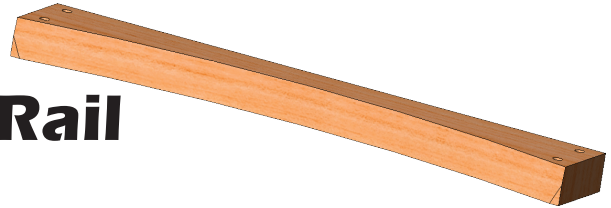



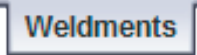
Bottom Rail



A. Weldments Toolbar.

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

Step 2. **Right click Sketch**  on the Command Manager toolbar and select **Weldments**, **Fig. 1**.

Step 3. Click **Weldments**  on the Command Manager toolbar.

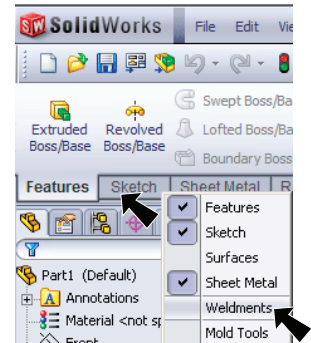






Fig. 1

B. 3D Sketch.

Step 1. Click **3D Sketch**  on the Weldments toolbar.

Step 2. Click **Line**  (L) on the Sketch toolbar. The cursor should change to XY plane  indicating you are sketching in XY plane. If not, press Tab to switch sketch plane.

Step 3. Draw a line from right to left on X axis away from Origin

, **Fig. 2**. To draw line on X axis, click away from Origin at approximately Position 1 to start line. Move cursor across sketch along X axis, when cursor changes to  (yellow X) click, Position 2.

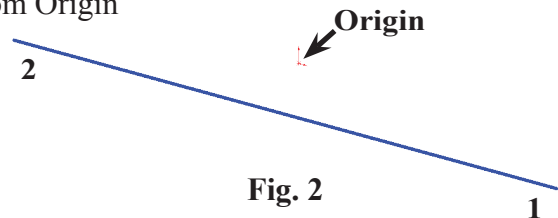




Fig. 2

Step 4. **Right click drawing and click Select** from menu to unselect Line Tool.

Step 5. **Ctrl click line and Origin**  to select both. Release Ctrl key and click **Make Midpoint**  on the Content menu, **Fig. 3**.

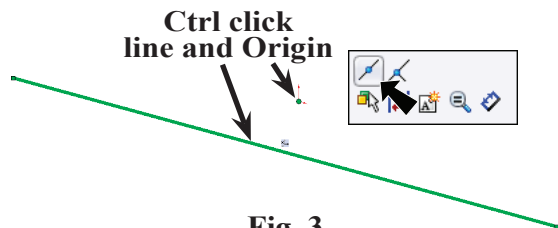


Fig. 3

Step 6. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 7. Dimension line **23.25**, **Fig. 4**.

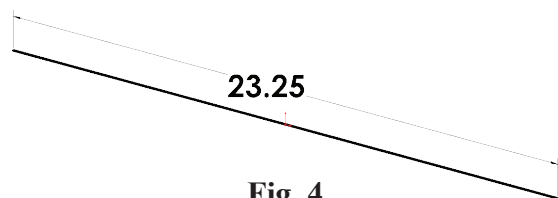




Fig. 4



Step 8. Click **Zoom to Fit**  (F) on the View toolbar.

Step 9. Click **Line**  (L) on the Sketch toolbar.


Step 10. Press Tab to change sketch plane to **YZ** plane

 **YZ**. View the Reference Triad  at the bottom left corner of the display to determine the sketch plane.

Step 11. Draw a line away from first line at an angle or not on Z axis (no Yellow Z), **Fig. 5**. Cursor



should be  and not 

Step 12. **Right click drawing and click Select** from menu to unselect Line Tool.



Step 13. **Ctrl click line and right endpoint of first line. Release Ctrl key and click Make Coincident**  on the Content menu, **Fig. 6**.

Step 14. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 15. Dimension the **33.75** first, then **13.4**, **Fig. 7**.


Step 16. Click **Centerline**  in the **Line flyout**  (S) on the Sketch toolbar.

Step 17. Draw **vertical centerline down from intersecting lines**, **Fig. 8**. Keep line vertical or on the Y axis

 **YZ**  (yellow Y).

Step 18. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 19. Dimension angle **71 degrees**, **Fig. 9**.

Step 20. Check 3D sketch in Top View. Click **Top**  on the Standard Views toolbar (**Ctrl-5**). The second line should be vertical **Fig. 10**.

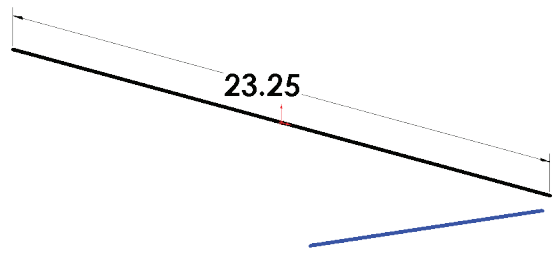


Fig. 5

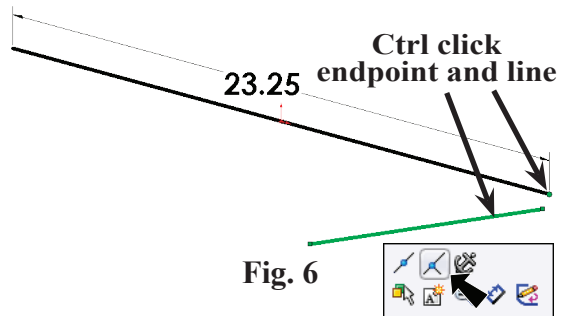


Fig. 6

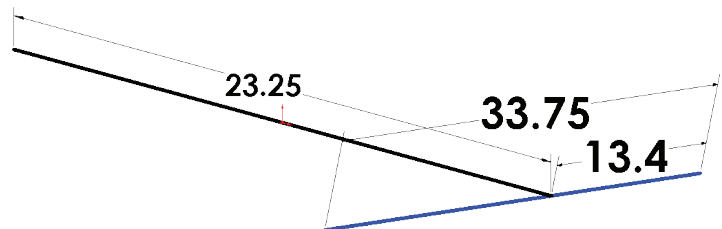


Fig. 7

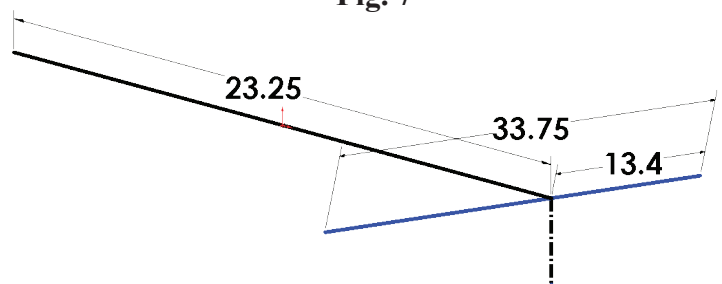


Fig. 8

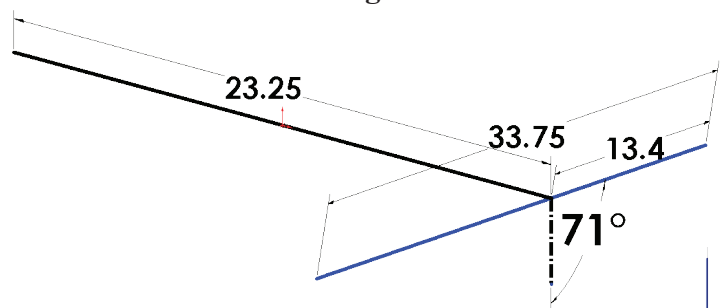


Fig. 9

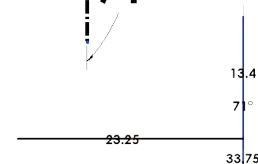

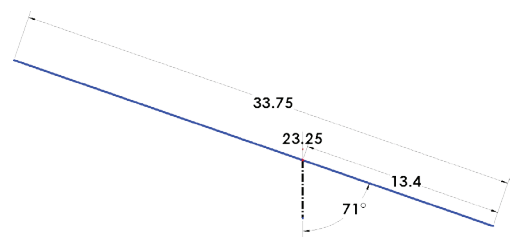


Fig. 10

Step 21. Check 3D sketch in Right View. Click **Right**  on the Standard Views toolbar (**Ctrl-4**). Second line should be at angle, **Fig. 11**.



Step 22. Click **3D Sketch**  on the Weldments toolbar to exit 3D Sketch. **Fig. 11**

C. Save as "CHAIR".

Step 1. Click File Menu > Save As.
 Step 2. Key-in **CHAIR** for the filename and press ENTER.

D. Structural Member.

Step 1. Click **Trimetric**  on the Standard Views toolbar.

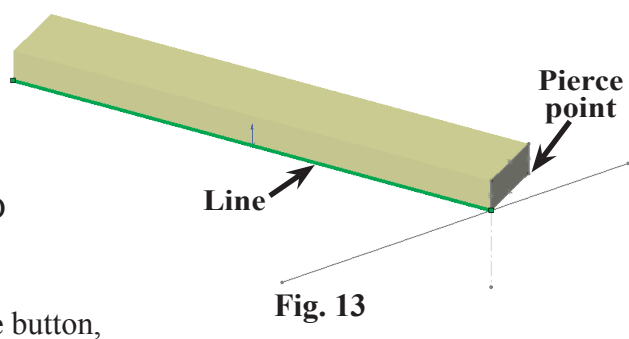
Step 2. Click **Structural Member**  on the Weldments toolbar.

Step 3. In the Structural Member Property Manager set:



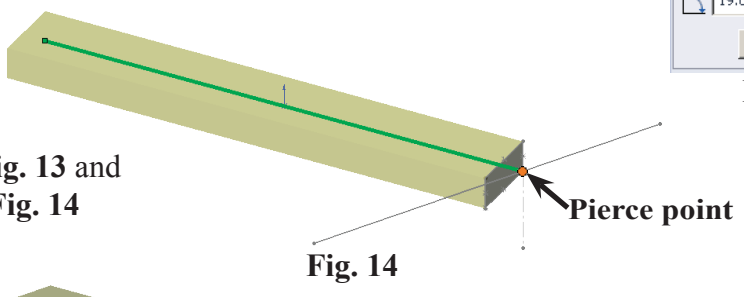
under Standard:
My Profiles, Fig. 12
 under Type:
Chair Wood
 under Size:
2 x 4


click **first line** in 3D sketch, **Fig. 13**

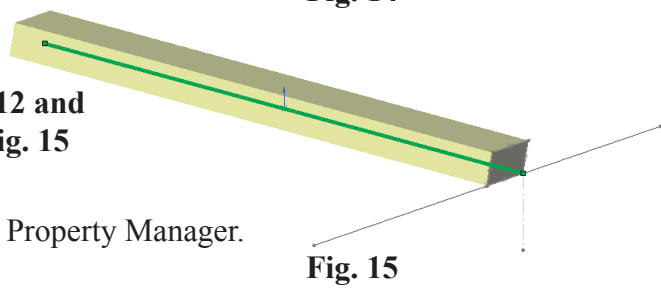



click **Locate Profile** button, **Fig. 12**

click **bottom rear corner of profile sketch, Fig. 13** and member moves, **Fig. 14**



set **Rotation angle**  to **19 degrees, Fig. 12** and press **Tab key, Fig. 15**



click **OK**  in the Property Manager.

Step 4. Save. Use **Ctrl-S**.

E. Rename Structural Member1 BOTTOM RAIL.

Step 1. Rename **Structural Member1** to **BOTTOM RAIL** in the Feature Manager, **Fig. 16**. To rename, click **Structural Member1** name in Feature Manager and press **F2** on keyboard. Key-in **BOTTOM RAIL**.

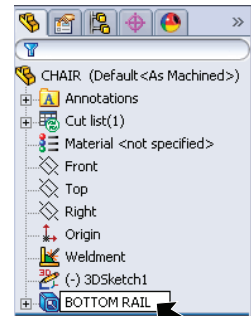





Fig. 16


F. 3 Point Arc.

Step 1. Click **top face** of the member and click **Sketch**  on the Content menu, **Fig. 17**.

Step 2. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

Step 3. Click **3 Point Arc**  (S) in the **Arc flyout**  on the Sketch toolbar.

Step 4. Draw 3 Point Arc between Points 1, 2 and 3 across bottom of member, **Fig. 18**.

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

Step 6. Dimension both the **.39's** first, then **arc 45.15**, **Fig. 19**.

Step 7. Save. Use **Ctrl-S**.

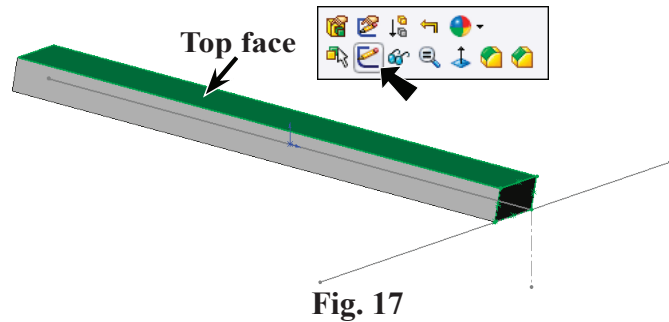


Fig. 17

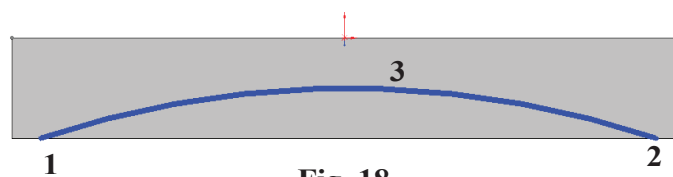


Fig. 18

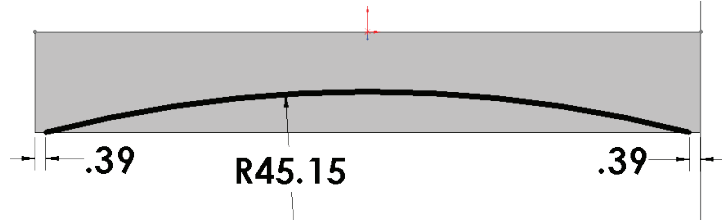
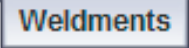
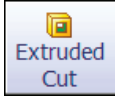


Fig. 19

G. Extruded Cut.

Step 1. Click **Weldments**  on the Command Manager toolbar.

Step 2. Click **Extruded Cut**  on the Weldments toolbar.

Step 3. In the Cut-Extrude Property Manager set:

under **Direction 1**, **Fig. 20**

End Condition to Through All

The Direction arrow should point towards area to be cut away, **Fig. 21**. If arrow is pointing in wrong direction,

check **Flip side to cut**,

Fig. 20. Click OK .

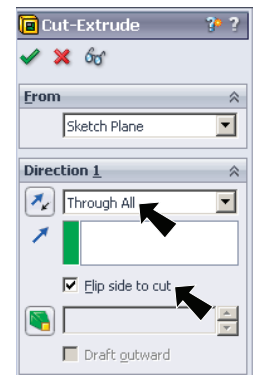


Fig. 20

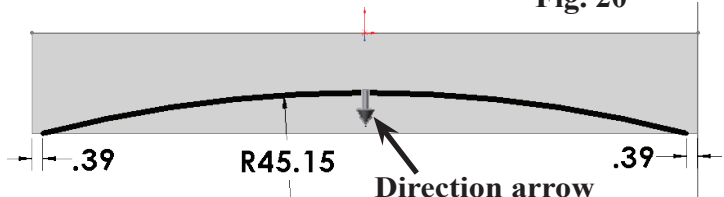



Fig. 21

H. Chamfer.

Step 1. Click **Trimetric**  on the Standard Views toolbar.

Step 2. Click **Chamfer**  on the Weldments toolbar.

Step 3. In the Chamfer Property Manager set:


Distance  **1.5**

Angle  **7**

Fig. 23

click **top front edge**,

Fig. 24 and click OK

 in the Property Manager, **Fig. 25**.

Step 4. Save. Use **Ctrl-S**.

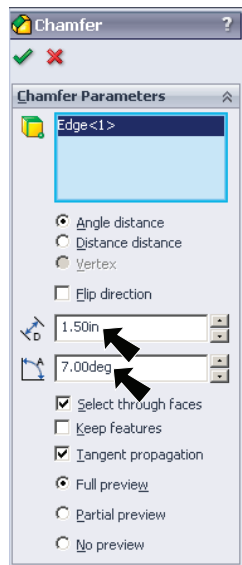


Fig. 23

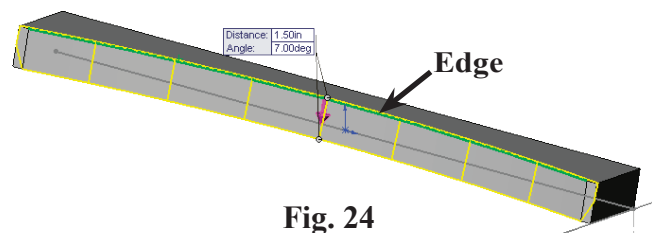


Fig. 24

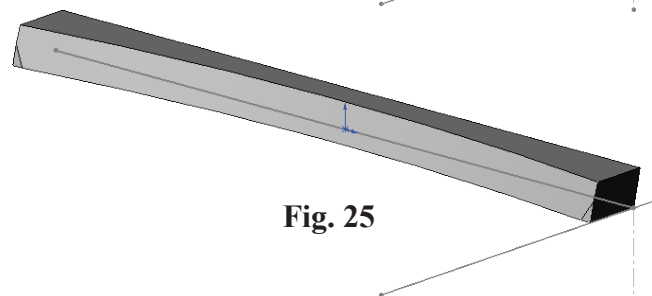



Fig. 25

I. Hole Wizard Counterbore.

Step 1. Click **Top**  on the Standard Views toolbar. (Ctrl-5)

Step 2. Click **Hole Wizard**  on the Weldments toolbar.

Step 3. In the Property Manager, on the Type tab set:
under Hole Type:

Click **Counterbore** , Fig. 26

under Standard:

select **Ansi Inch**

under Size:

select **#8**

under End Condition:

set **Through All**

under Options

check **under head countersink**

set under head countersink  diameter to **.33**

Click **Positions** tab  at top of the Property Manager.

Click to **place a hole inside right edge**, Fig. 27.

Click to **place a second hole**.

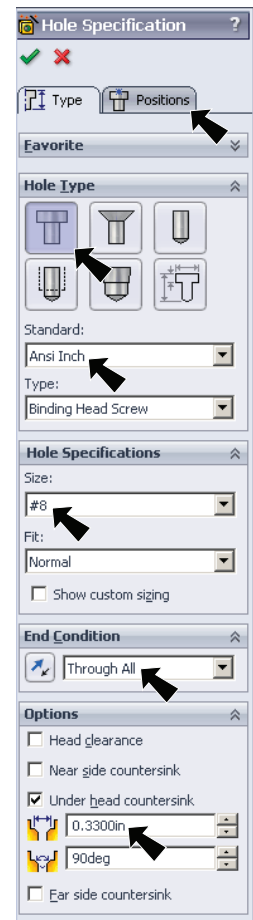



Fig. 26

Step 4. **Right click drawing and click Select** from menu to unselect Point tool.



Fig. 27

Step 5. **Ctrl click both Points** to select both. Release Ctrl key and click **Make Vertical**  on the Content menu, Fig. 28.

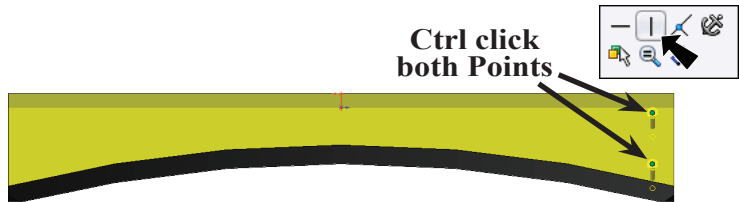


Fig. 28

Step 6. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 7. Dimension as shown in Fig. 29.

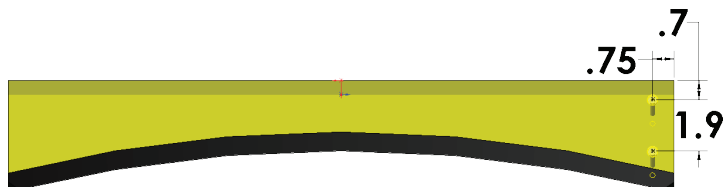



Fig. 29

Step 8. Click **Centerline**  (S) on the Sketch toolbar.

Step 9. Draw a vertical centerline down from Origin , Fig. 30.

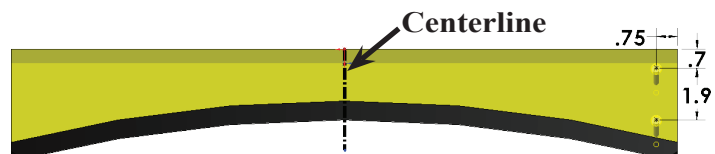
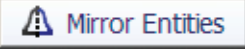


Fig. 30

Step 10. **Right click drawing and click Select** from menu to unselect Centerline tool.

Step 11. Drag a selection around all geometry as shown in **Fig. 31**.

Step 12. Click **Mirror Entities**  on the Sketch toolbar, **Fig. 32**.

Step 13. Click OK  in the Hole Wizard Property Manager.

Step 14. Save. Use **Ctrl-S**.

Drag a selection around all geometry



Fig. 31

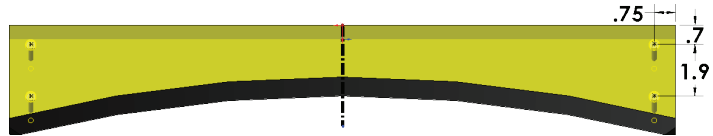



Fig. 32



Fig. 33

J. Material Cedar.

Step 1. Click **Trimetric**  on the Standard Views toolbar.

Step 2. **Right click Material**  in the Feature Manager and click **Edit Material**, **Fig. 34**.

Step 3. **Expand Woods** (click the +) in the material tree and select **Cedar**, click **Apply** and **Close**, **Fig. 35**.

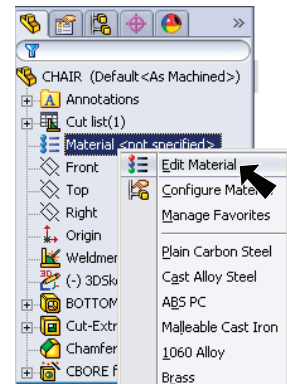


Fig. 34

Step 4. Save. Use **Ctrl-S**.

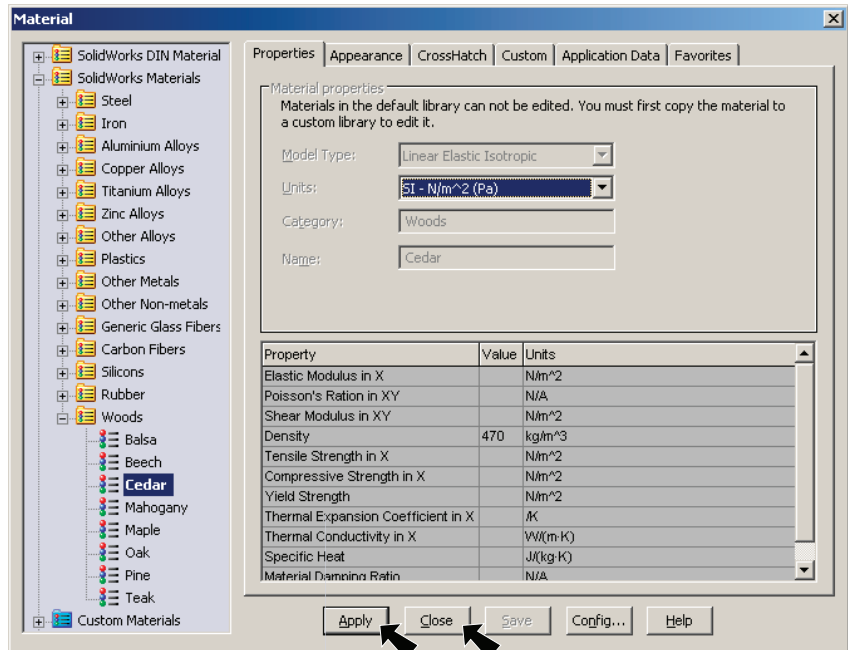


Fig. 35

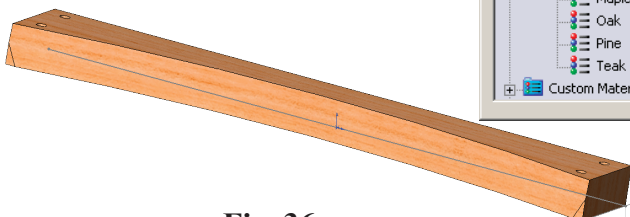


Fig. 36