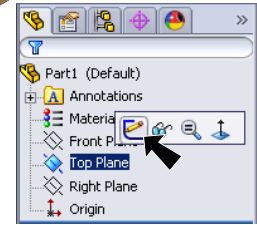
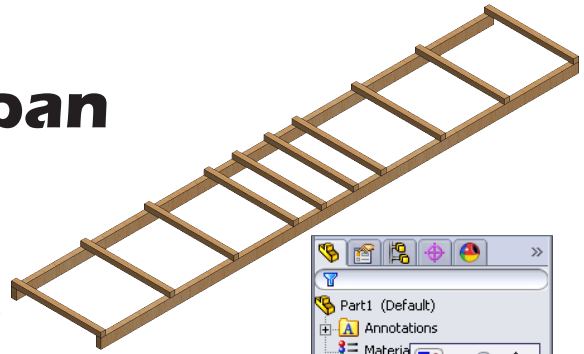






Bridge Simple Span



A. Sketch for Weldments.

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

Step 2. Click **Top Plane**  in the Feature Manager and click **Sketch**  from the Content toolbar, **Fig. 1**.

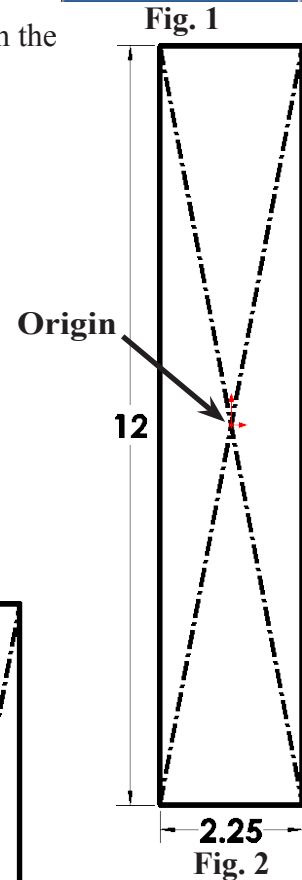
Step 3. Click **Center Rectangle**  (S) in the **Rectangle** flyout  on the Sketch toolbar.

Step 4. Draw a rectangle starting at Origin , **Fig. 2**.

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

Step 6. Add dimensions as shown in **Fig. 2**. 12 x 1.5

Step 7. Click Zoom to Fit  (F) on the View toolbar.



B. Save as "BRIDGE 1".

Step 1. Click File Menu > Save As.

Step 2. Key-in **BRIDGE1** for the filename and press ENTER.

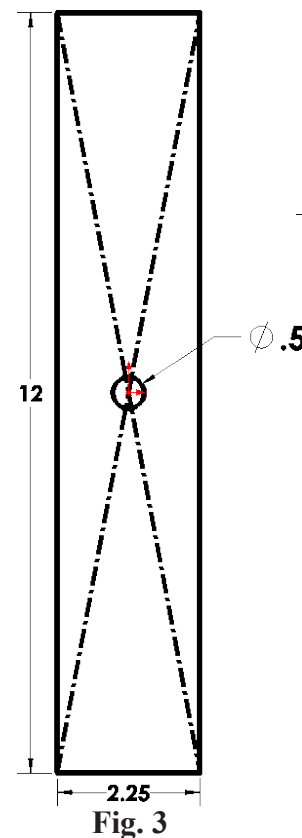
C. Circle Tester Rod.

Step 1. Click **Circle**  (S) on the Sketch toolbar.

Step 2. Draw a circle starting at the Origin , **Fig. 3**.

Step 3. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 4. Dimension circle **diameter .5**, **Fig. 3**. The circle will represent the 1/2 inch rod of bridge "tester".



D. Offset Entities.

Step 1. Click **Offset Entities**  on the Sketch toolbar.

Step 2. In the Offset Entities Property Manager set:

Distance  **.1** **Fig. 4**

click **circle**, **Fig. 5**

The yellow offset should be outside original circle, **Fig. 5**.

If it is not, check Reverse.

Click **OK** .

This offset circle is a reminder to keep cross members outside this area, otherwise the rod of the "tester" will not fit thru our bridge.

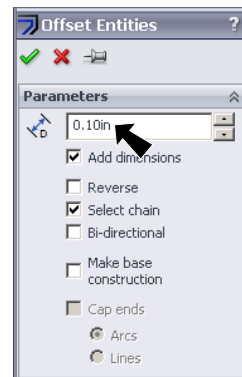


Fig. 4

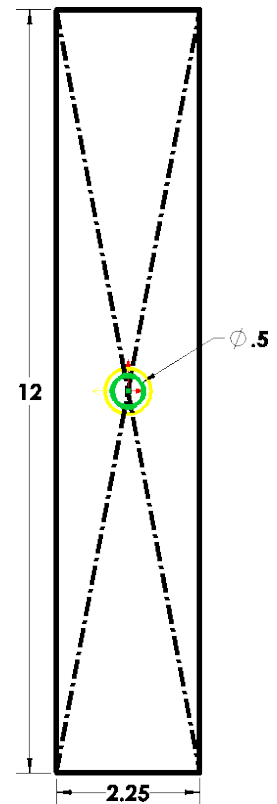




Fig. 5

E. Lines.

Step 1. Click **Line**  (L) on the Sketch toolbar.

Step 2. Draw **5 horizontal lines** across sketch, **Fig. 6**. Start with line at Midpoint  of right vertical line. To terminate chain, double click back on the horizontal line you have just drawn. Start all lines on right vertical line and draw lines to left side. Later, we will convert the line thru Origin to construction line.

Step 3. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 4. Add the dimensions, **Fig. 7**.

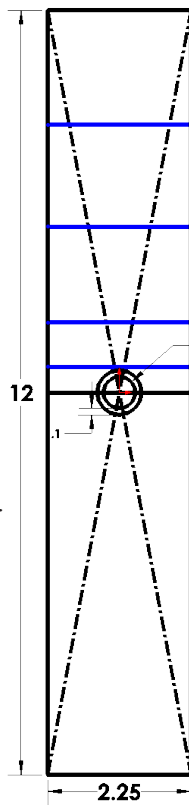


Fig. 6

Draw line from Midpoint 

Draw lines from right to left

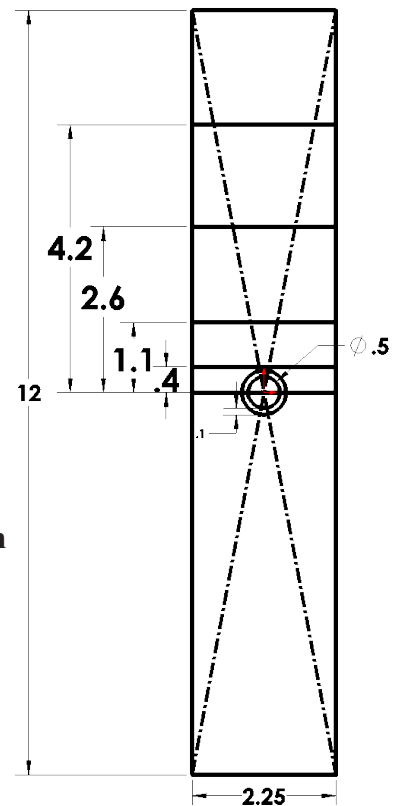

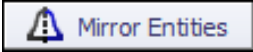



Fig. 7

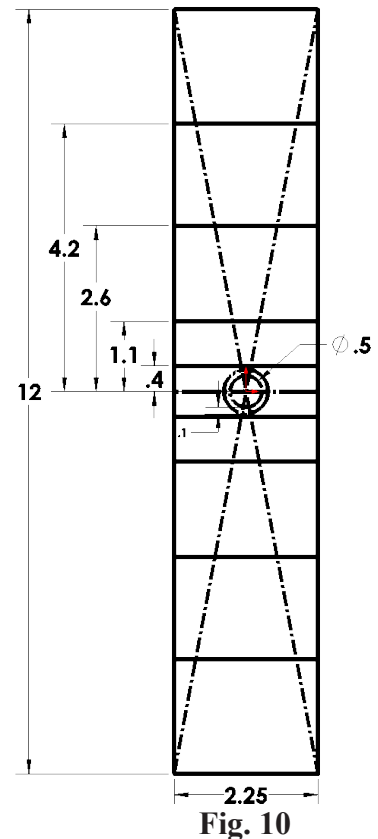
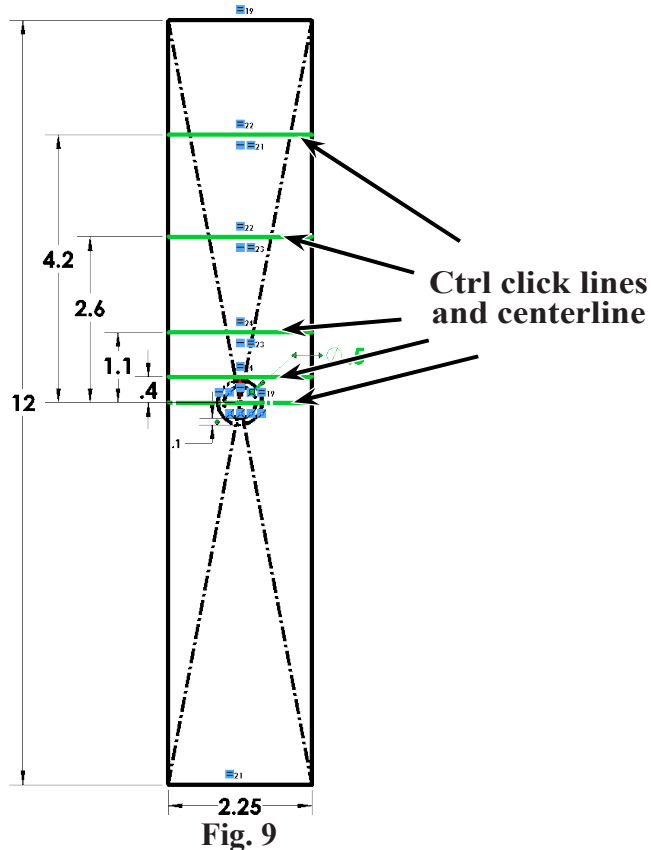
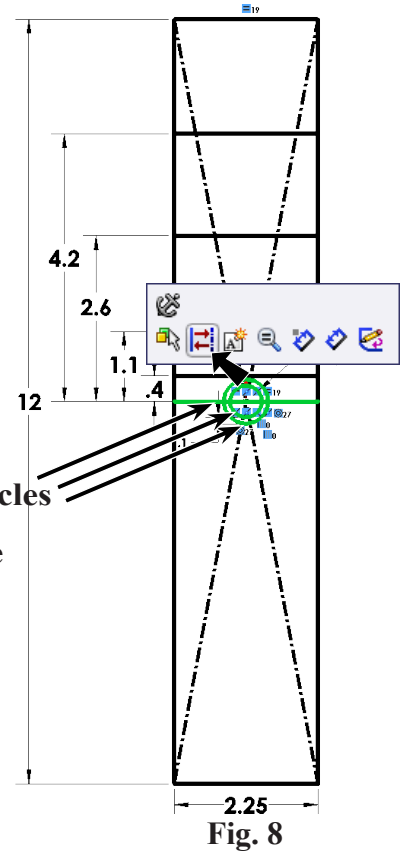
F. Construction Entities.

- Step 1. **Right click graphics area and click Select** from menu to unselect Smart Dimension.
- Step 2. **Ctrl click both circles and line thru Origin (centerline)** to select all three and click **Construction Geometry**  on the Content toolbar, **Fig. 8**.


G. Mirror Entities.


- Step 1. **Ctrl click the 5 horizontal lines** which will include the construction line, **Fig. 9**.
- Step 2. Click **Mirror Entities**  on the Sketch toolbar, **Fig. 10**.
- Step 3. Click **Exit Sketch**  on the Sketch toolbar.
- Step 4. Save. Use **Ctrl-S**.

Ctrl click circles and centerline



H. Structural Member 1.

Step 1. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 2. **Right click Sketch**  on the Command Manager toolbar and select **Weldments**, **Fig. 11**.

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

Step 4. Click **Structural Member**  on the Weldments toolbar.

Step 5. In the Structural Member Property Manager set:
under Standard:
My Profiles, **Fig. 12**
under Type:
Bridge Balsa
under Size:
.125 x .25

click front line of rectangle, **Fig. 13**

Step 6. Click **Locate Profile** button, **Fig. 12**.

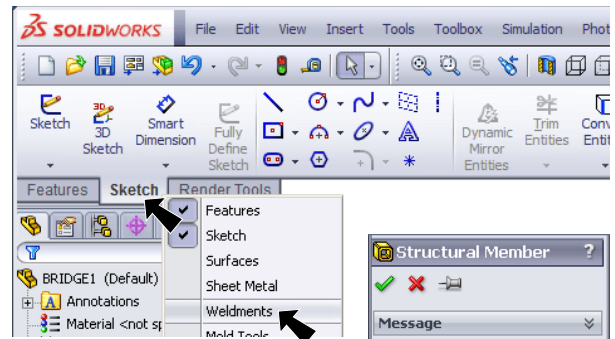


Fig. 11

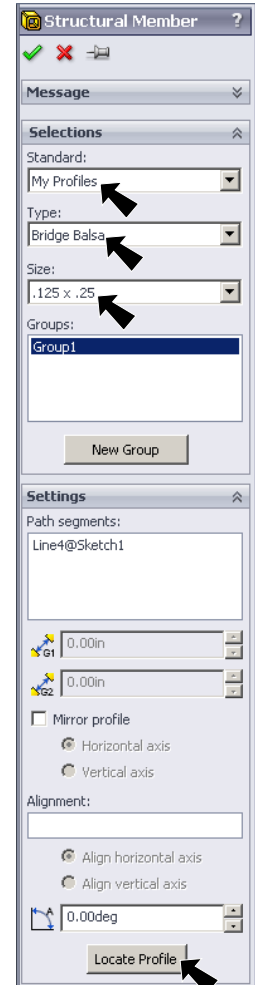


Fig. 12

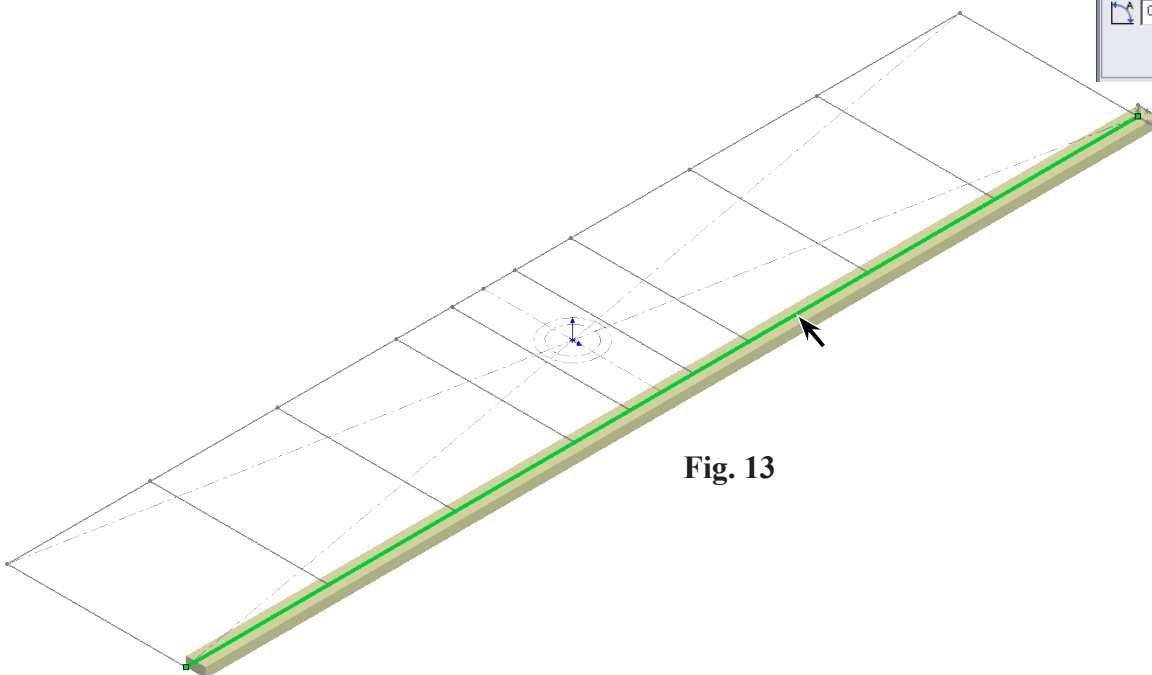
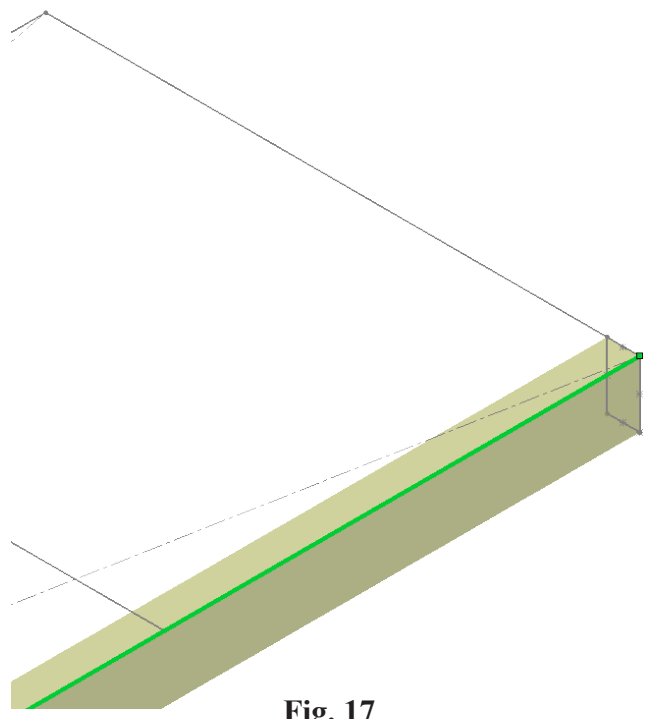
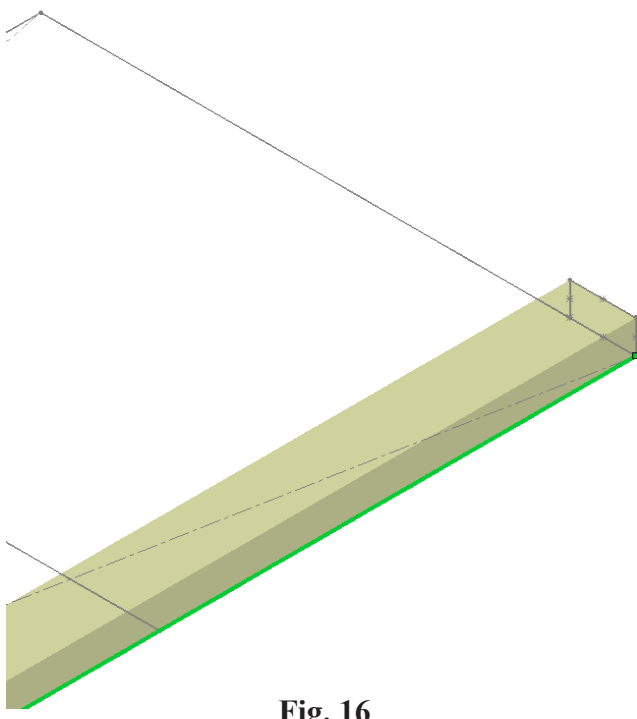
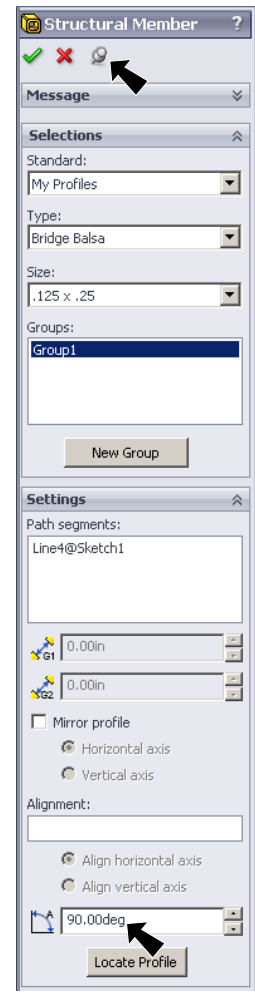
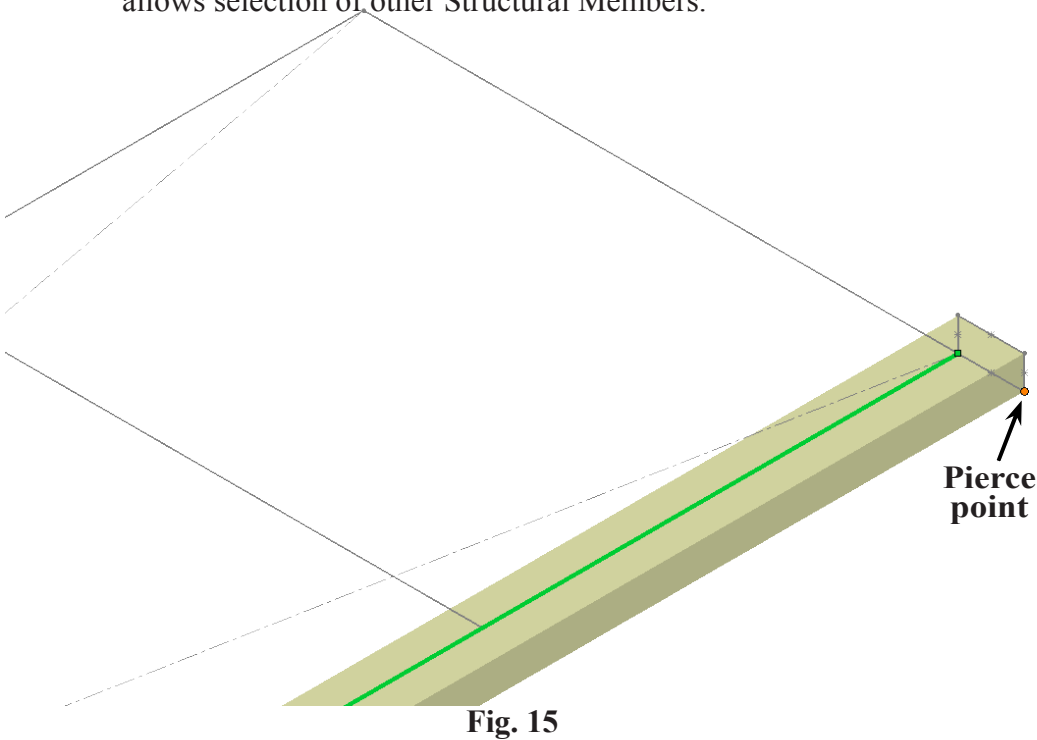


Fig. 13

Step 7. Click **BOTTOM RIGHT POINT** of profile sketch, Fig. 15 and Fig. 16.

Step 8. Rotation angle  90°, Fig. 14
press Tab key, Fig. 17.

Step 9. Click **Keep Visible**  and OK , Fig. 14. The Push Pin  on allows selection of other Structural Members.



I. Structural Member 2.

Step 1. In the Structural Member Property Manager:
click rear line of rectangle, Fig. 19.

Step 2. Rotation angle  270°, Fig. 18
press Tab key, Fig. 20

Step 3. Confirm member is inside sketch, Fig. 20 and click OK .

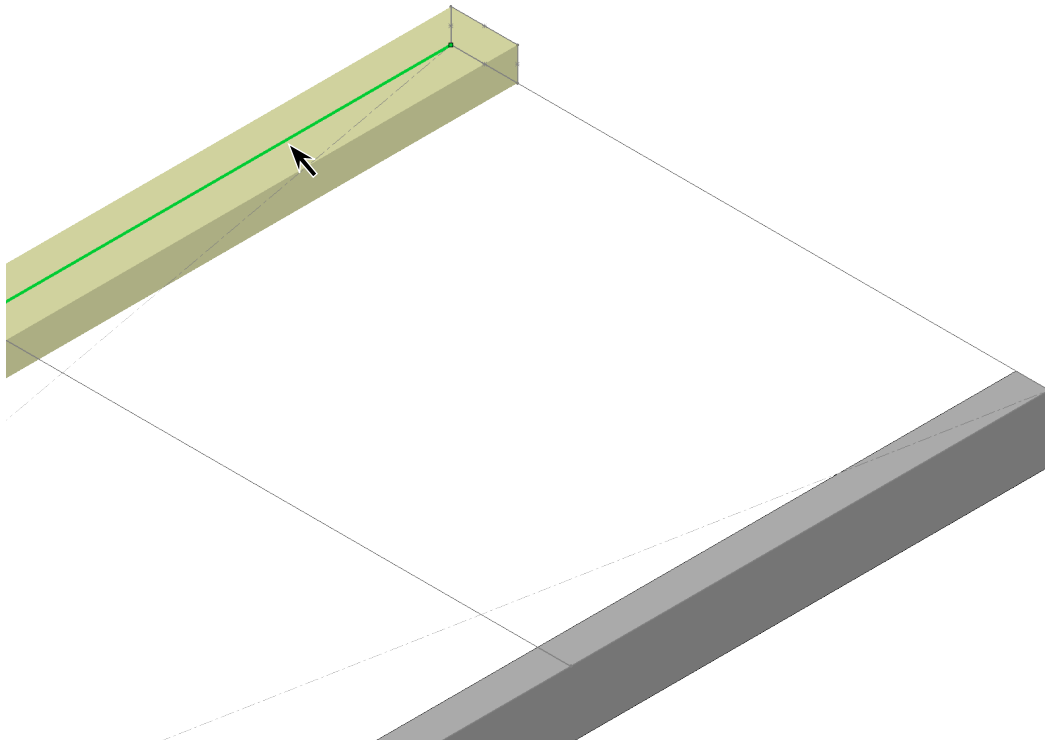


Fig. 19

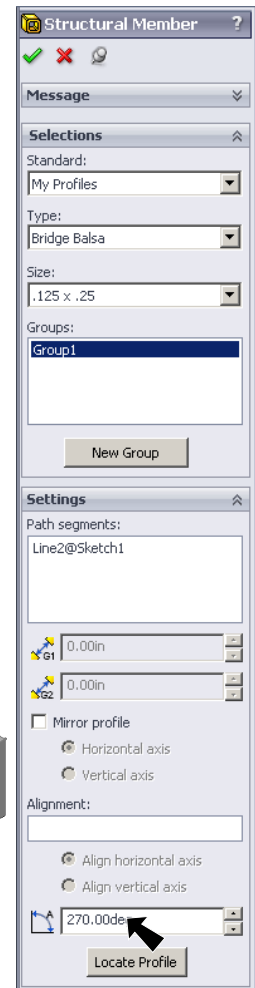


Fig. 18

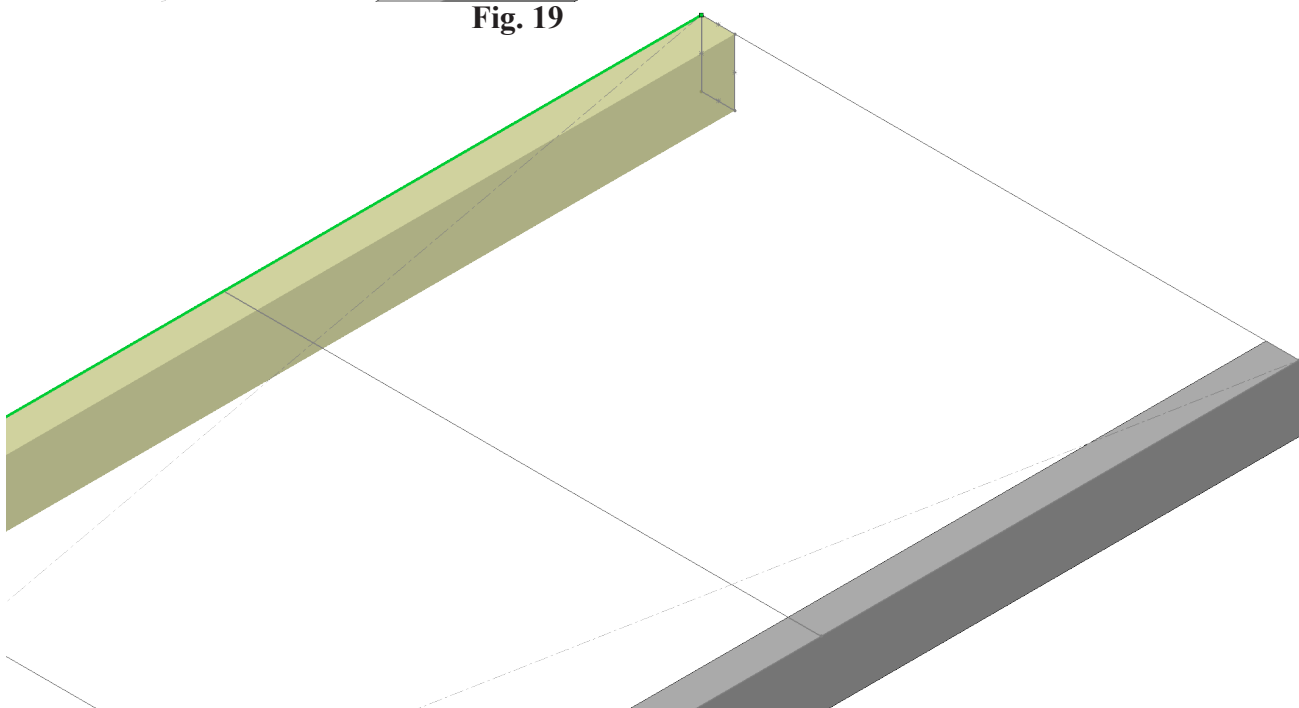


Fig. 20

J. Structural Member 3.

Step 1. Click **Zoom to Fit**  (F) on the View toolbar.

Step 2. In the Structural Member Property Manager set:
under Size:, **Fig. 21**
.125 x .125

click left edge line of rectangle, **Fig. 22**

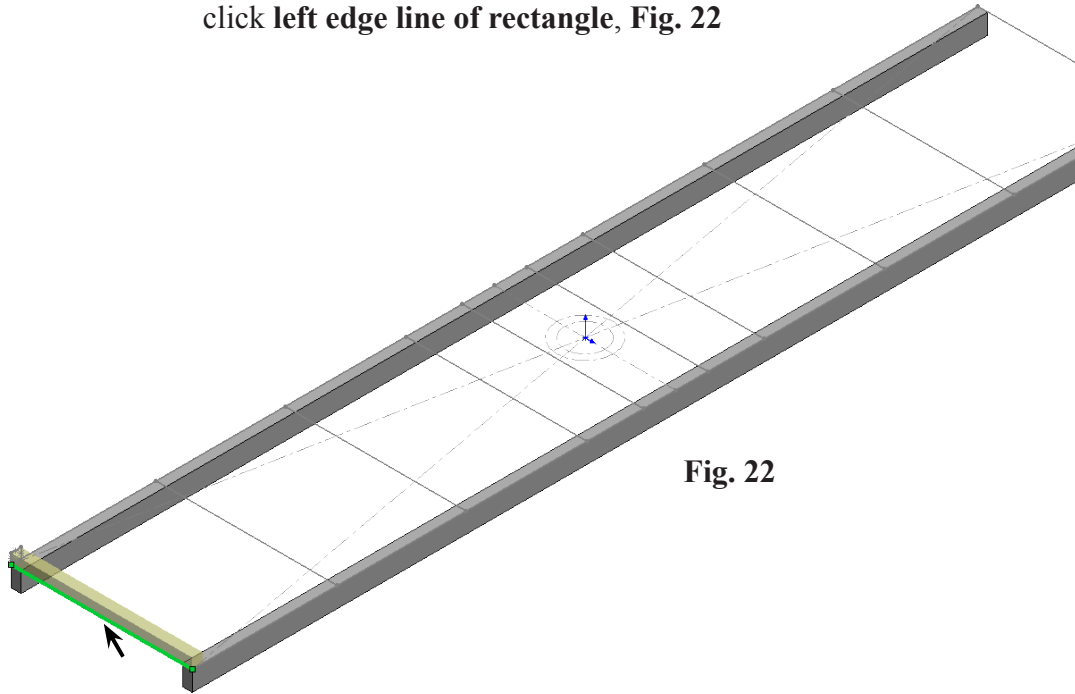


Fig. 22

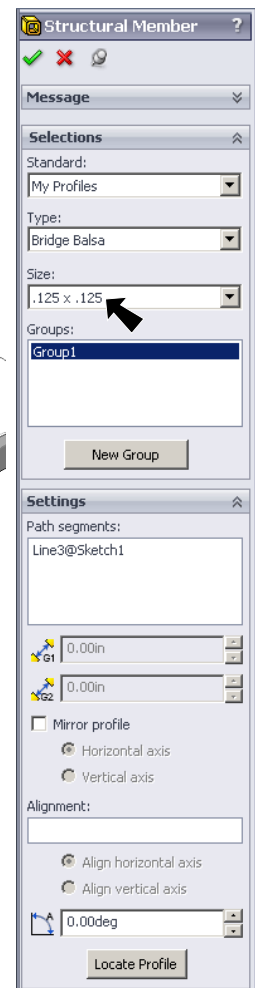


Fig. 21

Step 3. Click **New Group (2)** button, **Fig. 23**
click **right edge line of rectangle**, **Fig. 24**

Step 4. Check **Mirror profile** and select **Vertical axis**, **Fig. 23** and **Fig. 25**.

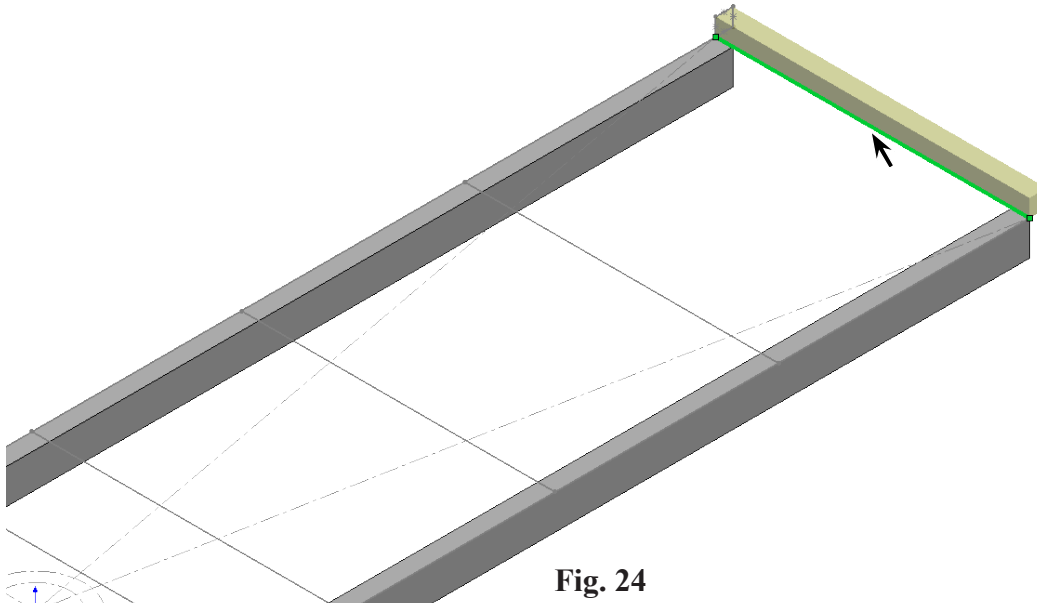


Fig. 24

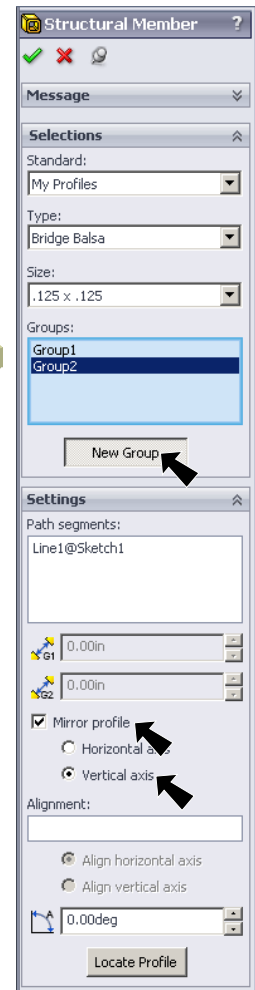


Fig. 23

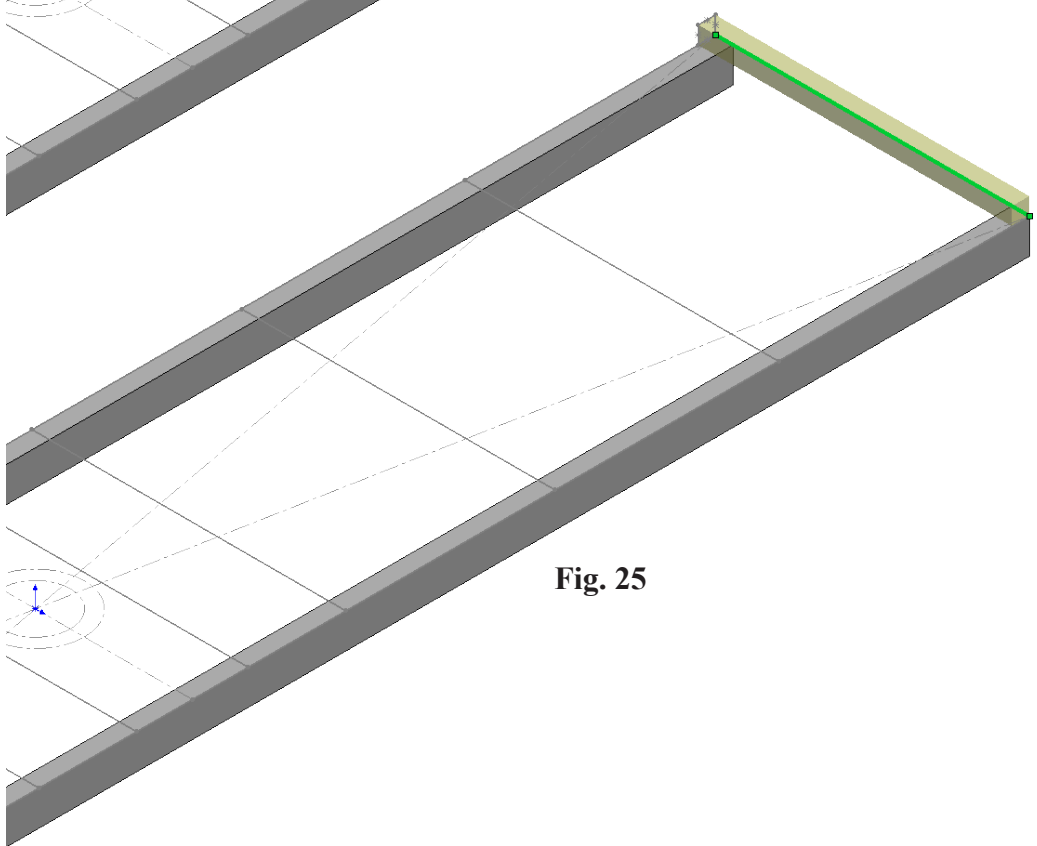


Fig. 25

Step 5. Click **New Group (3)** button, **Fig. 26**
click **all remaining floor beam lines**, do not select the centerline,
Fig. 27.

Step 6. Click **Locate Profile** button, **Fig. 26**.

Step 7. Click **BOTTOM CENTER POINT** of profile sketch, **Fig. 28** and
Fig. 29.

Step 8. Confirm interior members are centered on lines in sketch, **Fig. 29**

Step 9. Click OK  and click Cancel .

Step 10. Save. Use **Ctrl-S**.

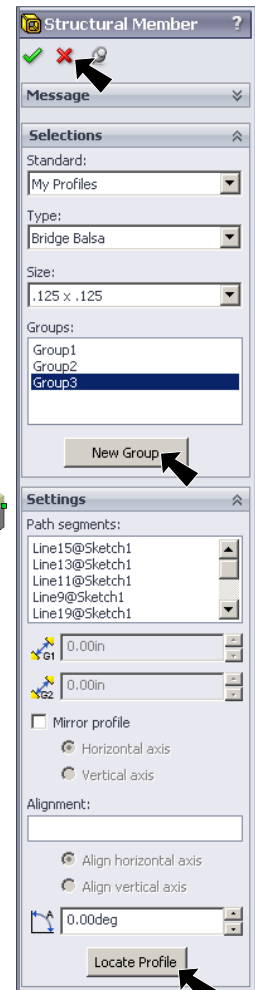


Fig. 26

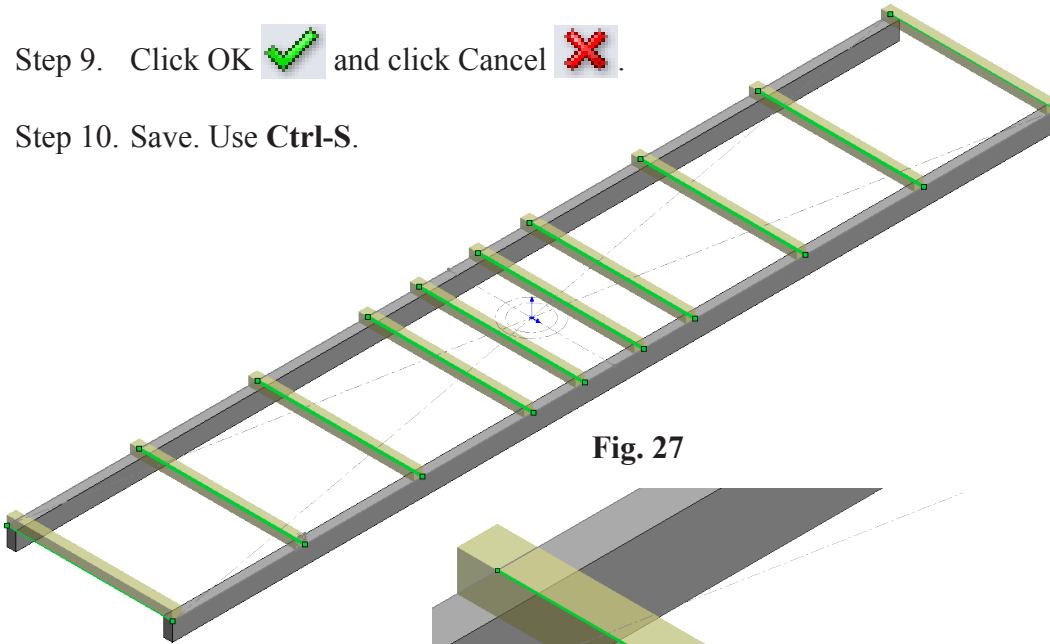


Fig. 27

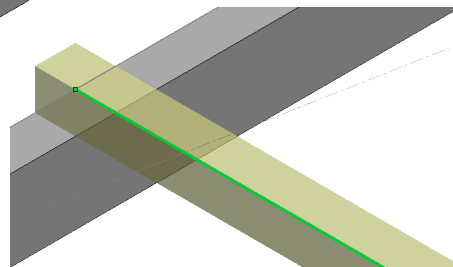


Fig. 28

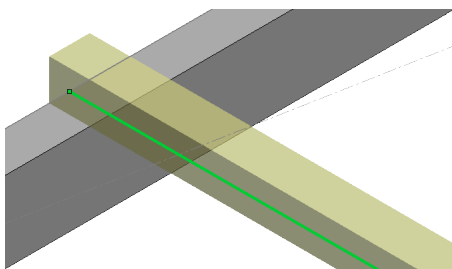
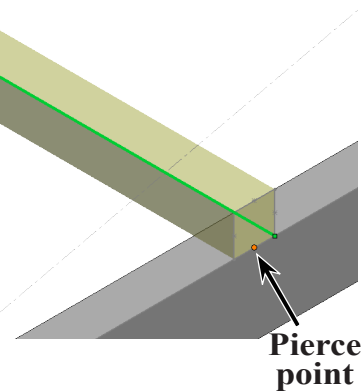



Fig. 29



Pierce point

K. Hide Sketch.

Step 1. Click **Zoom to Fit**  (F) on the View toolbar.

Step 2. Click **Sketch1** in the Feature Manager and click **Hide**  on the Content menu, **Fig. 30**.

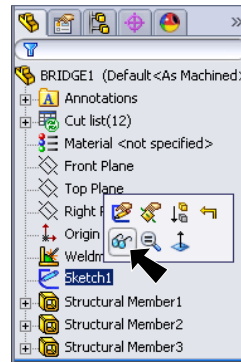


Fig. 30

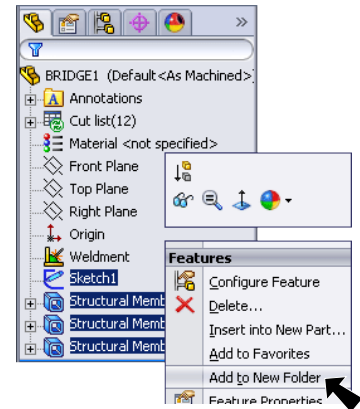


Fig. 31

L. Add to New Folder.

Step 1. **Ctrl click Sketch1 and all 3 Structural Members** features in the Feature Manager to select. Release Ctrl key, **right click** and select **Add to New Folder** on the Content menu, **Fig. 31**.

Step 2. Key-in **SINGLE SPAN** for folder name, **Fig. 32**.

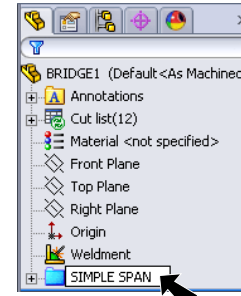


Fig. 32

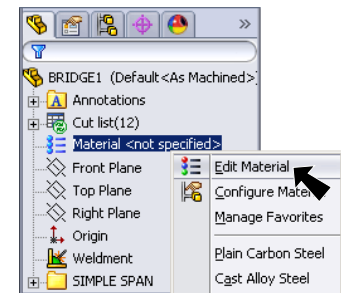


Fig. 33

M. Material Balsa.

Step 1. **Right click Material**  in the Feature Manager and click **Edit Material**, **Fig. 33**.



Fig. 35

Step 2. **Expand Woods** (click the +) in the material tree and select **Balsa**, **Fig. 34**. Click **Apply** and **Close**, **Fig. 35**.

Step 3. Save. Use **Ctrl-S**.

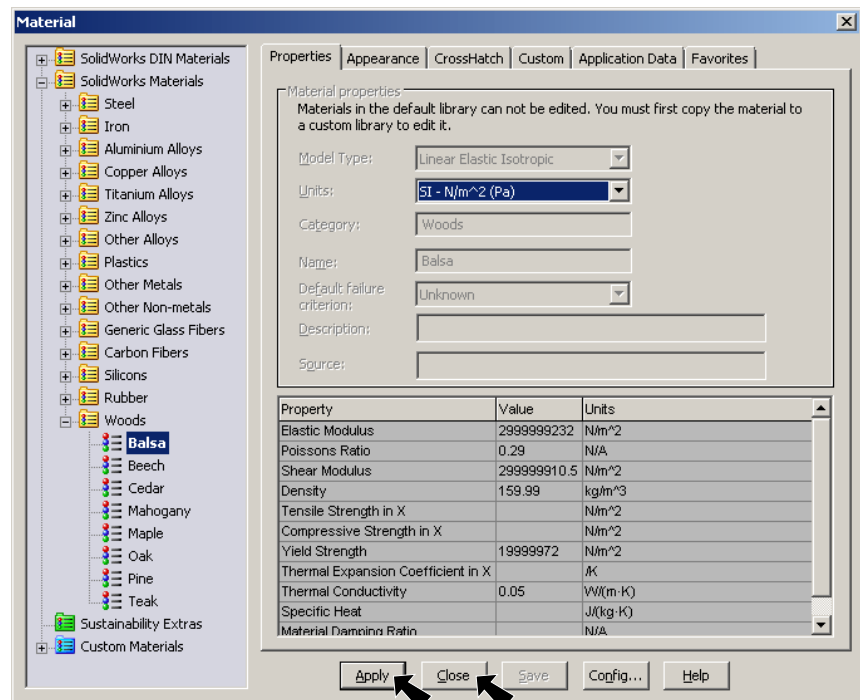


Fig. 34