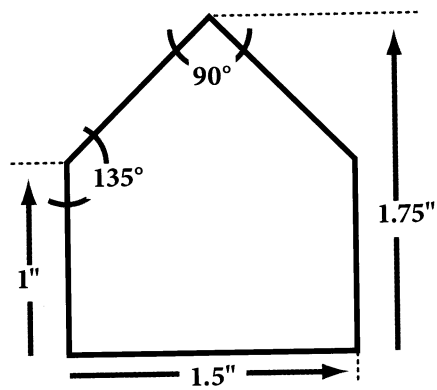


Building Houses

Sequential Object Construction Exercises



Overview: Explore different approaches to constructing the same object with Illustrator's basic construction tools.



This sequence of exercises explores different ways to construct the same simple object—a house. The purpose of these exercises is to introduce you to the flexibility of Illustrator's object construction, so don't worry if some exercises seem less efficient than others.

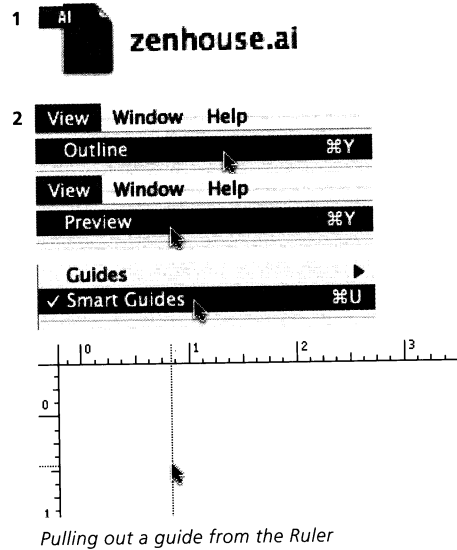
So you can more easily follow along, set Units > General to Inches (from Preferences > Units & Display Performance). Also, please read through all of the recommendations below.

1 Use the zenhouse.ai file as a guide. Start with the file zenhouse.ai (copy it to your hard drive from the *Wow! CD* in the Chapter 2 folder) as a guide when needed.

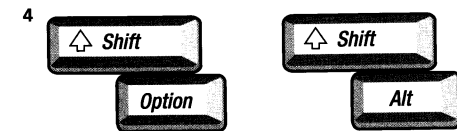
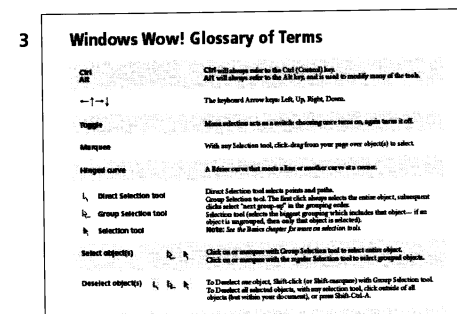
2 Work in Outline mode, with Smart Guides and Show Rulers (View menu). Outline mode eliminates distractions like fills and strokes while it displays centers of geometric objects (marked by "x"). Smart Guides will help you align, and Rulers allow you to "pull out" guides.

3 Read through the *Wow! Glossary*. Please make sure to read *How to use this book* and the *Glossary* pull-out card.

4 Use "modifier" keys. These exercises use Shift and Option (Opt) or Alt keys, which you must hold down until *after* you release your mouse button. If you make a mistake, choose Undo and try again. Some functions are also accessible from the Context-sensitive menu. Try keyboard shortcuts for frequently-used menu commands.



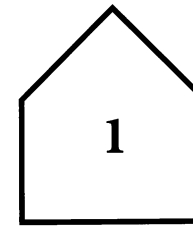
Pulling out a guide from the Ruler



Hold down the Shift key to constrain movement to horizontal/vertical direction. For more modifier key help, see the end of this chapter for the "Finger Dance" lesson.

Exercise #1:

Use Add Anchor Point tool
Point tool



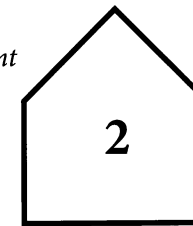
1 Open zenhouse.ai and create a rectangle and a vertical guide. Open zenhouse.ai. On the left corner where the side meets the peak, click to create a rectangle 1.5" x 1". Drag out a vertical guide and snap it to the center.

2 Add an anchor point on the top. With the Add Anchor Point tool, click on the top segment over the center guide.

3 Drag the new point up. Use the Direct Selection tool to grab the new point and drag it up into position using the zenhouse as a guide.

Exercise #2:

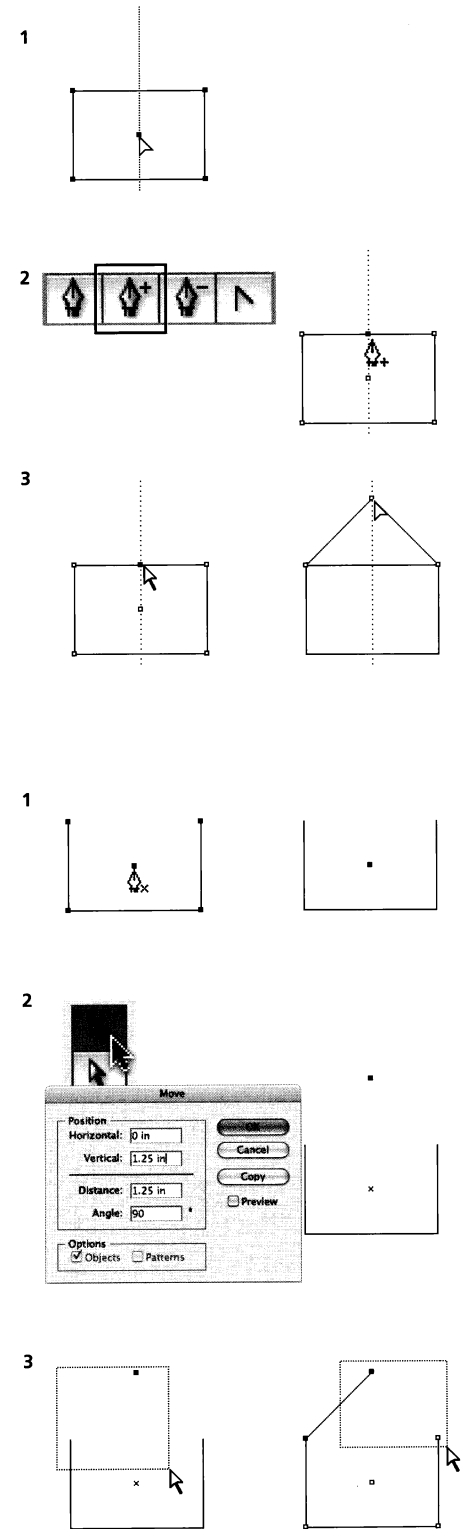
Make an extra point

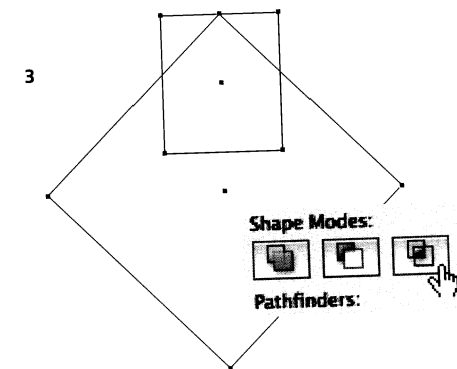
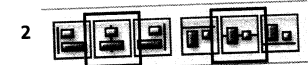
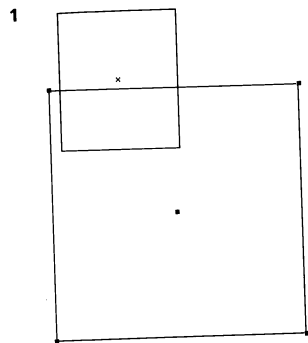


1 Create a rectangle, delete the top path, and place a center point. Create a wide rectangle (1.5" x 1"). With the Direct Selection tool, drag to marquee-select part of the top path, and press Delete/Backspace. With the Pen tool, place a point on top of the rectangle center point.

2 Move the point up. Double-click on a selection tool in the Toolbox to open the Move dialog, and enter a 1.25" vertical distance to move the point up.

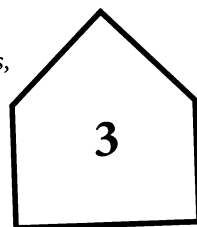
3 Select and join the point to each side. Use the Direct Selection tool to select the left two points and Join (Object > Path > Join, or ⌘-J/Ctrl-J) them to the top point. Repeat with the right two points.





Exercise #3:

Make two rectangles, Rotate one, Align, apply Intersect



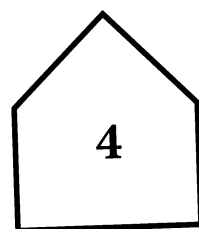
- 1 Make two rectangles and rotate the second.** Click with the Rectangle tool to create a rectangle 1.5" x 1.75". Then click anywhere with the Rectangle tool to create a second rectangle, 3.1795" x 3.1795", and while it's selected, double-click the Rotate tool and specify 45°.

- 2 Align the rectangles.** Select the two rectangles and, in the Control panel, click the vertical center and top Align icons. Then set the fill to white and the stroke to black.

- 3 Apply the Intersect Pathfinder.** Open the Pathfinder panel (Window menu) and, in the Shape Mode section, click Intersect to leave only the intersected house shape.

Exercise #4:

Using custom guides, Rotate and Add



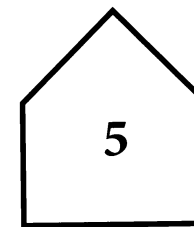
- 1 Make two rectangles.** Create a rectangle (1.5" x 1"), then drag out a vertical guide, snapping it to the center. Hold Option/Alt, and where the center guide intersects the top segment, click with the Rectangle tool. Enter 1.05" x 1.05".

- 2 Rotate the square.** With the Selection tool, move your cursor along the square until you see a Rotate icon. Hold the Shift key and drag until the square pops into position.

- 3 Select and Unite.** Choose Select > Select All (⌘-A/ Ctrl-A). Then in the Pathfinder panel (Window menu), click Unite to combine both rectangles into one object.

Exercise #5:

Use Add Anchor Points in a three-sided polygon



- 1 Create a three-sided polygon.** With the Polygon tool selected (hidden under the Rectangle), click once, then enter 3 Sides and a 1.299" Radius.

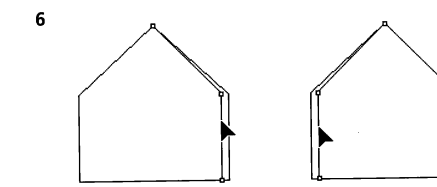
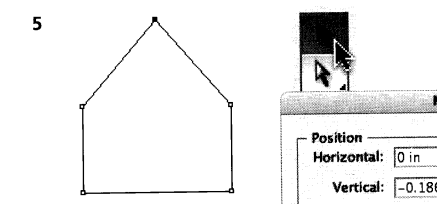
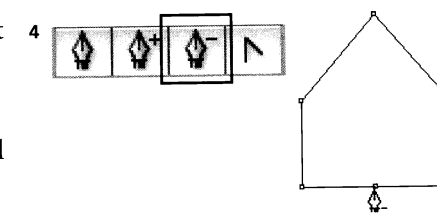
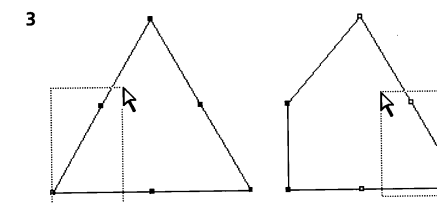
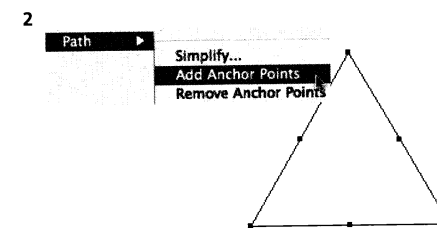
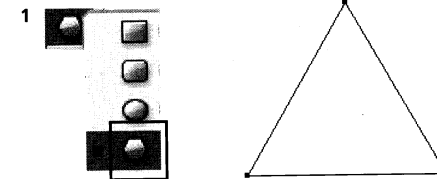
- 2 Use the Add Anchor Points command.** With the polygon object still selected, choose Object > Path > Add Anchor Points.

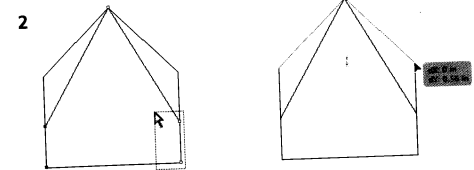
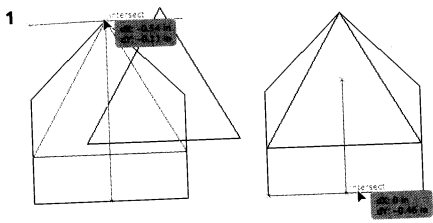
- 3 Average the two left points, then Average the two right points.** Direct-Select the two left points and Average them along the vertical axis (Context-sensitive: Average, or Object > Path > Average), then repeat for the two right points.

- 4 Delete the bottom point.** With the Delete Anchor Point tool, click on the bottom point to delete it.

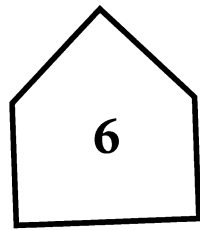
- 5 Move the top point down.** Use the Direct Selection tool to select the top point, then double-click on the Direct Selection tool (in the Toolbox) to open the Move dialog and enter -.186" vertical distance, 90° for angle.

- 6 Slide in the sides toward the center.** Use the Direct Selection tool to click on the right side of the house and drag it toward the center until the roofline looks smooth (hold down your Shift key to constrain the drag horizontally). Repeat for the left side of the house. Alternatively, select the right side and use the ← key on your keyboard to nudge the right side toward the center until the roofline looks smooth. Then, click on the left side to select it, and use the → key to nudge it toward the center. (If necessary, change your Keyboard Increment setting in the Preferences > General dialog.)





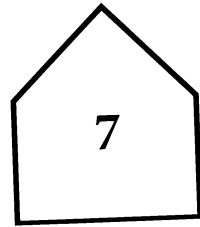
Exercise #6:
Cut a path and
Paste in Front



1 Move the bottom of a triangle. In the zenhouse.ai file, click with the Polygon tool and enter 3 Sides and a .866" Radius. With the Direct Selection tool, align the top point with the house peak. Next, select and Cut the bottom path, choose Edit > Paste in Front (⌘-F/Ctrl-F), then grab this path and Shift-drag it into position.

2 Create the sides and move middle points into place. Direct-Select the two right points and join, then repeat for the two left points. Select the two middle points, and grab one to drag both up into position.

Exercise #7:
Join two objects



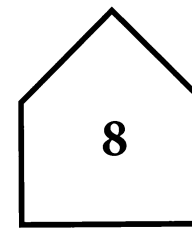
1 Make two objects. Click once with the Polygon tool, enter 3 Sides and a .866" Radius. Zoom in on the lower left corner and, with the Rectangle tool, click exactly on the lower left anchor point. Set the rectangle to 1.5" x 1".

2 Delete the middle lines and join the corners. Direct-Select marquee the middle bisecting lines and delete. Select the upper-left corner points and Average-Join by either Averaging, and then Joining the points (both from the Object > Path menu) or by pressing ⌘-Shift-Option-J/ Ctrl-Shift-Alt-J to average and join simultaneously. Direct-Select, then Average-Join the upper right points.

3 Drag the top point down. Grab the top point, hold the Shift key, and drag it into position.

Exercise #8:

Use Add Anchor
Points, then
Average-Join

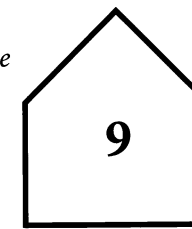


1 Using zenhouse.ai, make a rectangle, delete the top path, add anchor points, remove the bottom point. Create a tall rectangle (1.5" x 1.75") and delete the top path. Choose Add Anchor Points (Object > Path), and use the Delete Anchor Point tool to remove the bottom point.

2 Select and Average-Join the top points and move middles into position. Direct-Select the top two points and Average-Join (see Exercise #7, step 2). Then Direct-Select the middle points, grab one, and Shift-drag them both into position on the zenhouse.

Exercise #9:

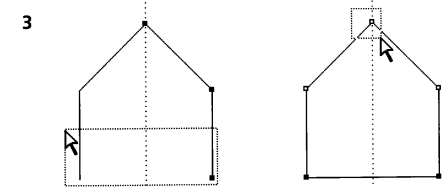
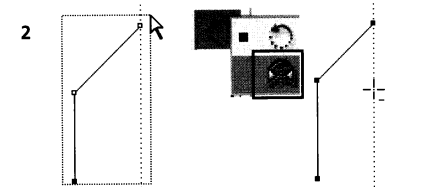
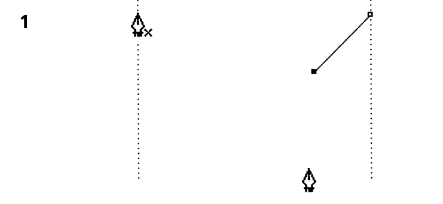
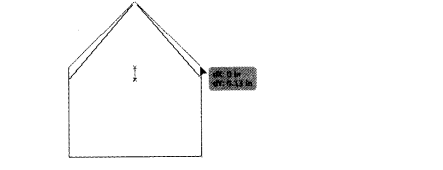
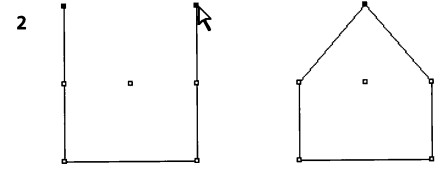
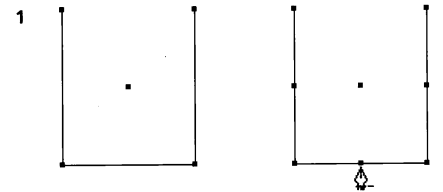
Reflect a Pen profile

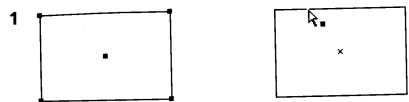


1 Create a house profile. Drag out a vertical guide, then reset the ruler origin on the guide. To draw the profile, use the Pen tool to click on the guide at the ruler zero point, hold down Shift (to constrain your lines to 45° angles) and click to place the corner (.75" down and .75" to the left) and the bottom (1" down).

2 Reflect a copy of the profile. Select all three points of the house profile. With the Reflect tool, Option/Alt-click on the guide line. Enter an angle of 90° and click Copy.

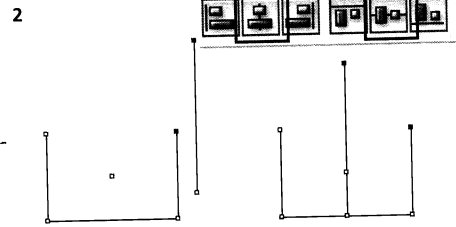
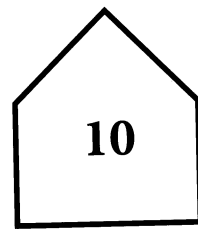
3 Join the two profiles. Direct-Select and Join the bottom two points. Then Direct-Select the top two points and Average-Join (using ⌘-Shift-Option-J/Ctrl-Shift-Alt-J, or Average and then Join from the Object > Path menu).





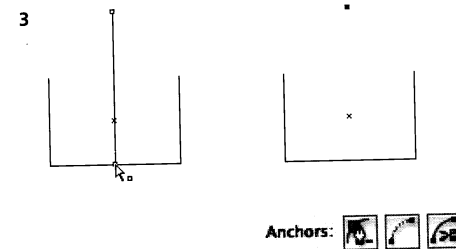
Exercise #10:

Use the Line tool and Align

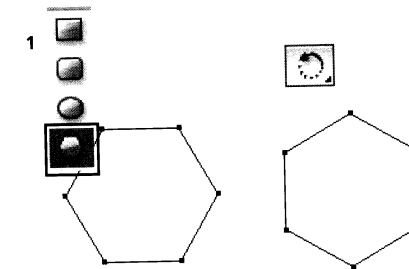


1 Create a Rectangle. With the Rectangle tool, click on your Artboard and specify 1.5" x 1". Choose Select > Deselect, then click the top edge of the rectangle and Delete.

2 Create and align the peak. With the Line tool, click anywhere and specify a 1.75" Length and 90° Angle. Select both objects and, in the Control panel, click the vertical center and bottom Align icons, then Deselect.

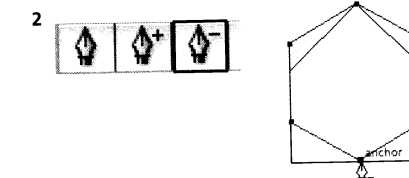
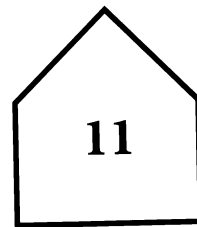


3 Delete the bottom point and form the peak. Using Direct Selection, select the bottom line point and Delete. Then marquee the top point and one of the sides. In the Control panel, click the middle Anchors button to Connect the points. Repeat to form the other peak.



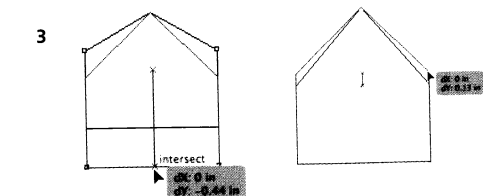
Exercise #11

Make a six-sided polygon



1 Create a six-sided polygon using zenhouse.ai. Open zenhouse.ai. Click with the Polygon tool and enter 6 Sides and a .866" Radius. Then double-click the Rotate tool and enter 30°. Align the peak of this object with the zenhouse.

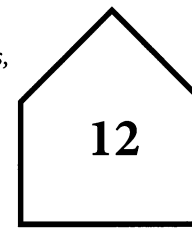
2 Delete the bottom point. With the Delete Anchor Point tool, click on the bottom point to delete it.



3 Move pairs of points. Use the Direct Selection tool to select the bottom two points. Grab one of the points and Shift-drag in a vertical line into position. Direct-Select, grab and Shift-drag the middle two points into position.

Exercise #12:

With Smart Guides, Rotate and make a Live Paint object



1 Make two rectangles. Enable View > Smart Guides. Create one rectangle 1.5" x 1", and one 1.05" x 1.05". Grab the center point of the square and drag it toward the top center of the wide rectangle until you see the word "intersect" and a vertical line drawn from the rectangle's center to the top line.

2 Rotate the square. With the square selected, double-click the Rotate tool and specify 45°.

3 Make a Live Paint object. Select both objects and choose Object > Live Paint > Make.

4 Use the Live Paint Bucket to "paint out" the interior lines. Switch to Preview mode (View menu) and set the fill to White, stroke to None. Double-click the Live Paint Bucket and, in Options, disable Paint Fills and enable Paint Strokes, and click OK. Choose None for stroke, then "paint" the interior triangular lines with None.

5 If you want to be able to easily paint the interior of the house as one object, delete the interior lines. Return to Outline mode (View menu). Notice that when you make a Live Paint object, it still maintains the separate shapes that made the original objects—even if you color the strokes separately. However, you *can* blend objects of the same style, like the white-filled house objects, into one object by eliminating the dividing lines.

So that the entire interior of the house operates as if it is one fill, you need to delete the triangular lines that divide the interior. Using the Direct Selection tool, marquee the interior lines and Delete. Switch back to Preview mode to see that the house is still intact.

