

hot door

# Perspective 2

for Adobe® Illustrator® CS and CS2



A complete dimensional drawing  
environment for vector illustration



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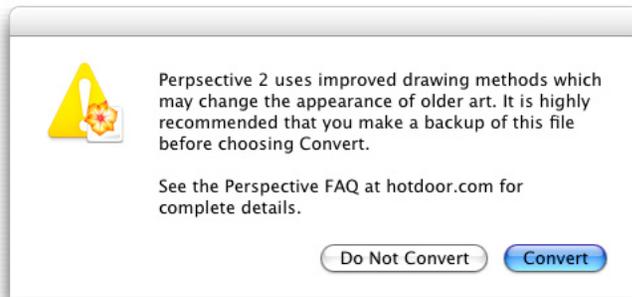
## Upgrading from Perspective 1

### What's new in Perspective 2

- Illustrator CS and CS2 compatibility
- Improved realistic projection methods
- Numeric adjustment of horizontal vanishing points
- Option to turn on/off foreshortening for isometric objects (foreshortening value is fixed at 81%)

### Opening documents created with Perspective 1

Perspective 2 includes new drawing methods for enhanced realistic projections. If you open a document containing objects created with Perspective 1, you will be asked to convert the document. If you choose Convert, the objects will update to match new projection methods and the results may not be desirable. If you choose Do Not Convert, the Perspective objects will appear unaffected, but they will no longer be live or responsive to grid changes.



## About Hot Door Perspective

Welcome to **Hot Door Perspective**, the first plug-in to offer true perspective, oblique, and isometric drawing within **Adobe Illustrator CS or CS2!** Perspective provides three indispensable levels of control to help you create beautifully real compositions with amazing speed:

### Draw with adjustable perspective grids

- Choose isometric, oblique, or perspective projection grids
- Choose 1, 2 or 3-point perspective
- Adjust foreshortening, horizon and distortion
- Adjust grid spacing
- Snap tools to grid
- Faces and objects created with Perspective can update automatically to match the background grid when the grid changes or artwork is moved

### Draw with perspective line, face, object and grid tools

- Seven line and face drawing tools in the Perspective drawing tool group in the Illustrator toolbox
- A grid tool that creates horizontal or vertical planes as artwork
- Cube and cylinder object drawing tools
- All face and object tools support numeric input

### Project flat artwork on horizontal or vertical faces

- Project any vector artwork - including outlined text - in perspective with the Projection palette
- Choose from top/bottom, front or side faces
- Instantly flatten projected faces for editing

Remember, Illustrator and Perspective are not *real* 3D modeling tools. But with very little effort, you can create the illusion of 3D without leaving Illustrator. To better understand the principles behind Perspective and 3D representational drawing, please review **Perspective and 3D representational drawing** (p.9)

## Installing Hot Door Perspective

**On Windows** - Double-click **Install Hot Door Perspective 2**.

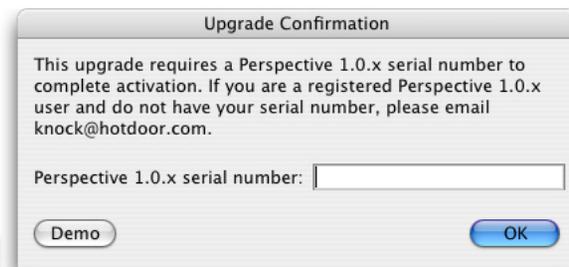
**On Mac** - Double-click **Perspective2.dmg**. This will mount the Perspective disk image.

1. Follow the on-screen instructions to install the file named **Perspective** into the Adobe Illustrator > Plug-ins > Tools folder. If you have an old version, it will be replaced.
2. When you launch the Adobe Illustrator application again, a Perspective Activation dialog will appear. First enter your new Perspective 2 serial number in the Activation dialog. Click OK.



### For Upgrades only

3. If you have entered a Perspective 2 upgrade number, the Perspective 2 Upgrade Confirmation dialog will appear. Enter your Perspective 1 serial number to confirm the upgrade and complete activation.



## Installing Hot Door Perspective (cont.)

If you have purchased a full version of Perspective, enter your Perspective serial number (with a format XXXX-X-X-XXX-XX-XXXXX) and click OK. Illustrator will open and you will see some of the tools belonging to Perspective in the toolbox. *The Perspective icons have green point markings.*

### For demo use:

If you wish to use the demo version of Perspective, click the **Demo** button on the Perspective Personalization dialog box that appears when you launch Illustrator. If the Perspective demo is installed, you will not be able to adjust the Perspective grid and projection settings. Any Perspective artwork will be created in a locked 2-point perspective view. The Perspective demo will not affect artwork created with the standard Adobe Illustrator tools.

If you wish to purchase the full version of Perspective, click the **Purchase** button on the Perspective Personalization dialog box to automatically launch the Hot Door Web site and online store with your Web browser software. When you purchase the full version of Perspective, you will be supplied with a serial number that will convert your Perspective demo to a full version.

To uninstall the demo or full version of Perspective, simply remove the plug-in from the Adobe Illustrator > Plug-ins > Tools folder.

## Registration and technical support

### Registration:

If you have not ordered from Hot Door directly, please complete the registration form at <http://www.hotdoor.com/register.html>

### Technical support online:

As a registered user, you are entitled to free email or phone technical support. Free email technical support is available at [perspective@hotdoor.com](mailto:perspective@hotdoor.com).

### Online detailed FAQ, technical support, and tutorial:

Visit <http://www.hotdoor.com> to access the Perspective page.

### Technical support by phone: 949-464-0300

Phone inquiries are always welcome and service is prompt and professional.

## Understanding Perspective and 3D representational drawing

Adobe Illustrator is a very powerful vector-based drawing environment, but it has typically been limited to 2D graphics work. Most artwork created within Illustrator is visually flat (*orthographic projection*), including typography, logo design, Web graphics, etc. Representing any 3D detail is a real challenge in Illustrator and other drawing programs – even for dexterous users with a background in design and illustration.

### How does Perspective differ from a 3D modeling program?

Unfortunately, a 3D modeling program can be very complex and expensive. 3D worlds require a new understanding of space, and many projects don't require three dimensional data or intensive modeling manipulation. Now you can use Perspective to create the illusion of 3D with clean vector graphics in the familiar and powerful 2D world of Adobe Illustrator.

Hot Door Perspective is integrated right into Illustrator, but does *not* introduce a new 3D world. Perspective only *represents* 3D objects with 2D artwork. Perspective 2D objects *cannot* be freely rotated, surface mapped, or otherwise manipulated as solids. However, Perspective artwork is fully editable like other shapes inside Illustrator. Live Perspective objects are also internally linked to flat orthographic shapes so you can transform artwork to and from 2D or dimensional compositions with ease.

## Understanding Perspective and 3D representational drawing (cont.)

Hot Door Perspective relies on geometrical principles that have been used to create realism in art for many centuries. Please review how the following terms are used in Hot Door Perspective to represent 3D in a 2D world:

**Projection** is a method of geometrically translating the artwork on the picture plane to rotated planes for more realistic and useful interpretation. Your artwork is typically created in flat, orthographic projection on the picture plane - or artboard - of Adobe Illustrator. Hot Door Perspective adds three methods of projection: isometric, oblique, and perspective.

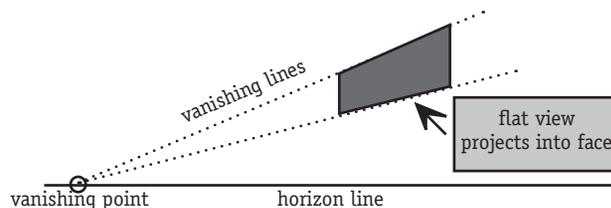
**Faces** are polygons (closed paths) that represent artwork that has been projected on to a horizontal or vertical plane. Except for the front faces in one point perspective or oblique projection, all object faces recede at parallel angles or converge toward vanishing points. For simplicity, the term "face" is used in Hot Door Perspective instead of "plane."

**Horizon** represents the eye-level of the viewer.

**Vanishing or receding lines** represent the edges of an object which appear to recede in space at an angle or toward a vanishing point.

**Vanishing points** in 1 or 2-point perspective are the places on the horizon at which the objects' vanishing (receding) lines converge. In 3-point perspective, the third point is a vertical vanishing point that emphasizes the height of objects.

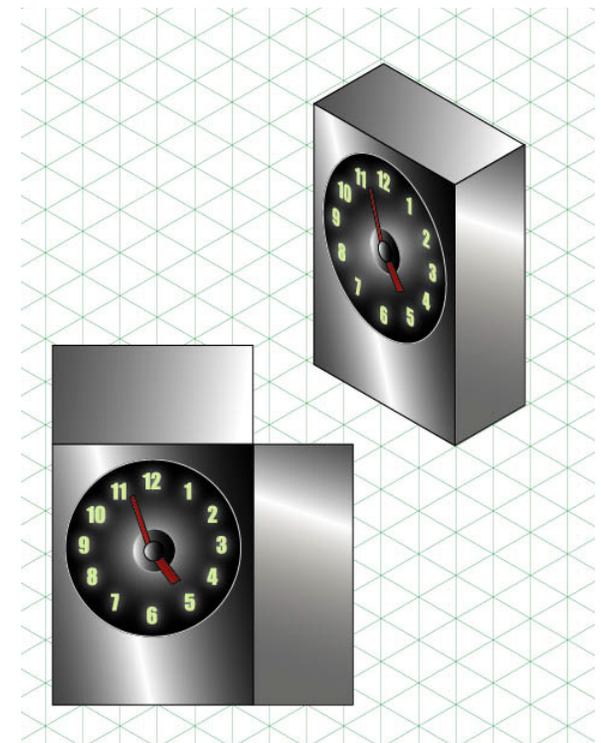
**Foreshortening** is a forced reduction of the depth of an object to make it appear to recede in isometric and oblique projections.



## Understanding Perspective and 3D representational drawing (cont.)

Perspective uses three methods of 3D "illusion" which can be fine-tuned for visual preference.

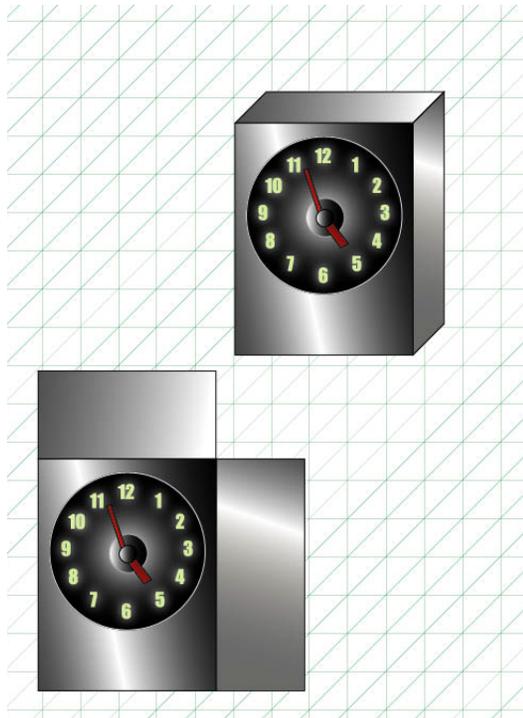
**Isometric projection** is a simple method of creating 3D object representations which can be directly measured. Parallel receding lines define the edges of all sides, and they are typically drawn at 30° to the horizontal. Dimensions are often made along the isometric lines for making technical reference drawings. *Note: You must purchase Hot Door CADtools to be able to pull dimensions off of objects created with Hot Door Perspective.*



## Understanding Perspective and 3D representational drawing (cont.)

**Oblique projection** is commonly used to display object front faces in their true shape, while the parallel receding lines along the top, bottom, or sides are at a convenient angle to the horizontal (such as  $45^\circ$ ). Dimensions are often made along oblique objects to create technical reference drawings. *Note: You must purchase Hot Door CADtools to be able to pull dimensions off of objects created with Hot Door Perspective.*

In both oblique and isometric projections, foreshortening can be applied to enhance the realistic appearance of objects. If foreshortening is applied, however, measurements cannot be taken directly from the artwork.

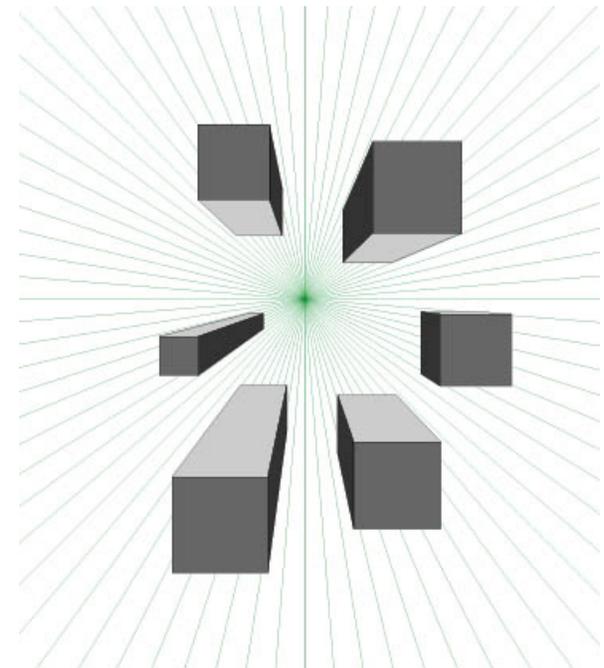


## Understanding Perspective and 3D representational drawing (cont.)

**Perspective projection** is the most realistic and popular method of representing 3D. Perspective projection can offer great flexibility in manipulating the appearance of objects. Different types of perspective provide unique effects suitable for different applications and industries.

### One point

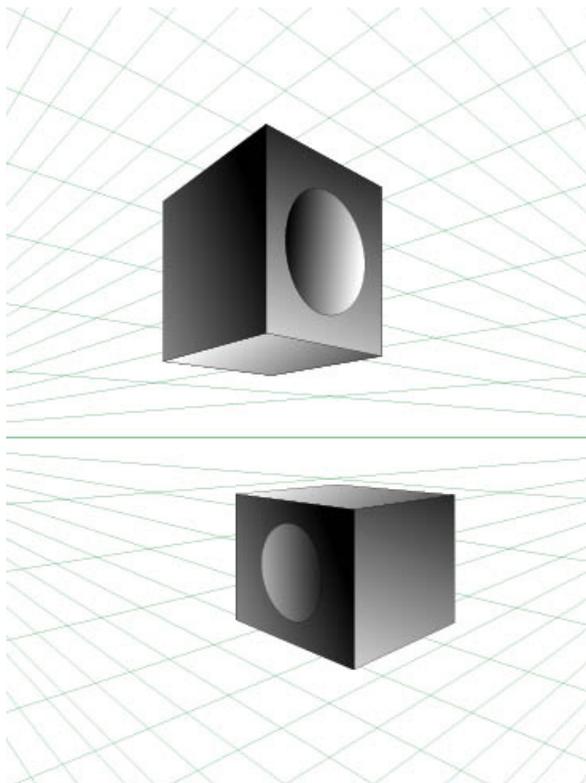
In one point perspective, the front face of an object retains its true shape while the top, bottom, and side faces recede to one point along a line that represents your eye level (horizon). This method is often used for high-impact dimensional graphics and rendering of architectural spaces.



## Understanding Perspective and 3D representational drawing (cont.)

### Two point

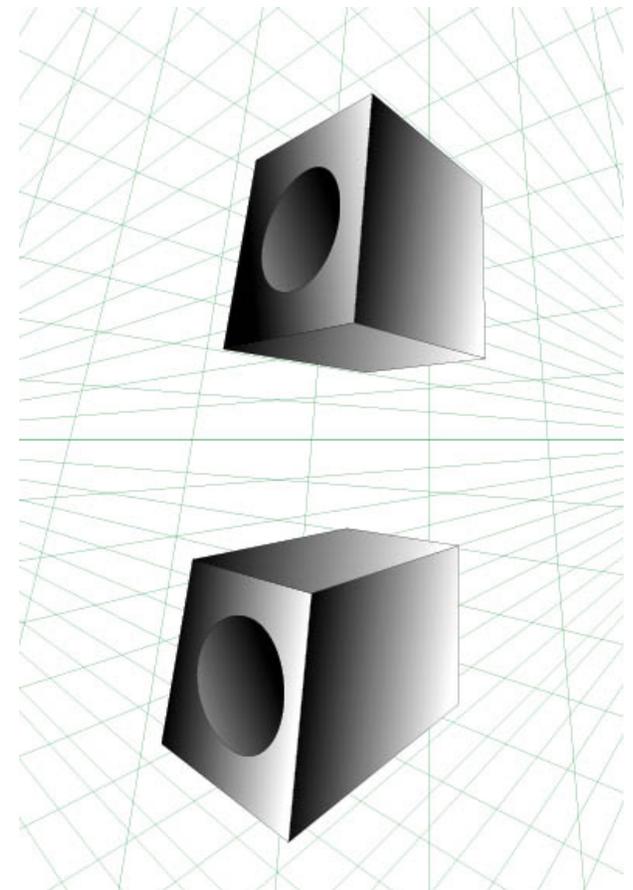
Two point perspective is the most common perspective projection in which all faces of an object recede to one of two points along the horizon line. All vertical edges within the object remain perpendicular to the horizon. The receding effect can be increased or diminished by controlling the space between the vanishing points (distortion).



## Understanding Perspective and 3D representational drawing (cont.)

### Three point

Three point perspective can create the most realistic objects by introducing a vertical vanishing point that can be moved from center to cause vertical lines to recede above or below the horizon. Additional distortion effects can be created by moving the vertical vanishing point horizontally. Three-point perspective is also used to create more dramatic "bird's eye" or "worm's" eye views of objects or environments.



## Overview of the Perspective interface

### Displaying Perspective palettes

After you have properly installed Perspective and launched Adobe Illustrator, you will notice three new palettes available within Illustrator. These palettes can be opened by choosing one of the selections under Window > Perspective.

**Perspective Document** palette helps you adjust the projection style of the background grid. Perspective tools will automatically snap, constrain and conform to the background grid. Choose from isometric, oblique, or perspective environments using 1, 2 or 3 points. Sliders in the palette provide smooth control over horizon location and distortion. If “Create Live Objects” is checked, faces and objects can automatically update to match the background grid when the grid is changed or when the artwork is moved. Live update is most useful for creating basic structural objects in your document and fine-tuning projection settings for your composition.

**Perspective Grid** palette provides control over the appearance and snapping behavior of the Perspective background grid and Perspective faces.

**Perspective Object** palette allows you to convert flat (orthographic) artwork into dimensional artwork that reshapes to a top or bottom horizontal plane or a front or side vertical plane. Perspective remembers the original shape so you can instantly flatten it for detailed editing or CAD output. The Update button in the Perspective Object palette will force live Perspective artwork to reshape to match the grid.

### Selecting Perspective tools

Perspective also adds new drawing tool groups to the toolbox of Adobe Illustrator. **Perspective tool icons are distinguished by their green point markings.** Note: Excluding the grid tool, all Perspective drawing tools support numeric input - click once on the document to enter values for faces or objects.

## Setting Perspective grids

### Setting up the grid appearance

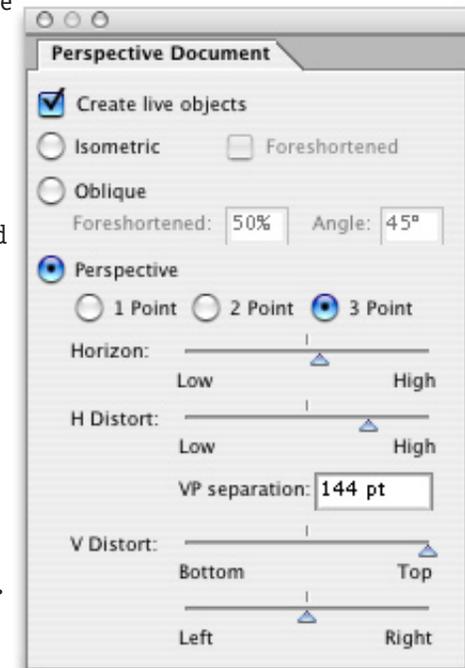
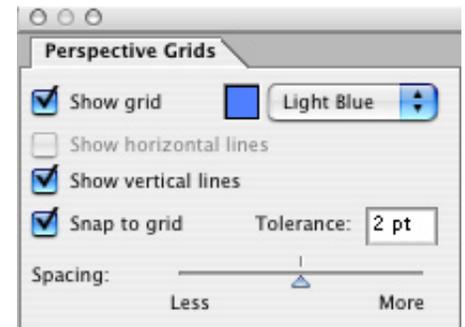
Hot Door Perspective allows you to view, manipulate, and snap to a background projection grid.

First, open **Window > Perspective > Show Perspective Grids** and check **Show grid**. The grid is document-based so you can open multiple documents with different grid styles.

Then set up your grid appearance by setting Grid color, spacing, snapping, and snap tolerance. Snap tolerance will also affect Perspective face snapping. Click Show horizontal lines to show additional guides in 1 pt perspective. Click Show vertical lines to show additional guides in 1 pt or 2 pt perspective. Move the spacing slider toward “more” to increase the space between the grid lines. Move the spacing slider toward “less” to decrease the space between the grid lines. This slider also controls the spacing between the lines drawn by the Perspective grid tool.

Artwork drawn with Perspective drawing tools or projected with the Perspective object palette will automatically conform to the grid. Note: Only Perspective drawing tools will snap or constrain to the Perspective background grid.

Perspective provides three projection styles for the Perspective grid. Choose **Window > Perspective > Show Perspective Document**.



## Setting Perspective grids (cont.)

The Perspective Document settings are saved with each document. If you want to save specific settings, you may want to save “template” files with desired settings and useful names. *Draw a simple Perspective cube in order to save the document grid settings.*

### Creating Live Objects

Live objects were designed to help you create basic structural elements and choose projection settings prior to making a detailed illustration. If you create Perspective artwork with **Create live objects** checked, faces and objects will be internally linked to the grid and update with any grid changes. (If the artwork is moved, you must force the live artwork to update by clicking the Update button in the Perspective Objects palette.)

If not used properly, live objects can alter your artwork in unpredictable ways. You should consider the following guidelines for more effective use:

- 1) Check live objects to make Perspective objects that help you view and adjust your projection settings before making your illustration.
- 2) Check live objects if you want to project “flat” artwork and be able to reflaten it later. Flattened artwork is easy to edit and reproject.
- 3) Check live objects if you are working with artwork that exists on one of three faces of a cube. Outlined text also works well as live objects within these faces.

If you have already created live objects and wish to remove their internal links to the grid, then expand the artwork using the Expand button in the Perspective Objects palette.

If you want to reshape live Perspective objects, you should first flatten them. If you prefer to edit the objects in their projected state, you should always expand the artwork with the Expand button in the Perspective Objects palette.

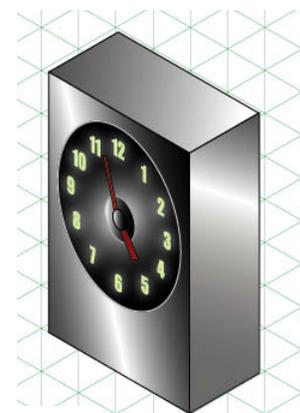
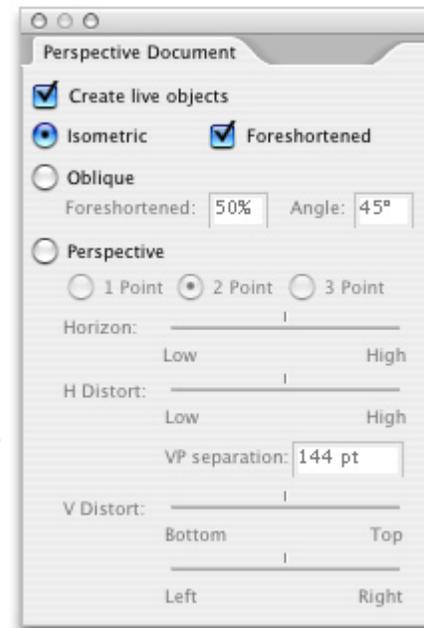
## Setting Perspective grids (cont.)

### Setting projection

The three projection styles can be changed and live Perspective artwork is updated to follow. However, depending on its position and the intensity of distortion, some artwork may not appear correct after updating. For best results, select and adjust a final projection style before creating a detailed composition. You may want to use a simple “test” cube to set projection styles.

### Isometric projection

creates 3D object representations which can be directly measured. Parallel receding lines define the edges of all sides. You can create a better illusion of Perspective by checking Foreshortened, resulting in the foreshortening of isometric receding lines.



*Note: In isometric projection, top faces are drawn as though you are above the object. Therefore, if you change projection types after creating isometric objects, make sure that your horizon is located above the artwork.*

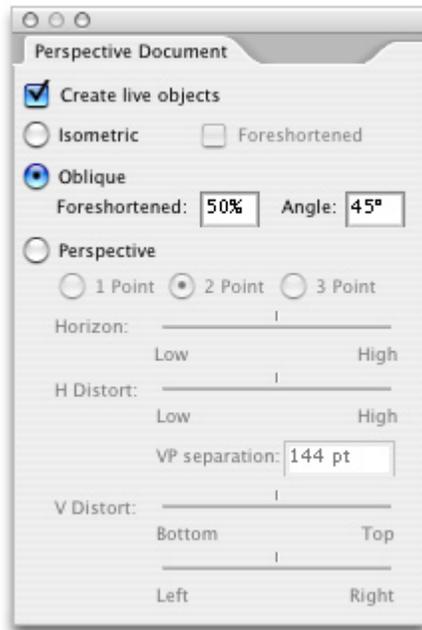
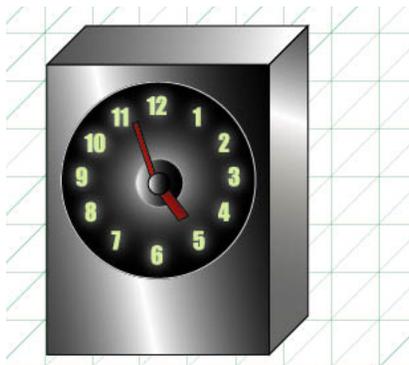
## Setting Perspective grids (cont.)

**Oblique** projection creates 3D object representations in which the front faces are displayed as their true shape without projection. Use the slider to apply a percentage scale of foreshortening. When receding lines are foreshortened at 50%, the drawing is called a *cabinet drawing*. All faces can be directly measured if foreshortening is not applied (set 100%).

Enter a value for the angle of the receding lines.

Oblique projections are commonly made at 45° with no foreshortening (*cavalier projection*).

*Note: In oblique projection, top faces are drawn as though you are above the object. Therefore, if you change projection types after creating oblique objects, make sure that your horizon is located above the artwork.*



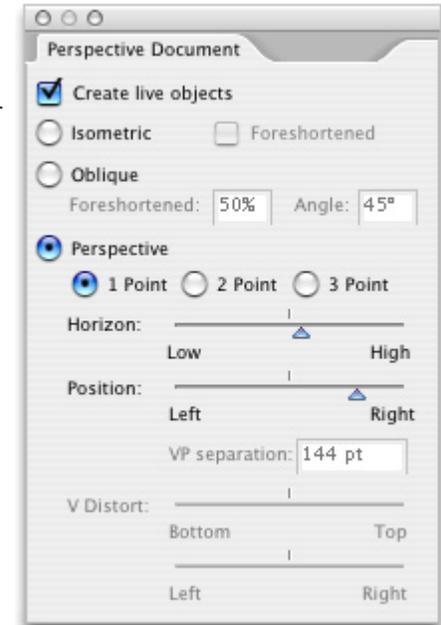
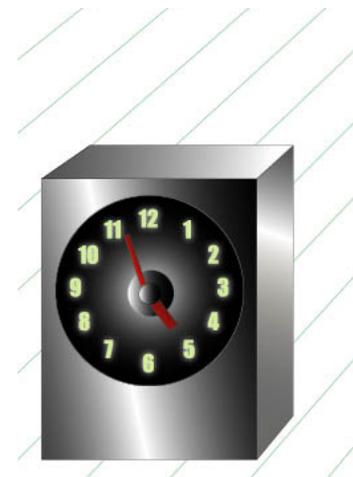
## Setting Perspective grids (cont.)

**Perspective** projection creates more realistic 3D object representations. You can also use the sliders to create distortions to emphasize object dimensions.

**1 point** - Choose 1 pt to create more dramatic dimensional effects. Except for front faces, faces recede toward one movable vanishing point.

*Horizon:* Slide to move the vanishing point lower or higher on the document.

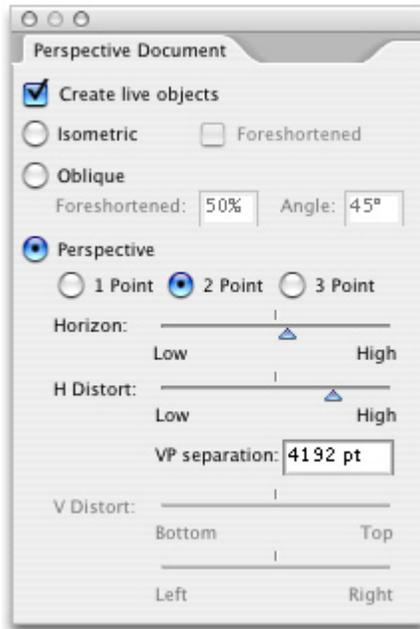
*Position:* Slide to move the vanishing point to the left or right of the center of the document.



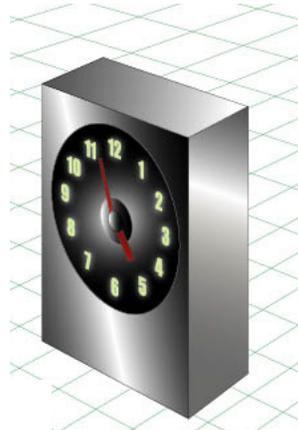
## Setting Perspective grids (cont.)

**2 point** - Choose 2 pt to create realistic objects. *Horizon*: Slide to move the vanishing points lower or higher on the document.

*H Distort*: Slide toward high to move the vanishing points closer together, emphasizing the perspective effect. Slide toward low to reduce the perspective effect. For numeric control of actual spacing between vanishing points, enter a value into the VP separation field.



object above horizon



object below horizon

## Setting Perspective grids (cont.)

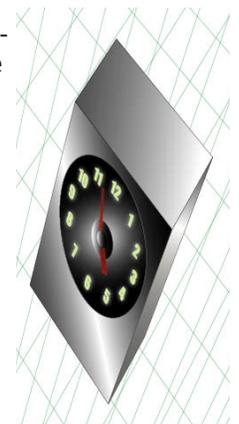
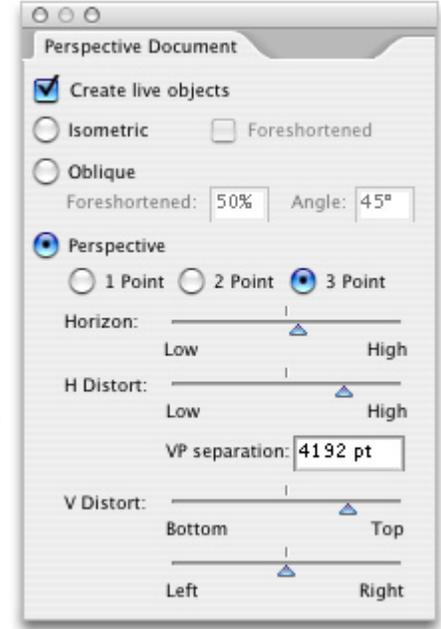
**3 point** - Choose 3 pt to create the most realistic objects and fine-tune the perspective effect. You can create very dramatic effects by controlling the location of the third vanishing point.

*Horizon*: Slide to move the two horizontal vanishing points lower or higher on the document.

*H Distort*: Slide toward high to move the horizontal vanishing points closer together, emphasizing the perspective effect. Slide toward low to reduce the perspective effect. For numeric control of actual spacing between vanishing points, enter a value into the VP separation field.

*V Distort - bottom/top*: Slide toward bottom to move the vertical vanishing point toward the bottom of the document, creating a "bird's eye view." Slide toward top to move the vertical vanishing point toward the top of the document, creating a "worm's eye view."

*V Distort - left/right*: Slide toward left to move the vertical vanishing point toward the left side of the document. Slide toward right to move the vertical vanishing point toward the right side of the document.



object below very high horizon and vertical distortion toward the bottom left

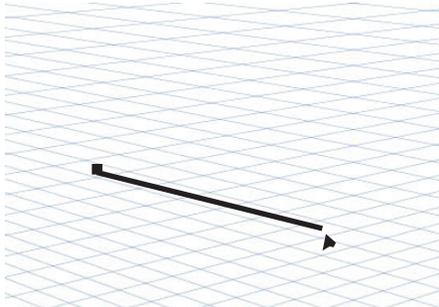
## Drawing with Perspective tools

Perspective allows you to create lines, faces, and objects that constrain to the grid. By checking **Create live objects** in the Perspective Document palette, Perspective faces and objects can also update to conform to the current Perspective background grid. To update Perspective artwork, you may need to click the Update button in the Perspective Objects palette. If you don't want objects to reshape to grid changes, uncheck Create live objects before you begin drawing, or expand live objects with the Expand button in the Perspective Objects palette.



**Perspective Line tool** - The Perspective Line tool allows you to drag and constrain a line to recede toward the nearest vanishing point. You can easily create shapes that appear as vertical or horizontal planes in 3D space. *Note: Lines created with the Perspective Line tool will not update with grid changes.*

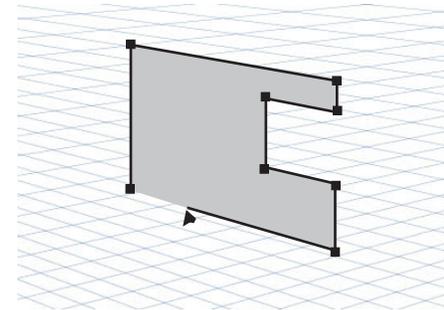
Select the line tool and position the cursor where you want the beginning of the line to appear. Click and drag to position the line, then release the mouse button to create the line. Hold down the shift key while dragging to create a receding line toward to the nearest vanishing point.



## Drawing with Perspective tools (cont.)

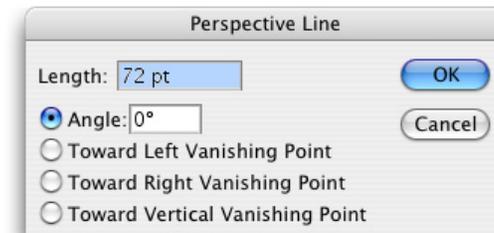
To create polygons with the line tool, first click and drag to create a line. To create a new line joined at an endpoint, position your mouse over the endpoint. When the (---) cursor appears, begin dragging again. Release the mouse button when you have positioned the line and continue the process as needed. If you want to close the path, click and drag the final line until the cursor is over the first anchor point of the polygon. When the (---) cursor appears, release the mouse button and the polygon will close itself.

Use the shift key while dragging to constrain the line toward a vanishing point!



All Perspective drawing tools support numeric input by clicking once on the document. To numerically create a line, click once on the document with the Perspective Line tool.

Choose a length and specific angle or direction toward a vanishing point. The units of length will default to the units set in your Adobe Illustrator preferences, but you can use any units supported by Illustrator.



## Drawing with Perspective tools (cont.)

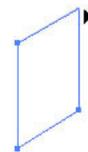
**Perspective Rectangle, Centered Rectangle, Rounded Rectangle, Centered Rounded Rectangle, Ellipse, and Centered Ellipse tools** - these Perspective face tools allow you to drag and constrain faces that recede toward the nearest vanishing point.



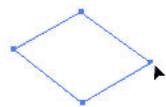
Select the tool and position the cursor where you want a corner (or center for centered tools) to appear. Click and drag from one edge of the face to the opposite edge. Hold down the shift key while dragging to create a square or circular face. Use the following keys to create vertical or horizontal faces:



**Front vertical faces** (left sides of objects):  
No modifier key



**Side vertical faces** (right sides of objects):  
Hold down the command key (Mac) or control key (Windows) *after* you begin dragging with the tool.



**Horizontal faces** (top or bottom sides of objects): use the alt/option key *after* you begin dragging with the tool. If you are above the horizon in perspective projection, you will draw a bottom face. If you are below the horizon in perspective projection, you will draw a top face.

*Note: To numerically create a face, click once on the document with the tool.*

**Tip: The cube icon in the Perspective Objects palette indicates the type of face during and after you draw!**

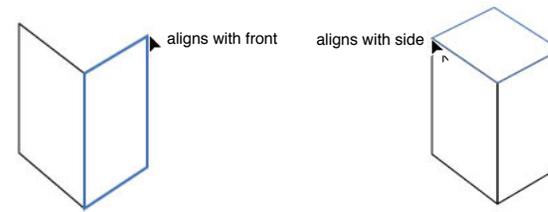


## Drawing with Perspective tools (cont.)



**Using the Perspective Objects palette to identify faces while drawing** - The cube icon in the Perspective Objects palette indicates the face you are drawing. If you select Perspective artwork, the icon also indicates if the face is a front, side, or top projection.

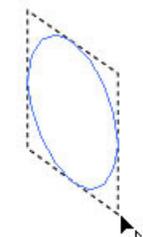
**Using the cursor to snap and align faces** - If you first click the corner point of a face to begin dragging an adjacent face, you will be able to see helpful cursor hints for accurate snapping and alignment. For example, when the top corner of the side face aligns with the top of the front face, the cursor hint will appear - "aligns with front."



Likewise, when you start dragging a top face from the corner point of a front or side, you will be able to see helpful cursor hints for aligning the top. *Note: when your cursor changes to , you know you are over a corner point.*

The tolerance for face snapping is the same as the snap to grid tolerance set in the Perspective Grids palette.

**Tips for drawing ellipses** - When drawing ellipses, keep in mind that your cursor will be located at the corner of the bounding box of the ellipse - not at the edge of the ellipse itself.



## Drawing with Perspective tools (cont.)



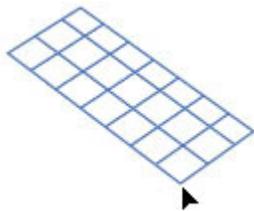
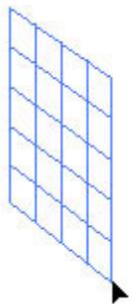
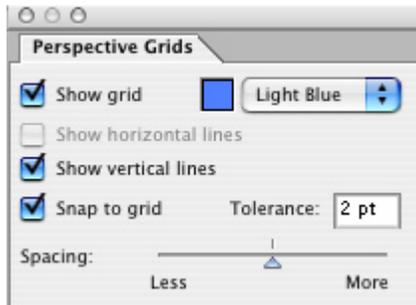
**Perspective Grid tool** - First, use the Grid options panel of the Perspective document palette to set the desired spacing of the Perspective background grid.

Then click and drag a grid “face” as you would draw a Perspective rectangle. Use the same Perspective face modifier keys to create vertical or horizontal grid faces. The grid face will appear containing grid artwork that follows the grid settings. The spacing between the grid lines follows the grid spacing set in the Perspective Grids palette. When the slider is at the far right (more), the grid spacing will be 2 inches. When the slider is at the far left (less), the grid spacing will be .125 inches.

*Note: The grid tool does not support numeric input – it uses the current grid settings to create grid artwork.*

*Like other faces in Perspective, “live” grid faces update to match the Perspective background grid. Similarly, you should first expand*

*the grid artwork before resizing or editing it with Illustrator tools. Use the Expand button in the Perspective Objects palette to release all internal links to the grid.*



a grid can be drawn as a front, side, or top face

## Drawing with Perspective tools (cont.)



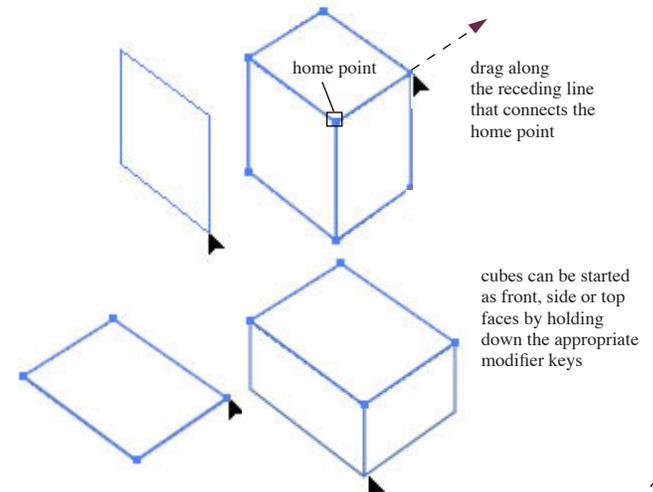
**Perspective Cube tool** - First, click and drag a front, side, or top face just as you would draw any other Perspective face.

After releasing the mouse, immediately drag toward the vanishing point *without clicking* to preview the cube’s depth. When the desired depth is reached, click the mouse to create it. (You do not need to hold down any modifier keys while dragging the depth of the cube.)

*Note: For more accurate drawing, drag along the receding line between the home point and the vanishing point. The home point is the central point location that is shared by all faces of a cube. Cubes are automatically grouped when created. **Remember to finish creating the cube depth before deleting or choosing another tool.***

Single-click on the document to create a cube numerically. The cube’s home point will be placed at your click point. If the click point is near the horizon, the cube may draw above or below the horizon, depending on its size and click point location.

*Note: For best results, avoid drawing cubes directly over the horizon or at extremely large sizes. After creating live cubes, also avoid moving them to the opposite side of the horizon where top/bottom faces will project incorrectly.*



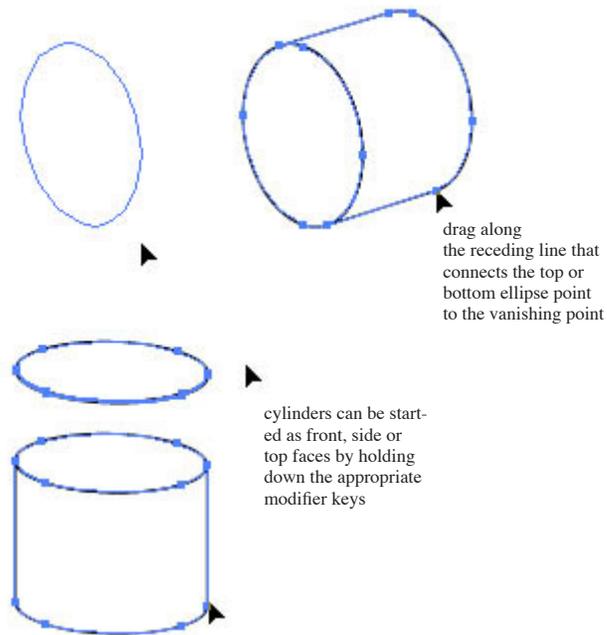
## Drawing with Perspective tools (cont.)



**Perspective Cylinder tool** - First, click and drag a front, side, or top face just as you would draw a Perspective face. After releasing the mouse, immediately drag toward the vanishing point *without clicking* to preview the cylinder's depth. When the desired depth is reached, click the mouse to create it. (You do not need to hold down any modifier keys while dragging the depth of the cube.)

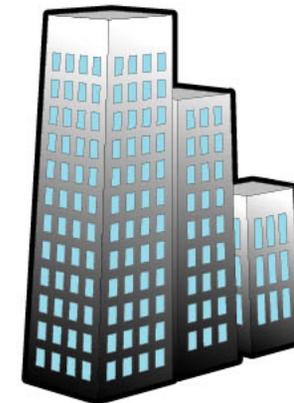
*Note: For more accurate drawing, drag along the receding line that is created between one of the top or bottom points of the ellipse and the vanishing point. The exact drag point (top or bottom) differs based upon how the cylinder was created. Cylinders are automatically grouped when created. **Remember to finish creating the cylinder depth before deleting or choosing another tool.***

Single-click on the document to create a cylinder numerically. The cylinder face's center point will be placed at your click point.



## Outlining Perspective artwork

Add visual definition to your composition by outlining the edges. Select the artwork and click the Outline button in the Perspective Objects palette.



## Projecting flat artwork as faces

Perspective allows you to instantly project “flat” artwork as faces that automatically conform to the current Perspective background grid settings. You can also change the face to which the artwork is projected by simply choosing an alternate face from the Perspective Objects palette. *Note: Artwork that is grouped and projected will project on the same face. Any vector artwork can be projected except for horizontal and vertical lines.*



Choose **Window > Perspective > Show Perspective Objects**. *Note: You may want to copy your artwork or save a copy of your document before you start projecting artwork – especially if you need to keep your flat artwork.*



### Project a front (left) face

First, select the artwork that you want to project as a front (left) face. If you want multiple shapes to project on the same face, group the artwork. With the artwork selected, click on the left face of the cube icon in the Perspective Objects palette.



## Projecting flat artwork as faces (cont.)



**Project a side (right) face** - First, select the artwork that you want to project as a side (right) face. If you want multiple shapes to project on the same face, group the artwork. With the artwork selected, click on the right face of the cube icon in the Perspective Objects palette.



**Project a top face** - First, select the artwork that you want to project as a top face. If you want multiple shapes to project on the same face, group the artwork. With the artwork selected, click on the top face of the cube icon in the Perspective Objects palette.



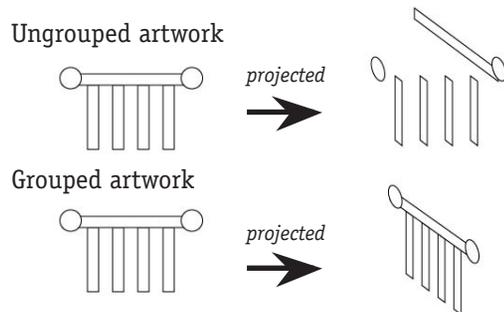
Any shape that has been projected can be flattened to flat artwork again if it was created with Create Live Objects checked in the Perspective Document palette. To flatten a shape, select it and click the Flatten button in the Perspective Objects palette.

*Note: If you move live artwork after it is projected, it will not update automatically. Click the Update button in the Perspective Objects palette to force live artwork to update.*

## Projecting flat artwork as faces (cont.)

### Tips on projecting

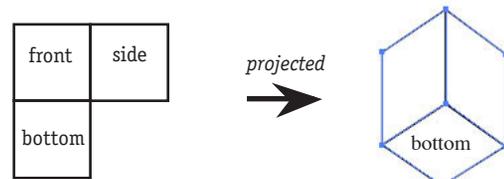
**Grouping** - If you want the artwork to project on the same plane, remember to group the artwork before projecting. After projecting all faces of an object, you may want to group them as well.



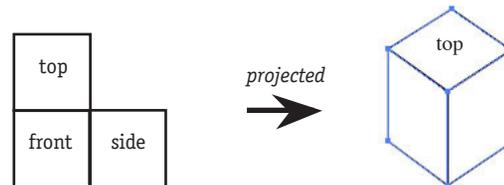
*Note: If you ungroup artwork that was projected as a group, the artwork will not be live or able to flatten.*

**Arranging 3 views** - If you create 2 or 3 views to project, arrange the artwork prior to projection as shown below:

If you are above the horizon:



If you are below the horizon:



If you want to use the same artwork for front, side, or top/bottom faces, simply copy and paste the flat artwork in the arrangement as shown above.

## Flattening or expanding artwork



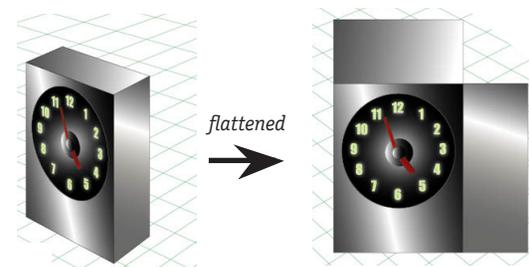
### Flatten to edit

If you have created Perspective artwork *with Create Live Objects checked* in the Perspective Document palette, you can flatten the faces and objects (orthographic projections) for easy, accurate editing with Illustrator tools.

First, select the face(s) or object(s) you need to edit. Then click the Flatten button in the Perspective Objects palette. After editing, reproject the artwork as faces using the cube icon in the Perspective Object palette. *Note: If you move the flattened artwork, it will not reproject in the same location.*

*Note: If you reshape a "live" projected face, the artwork will no longer correctly adjust to the Perspective background grid or flatten correctly.*

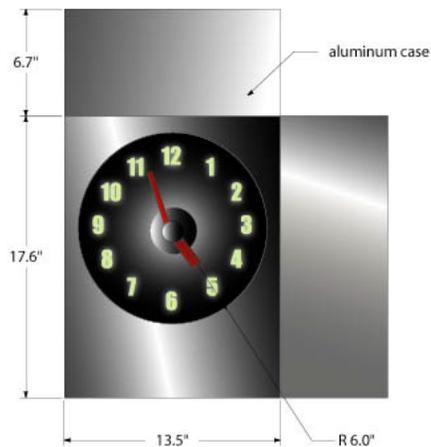
If you select and flatten an entire object made of Perspective faces, the faces will flatten in the following arrangement, with the top and sides adjacent to the front:



## Flattening or expanding artwork (cont.)

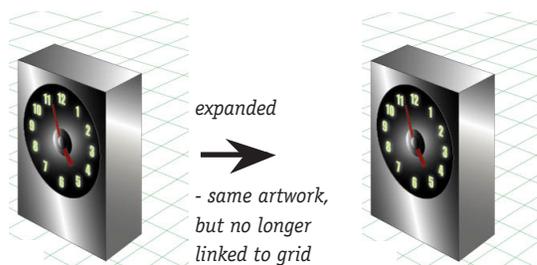
### Flatten to measure

Perspective artwork can be flattened, measured and saved, exported, or printed for CAD applications. You may want to save a separate copy of the file with Perspective objects prior to flattening and measuring. *The flattened artwork can be measured and dimensioned in scale with the Hot Door CADtools plug-in, sold separately.*



### Expand to remove links to Perspective grid

If you want to use Illustrator tools to edit live Perspective objects without flattening, you should select and expand the artwork to avoid unexpected reshaping to the Perspective grid. Use the Expand button located in the Perspective Objects palette to remove all internal links between the selected artwork and Perspective grid.

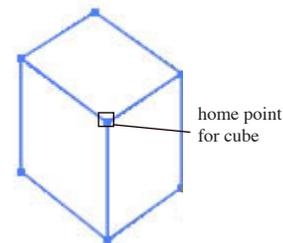


## Editing Perspective artwork

“Live” Perspective artwork will *automatically* adjust to changes in the grid if the artwork was created with Create Live Objects checked.

### Moving artwork

Perspective artwork adjusts to the Perspective grid settings in all directions. There is only one point called the **home point** on every face or object that remains stationary. When you move a “live” Perspective face or object, drag its home point to the new location for best results. *Note: Perspective lines do not have a home point and do not update.*



*Each face contains this home point. You can best remember the home point of each face by imagining all the faces put together as a cube.*

If you move live artwork after it is projected, it will *not* update automatically. Click the Update button in the Perspective Objects palette to force live artwork to update.

**Note: If the artwork or background grid is moved so that a top or bottom face of an object is no longer visible, the faces will not update correctly. If the artwork or background grid is moved so that the artwork appears extremely distorted, the artwork may not be able to flatten to its original state.**

### Editing artwork

If you edit or reshape Perspective artwork in its projected state, it may no longer update correctly. If you plan to edit artwork when it is projected, you should either 1) flatten and edit the flat artwork, then reproject faces or 2) expand the artwork in its projected state to prevent unpredictable results when the grid updates. Use the Expand button in the Perspective Objects palette to remove all internal links to the grid.

## Perspective drawing tips

### Using bitmap or raster artwork

Hot Door Perspective does not currently support projection of bitmap or raster artwork.

### Quickly setting Perspective grids

Before setting your Perspective grids, draw a Perspective cube with Create Live Objects checked. Then choose and adjust your projection type until the cube appears as desired.

### Save grid settings as files

Grid settings are saved with the document and may be useful if saved as a template for future use: 1) Draw a cube in the center of the document for visual reference, 2) set the grid, and 3) save the file with a useful name.

### When to use Live Objects

Live Objects feature was designed for simple objects or choosing projection settings prior to making a detailed illustration. Live objects can be cumbersome if you need to edit and add faces or details that do not exist on the same face “plane.” You should consider creating your larger structural faces and objects first as live objects to establish the desired view and framework for your composition. Then, turn off Create Live Objects and create Perspective details without being linked to the grid settings. (Live isometric and oblique objects are less dramatic but contain parallel receding lines which yield more predictable results during updates.)

### Using curved paths in Perspective

To create curved paths in perspective, you should create normal flat artwork and project it with Perspective Objects palette for best results.

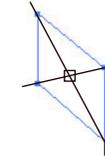
### When in doubt...copy or save

Consider copying and pasting your flat artwork prior to projecting it – at least until you have finished the project. Or save a copy of your flattened artwork before projecting.

## Perspective drawing tips

### Finding centers of objects in perspective

Projected faces in perspective do not show true centers. To find the center, create diagonal lines between the corners of the face.



construct diagonals between the corners to find the true center of a perspective face

### Round join stroke settings for Perspective artwork

The geometry of projection may naturally cause many sharp angles in the artwork. If you plan to stroke the artwork, you may want to use Round Join for a cleaner appearance. You can choose Round Join in the Options panel of the Illustrator Stroke palette.

### Avoid using gradient mesh tools on live objects

A Perspective “live” object is automatically expanded and no longer linked to the Perspective grid if an Illustrator gradient mesh tool is used on the object. Use gradient meshes by applying them to flat artwork and then projecting.

### Perspective line tool for guides

The Perspective line tool can be very helpful in making quick guides while drawing. Guides can also help you accurately place a series of receding objects.

### Accurately moving Perspective artwork

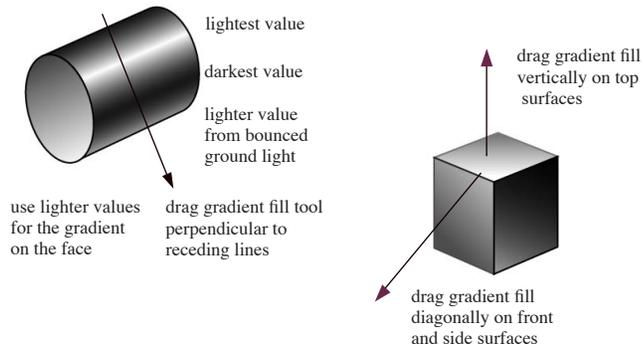
It may be difficult to accurately position live Perspective artwork, since all lines update to match the grid. However, one “home point” remains stationary (see page 37). Drag this point to a desired location for best results.

### Using multiple views on the same document

You can easily create illustrations with different projections as long as you expand any live Perspective artwork before changing your projection settings. You may want to uncheck Create Live Objects if you plan to often change projection settings during your project.

# Perspective rendering tips

## Using gradients with Perspective



You can use gradient fills to simulate lighting of objects. Remember that contrast between light and dark faces provides a better illusion of depth.

**For cylinders:** 1) Select a face and drag the gradient tool across the face in a direction perpendicular to the receding lines. 2) Modify the gradient using the gradient palette so that you have a light color stop that corresponds to the light direction and a dark color stop for the shadowed surface. 3) Modify the gradient palette so that you have a lighter color under the darkest band at the bottom of the cylinder that corresponds to bounced ground light.

**For cubes:** 1) Select the front or side face and drag a gradient diagonally across the surface. Bounced ground light often causes a face to appear lighter toward the bottom of the cube. Use a diagonal or horizontal gradient for the adjacent face. Create contrast between colors along the front edge 2) For the top brightest face, vertically drag a gradient light in color. To maintain edge definition, darken the blend toward the back corner of the cube.

## Using patterns with Perspective

Patterns are not automatically transformed with Perspective objects, but you can force a transformation of pattern artwork by expanding and projecting it with your flat artwork: 1) Fill the flat artwork with a desired pattern. 2) Select the artwork and expand using Illustrator's Object > Expand... 3) Then project the expanded artwork with the Perspective Objects palette.