You will learn how to:

- Create a bay window
- Create a dormer

By Eric Carlsen, ecarlsen.com

*Tip: If working on a Mac, substitute the Option key for the Alt key.*

Create a bay window

The bay window can be made without the use of the extrude tool by making a few extra preliminary loop cuts. This will also introduce a couple new tools.

1. Start with the same steps as the start of the last tutorial, creating a house with a raised roof and simple chimney.

Tip: Key commands (a.k.a. hotkeys, shortcuts, etc.) can be very helpful in speeding up your work flow. For example, instead of selecting "Loop Cut and Slide" from the side menu each time, you can access it with Ctrl+R.

2. Make two vertical loop cuts on one of the shorter house walls to create the left and right edges of the bay window.
3. Make two additional vertical loop cuts, just inside of the previous two, so that you end up with two thin contained faces on either side of a thicker middle face.
4. Make a horizontal loop cut for the top of the bay window.
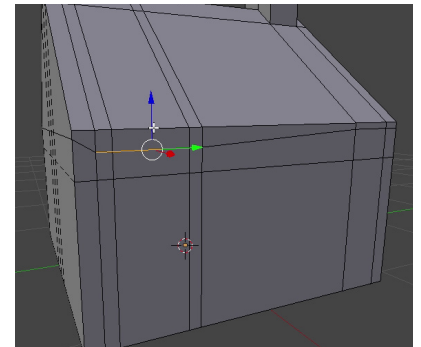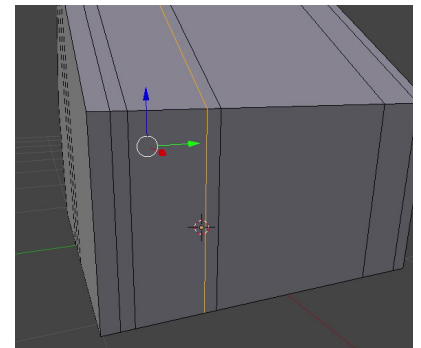
Tip: This new loop cut will end up rising up to a point on the taller sides of the house, but that's okay in this case because we're just building the bay window on a short side of the house.

5. Create one more horizontal loop cut just below the previous one.
6. Go to Face Select mode.
7. Select the biggest of the new bay window faces and simply pull it directly away from the house using the manipulator arrows. The border faces around it will naturally start to angle away from the house.
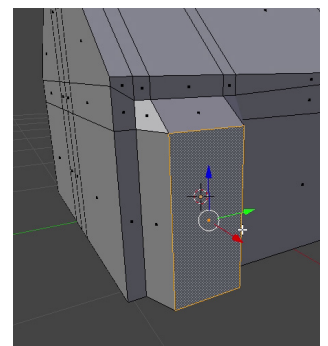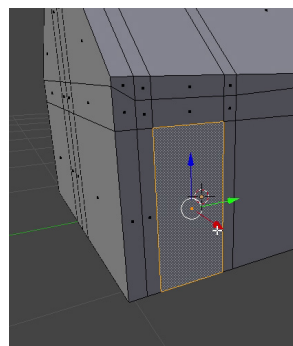
8. Right-click on the top-left corner face, hit Delete, and click on Faces.
9. Do the same for the top-right corner face.
10. Go to Edge Select mode.
11. Focusing on where the top-left corner face used to be, Shift+right-click on the top and left edges of that hole.
12. From within the Mesh menu at the bottom-left of the screen, go to Faces > Make Edge/Face. This will connect those two edges with a face, and in this case it will be triangular.
13. Select the three edges around the remaining hole below and use Make Edge/Face again.
14. Repeat for the right side.
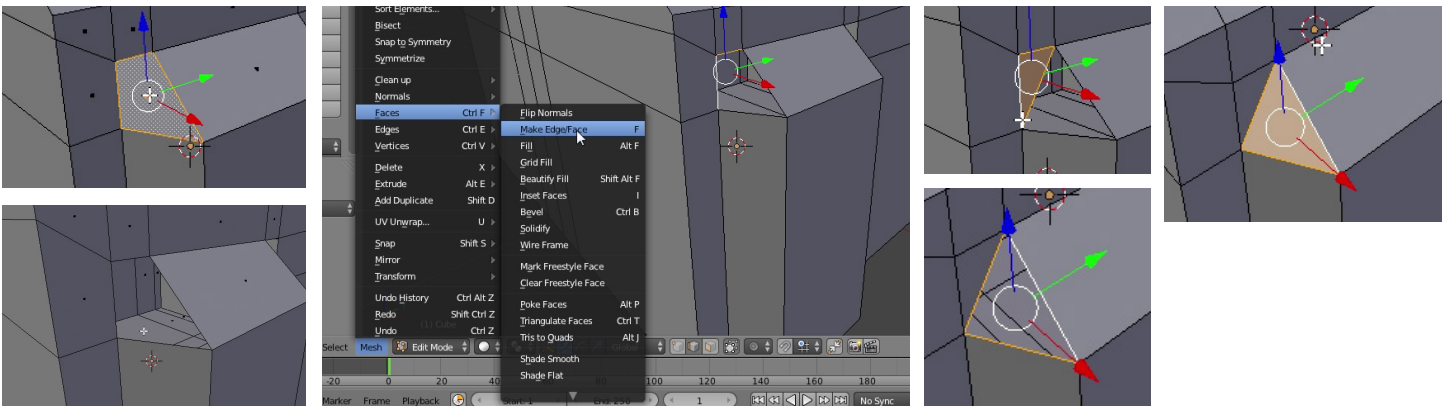
Tip: To make a steeper slope, select the three connected horizontal pieces at the base of the bay window roof and lower them. To make the roof skinnier at the top, select the top edge, hit the "S" key, drag to the desired scale, and then left-click. To pull the bay window further from the house, select the outermost face and drag forward or back.
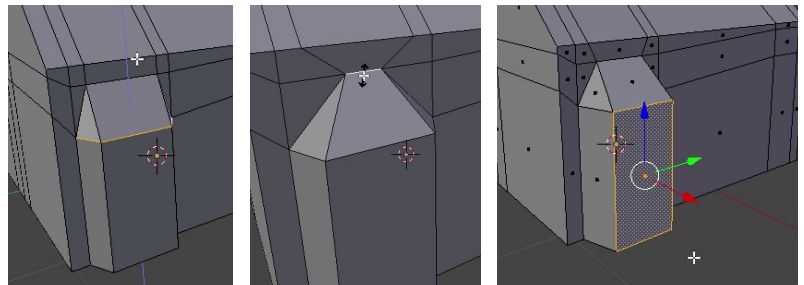

Create a dormer
A dormer can be created with roughly the same tools as the bay window, with the addition of the extrude tool.

1. Select an edge on the roof from one of the outermost vertical edge loops created for the bay window sides.
2. Move the edge sideways to create the desired width of the dormer, which will be in between this edge and the next adjacent edge created for the bay window.
3. Create a horizontal edge loop roughly 1/3 of the way to the chimney from the base of the roof. This will form the base of the dormer, and the horizontal edge loop at the chimney base will be the top.
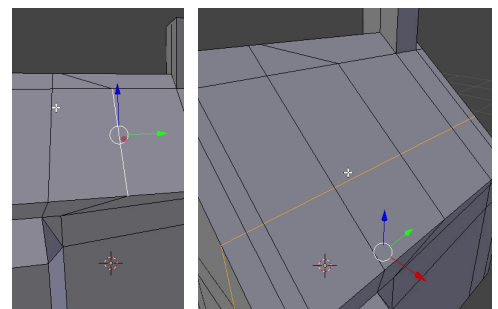
4. Select the face created for the dormer and go to Extrude > Individual, then tap "X" to snap to the X axis.
5. Pull the face outward until the top edge is directly over the base roof edge below it.
6. Go to Vertex Select mode.
7. Right-click the bottom-left corner of the extruded face (on the edge that is farthest out), then Shift+right-click on the bottom-left corner of where the face used to be before extrusion.
8. Go to Merge > At Last from the left-hand menu.
9. Do the same for the bottom-right corner.
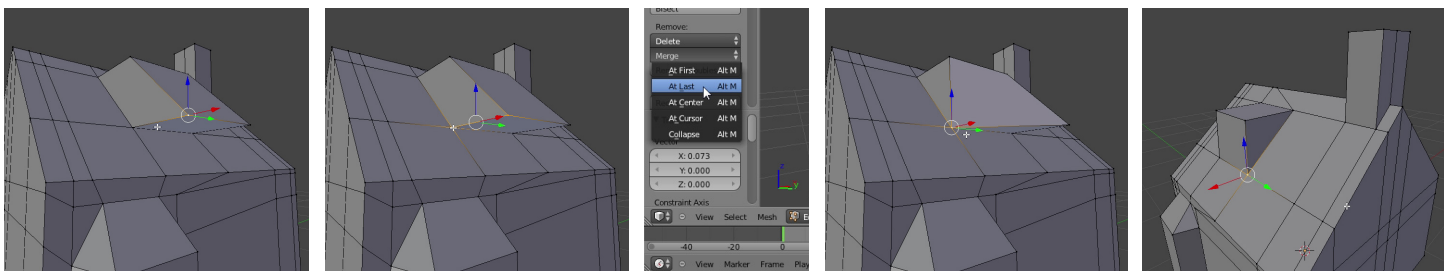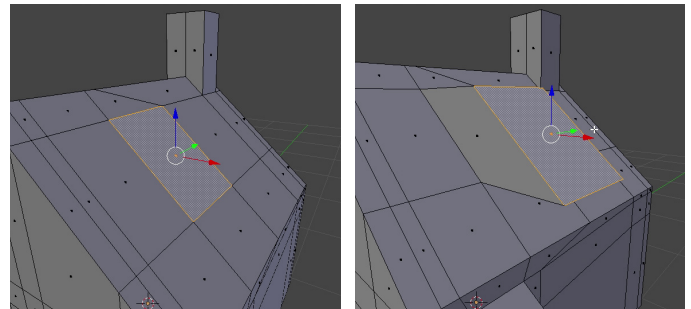
Tip: If the extruded face is still tilted and you want to make adjustments, be sure to only move the top edge; if you move the bottom edge at this point, it will actually pull much of the roof along with it, creating an uneven surface.

10. Create a vertical loop cut through the middle of the dormer by left-clicking on the appropriate edge then right-clicking to place it perfectly in the middle.
11. Right-click on the top-left vertex of the extruded face then Shift+right-click on the top-right vertex to select both.
12. Using the blue arrow, drag them both downward in the vertical (Z) axis to start creating the top ridge of the dormer.
13. Go to Face Select mode.
14. Select all of the faces (using Shift) around our dormer except for the front two faces.
15. Hit Delete and click Faces.
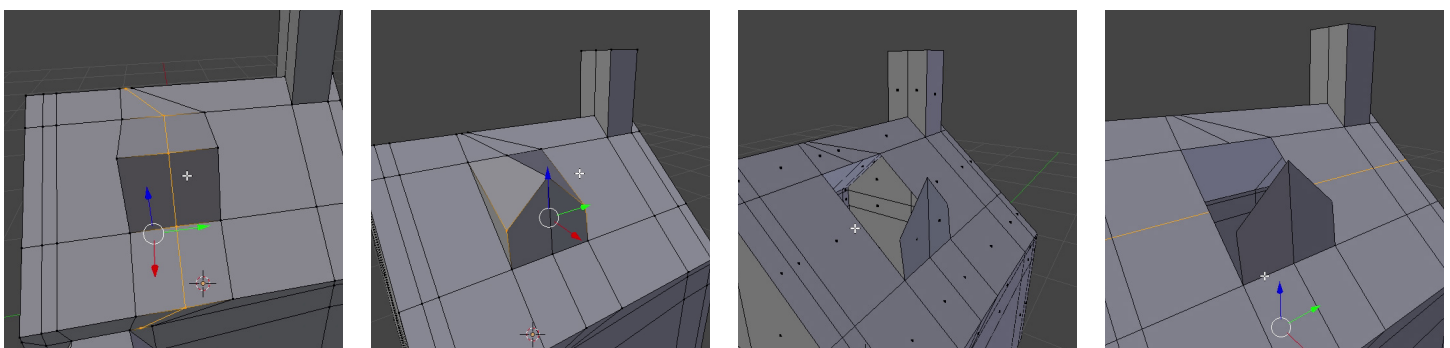
16. Create one more horizontal loop cut halfway up the hole that was made.
17. Select the left edge of the front vertical dormer faces and then Shift-select the adjacent edge that connects to the new horizontal loop cut.
18. Go to Mesh > Faces > Make Edge/Face to fill the gap between those edges.
19. Do the same for the right side.
20. Now select the two top-left edges around the remaining hole and fill the gap as well, creating a triangle in the corner. Do the same for the right side.
21. Select one of the slanted top edges of the front vertical dormer face, then Shift+select the inner edge of the new top-left triangle on the roof.
22. Go to Mesh > Faces > Make Edge/Face to fill the gap. Repeat for the right side.
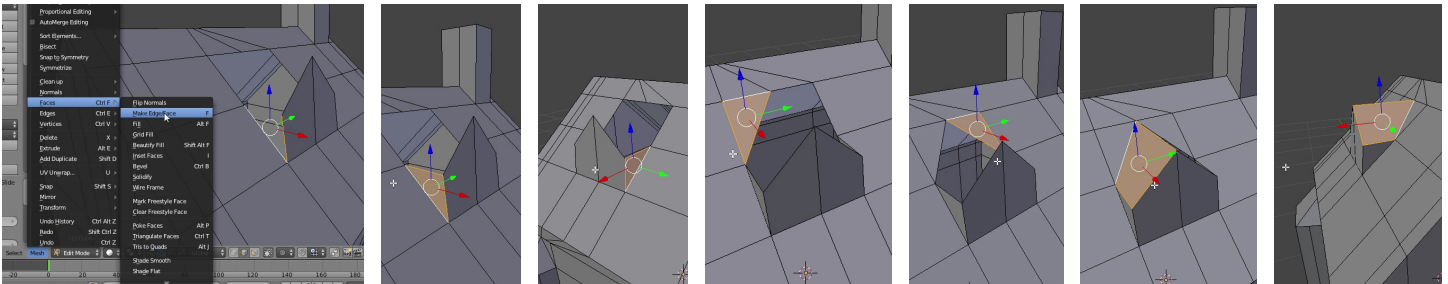
23. To straighten the front of the dormer further, first select the top three vertices of the front vertical faces of the dormer (do not select the vertices at the base on the roof).
24. Hit "5" on the numpad to enter "orthographic" view (totally flat where distant objects do not appear smaller), then "1" to enter a side view.

Tip: If you ever find yourself in orthographic view accidentally and want to return to perspective view, just hit "5."

25. From within this view, it is easier to see if the top of the dormer is further forward or back than the bottom. If it is, adjust as necessary from here, being sure to only tweak the top of the dormer so that the main roof's even slope isn't affected.