

## MAIN INTERFACE ELEMENTS

### Palettes

Drawing and editing tools are arranged in two main palettes: **Basic** and **Tool Sets**, which are opened from the pulldown menu **Window | Palettes**. These palettes can be rearranged by dragging them within the drawing window and closed by clicking on the red button at the top left corner of the palette (Mac) or the top right (Windows). Click on a tool to make it active. For many tools, double-clicking opens a dialog box that allows the creation of an object by entering values for size, position, and rotation.

Some tools have additional tools beneath them, indicated by the small arrow in the lower right corner. Simply press on the tool to reveal more choices, then move the mouse over to make a different selection.

### Tool Sets

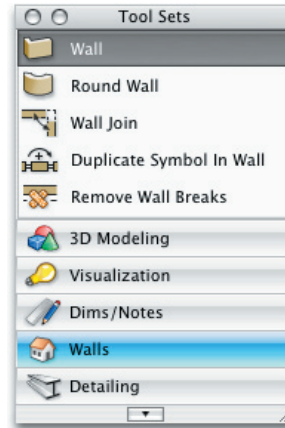
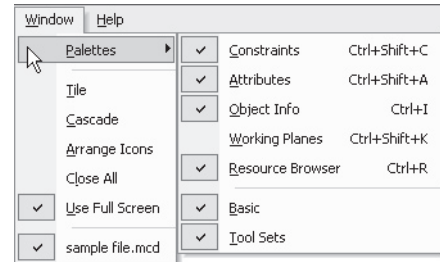
The **Tool Sets** palette contains additional tools for working in 3D, placing dimensions, and making notes, drawing walls, and detailing. To access a tool set, simply click on its title bar at the bottom of the palette and select a tool. Any tool set can become a tear-off palette by grabbing its title bar and dragging the tool palette onto the drawing. Clicking the small arrow at the bottom of a tool palette opens pop-up menus with options for viewing and sorting tools.

### Tool Bar

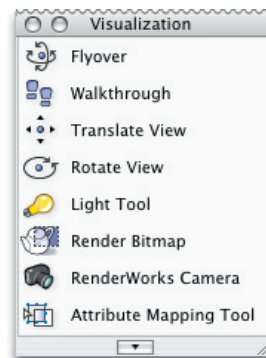
Most tools have more than one mode, or way of being used. Modes are selected in the **Tool Bar**, the horizontal strip immediately above the drawing window. The tool name and the currently active mode are displayed beside the icons of the tool's different modes. Notice that the **Tool Bar** is context-sensitive since it changes according to the tool chosen.

### Data Bar

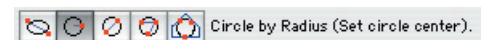
The **Data Bar** is context-sensitive and displays information about the size and position of objects as they are drawn. The floating **Data Bar** follows the cursor and can be activated, typically, by pressing the **Tab** key. Press **Tab** in the middle of drawing an object to switch the keyboard's focus to the **Data Bar**.



Walls Tool Set highlighted



A tear-off palette



Tool Bar



Floating Data Bar

Then type in precise figures for the size, position, and angle of the object currently being drawn. Continue tabbing to lock in a number and advance to the next field.

## Constraints

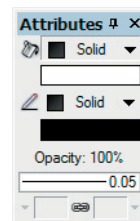
The **Constraints** palette controls how reference points on existing objects are used to help draw a new object or move an existing one. Vectorworks' constraints (also called snaps or snap constraints) work by **SmartCursor cues**. When you get close to a point on an object, a word appears, indicating a reference point has been reached. Double-click on most constraints to choose additional settings from the **SmartCursor Settings** dialog box, such as grid options and angle snaps.



Constraints palette

## Attributes

The **Attributes** palette determines how an object will appear using the following settings: pen and fill colors, line thickness and style, opacity, and the style and position of arrowheads. Making changes with no objects selected alters the default settings, affecting the way future objects are drawn. With one or more objects selected, changes affect their attributes, but not the default settings. Vectorworks' text settings also work in the same way. The **Attributes** palette also contains default content for hatches, gradients, and images. In Design Series products, clicking the selection arrow at the bottom of the **Attributes** palette produces a utility menu with default and global attribute settings.



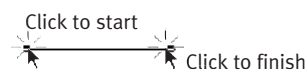
Attributes palette

## Basic Principles

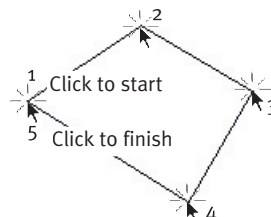
Some basic principles used when drawing in Vectorworks are described below. For your copy of Vectorworks to match the instructions shown here, make sure that in **Vectorworks Preferences**, the setting for **Click Drag Drawing** is turned off, meaning that a line is drawn with two clicks of the mouse instead of a drag and release.

To begin drawing, choose a tool from a palette, either by clicking on its icon or by selecting it with a keyboard shortcut.

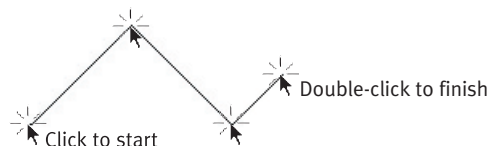
••• When drawing with tools such as the **Line**, **Rectangle** or **Circle Tool**, click to start and click to finish. With other tools, such as the **Polyline** or the **Polygon Tool**, click to start, then click on the starting point to finish a closed object, or double-click to finish an open object.



Drawing a line



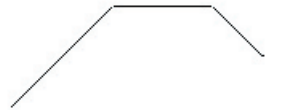
Drawing a closed polygon



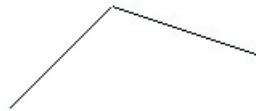
Drawing an open polygon



- > When drawing objects with multiple vertex points, such as polygons or polylines, press the **Delete** key (Mac) or the **Backspace** key (Windows) to remove the last vertex point drawn. Press the key repeatedly to remove multiple vertices.
- > Press the **Escape** key in the middle of a drawing action to cancel the operation. Pressing the **Escape** key when a dialog box is open is the same as clicking on the box's **Cancel** button.
- > The **Space Bar** temporarily engages the **Boomerang** mode. Press the **Space Bar** to switch to the **Pan Tool**. While in **Boomerang** mode a second tool, such as the **Zoom** or the **Flyover Tool**, can be selected and used. Release the **Space Bar** to return to the original tool. **Boomerang** mode can also be engaged while in the middle of a drawing action.

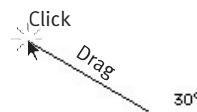


Drawing a multiple vertex object

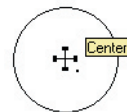


Pressing the Delete or Backspace key removes the last vertex point

- > Choose **Edit | Undo** to undo your previous actions. The maximum number of undos, as well as various preferences related to the **Undo** command, can be entered in the **Session** tab of **Vectorworks Preferences**.
- > While drawing, press **Shift** to constrain objects such as lines, polygons, and walls (they can be held at horizontal, vertical, 30°, 45°, 60° or custom angles). The **Shift** key also constrains a rectangle to a square or an oval to a circle.
- > Snap constraints allow you to draw and move objects very precisely to given or existing reference points. When you are at a snap point, the cursor's icon changes and a **SmartCursor** cue appears onscreen next to the cursor. This screen hint indicates that you will snap to that particular object. Snap constraints are discussed further in the chapter *Using Snap Constraints*.



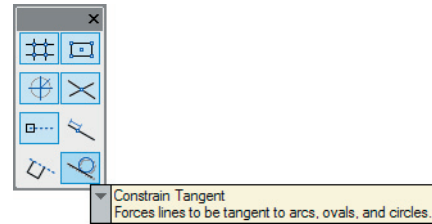
Line is constrained to 30° with the Shift key



Circle's Center snap point

- > Double-clicking on most drawing tools on the **Basic** palette opens tool-specific dialog boxes where settings such as size, layer, class, rotation, and position on the drawing can be entered.

⋯➤ Holding the cursor over tools, the **Tool Bar**, and **View Bar** displays their names and, where appropriate, keyboard shortcuts. To see an expanded description of each tool, mode or command, press the **Command** key (Mac) or **Shift** (Windows). On Windows, you can also click on the arrow in the gray box to the left of the item name to display or hide the descriptive text.

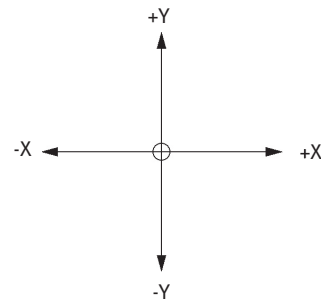


An expanded screen tip

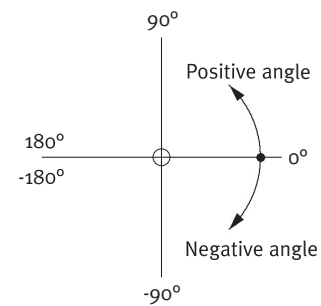
### Cartesian and Polar Measurements

Numbers are entered using one of two systems. Cartesian coordinates are based on a grid where the **X** axis runs horizontally, and the **Y** axis runs vertically. **Positive X** is toward the right and **negative X** is toward the left. **Positive Y** is toward the top of the page and **negative Y** is toward the bottom of the page. In 3D drawings, there is a third axis called **Z**, which is the direction measured vertically.

Polar measurements use a distance and angle method to describe measurements.  $0^\circ$  is to the right, with the angle growing positively as you move in a counter-clockwise direction. For example, a line drawn vertically upwards would be at  $90^\circ$ . A line drawn vertically downwards would be at  $-90^\circ$ . When entered, however, a bearing angle such as  $270^\circ$  is automatically converted to the equivalent polar measurement.



Cartesian system



Polar system