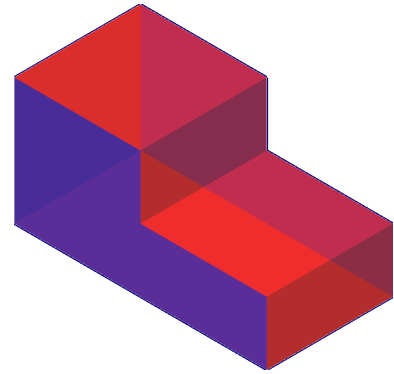

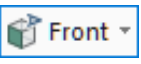


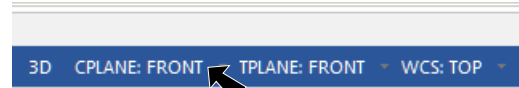
# Step Block



## A. Create Rectangle.

Step 1. If necessary start a new Mastercam file, click **New**  on the Quick Access Toolbar QAT (**Ctrl-N**). Units **inches**.

Step 2. Change to the **Front View**. **Right click** in the graphics window and click  **Front** (Alt-2).



**Fig. 1**

Step 3. Confirm **CPLANE: FRONT** in Status bar at bottom of the graphics window, **Fig 1**.

Step 4. On the Wireframe tab  click **Rectangle** .

Step 5. In the Rectangle function panel:

**Width 4**

**Height 2**

and press **ENTER**

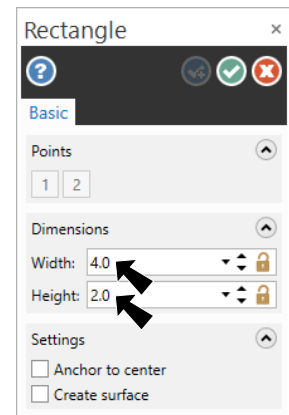
Press **O** key on keyboard to select **AutoCursor Origin**

override and press **ENTER**, **Fig 3**.




**Fig. 3**

Click **OK** .



**Fig. 2**

Step 6. **Right click** the graphics window and click **Fit**  (**Alt-F1**).

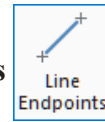
## B. Save As "STEP BLOCK"

Step 1. Click **Save As**  (**Ctrl-Shift-S**) on the Quick Access Toolbar QAT.

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

## C. Sketch Lines.

Step 1. On the Wireframe tab  click **Line Endpoints**



Step 2. In the Line Endpoints function panel:

under Type, **Fig. 4**


select **Freeform**

under Method

select **Two endpoints**

Sketch line from **Midpoint of top horizontal down 1**, **Fig 5.**

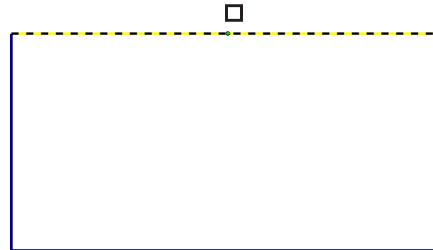
To sketch line, hover cursor over midpoint of line and when click cursor changes to

**Midpoint** , click line. Bring line directly down and click, **Fig 5.**

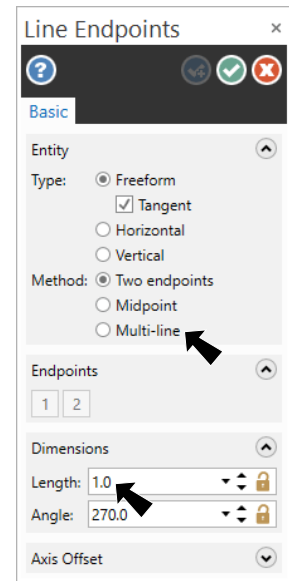
under Dimensions, **Fig. 4**

set **Length 1** and press **ENTER** two times

or click **OK** and **Create New Operation** .



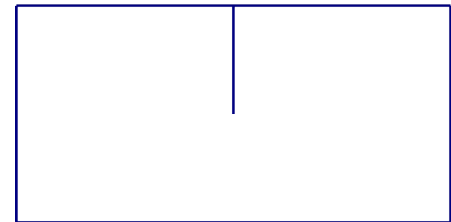
**Fig. 5**



**Fig. 4**

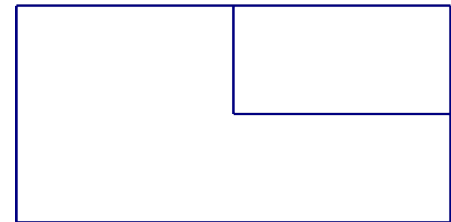
Step 3. Sketch line from **endpoint of line across to midpoint of vertical line**, **Fig 7.**

Click **OK** .



**Fig. 6**

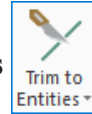
Step 4. Save  (**Ctrl-S**).



**Fig. 7**

## D. Trim Lines.

Step 1. On the Wireframe tab **Wireframe** click **Trim to Entities**



Step 2. In the Trim to Entities function panel:

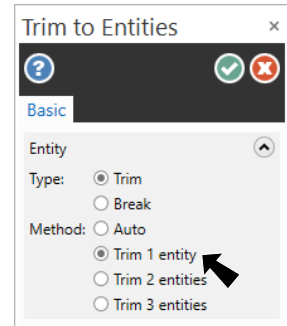
under Type, **Fig. 8**

select **Trim 1 entity**

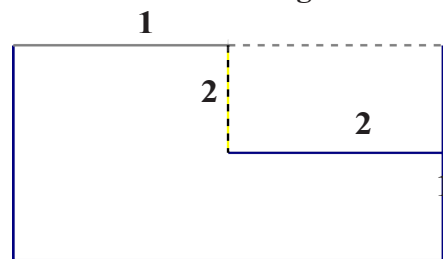
Trim lines to shape of step. To trim part of a line, **click line to trim, Position 1, Fig. 9. Then, click line to trim to, Position 2**

Repeat at other line, **Fig. 10.** Click the part of line you are keeping, Position 1, then trim to Position 2

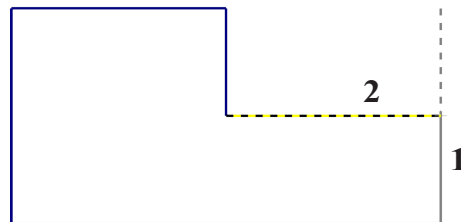
Click OK  when done.



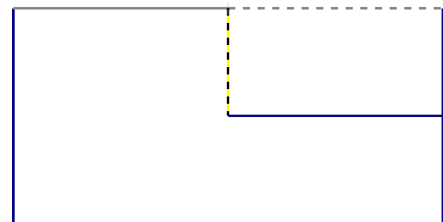
**Fig. 8**



**Fig. 9**



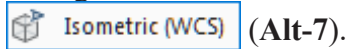
**Fig. 10**



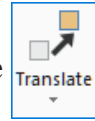
**Fig. 11**

## E. Transform 3rd Dimension.

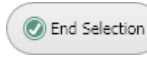
Step 1. Change to the Isometric View. **Right click** in the graphics window and click



Step 2. On the Transform tab **Transform** click **Translate**



Step 3. Use **Ctrl-A** to select all and click **End Selection**



Step 4. In the Translate function panel set:  
under Method, **Fig. 12**  
select **Join**  
under Delta

**X 0**

**Y 2**

**Z 0** and press **ENTER** key.

Click OK .

Step 5. **Right click** the graphics window  
and click **Clear Colors**



Step 6. **Fit**

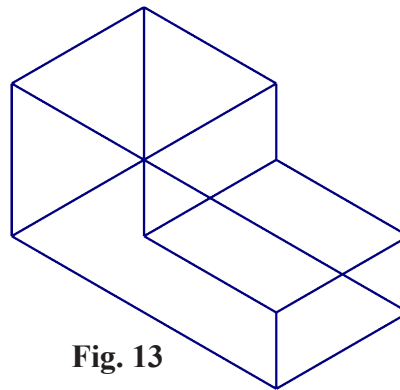


(Alt-F1).

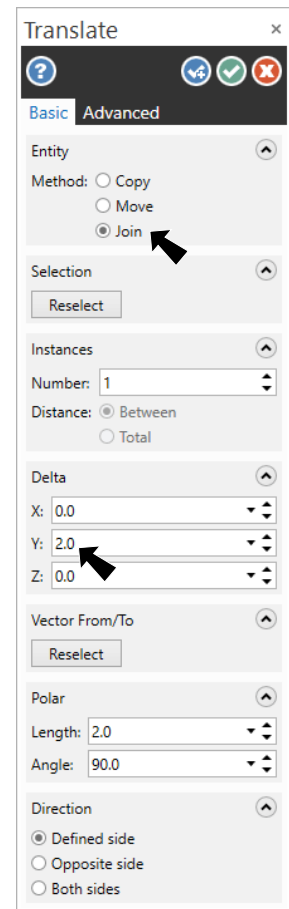
Step 7. Save



(Ctrl-S).




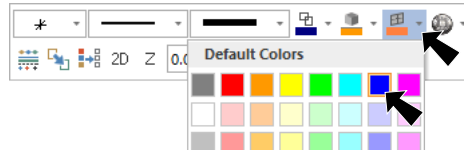
**Fig. 13**



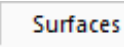
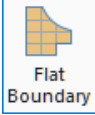
**Fig. 12**


## F. Create Flat Boundary Surfaces.

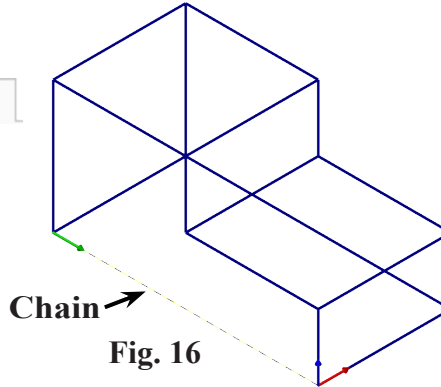
Step 1. Create the next surfaces **blue**. **Right click** in the graphics window and on the Mini Toolbar click **Surface Color**  drop down arrow, then click **blue**, **Fig. 14**.



**Fig. 14**

Step 2. On the Surfaces tab  click **Flat Boundary** .

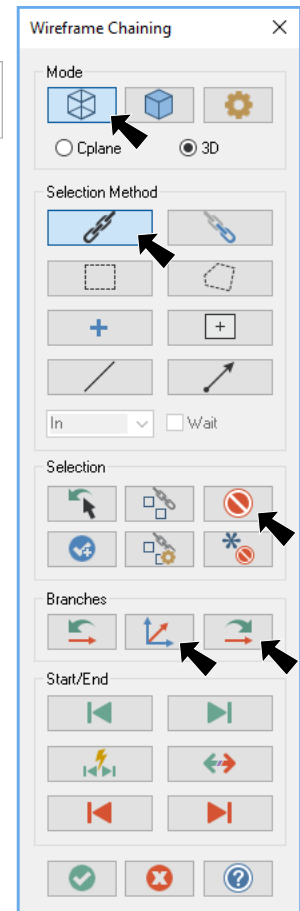
Step 3. Click the **Chain**  (C) in the Chaining dialog box, **Fig. 15**.







**Fig. 16**

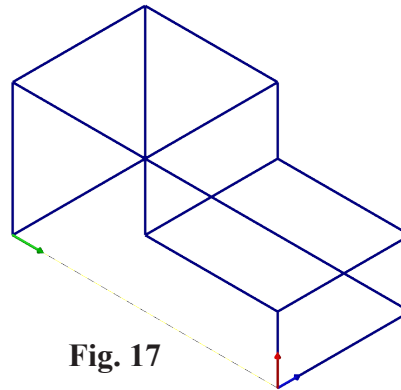
Step 4. Click the **left end of the bottom horizontal line to start the chain**, **Fig. 16**.

Step 5. Walk Chain around the front lines of block in direction of Chain arrows. Two methods can be used::

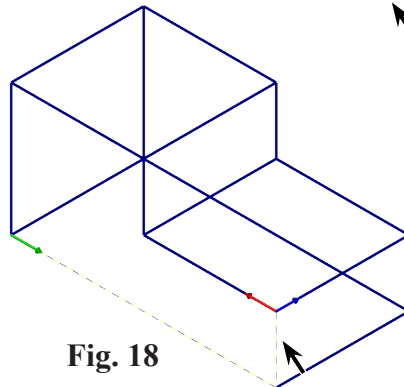


**Fig. 15**

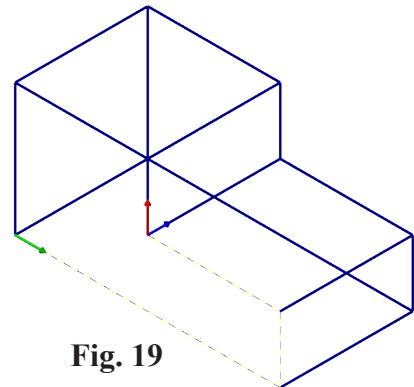
1) At the branch point, **Fig. 17**, click **Adjust**  to direct chain (**red axis**) to head up vertical line, **Fig. 15** and **Fig. 18** and click **Next** . Continue and **Adjust**  to direct chain (**red axis**) click **Next**  to walk chain around front lines.




**Fig. 17**




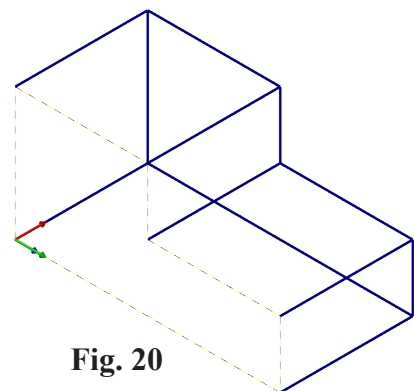
**Fig. 18**




**Fig. 19**

2) Or click the next line to redirect the chain, **Fig. 20**. If you select the wrong entity, click **Unselect** .

Step 6. Click the OK  in the Chaining dialog box when chain is complete.



**Fig. 20**

Step 7. In Flat Boundary Surface function panel click **OK and Create New Operation** , Fig. 21.

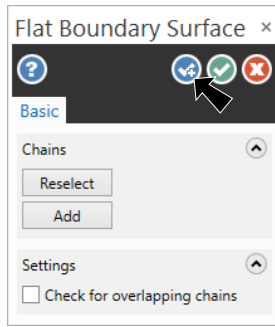


Fig. 21

Step 8. Change **CPlane to Front**. Click **CPLANE** in Status bar at bottom of the graphics window and click **Front** from the menu, Fig. 23.

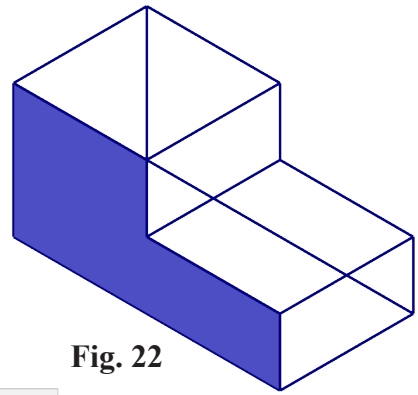


Fig. 22

Step 9. Select **Cplane** in the Chaining dialog box, Fig. 24.

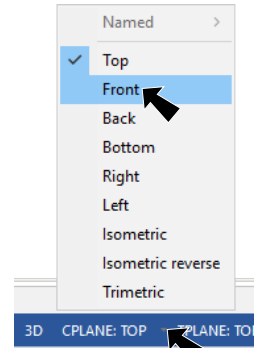



Fig. 23

Step 10. Chain a **rear line** of the block, Fig. 25.

Step 11. Click OK  in the Chain dialog box.

Step 12. In Flat Boundary Surface function panel click **OK and Create New Operation** , Fig. 21.

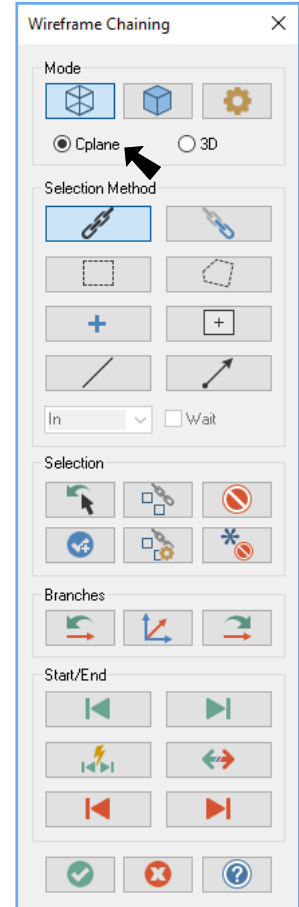


Fig. 24

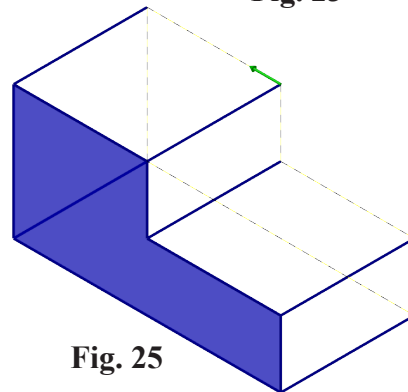


Fig. 25

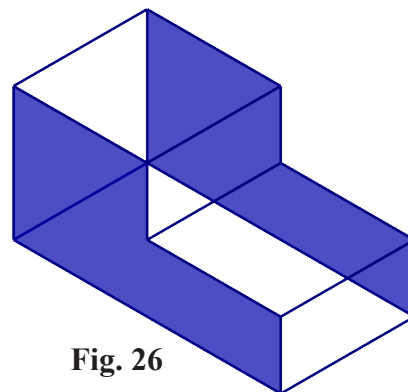

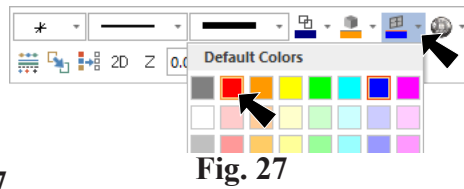
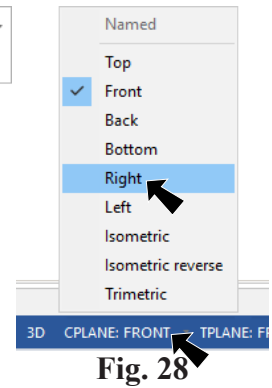


Fig. 26

Step 13. Create the next surfaces **red**.  
**Right click** in the graphics window and on the Mini Toolbar click **Surface Color**  drop down arrow, then click **red**, Fig. 27.

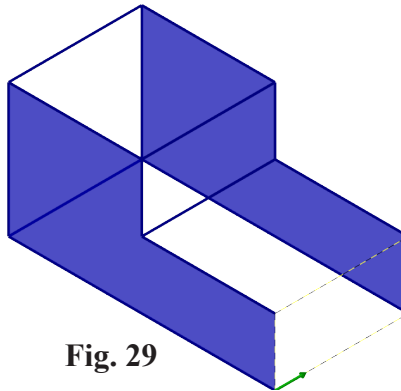



Step 14. Change **CPlane to Right**. Click **CPLANE** in Status bar at bottom of the graphics window and click **Right** from the menu, Fig. 28.

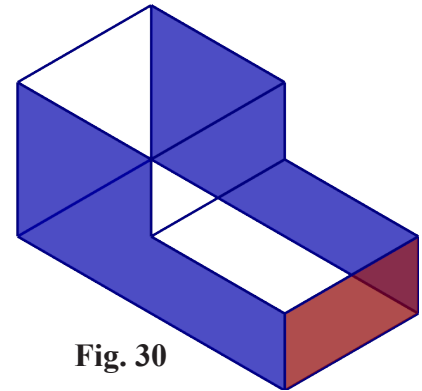


Step 15. Select **Cplane** in the Chaining dialog box.

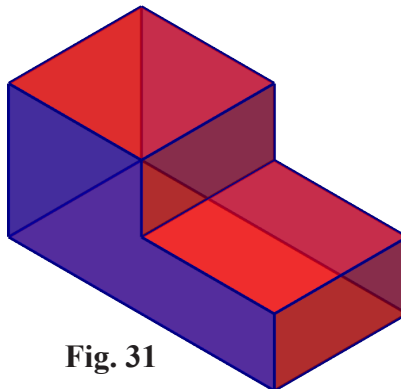
Step 16. Chain **right side** of the block, Fig. 29.




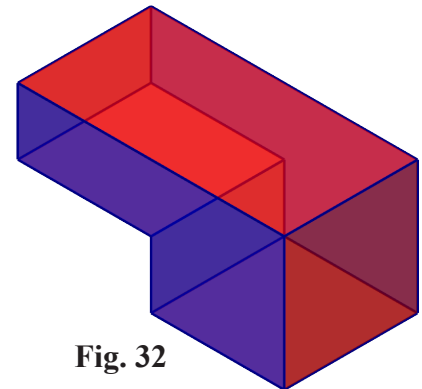
Step 17. In Flat Boundary Surface function panel click **OK** and **Create New Operation** , Fig. 30.



Step 18. Continue and add surfaces to all sides. Be sure to change CPlane when necessary. Rotate view and add surface to bottom.



Step 19. In Flat Boundary Surface function panel click **OK**  when done.



Step 20. Save  (Ctrl-S).

## G. Add Layer.

Step 1. Display Level Manager (**Alt-Z**).

Step 2. In the Levels Manager:

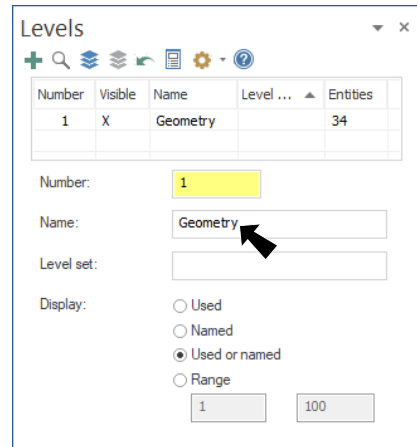
Key-in **Geometry** in the **Name** field, **Fig. 33**.

Key-in **2** in the **Number** field, **Fig. 34**.

Key-in **Solid** in the **Name** field.

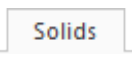
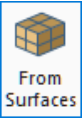
Confirm Solid lever is active .


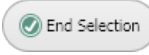
Step 3. Save  (**Ctrl-S**).

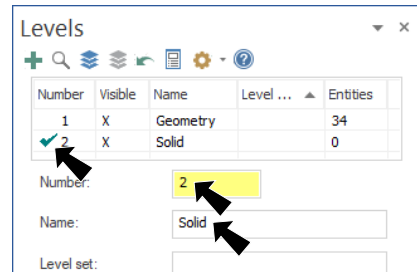


**Fig. 33**

## H. Solid from Surfaces.

Step 1. On the Solids tab  click **From Surface** .

Step 2. Click **Select all surface entities**  the left half of Quick Mask button on the right edge of graphics window and click **End Selection**  (**ENTER**), **Fig. 35**.



**Fig. 34**

Step 3. In the From Surfaces function panel set:

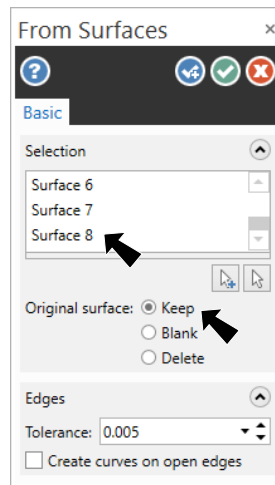
under Selection, **Fig. 36**

confirm **8 surfaces**

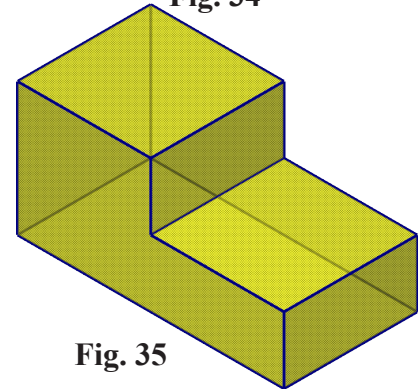
under Original surface

select **Keep**

Click OK .



**Fig. 36**



**Fig. 35**

Step 4. In the Levels Manager (**Alt-Z**)

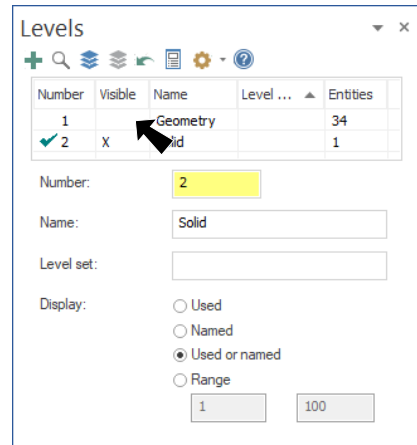
**Hide Geometry level.**

To hide, click to remove X in

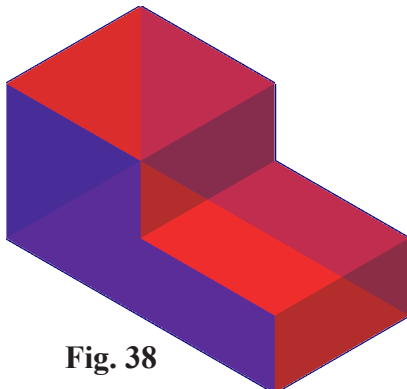
Visible column of **Geometry**

level, **Fig. 37**.

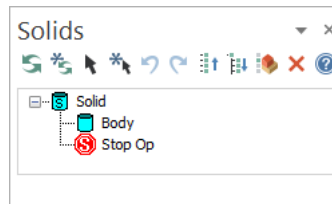
Step 5. Display Solid Manager (**Alt-I**) to confirm solid.



**Fig. 37**



**Fig. 38**



**Fig. 39**