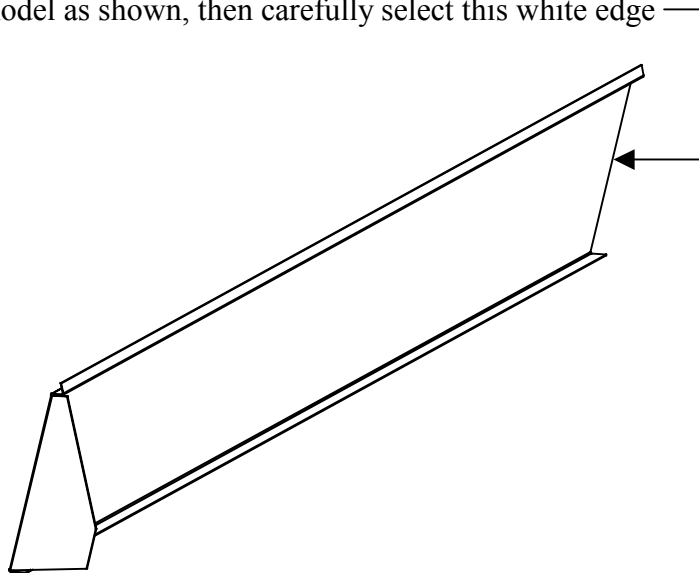
↑ Pick **User Defined** here

- In the **Shape** panel of the dashboard tool, pick **Sketch**
- Click the middle mouse button to accept the default
- Pick the FRONT datum plane in the model tree for an additional reference
- Pick **Close** in the **References** dialog box

- Sketch, constrain, and dimension the geometry as shown below

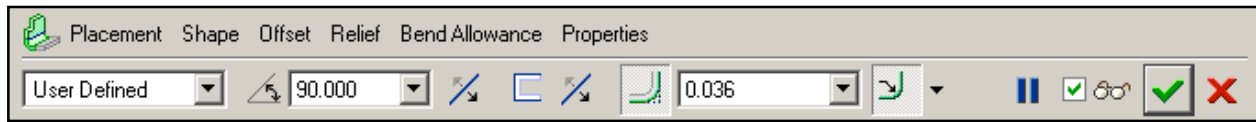


- Pick the checkmark to complete the sketch
- Pick the checkmark in the dashboard tool to complete the feature
- Be sure the selection filter is set to *Geometry*
- Orient the model as shown, then carefully select this white edge



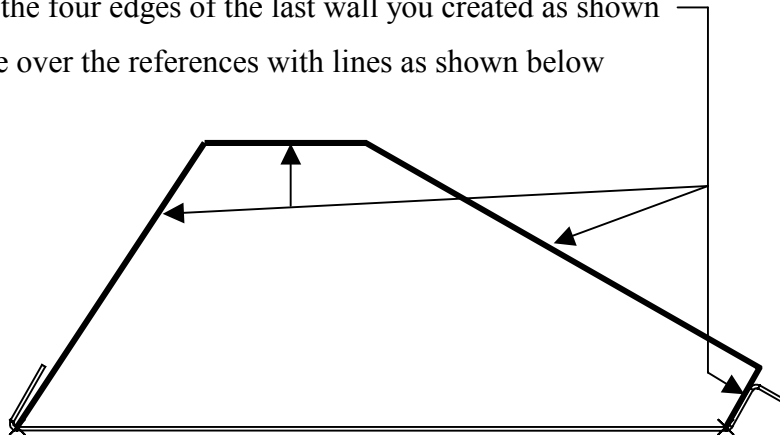
- Pick the **Flat Wall** icon 

- Pick **User Defined** in the dashboard tool as shown below

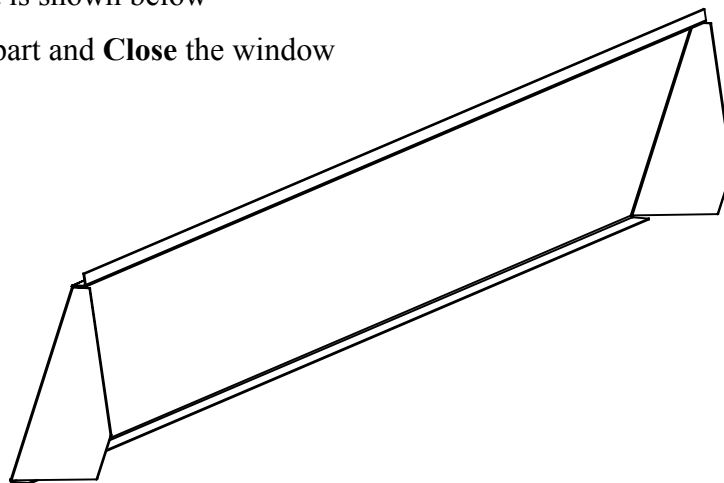


↑ Pick **User Defined** here

- In the *Shape* panel of the dashboard tool, pick **Sketch**
- Click the middle mouse button to accept the default
- Pick the four edges of the last wall you created as shown
- Trace over the references with lines as shown below



- Pick the checkmark to complete the sketch
- Pick the checkmark in the dashboard tool to complete the feature
- The result is shown below
- **Save** the part and **Close** the window

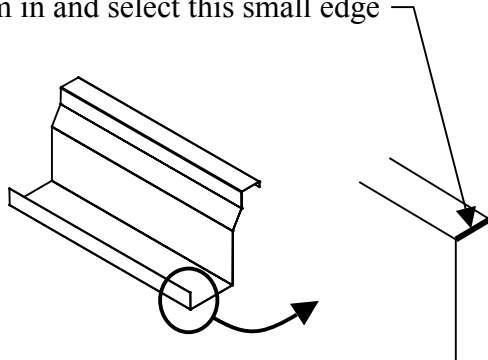


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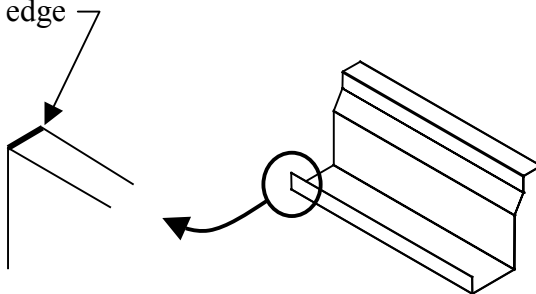
**Task 6: Create a round with two sets, then create a flange wall.**


---

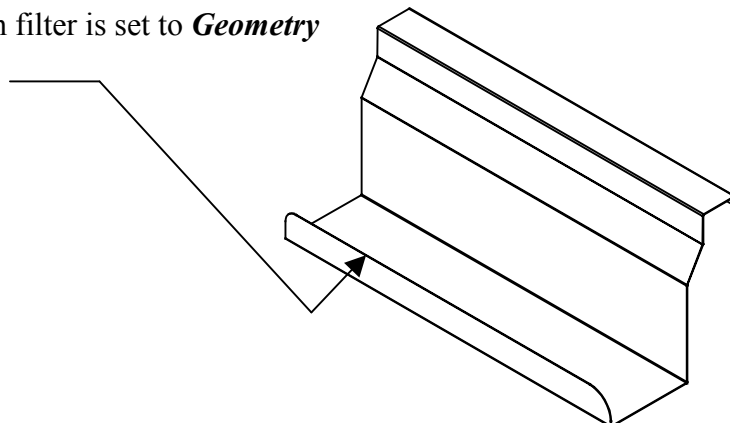
- **Open** the part called '2203-014.prt'
- Set the selection filter to **Geometry**
- Zoom in and select this small edge




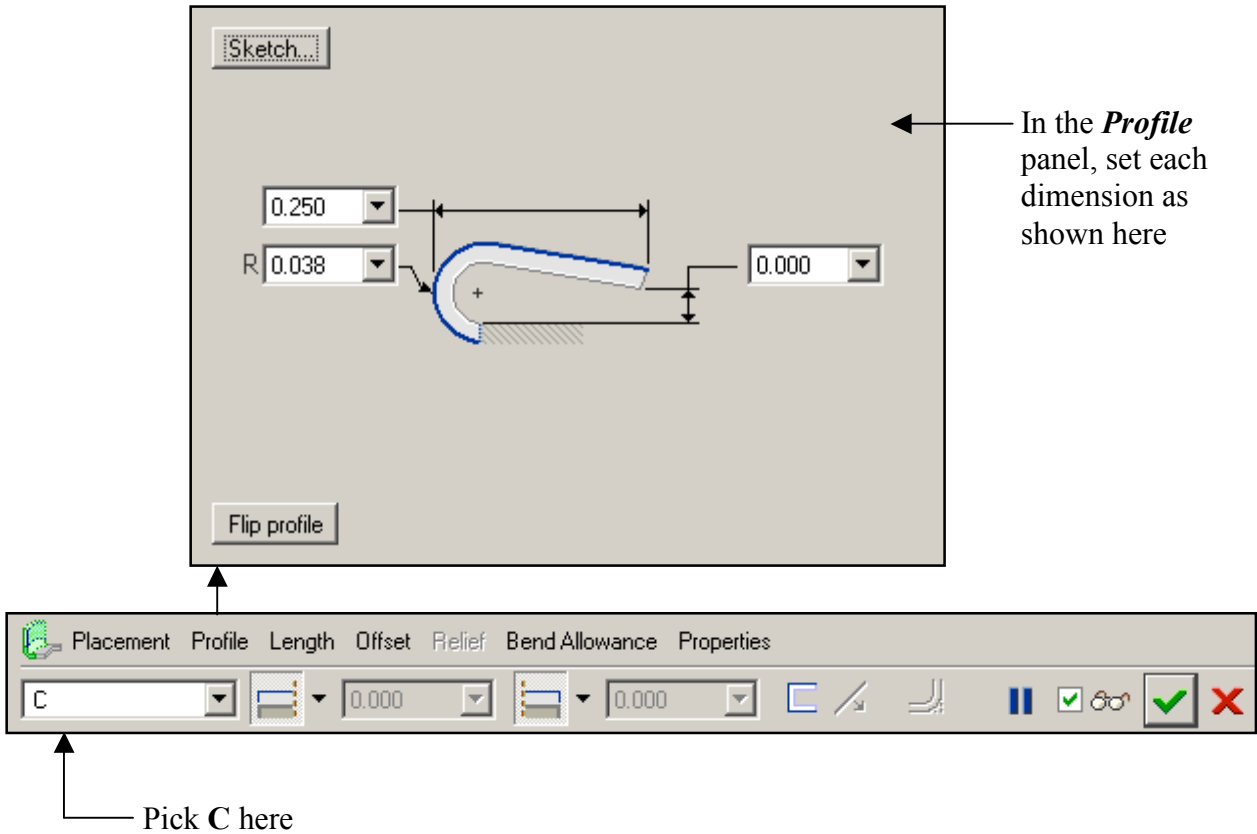
- Press and hold the right mouse button and select **Round Edges** in the popup menu
- Enter < 1 > for the radius in the dashboard tool
- Press and hold the right mouse button and select **Add Set** in the popup menu
- Zoom in and select this small edge



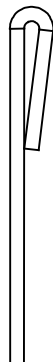
- Enter < 0.500 > for the radius in the dashboard tool
- Pick the checkmark in the dashboard tool to complete the round
- Be sure the selection filter is set to **Geometry**
- Pick this green edge



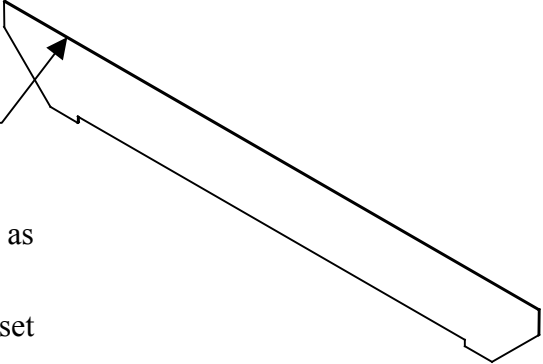

- Pick the **Flange Wall** icon 
- Set the profile to **C** in the dashboard tool as shown below
- In the **Profile** panel of the dashboard tool, set each dimension as shown below

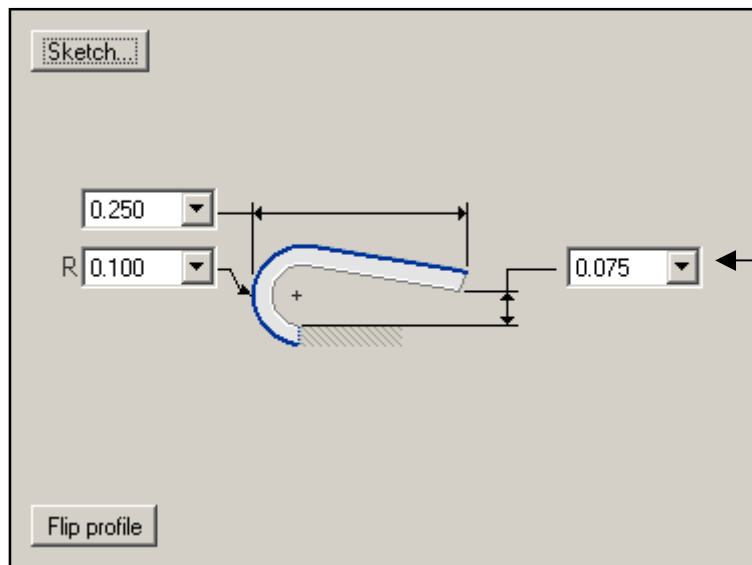


- Pick the checkmark in the dashboard tool to complete the feature
- The result is shown below
- **Save** the part and **Close** the window

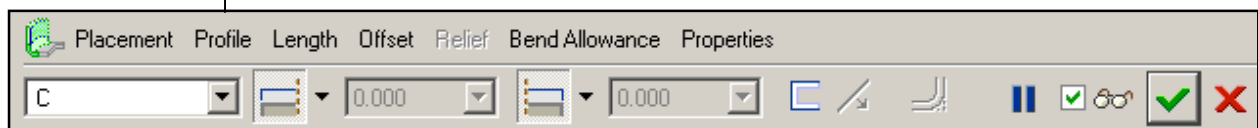


**Task 7: Create a flange wall.**

- **Open** the part called '2203-004.prt'
- Set the selection filter to **Geometry**
- Pick this green edge 
- Pick the **Flange Wall** icon 
- Set the profile to **C** in the dashboard tool as shown below
- In the **Profile** panel of the dashboard tool, set each dimension as shown below

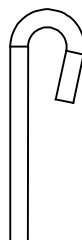


In the **Profile** panel, set each dimension as shown here



Pick C here

- Pick the checkmark in the dashboard tool to complete the feature
- The result is shown here

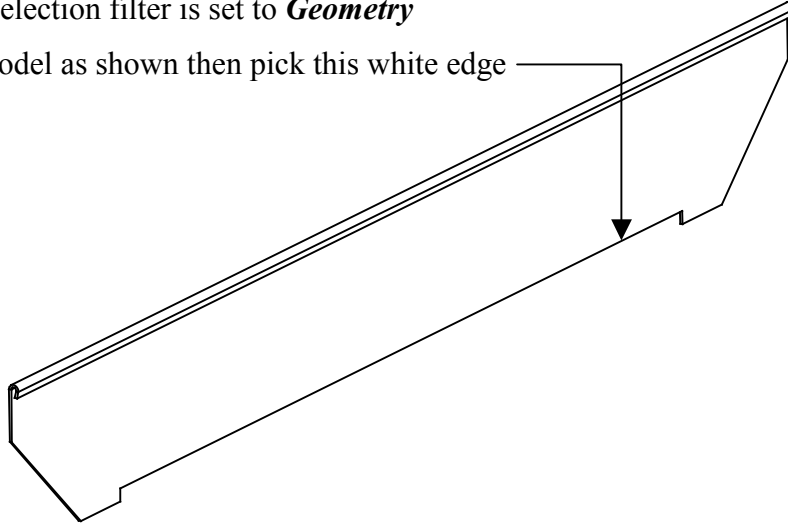



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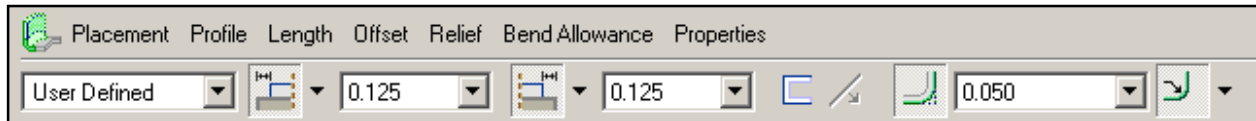
**Task 8: Create a user-defined flange wall.**

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- Be sure the selection filter is set to *Geometry*
- Orient the model as shown then pick this white edge



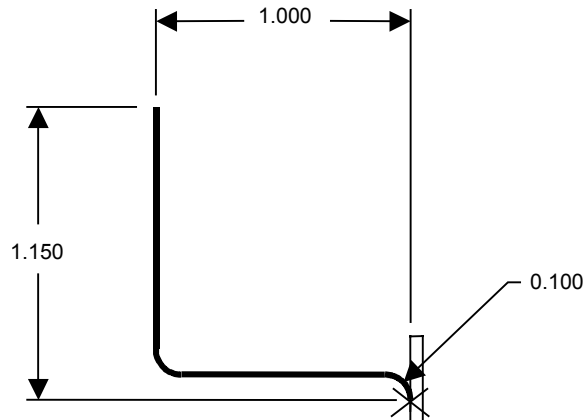
- Pick the **Flange Wall** icon 
- Pick **User Defined** in the dashboard tool as shown below



Pick **User Defined** here

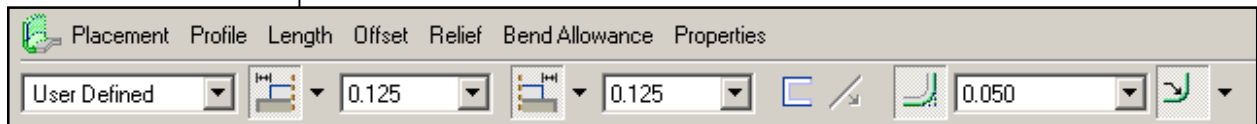
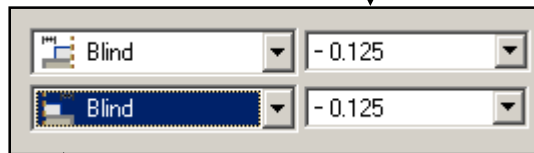
- In the *Profile* panel of the dashboard tool, pick **Sketch**
- Click the middle mouse button to accept the default

- Sketch, constrain, and dimension the geometry as shown below (the radii are equal)



- Pick the checkmark to complete the sketch
- In the **Length** panel of the dashboard tool, set both ends to **Blind** and enter  $< -0.125 >$  for the length of each end as shown below

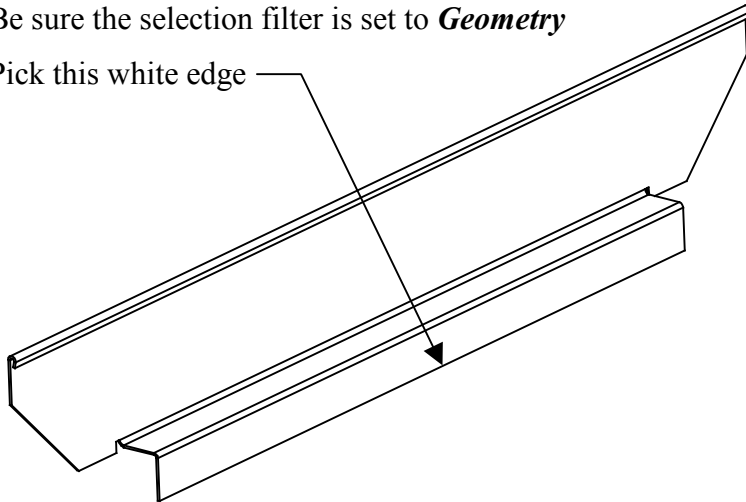
Set both ends to **Blind** and enter  $< -0.125 >$  for the length of each end here




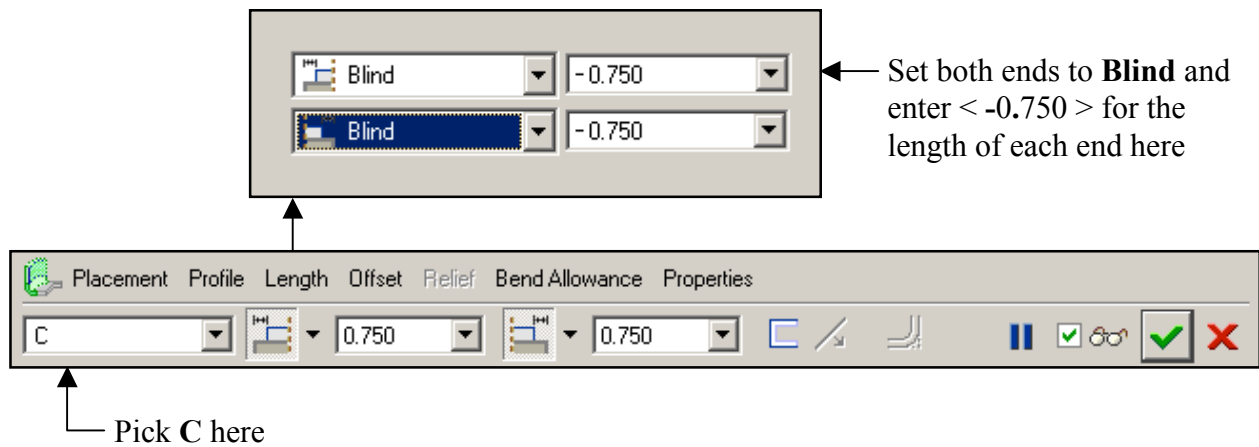
- Pick the checkmark in the dashboard tool to complete the feature
- Save the part

**Task 9: Create a flange wall.**

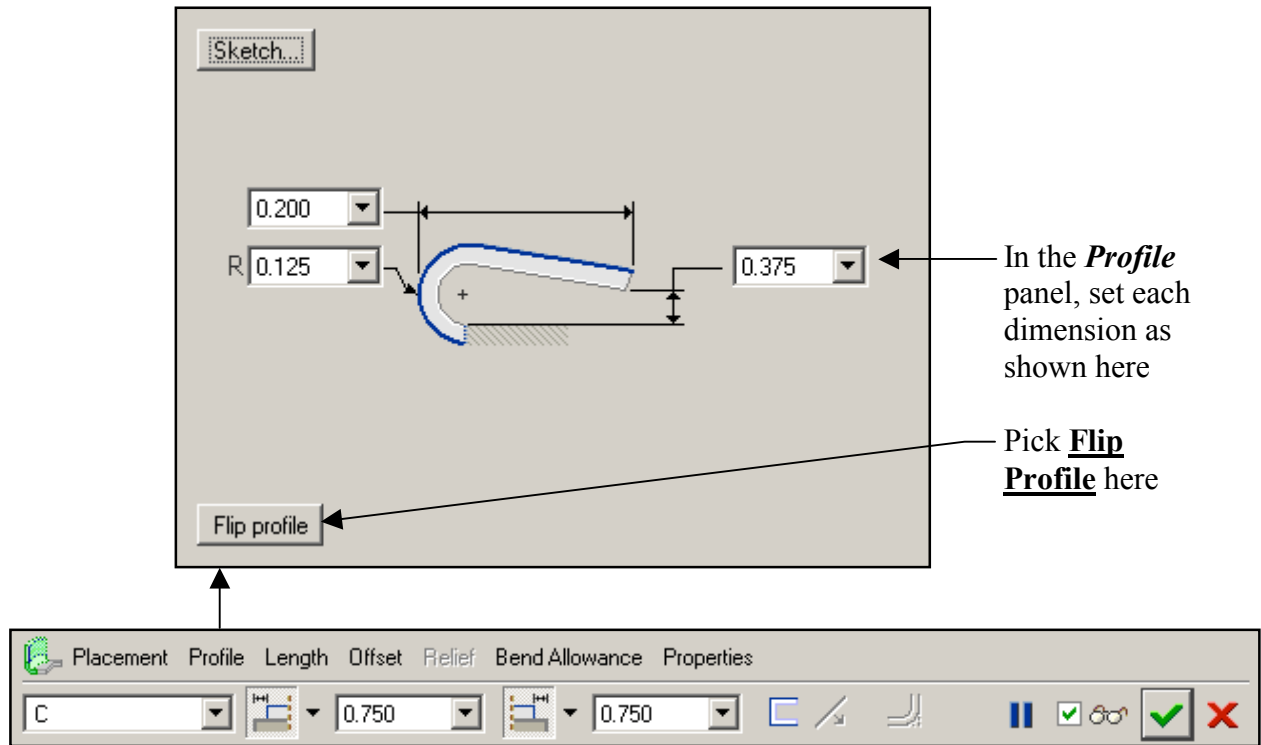
- Be sure the selection filter is set to *Geometry*
- Pick this white edge



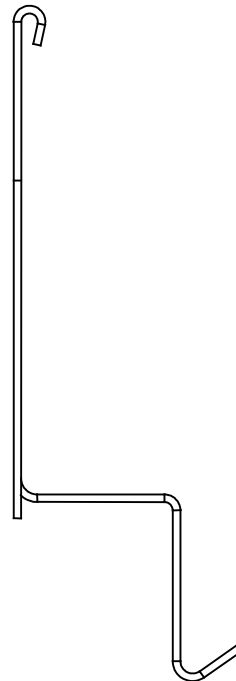
- Pick the **Flange Wall** icon 
- Pick **C** in the dashboard tool as shown below
- In the **Length** panel of the dashboard tool, set both ends to **Blind** and enter  $< -0.750 >$  for the length of each end as shown below



- In the *Profile* panel of the dashboard tool, set each dimension as shown below
- Pick **Flip Profile** as shown below



- Pick the checkmark in the dashboard tool to complete the feature
- The result is shown here
- **Save** the part and **Close** the window

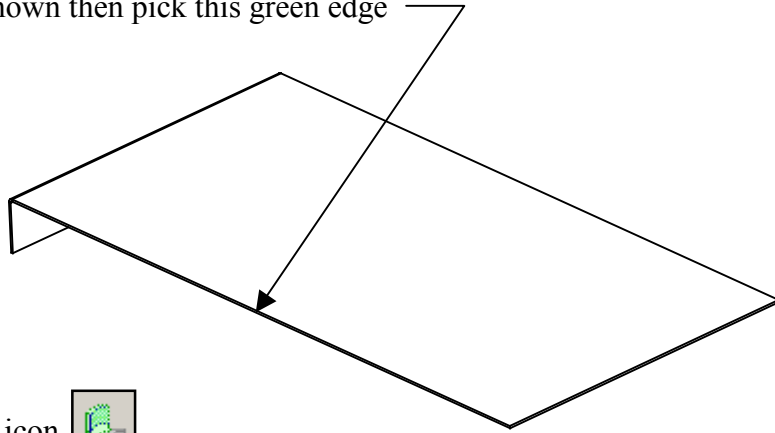



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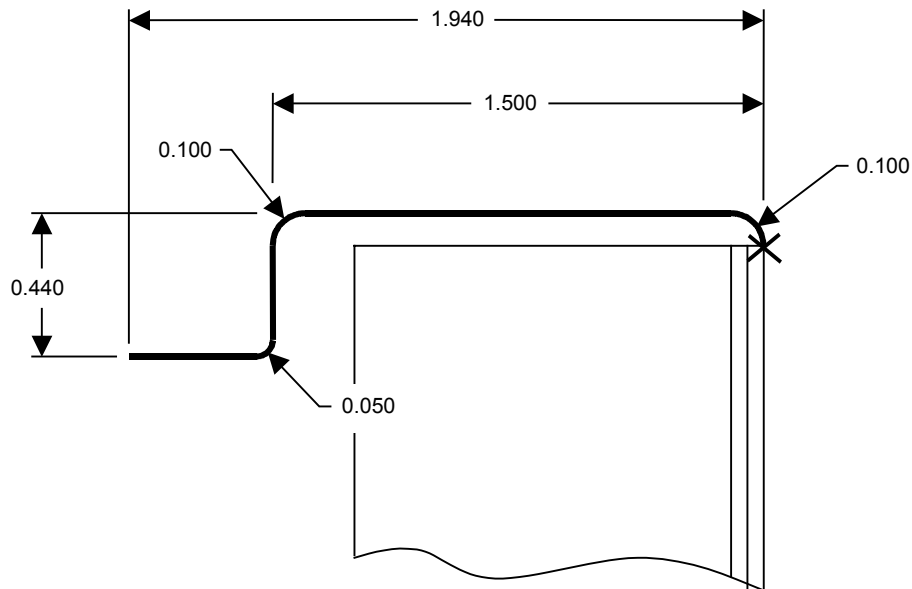
**Task 10: Create a user-defined flange wall.**

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- **Open** the part called '2203-008.prt'
- Set the selection filter to **Geometry**
- Orient the model as shown then pick this green edge

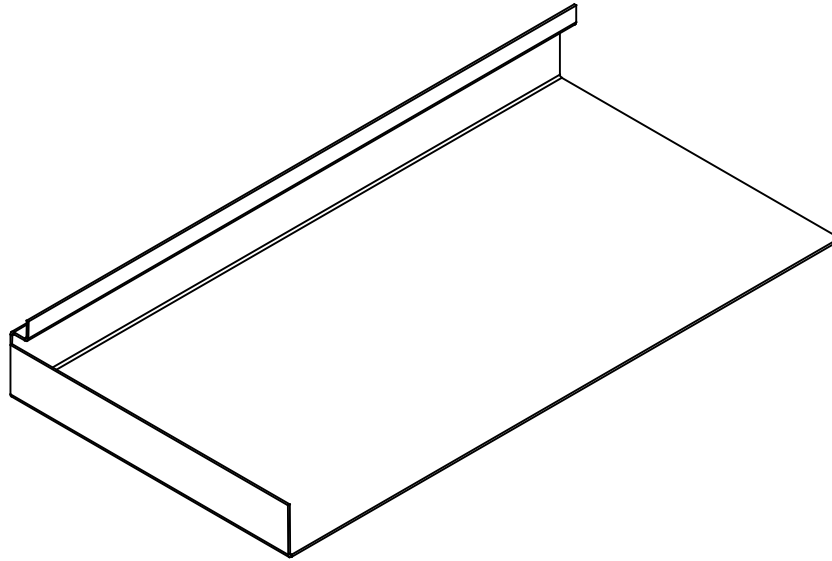


- Pick the **Flange Wall** icon 
- Pick **User Defined** in the dashboard tool
- In the **Profile** panel of the dashboard tool, pick **Sketch**
- Click the middle mouse button to accept the default
- Sketch, constrain, and dimension the geometry as shown below



- Pick the checkmark to complete the sketch

- Pick the checkmark in the dashboard tool to complete the feature
- Pick **View, Orientation, Standard Orientation**
- The result is shown below



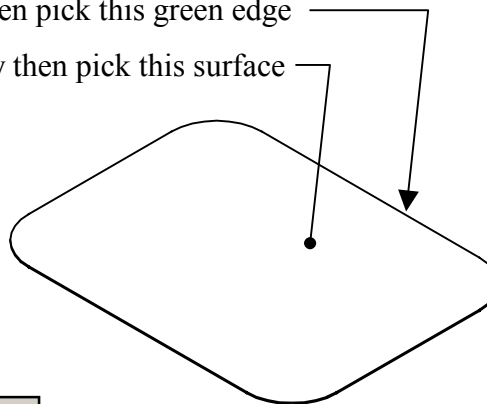
- **Save** the part and **Close** the window

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**Task 11: Create a user-defined flange wall.**


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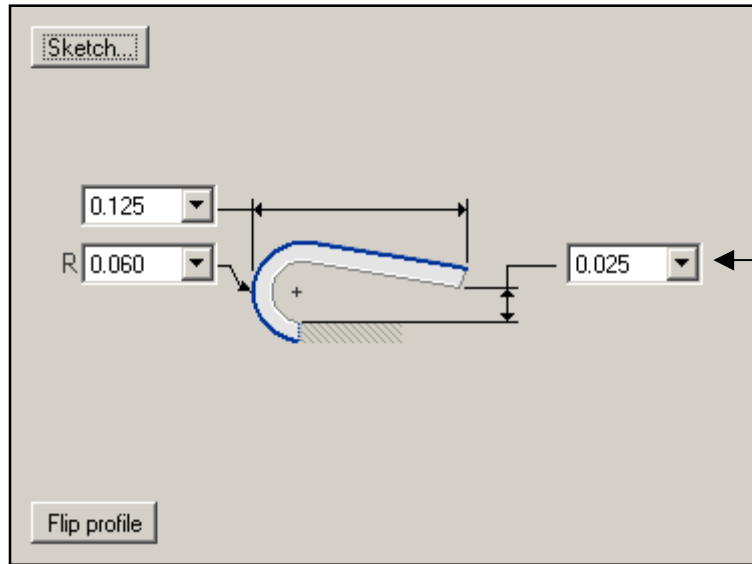
- **Open** the part called '2203-003.prt'
- Set the selection filter to **Geometry**
- Orient the model as shown then pick this green edge
- Press and hold the SHIFT key then pick this surface



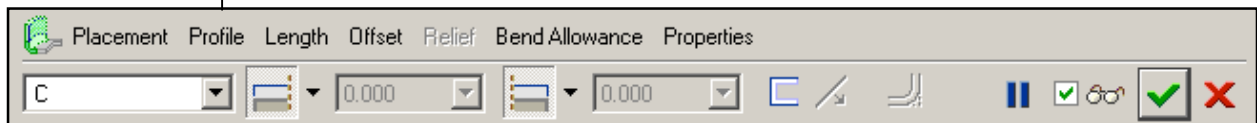
- Pick the **Flange Wall** icon 
- Pick **User Defined** in the dashboard tool



- Pick the **Flange Wall** icon 
- Pick **C** in the dashboard tool as shown below
- In the **Profile** panel of the dashboard tool, set each dimension as shown below

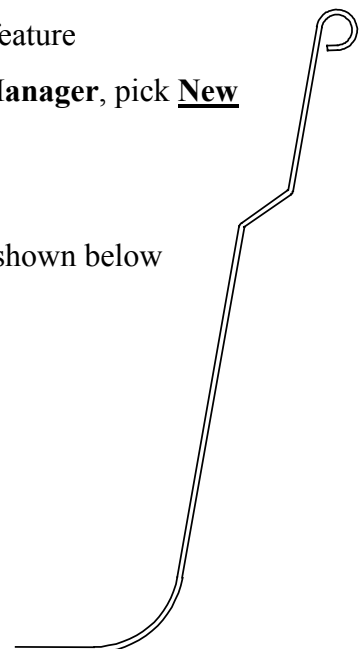
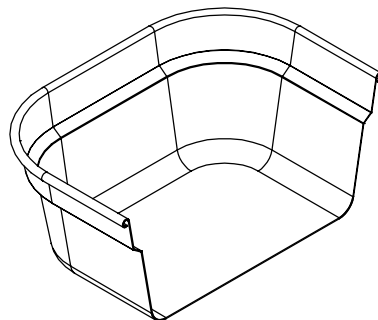


In the **Profile** panel, set each dimension as shown here



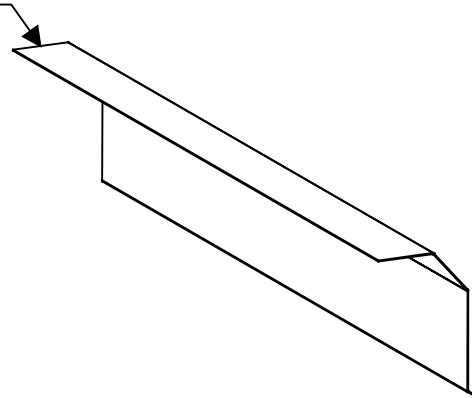
Pick **C** here


- Pick the checkmark in the dashboard tool to complete the feature
- Pick **View, View Manager**, in the **XSec** tab of the **View Manager**, pick **New**
- Enter < A > for the name (press 'enter'), then pick **Done**
- Pick the **RIGHT** datum plane in the model tree
- Double pick section **A** in the **View Manager**, the result is shown below
- **Save** the part and **Close** the window

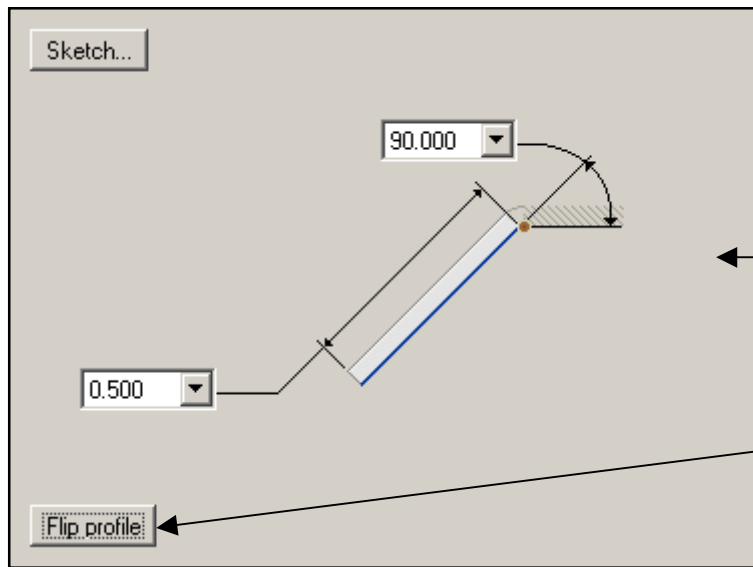


**Task 12: Create a flange wall with relief.**

- **Open** the part called '2203-017.prt'
- Pick **View, Orientation, Standard Orientation**
- Set the selection filter to *Geometry*
- Pick this green edge

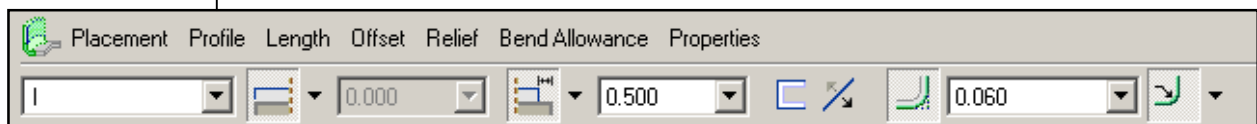


- Pick the **Flange Wall** icon 
- In the *Profile* panel of the dashboard tool, set each dimension as shown below
- Pick **Flip Profile** as shown below

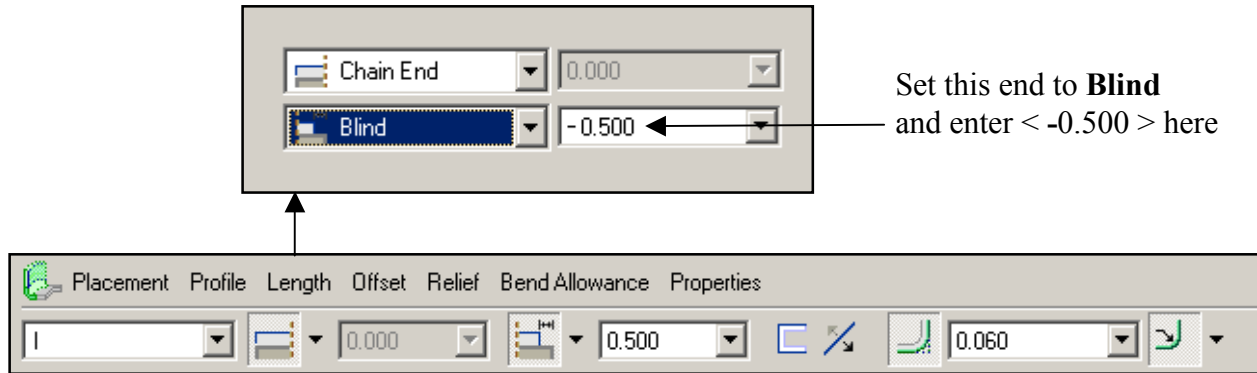


← In the *Profile* panel, set each dimension as shown here

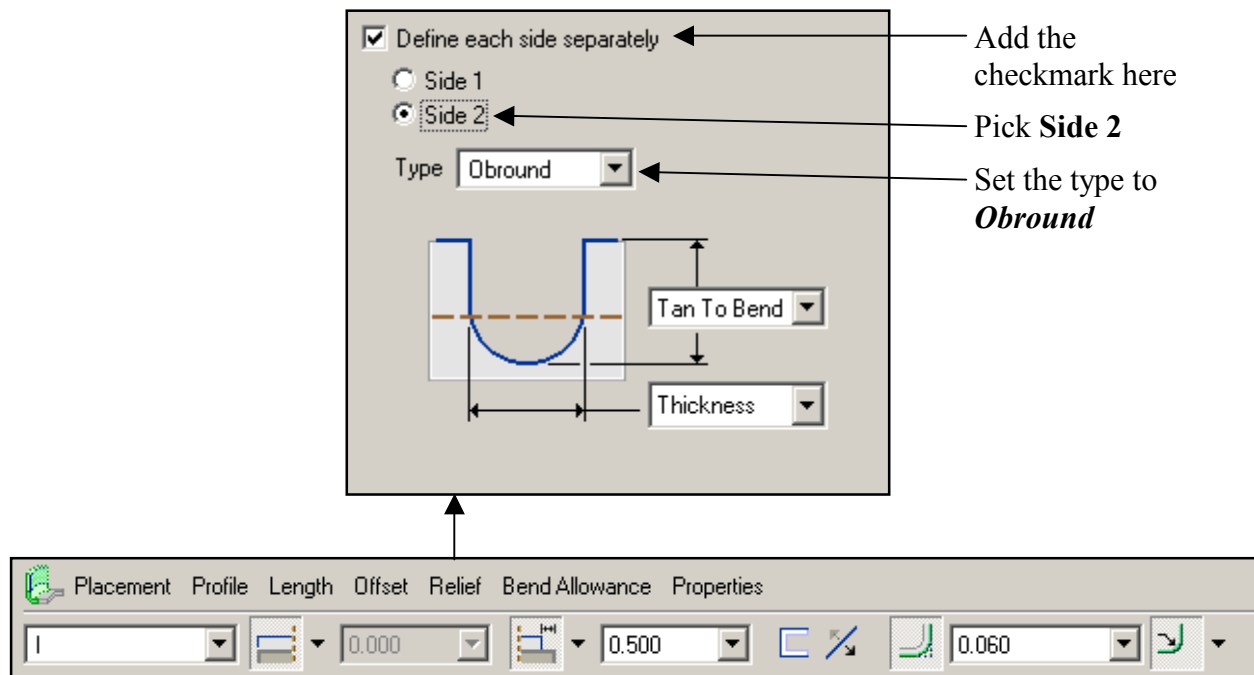
← Pick **Flip Profile** here



- In the **Length** panel of the dashboard tool, set the second end to **Blind** and then enter < -0.500 > as shown below



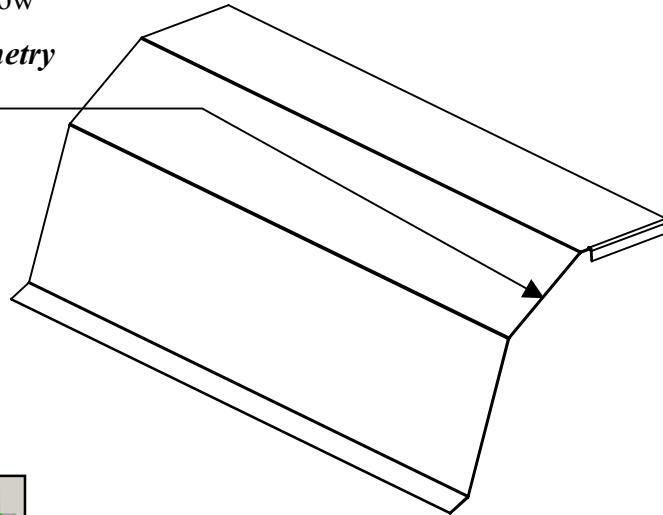
- In the **Relief** panel of the dashboard tool, add the checkmark next to **Define each side separately**, then set the type of **Side 2** to **Obround** as shown below




- Pick the checkmark in the dashboard tool to complete the feature

**Task 13: Create another flange wall with relief.**

- Orient the model as shown below
- Set the selection filter to *Geometry*
- Pick this green edge



- Pick the **Flange Wall** icon 
- In the *Profile* panel of the dashboard tool, set each dimension as shown below
- Pick **Flip Profile** as shown below

Sketch...

90.000

0.500

Flip profile

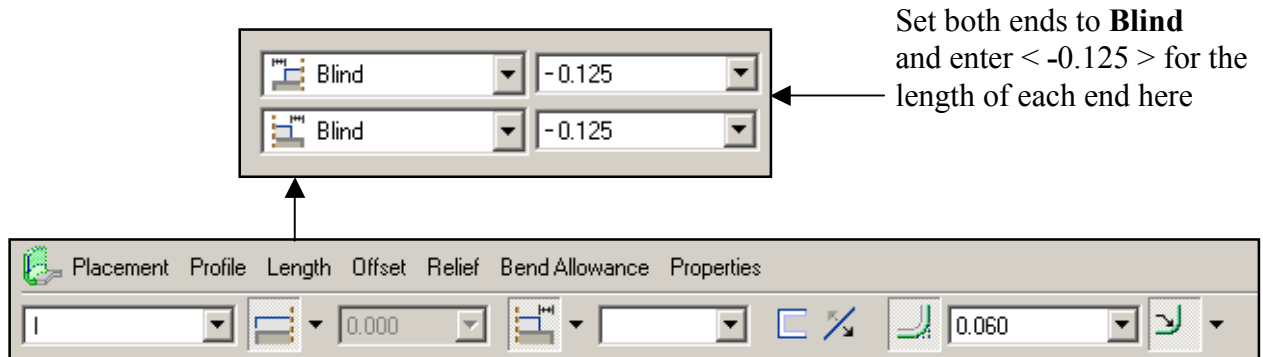
In the *Profile* panel, set each dimension as shown here

Pick **Flip Profile** here

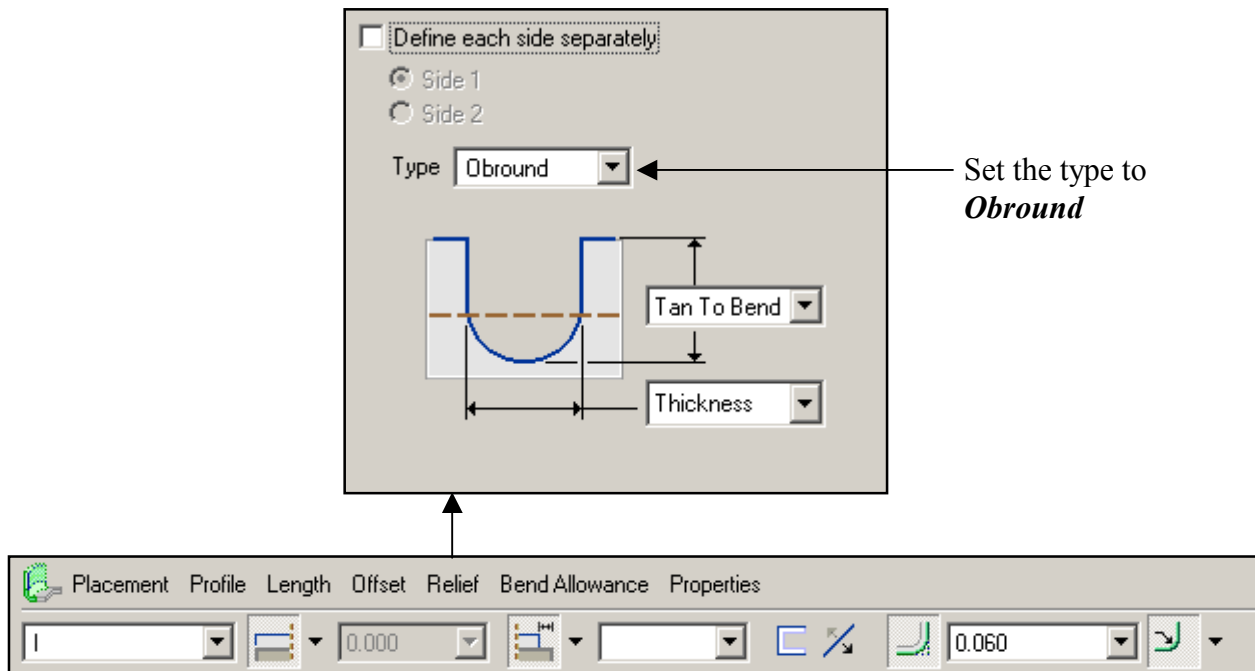
Placement Profile Length Offset Relief Bend Allowance Properties

0.060

- In the **Length** panel of the dashboard tool, set both ends to **Blind** and then enter < -0.125 > for the length of each end as shown below



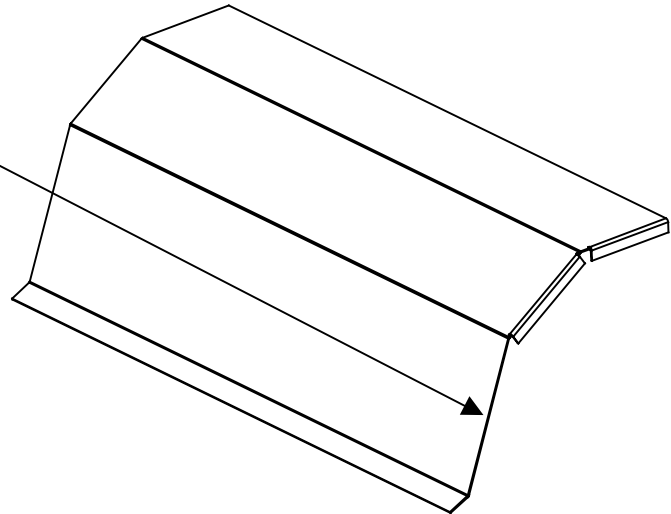
- In the **Relief** panel of the dashboard tool, set the type to **Obround** as shown below




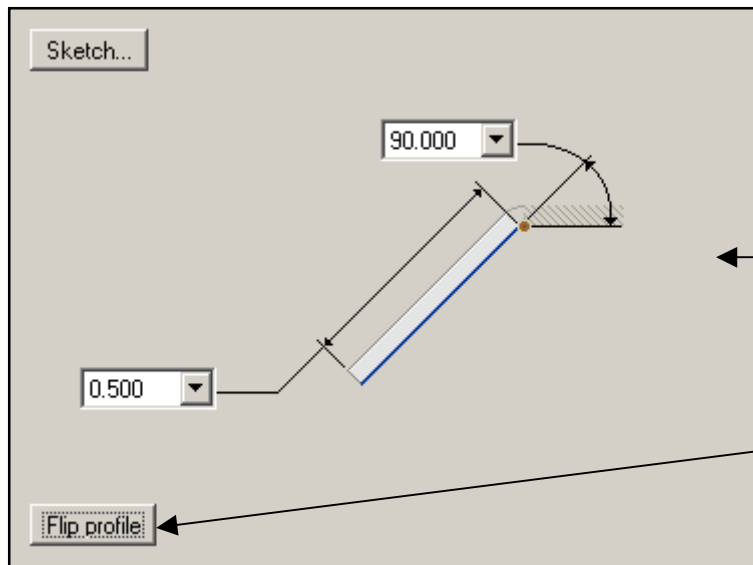
- Pick the checkmark in the dashboard tool to complete the feature
- Save the part

**Task 14: Create another flange wall with relief.**

- Orient the model as shown below
- Set the selection filter to *Geometry*
- Pick this green edge

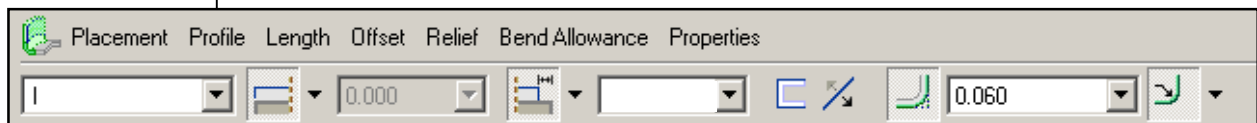


- Pick the **Flange Wall** icon 
- In the *Profile* panel of the dashboard tool, set each dimension as shown below
- Pick **Flip Profile** as shown below

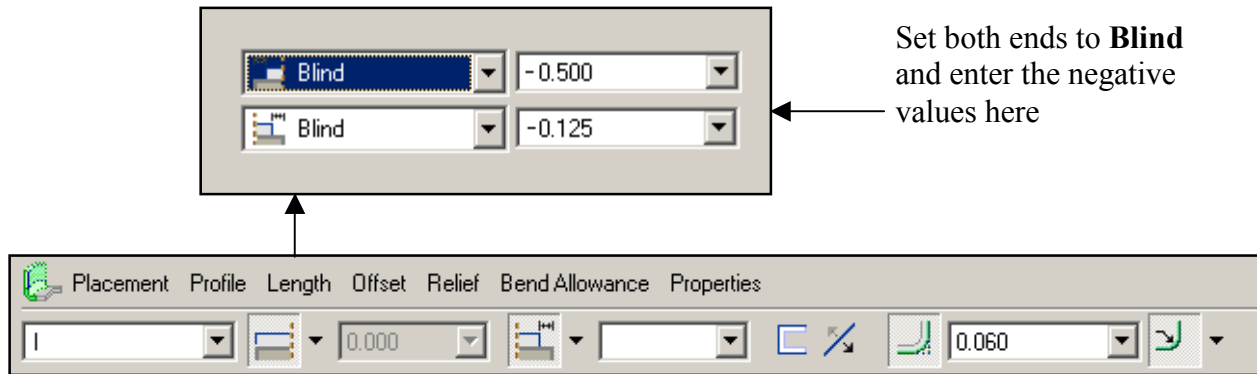


← In the *Profile* panel, set each dimension as shown here

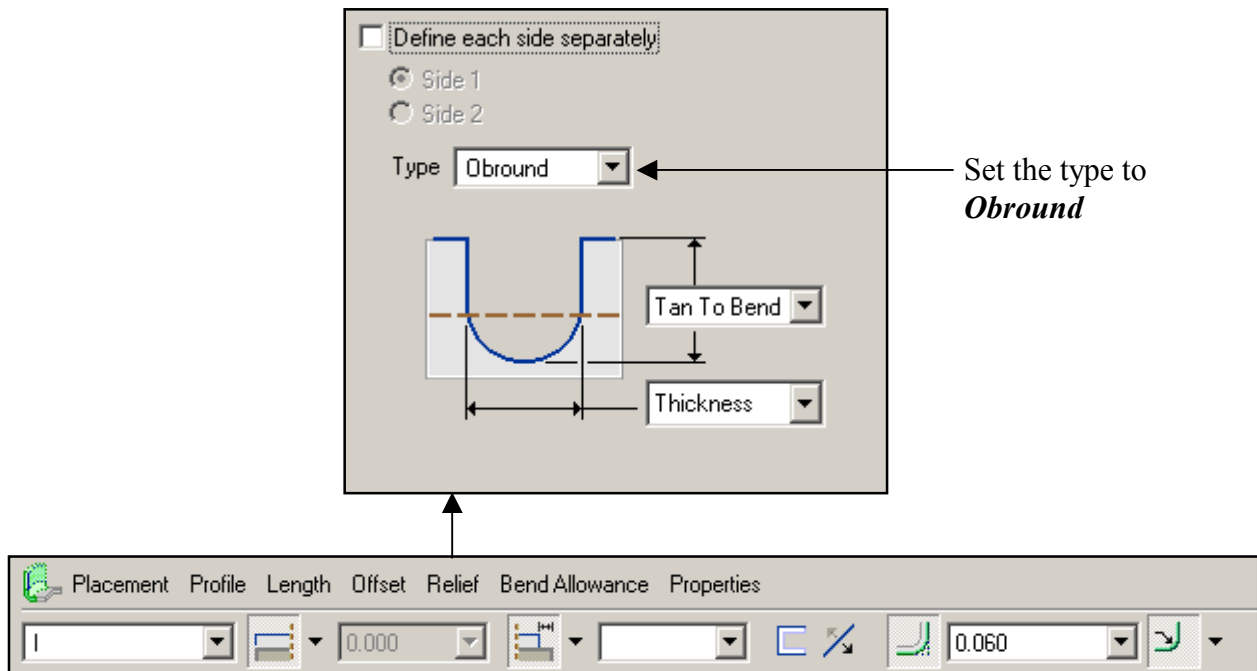
← Pick **Flip Profile** here



- In the **Length** panel of the dashboard tool, set both ends to **Blind** and then enter the values for each end as shown below



- In the **Relief** panel of the dashboard tool, set the type to **Obround** as shown below



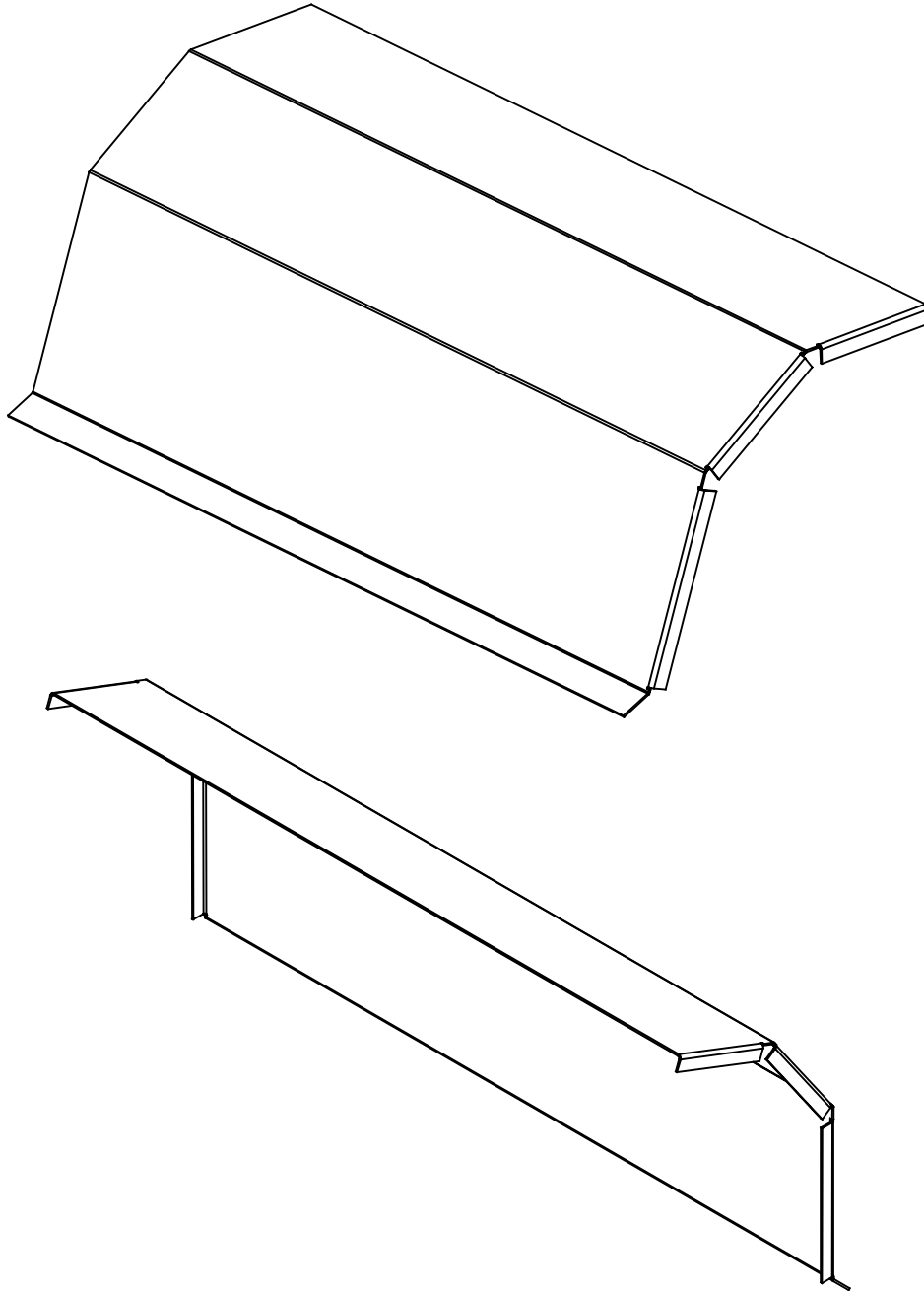
- Pick the checkmark in the dashboard tool to complete the feature
- The result is shown on the next page
- **Save** the part

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**Task 15: Create three more flange walls.**

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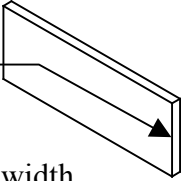
- Create three more flange walls on the opposite side of the part
- Use the last three tasks as a guide
- **Save** the part and **Close** the window



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**Task 16: Create a twist wall.**

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- **Open** the part called '2203-021.prt'
- Pick **View, Orientation, Standard Orientation**
- Pick **Insert, Sheetmetal Wall, Twist**
- Pick this green edge 
- Pick **Use Middle** in the small menu
- Press 'enter' to accept 0.375 for the start width
- Press 'enter' to accept 0.375 for the end width
- Enter < 12 > for the twist length
- Enter < 1800 > for the twist angle
- Enter < 15 > for the developed length
- Pick **OK** in the dialog box to complete the feature
- The result is shown below
- **Save** the part and **Close** the window

