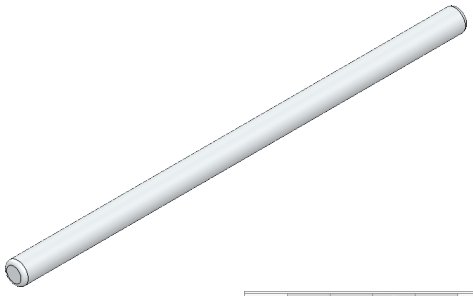
Chapter 1

HAWT
Shaft



A. Extrude.

Step 1. Click File Menu > New, click **Part Metric** and OK.

Step 2. Click **Front Plane** in the Feature Manager and click **Sketch** on the context toolbar, **Fig. 1**.

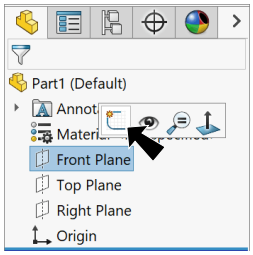


Fig. 1

Step 3. Click **Circle** on the Sketch toolbar.

Step 4. Sketch a circle starting at the Origin , **Fig. 2**.

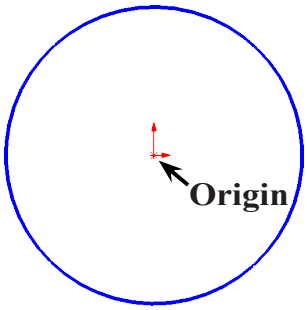


Fig. 2

Step 5. Click **Smart Dimension** (S) on the Sketch toolbar.

Step 6. Dimension circle **diameter 3**, **Fig. 3**.

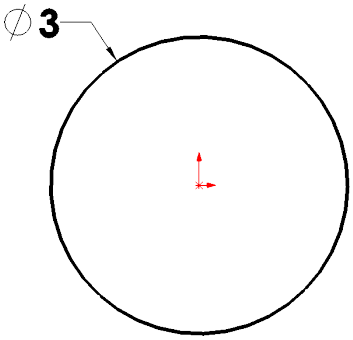


Fig. 3

Step 7. Click **Features** on the Command Manager toolbar.

Step 8. Click **Extruded Boss/Base** on the Features toolbar.

Step 9. In the Boss-Extrude Property Manager set:

under Direction 1, **Fig. 4**

End Condition **Blind**

Depth 62

Reverse Direction

click OK .

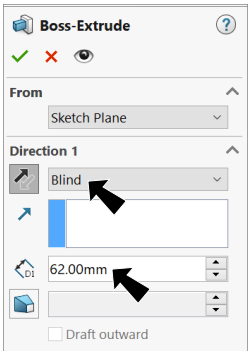


Fig. 4

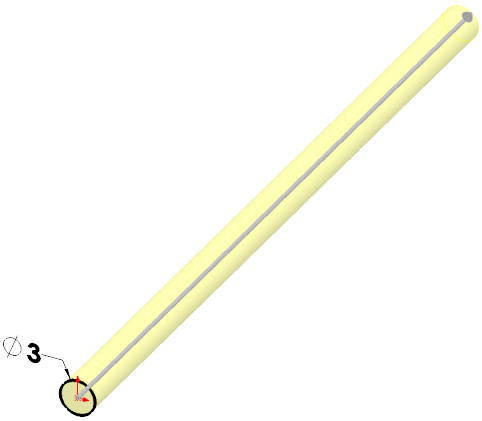


Fig. 5

B. Save as "SHAFT".

Step 1. Click File Menu > Save As.

Step 2. Key-in **SHAFT** for the filename and press ENTER.

Tip: Create a **Wind Turbine folder** in your My Document folder to save your Turbine project files. At cudacounty we go a step further, and create a Tech Ed [school year] folder and in that folder we create the Wind Turbine folder.
Documents\Tech Ed 22-23\Wind Turbine.

C. Fillet Edges.

Step 1. Click **Fillet** 

on the Features toolbar.

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, **Fig. 6**
Radius .5
click **both edges**, **Fig. 7**
click OK .

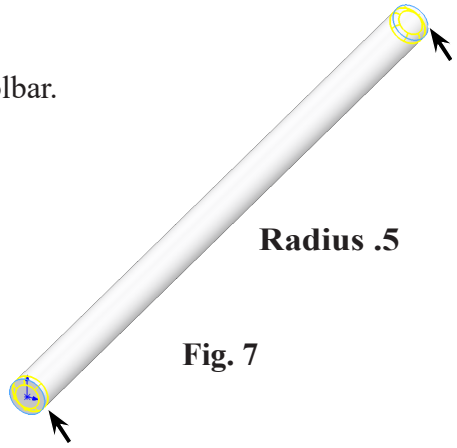


Fig. 7

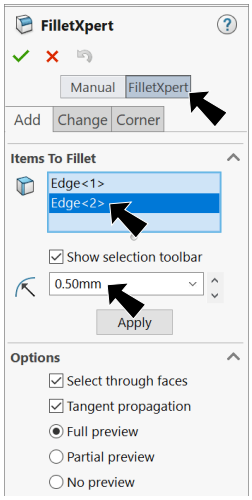
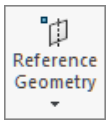


Fig. 6

D. Mate Reference.

Step 1. Click **Reference Geometry** 

on the Features toolbar and **Mate Reference** from the menu.

Step 2. In the Mate Reference Manager:
under Primary Reference Entity, **Fig. 8**
click **cylindrical face of Shaft**, **Fig. 9**
click OK .

Step 3. Save (**Ctrl-S**).

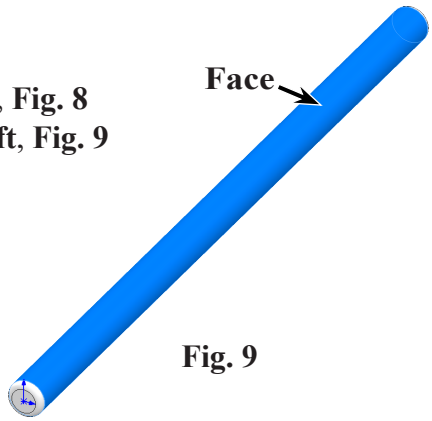


Fig. 9

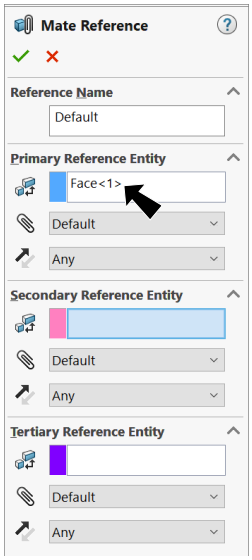


Fig. 8

E. Appearance: Polished Aluminum.

Step 1. Click part, click **Appearance Callout** on the context toolbar and click **SHAFT**, **Fig. 10**.

Step 2. In the Appearances Task pane, expand **Metal**, click **Aluminum** and in the lower pane select **polished aluminum**, **Fig. 11**.

Step 3. Click OK in the Appearances Property Manager, **Fig. 12**.

Step 4. Save (**Ctrl-S**).

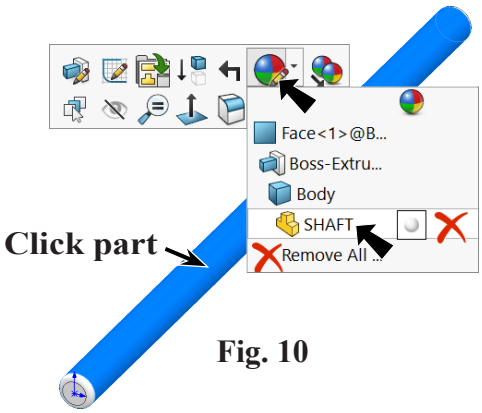


Fig. 10

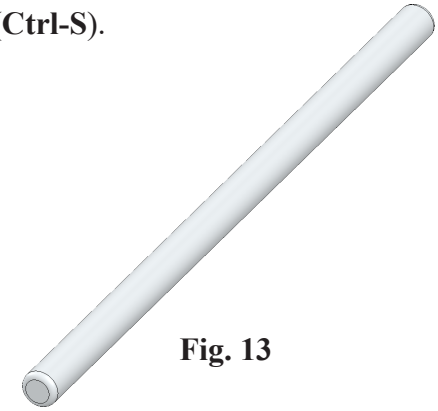


Fig. 13

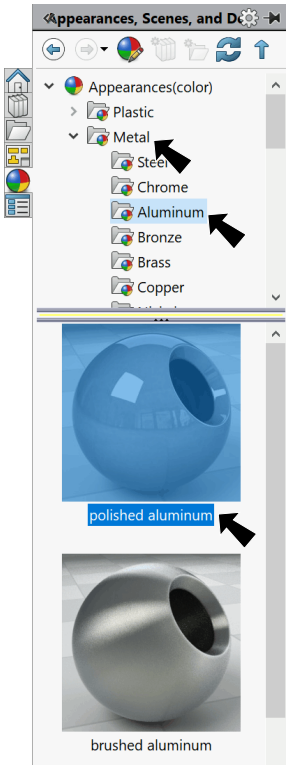


Fig. 11

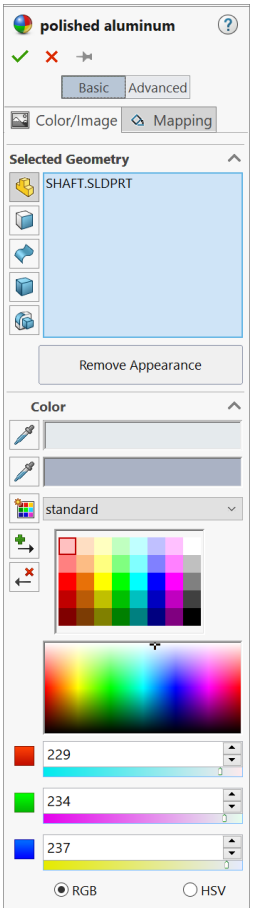


Fig. 12