

Modeling the Ross Brother's Hardware

Step 02

Modeling - The Hardware Store

We'll begin by Stick Build Modeling just the store without the front façade, i.e. X = 39 (40).

Set Dimension

- **Open Blender** and in the **Properties Editor** (on the right) **LMB** click on the **Scene Icon** (the one with the three objects) and **select Imperial** as the unit of measurement.
- Also **place a check** in the **Separate Units Checkbox**. This will allow us to use both feet and inches.
- **Select (RMB) the Default Cube** and **delete** it (**X-KEY > Delete**).
- With the cursor still at the origin, **LMB** on the **Add Menu**, **select Mesh** and **select Plane**.

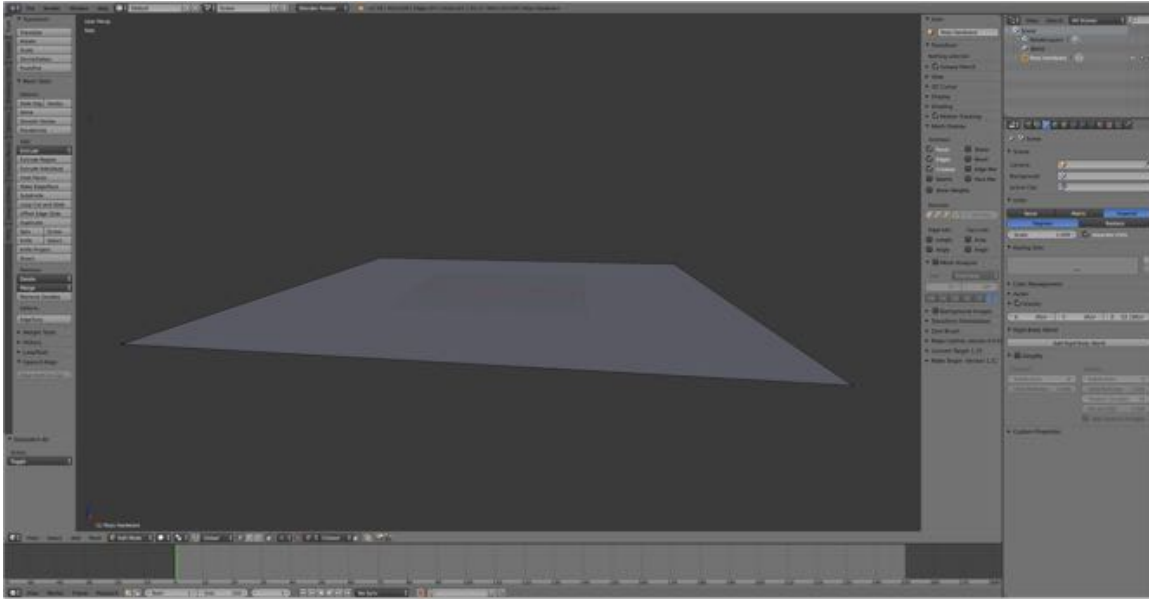
Note: We are starting with a Plane as in Blender it is customary to start modeling from a pre-formed Primitive.

- In the **3D Editor**, **open the Properties Panel (N-KEY)** and the **Transformation Pane (LMB click on the triangle to the left of the name)**.
- Under **Dimensions** enter **X = 39 feet (Length)** and **Y = 42 feet (width)**.
- **Press CTRL + A-KEY** to **open the Apply Menu** and **select Rotation & Scale**. (Notice that in the Properties Panel's Transformation Pane the Rotations and Scale have been set to zero.)

Name Object

- In the **Properties Panel** under the **Item Pane** **change the name** from Plane to **"Ross Hardware"**.

Note: To clean up the scene in the Outline Editor select the camera and the lamp in turn and with the mouse cursor hovering over the 3D Editor delete them (**X-KEY > Delete**).



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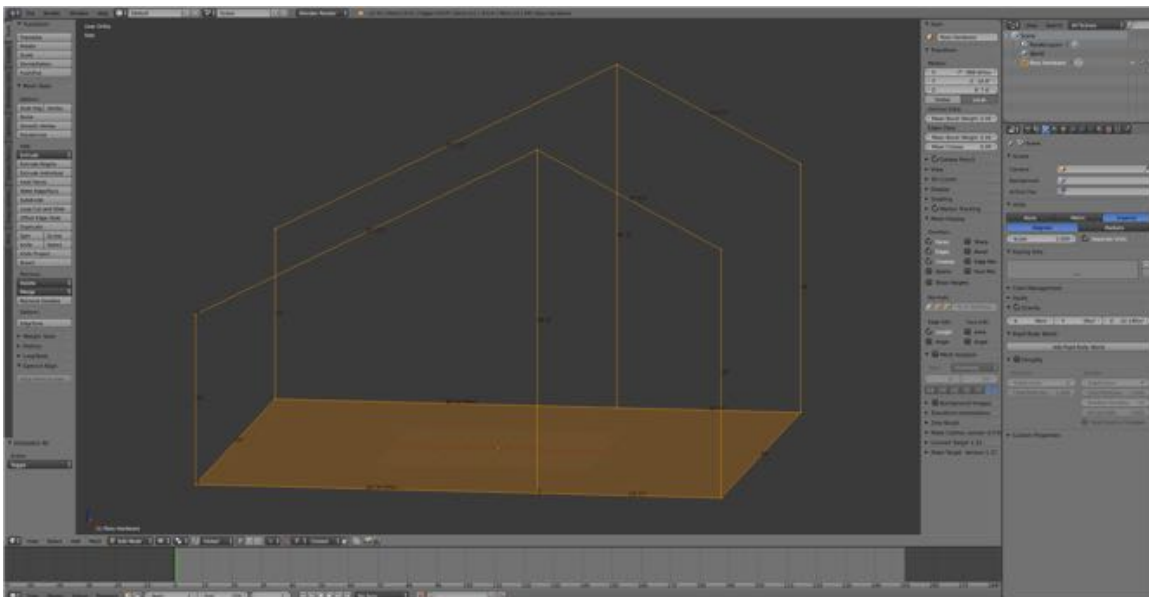
Save your work.

- Press **SHIFT + CMD + S-KEY** and name the file “**RossHardware01**” (the .blend extension will be added automatically).
- Save the file to a folder named “**Ross Hardware Blender Files**”.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu** select **Save Screenshot**. A screenshot will be saved with the same incremental number as the Blender file just saved useful for reference later.

Set Roofline

- Open the **Properties Panel (N-KEY)** and under the **Mesh Display Pane** and **Edge Info**, LMB the **Length Check Box**. (This adds dimension indicators to selected edges and faces.)
- Switch to the 3D Editor’s **Edit Mode (TAB-KEY)** and **Vertex Selection Mode (CTRL + TAB-KEY > Vertex)**.
- Select (RMB) the **front right corner vertex** of the plane.
- Extrude up on the **Z-axis 19 feet (E-KEY > Y-KEY > enter 19 > ENTER)**.
(Note: Six inches are added to the corner dimensions to accommodate the roof overhang.)
- Select (RMB) the **back right corner vertex** of the plane.
- Extrude up on the **Z-axis 19 feet (E-KEY > Y-KEY > enter 19 > ENTER)**.
- Select (RMB) the **front left corner vertex** of the plane.
- Extrude up on the **Z-axis 11 feet 6 inches (E-KEY > Y-KEY > enter 13 > ENTER)**.
- Select (RMB) the **back left corner vertex** of the plane.

- **Extrude up** on the **Z-axis 11 feet 6 inches (E-KEY > Y-KEY > enter 13 > ENTER).**
- **Switch to Edge Selection Mode, select (RMB) the front edge of the plane and subdivide (Tool Shelf > Tool Tab > Add Pane > Subdivide).**
- **Switch to Vertex Selection Mode, select the new vertex and extrude up on the Z-axis 26 feet 3 inches (E-KEY > Y-KEY > enter 26.25 > ENTER).**
- **Switch to Edge Selection Mode, select (RMB) the back edge of the plane and subdivide (Tool Shelf > Tool Tab > Add Pane > Subdivide).**
- **Switch to Vertex Selection Mode, select the new vertex and extrude up on the Z-axis 26 feet 3 inches (E-KEY > Y-KEY > enter 26.25 > ENTER).**
- **Select the top vertices (RMB > SHIFT + RMB) of the extruded edges and connect (F-KEY) to form the roof lines.**



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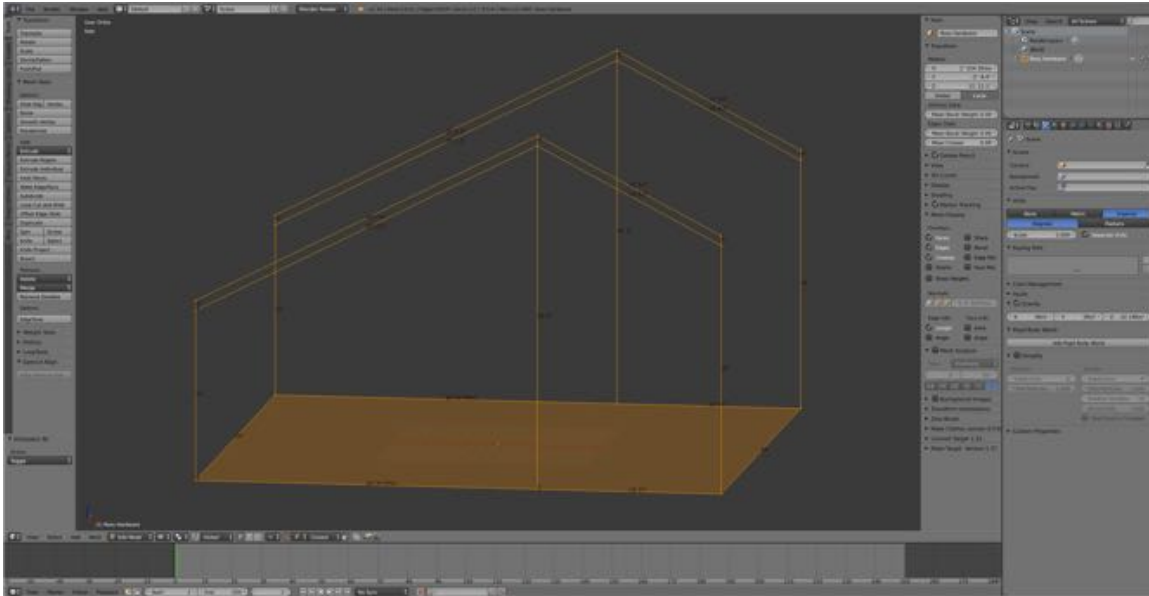
Save your work.

- **Press SHIFT + CMD + S-KEY and NUMPAD-PLUS-KEY to incrementally increase your file name “RossHardware02.blend”.**
- **Save the file to a folder named “Ross Hardware Blender Files”.**
- **Right after you have saved your Blender file, under the Information Editor’s Window Menu select Save Screenshot.**

Add Roof

- **Select (RMB) and extrude the vertices at the top of the vertical edges 9 inches (E-KEY > Z-KEY > enter 0.75 > ENTER).**
- **Select the new vertices (RMB > SHIFT + RMB) of the extruded edges and**

connect (F-KEY) to form the top of the roof.



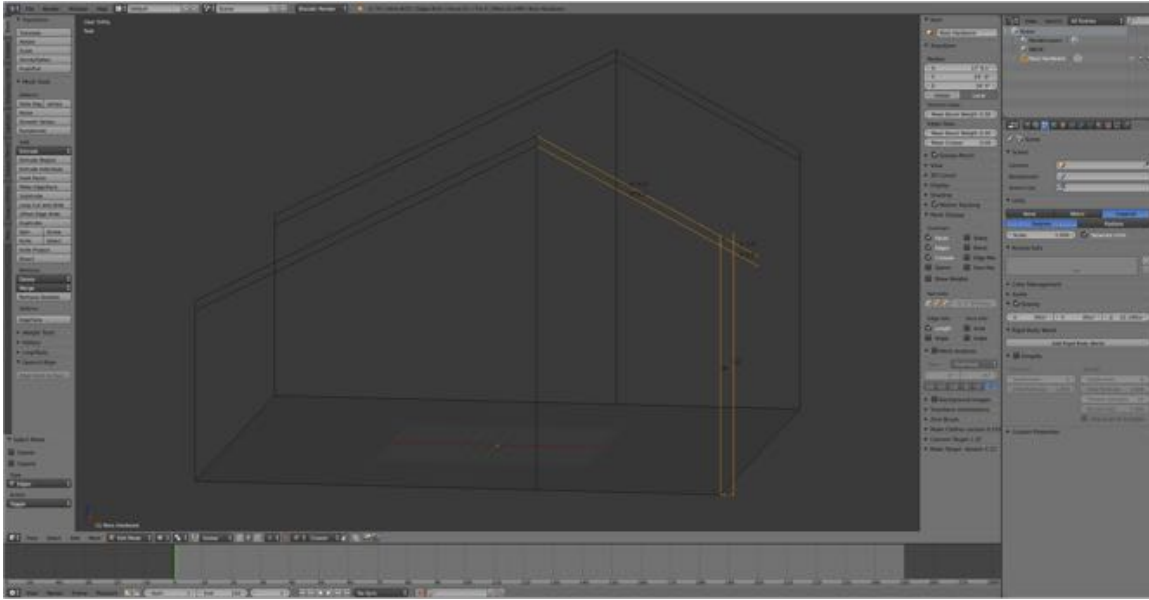
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Add Eaves

- **Switch to Edge Selection Mode (CTRL+ TAB-KEY > select Edge).**
- **Select (RMB) one of the upper front roof edges.**
- **Extend the edge by pressing W-KEY > E-KEY > E-KEY.**
Note that you can extend the edge in either direction of both by checking the appropriate boxes in the Tool Shelf's Operator Pane (lower left). We want the edge to extend downwards.
- **Select (RMB) the parallel edge and extend (W-KEY > E-KEY > E-KEY).**

Now we want the eaves to over hang by 1 foot. So we need to determine where that is. To do this we will extend vertices to form edges.

- **Switch to Vertex Selection Mode (CTRL+ TAB-KEY > select Vertex).**
- **Select (RMB) the lower right-hand corner vertex at the front.**
- **Extrude to the right one foot (E-KEY > X-KEY > enter "1").**
- **With the vertex still selected extrude upwards 14 feet (E-KEY > Z-KEY > enter "20").**



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Notice that the newly formed vertical edge intersects the eve extension 1 foot from the building wall. Now, what we need to do is cut the points of intersect using the Intersect Tool and remove the unwanted edges.

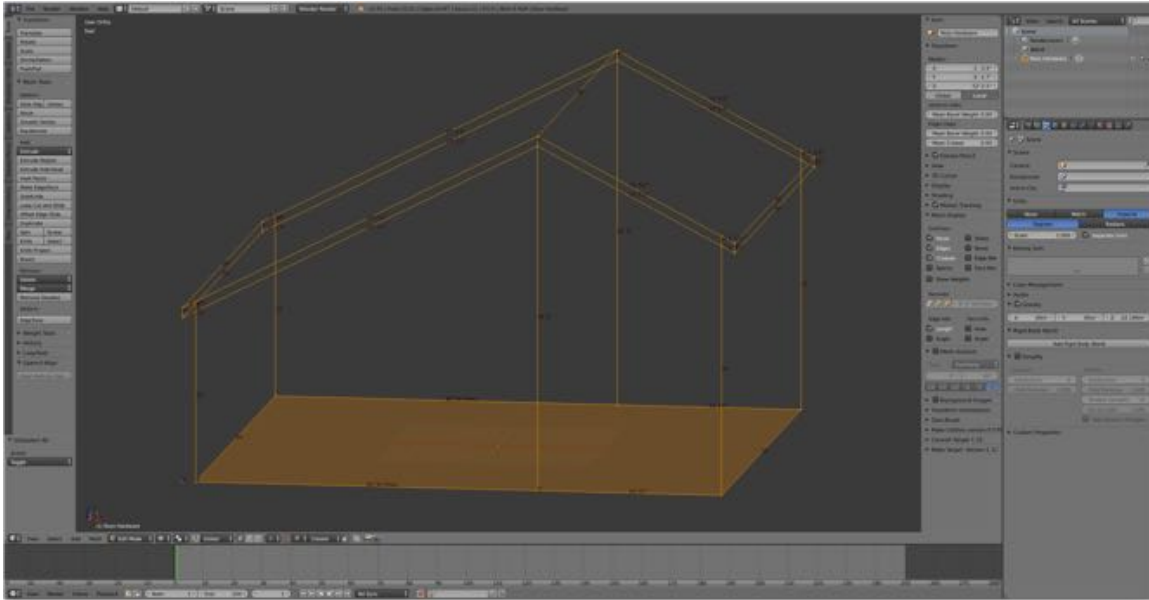
- **Switch** back to **Edge Selection Mode** and select (**RMB > SHIFT + RMB**) two of the intersecting edges.
- **Press W-KEY > TinyCAD > VTX|Auto** to cut the edges at the point of intersection.
- **Select the remaining two intersecting edges (RMB > SHIFT + RMB).**
- **Press W-KEY > TinyCAD > VTX|Auto** to cut the edges at the point of intersection.

Note: There appears to be a bug with the Edge Intersect VTX Tool, in that used two times in succession cause an error the second time. A workaround is to press **CMD + X-KEY** to delete the second attempt and retry.

- Now, **select** all of the **edges** which will **not** make up **part of the eve** and **delete** them (**X-KEY > Edge**).

Now, we need to repeat the process for the other three corners of the building. Once this is done we can fill in the faces to create the side eves.

- Finally, **select the pairs of vertices (RMB > SHIFT + RMB)** and connect (**F-KEY**) to form the roof.



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Save your work.

- Press **SHIFT + CMD + S-KEY** and **NUMPAD-PLUS-KEY** to **incrementally increase** your file name **“RossHardware03.blend”**.
- **Save** the file to a folder named **“Ross Hardware Blender Files”**.
- Right after you have saved your Blender file, under the **Information Editor’s Window Menu** select **Save Screenshot**.