A Complete Home Design & Remodeling Program

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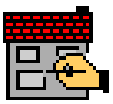
Macintosh

Design Your Own Home®

3D WalkAround™



Design Your Own Home®

3D WALKAROUND™

for the Macintosh

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Manual and illustrations by Rodger Smith
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System Requirements

68K Macintosh with 8MB of RAM (16MB highly recommended), 68040 processor or better (a floating point processor is required)

PowerMac with 24MB and a minimum of 16MB free RAM. System 7.5.3 or later, 640 x 480 monitor with 256 colors or better, 50MB free hard drive space, mouse, and 2x CD-ROM or faster.

Optional:

- Apple or Apple compatible printer
- Additional drives or hard disk

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Contents

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Introduction

Welcome to *Design Your Own Home*® *3D WalkAround*™! You've purchased a powerful, flexible, easy-to-use tool for drawing floorplans and architectural designs.

What can *3D WalkAround* do?

3D WalkAround gives you the power to be creative! Whether you want to add on to your existing home, build a new dream home, or simply want to experiment with home or office furniture arrangements, you've acquired the right program for the job.

You can create your own floorplans, or select from 200 predrawn floorplans. Use them as is, edit them to suit your needs, or just browse them for possible ideas.

The wall tool lets you create floorplan layouts quickly and easily. It shows to-scale wall lengths as you draw. And since it automatically snaps to wall end points, the creation of precise corner connections is a breeze.

Once the floorplan is done, choose among hundreds of predrawn to-scale furniture symbols from a variety of provided symbol libraries. Add furniture to your designs with drag and drop ease! Experiment with furniture arrangements, and simultaneously view the results in 3D (save your back and let your mouse do the heavy lifting).

Also, pick from hundreds of realistic scanned textures such as fabrics, wallpaper, carpet, floor tiles, brick, stones, wood grains, and more. Customize your design. Apply textures to walls, floors, and furniture.

Then, don't simply imagine how it will look. Go for a virtual 3D walk-around in your creation and experience it!

What are some of *3D WalkAround's* features?

Here are just a few of the many features you'll find helpful for creating your design projects: multiple layers, 24-bit color support, numerous architectural scale choices, visible grid points, grid snap, rulers that reflect "real world" distances, ruler lines, dimension lines, text in different fonts and sizes, a special tool for drawing evenly-spaced studs and joists, a bezier curve tool, multigon tool, 2D patterns, 3D textures, predrawn 2D and 3D symbols, the ability to create and save your own custom symbols, convenient "cut and paste," support for multiple open documents, automatic rescaling of objects, 3D viewing and walk-around features, and much more.

Technical Support

Abracadata appreciates your support and interest in using our products! We provide free technical support so if you run into problems, or have questions that you can't find answers for in this manual, help is only a phone call away.

Before calling though, please look through your manual for the solution. You'll find the answer to many of your questions and problems here. If you are unable to find a satisfactory answer in the manual, please gather the following information, then call the technical support number below for assistance.

1. Determine the version of *3D WalkAround* you have.

2. Have your computer and system configuration information available. We may need to know what model of Macintosh you have, and what version of system software you are using. If uncertain about what version of system software you have, select About the Finder under the Finder's Apple menu.

3. Know which, if any, Inits or Extensions are on your system. These can be thought of as utility programs, which typically modify standard system operation in some fashion. You may see their icons appear along the bottom of the screen when you

start your computer. It's not unusual for them to cause compatibility problems between themselves or other applications. They are located inside your System Folder.

4. Call Abracadata's technical support number between 8:30 AM and 4:30 PM Pacific time: 541-342-3030. Please don't call our order lines for technical support. These employees are not trained for technical support. Unlike some companies, we don't charge for support. We only ask that you pay for the call so that we may continue to provide economical products for you and all our customers.

About the Team

Design Your Own Home, 3D WalkAround is brought to you by a team of professional designers, programmers, writers, testers, and other business professionals who pride themselves in providing software that is dynamic, easy-to-use, and enriches a particular aspect of your life.

We would love to hear from you about *3D WalkAround* or any other Abracadata products that you use. And here's why: Most software is continuously updated and enhanced over time. And YOU are one of the best sources of information for enhancement ideas. We wrote the software for you; so if you want new features or have suggestions about how you'd like to see the program work in the future, please let us know.

Chapter 1

Getting Started

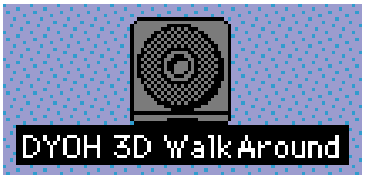
If you are familiar with the Macintosh's desktop environment, you'll feel right at home using *3D WalkAround*. If you haven't used a mouse or worked within a desktop environment, please refer to your computer's User's Guide. It provides more in-depth information about printing, loading and saving documents, and other Macintosh features.

This manual's primary focus is on specific information you need to use *3D WalkAround*.

Installation

To install *3D WalkAround* onto your hard disk:

1. Insert the *3D WalkAround* CD-ROM disk into your drive and double-click the CD-ROM disk icon.



2. If a ReadMe file is present, double-click it and read the provided information. The ReadMe file may contain updated system requirements, or revised installation or usage instructions too recent to make it into this manual.

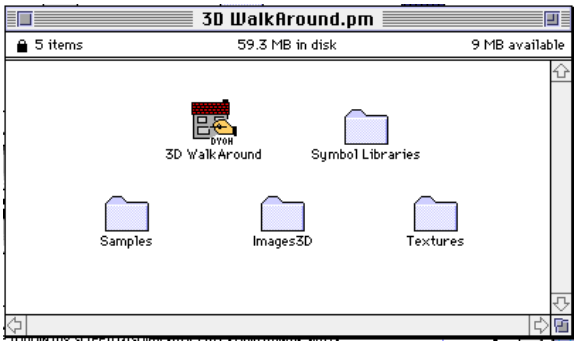
3. Depending on the type of Macintosh computer you have, drag the appropriate folder to the desired hard disk location. If you have a Power Macintosh, drag the folder named "3D WalkAround.pm" to your hard disk. If you have a 68K Macintosh, drag the folder named "3D WalkAround.68K" to your hard disk.

4. If desired, install the predrawn floorplans. You'll see two folders, named "Floorplans.68k" and "Floorplans.pm" . Select "Floorplans.pm" if you are using a Power Macintosh, and "Floorplans.68k" if you are using a 68k Maintosh. It requires approximately 6.5 MB of disk space. You can install the floorplans on your hard disk, or access them directly from the CD-ROM while using *3D WalkAround.* To install, simply drag the Floorplans folder to the desired hard disk location.

Starting 3D WalkAround

To start *3D WalkAround*:

1. Find and double-click the 3D WalkAround folder. Find the "3D WalkAround.pm" folder or the "3D WalkAround.68K" folder, depending on which you installed. Double-click the folder to open a window containing *3D WalkAround* and its associated files.



The 3D WalkAround folder contains:

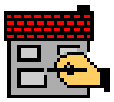
Samples	a folder containing sample designs
Symbol Libraries	a folder containing symbols
Images3D	a folder containing 3D symbols
Textures	a folder containing 3D textures

3D WalkAround application the *3D WalkAround* program

2. Double-click the *3D WalkAround* application icon to start *3D WalkAround*.

Useful Tip: Designs that you save to disk appear with a document icon when viewed from the Finder screen. You can double-click a document icon to start *3D WalkAround* and have the drawing load automatically. Here's a sample document icon:

Chapter 2



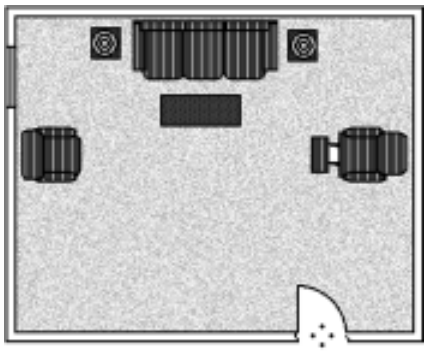
3D WalkAround Tutorial

We recommend that you work through this tutorial chapter from the beginning to the end, since many sections build on information introduced in earlier sections. Because this is intended to be a hands-on chapter, you should have *3D WalkAround* running and actually perform the operations that describe how to create a simple floor plan.

Note: If you make a mistake, immediately select Undo to reverse it (or hold the *command* key and press "Z"). Don't click anywhere or do any other operation before selecting Undo or you may not be able to reverse the mistake. The Undo menu item is dim when Undo is not available.

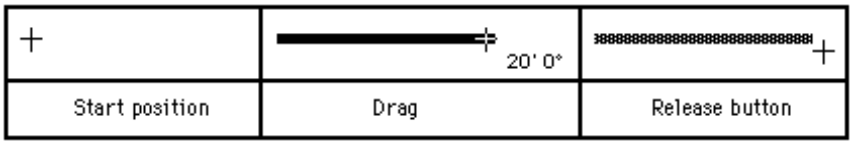
Creating a Drawing

For practice, work through this section to create the following simple floor plan.

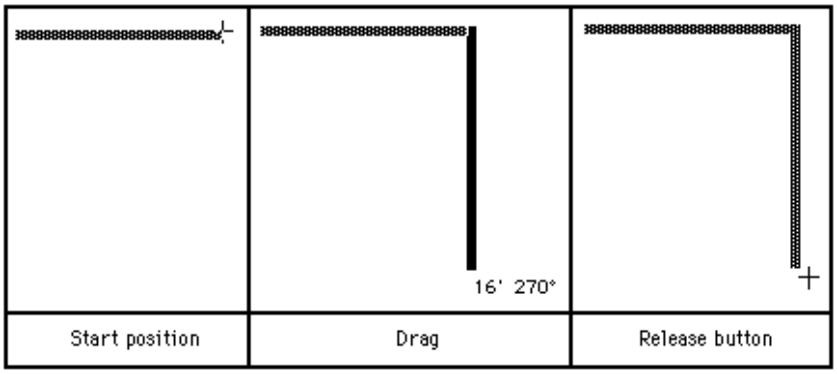


1. Highlight the wall tool. Move the pointer onto the wall tool and click once to activate it for use.

2. Draw the first wall of the room. Refer to the following illustrations. Move the pointer into the top left corner of the drawing area, hold down the mouse button and drag a wall horizontally 20'. Note that you can hold down the *shift* key while drawing to help draw straight walls.



3. Draw the right wall of the room. Move the pointer to the right end of the first wall, hold the mouse button, and drag a wall downward 16'.



4. Duplicate these two walls. Choose the selector tool, which is the top left tool on the tool bar. Click on the 20’ horizontal wall. Choose Duplicate (or hold Command + D) from the Edit menu. Repeat this procedure with the 16’ wall. Move your walls so that they form a rectangle. When you’re done, your drawing should look like this.

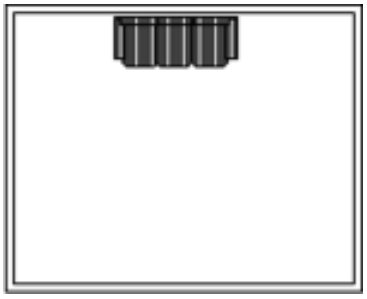
5. Open a furniture symbol library. Select Open Library Window under the Symbols menu. Find and Open the Symbol Libraries folder, then find the Seating library and double-click its name. Your drawing window shrinks, if needed, to make room for the library window, which opens along the right side of the screen (as illustrated in step 6).

6. Create a 3D view. This is a good time to open a 3D view of the drawing, which you can use for reference as you place furniture. Click the button named "3D" located below the drawing tools.

In the 3D window, click on the birds-eye view button represented by the flying bird. The bottom of the drawing window shrinks, if needed, to make room for the 3D window, which opens beneath it as in the following illustration.

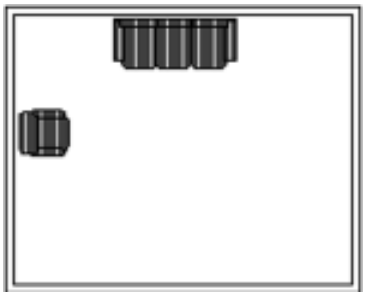
7. Place a sofa in the room. Click the library window to bring it to the front. Select the red sofa named "7' Sofa 1A". From the Symbols Menu, select 3D Preview. You should see the following graphic.

Close the 3D Preview window and select the red sofa again. Hold down the mouse button and drag the sofa into the room. Position it near the top wall. Notice the sofa appears in the 3D view as well.



Note: If needed, use the library window's scroll bars or it's grabber tool (hand icon) to scroll symbols into view and access them. If you use the grabber, don't forget to click the selector tool (the arrow) afterwards so you can continue to drag and drop symbols into your drawing.

8. Place a chair in the room. Click the library window, use the scroll bars as needed to find the red chair named "Seat 1A" and drag it into the room along the left wall. Press the "<" key, or select Rotate Left under the Arrange menu to rotate the chair. Move onto it and drag it into position.



9. Place the remaining furniture in the room. Using the same techniques described in steps 5, 7, and 8, add the remaining furniture into the room as listed.

Seating library:

Seat 3A; press ">" to rotate right

Open Table library:

Coffee tbl 1C

End tbl 1C

Duplicate the End tbl by pressing *command*-D

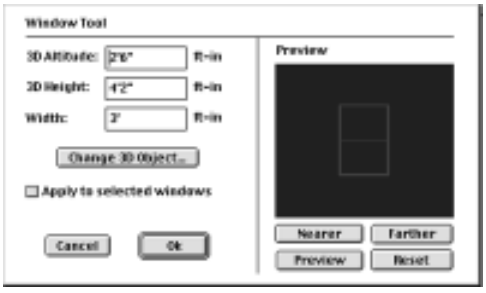
Open Lamps library:

Tbl lamp 1B; place on End table

Duplicate the Tbl lamp; press *command*-D

10. Select the Window Tool 

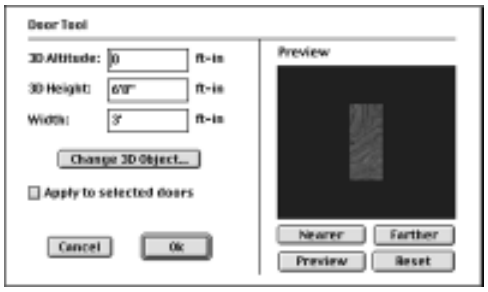
Click on the left wall above the seat to place your window. Notice the smart window feature which positions the window correctly within the wall. Click on the Selector Tool. Press and hold Command + 1 to show the window dialog as seen below.



Change the 3D Height to 5’ and the Width to 3’ and click Ok. Notice the size of the window in the 3D Window has changed.

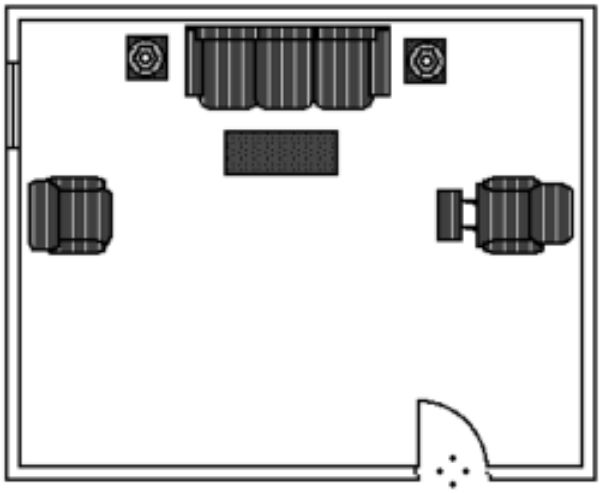
11. Select the Door Tool 

Click on the right portion of the bottom wall to place your door. Again, notice the smart door feature, which places your door correctly. Click on the Selector Tool. Press and hold Command + 2 to show the door properties dialog as seen below.



Change the Width to 2’6” and click Ok. Notice the width of the door in the 3D Window has changed. Let’s change the direction that the door opens. You will see four small arrows inside the door you placed. Click on the top arrow to change the door to open inward.

Your layout should now appear as seen below.



12. Select the floor tool. Click the floor tool.

13. Create a floor. Though a default square floor appears automatically in 3D under an entire floorplan if no floor object exists, you’ll most likely want to use the floor tool to create individual floors for each room. Use the walls as a guideline to draw a floor. The floor consists of a polygon. Therefore, the

floor tool works like a polygon tool. Though this sample room is square, you can also create floors of any shape.

To begin, move to the top-left corner of the room where the walls meet and click (press and release the mouse button). Moving clockwise, click at each corner of the room until you return to the starting point (draw corner-to-corner, across the entryway at the bottom). Note that you can also double-click at any time to end the drawing.

14. Add an auto-roof to your structure.

Click on the Auto-Roof Tool. 

You will see a roof automatically placed on top of your structure. This tool is useful if you want to create a roof quickly. Instead, for purpose of illustration, lets create a different roof.

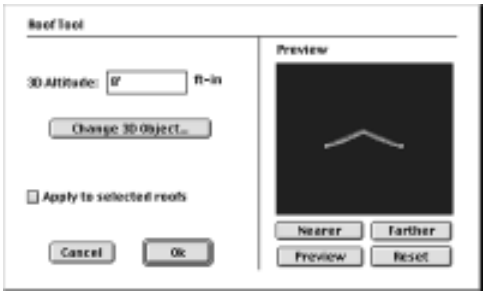
Click on the Remove Auto-Roof Tool. 

You will see the Auto-Roof disappear.

15. Add a roof object to your structure.

Double-click on the Roof-Object Tool. 

This will bring up the Roof-Object Dialog. This dialog allows you to change the roof object properties and preview the roof object. Click Ok to return to your drawing.

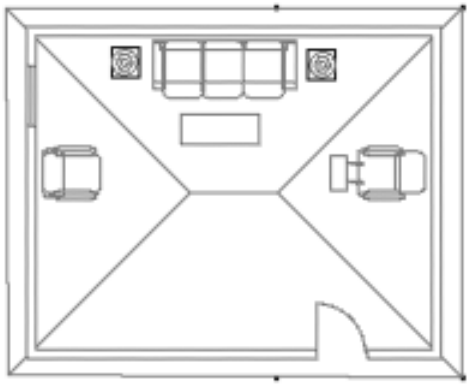


Now let’s actually place a roof object. Click and drag with the Roof-Object Tool from a point above and to the left of the

structure to a point below the bottom right corner of your structure. Doing this will give the roof a little bit of overhang. If the roof is not correctly centered, choose the selector tool and center the roof. In the 3D Window, click on the Front View button, located to the right of the Birds-Eye View button.

You will notice that there is a gap between the top of the walls and the new roof object in the 3D Window. To correct this, select “Wall Tool” from the Layout Menu. Click in the box next to “Auto Extend Walls Up To Ceilings” and click Ok. The tops of the walls should now extend to the roof object.

The sample room layout is now finished.



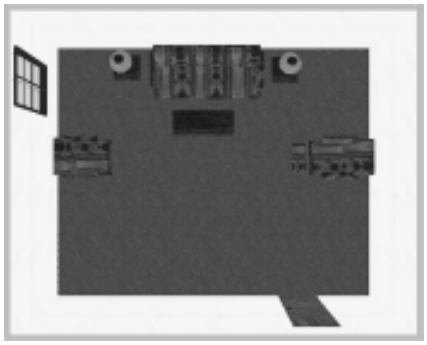
This simple example demonstrates only a small part of what *3D WalkAround* can do. Read through the rest of the manual to learn more. And, if you want, continue to the next section and take a virtual walk in your newly created room.

Going For A 3D Walk-Around

The easiest way to learn how to perform a 3D walk-around is to simply experiment and try it out. For this purpose, we'll use the sample room created in the previous section. However, if you didn't work through the previous section, go ahead and open one of the sample layouts instead.

If you worked through the previous section, you already have a 3D window open. If not, click the 3D button to open a 3D view of your design.

For the sample room, you should see the following (note that for purpose of illustration, we aren't showing the ceiling here).

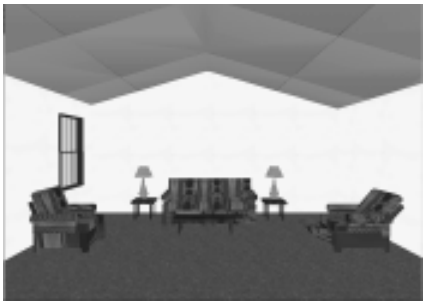


When the 3D window first opens, the bird's-eye (or overhead) view is shown. Move the pointer into the 3D window, hold down the mouse button and experiment moving (or flying) left, right, up, and down. The further from the center of the window you are, the faster you move. You can also move using the keyboard arrows or the movement buttons (the arrow tool icons along the left side of the window).

Click the bottom (or north facing) walk-around side view button, as indicated with a camera symbol and an arrow pointing up.

This changes the 3D view to a walk-around side view. This and the other side view buttons look at the 2D layout in 3D from the direction indicated by the arrows on the buttons. The rightmost button resets the camera to its previous position.

Now, go ahead and experiment moving again. Up/Down mouse movements move inward and outward, and left/right movements move left and right (hold *shift* to turn left and right instead). Here's how it looks when you move into the room.



Feel free to go ahead and experiment with all the 3D window buttons. You can't hurt anything. Refer to the "3D Tools" section of the "Tools" chapter for a more detailed description of all the 3D window's buttons, and for more about how you can use modifier keys to alter movements.

Setting 2D/3D Object Altitudes & Heights

The altitude box (or edit field) at the left side of the bottom scroll bar lets you specify the height above the floor for selected 2D objects such as table lamps, hanging lights, and so on.

The specified altitude is used when placing objects in the 3D view. If the 3D window is open when you change object altitudes, the objects are automatically adjusted in the 3D view.

To specify or change object altitudes:

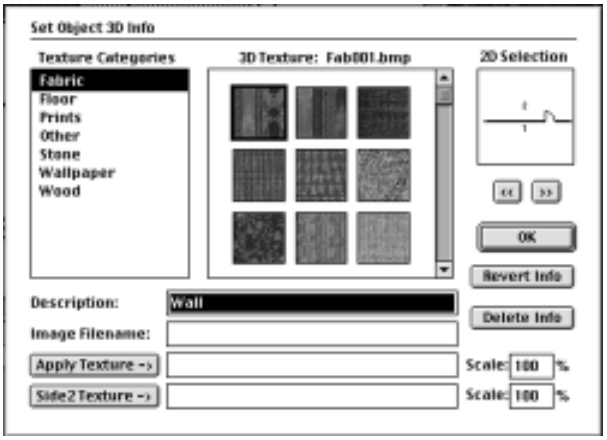
1. Click the selector tool and select one or more objects.

2. Type an altitude. Click the altitude box and type an altitude (e.g., 2', 30", 3.5 are all valid altitudes). Press *return* or click anywhere to apply the altitude to all selected objects.

The height box (or edit field) at the left side of the bottom scroll bar lets you specify the height of selected 2D objects. This feature is used to change the vertical size of 3D objects. Once an object has been resized in 2D, use this option if desired to independently change a 3D object's height.

Setting 3D Textures and Object Info

To specify textures for walls, floors, and other symbols that appear in the 3D view, first select their 2D counterparts, then choose Set Object 3D Info under the Edit menu.



Texture Categories. Click the desired texture category.

3D Textures. Click a texture and the Apply Texture button, or double-click a texture, to apply it to the currently chosen 2D object (shown in the 2D Selection box, explained below). Walls and floors can have two textures, one for each side of a wall, and one for the top and bottom of floors. *Command*-double-click a texture, or click it once and click the Side2 Texture button

to apply textures to the second side of walls or the bottom of floors. Note that for walls, the 2D Selection box indicates which side is side one and which is side two.

An easy way to create additional library symbol variations is to duplicate the desired 2D library symbol, select it, and bring up this 3D settings dialog. Then assign the texture of your choice to the symbol, leaving the other data unchanged. You'll almost certainly want to customize floors and walls with your own texture choices. The newly applied textures show up in the 3D view when you exit the dialog, if the 3D window is open. Otherwise, they appear when the 3D window is next opened. You can save your changed symbols to a library using the Library feature under the Symbols menu.

2D Selection. This box shows the currently chosen 2D object. Textures and the other 3D data apply to this object. If more than one 2D object was selected with the selector tool prior to displaying the dialog, you can cycle through the selected objects using the "<<" and ">>" buttons.

Description. Use this field to specify a name or description for the object.

Image Filename. This specifies the 3D image file to show in the 3D view for the 2D object in the 2D Selection box. Since these images have already been assigned to all the library symbols, it's not likely you'll need to change them, but the capability is provided. The 3D symbols are in the Images3D folder.

Apply Texture, Side2 Texture. Please refer to "3D Textures" above for a description of these buttons.

Texture Scaling. These settings let you to change the scale at which textures are displayed on 3D walls and floors.

Revert Info. This changes all the 3D settings back to their original settings prior to the most recent changes.

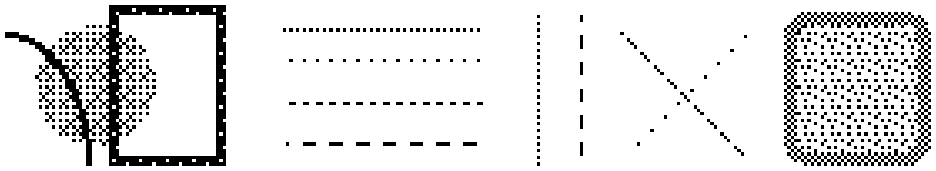
Delete Info. This deletes all the 3D info for the currently chosen 2D object. In this case, nothing will appear in the 3D window for the object.

Using Patterns

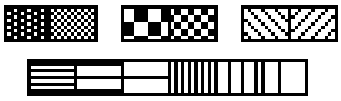
3D WalkAround provides a pattern palette with many different patterns you can use in your designs. And as you'll see later, you can also edit the patterns if desired.

You can use the patterns for both filling object interiors and for drawing lines and object borders. The pattern used for object borders, and for drawing lines, is referred to as the line, or pen, pattern.

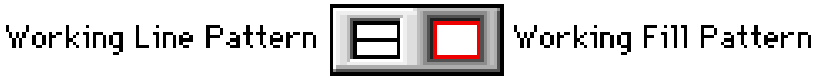
The not-equal, ≠, symbol at the top left corner of the palette (see the preceding illustration) tells *3D WalkAround* not to use any pattern. Using it as a line pattern lets you create objects that have no borders. Using it as a fill pattern lets you create objects with transparent interiors. Here are some examples of objects drawn with various pattern combinations:



Notice in the preceding illustration that the textured circle in the background has no border. The not-equal symbol was used as its line pattern. Similarly, you can see through both the arc and the rectangle that’s in front of the circle. The not-equal symbol was used as the fill pattern in this case. Also demonstrated is the use of line patterns to draw dotted and dashed lines. Here are some patterns you may find useful for that purpose:

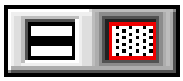


The two reference boxes at the left end of the pattern palette show the current working line thickness, working line pattern, and working fill pattern.

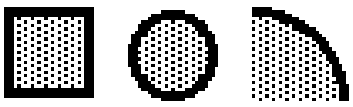


The currently highlighted box, which is darker and outlined in red, indicates which type of pattern is affected by clicks on patterns in the palette, the line pattern or the fill pattern. Click a pattern when the right-most box is highlighted, and the working fill pattern is changed, as well as any selected objects' fill patterns. Similarly, if the left-most box is highlighted, the working line pattern and any selected objects' line patterns are changed. To change which type of patterns are affected, simply click the desired reference box. You'll see step-by-step how to use these shortly.

The line pattern reference box also shows what the current line thickness is. You set the line thickness by choosing a size from the Line menu, or by pressing a number (1-8) on the keyboard. Here's how the reference boxes look when the line width is changed to 3 dots thick and a textured fill pattern is clicked:



And here are some example objects drawn with the preceding settings:



As the illustration demonstrates, when you draw with the standard drawing tools, the final object you create takes on the working line thickness, line pattern, and fill pattern that's

shown in the two reference boxes (note that some tools' defaults are set under the Text and Layout menus).

You can change the line thickness, line pattern, or fill pattern of existing objects by selecting the objects and clicking the desired pattern, or by choosing a new line size.

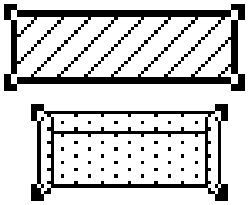
Changing Objects' Patterns

Here's how to change existing objects' patterns.

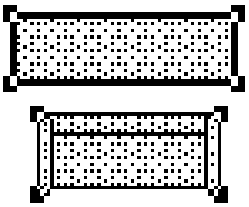
To change fill patterns:

1. Click the selector tool, then click the fill pattern reference box.

2. Select the object that you want to change. Click the object that you want changed to a different fill pattern to select it. You can also change more than one object at once (see "Selecting Objects" if you need more help). As an example, we'll change a rectangle and a couch. Here's how they look initially:



3. Click the fill pattern you want to use. Try clicking various patterns until you find one you like. Here's an example:



Notice that all selected objects take on the clicked pattern.

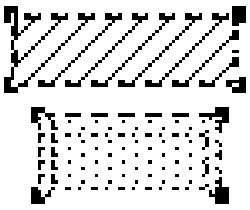
Now we'll use the preceding example again to demonstrate how to change line patterns.

To change line patterns:

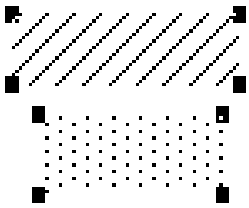
1. Activate the selector tool, then click the line pattern reference box.

2. Select the object that you want to change. We'll use the same example again, except this time, we'll change the line pattern.

3. Click the line pattern you want to use. Try clicking various patterns until you find one you like. Here's an example:



Here's an example of clicking not-equal to remove object borders:



Changing Grouped Objects' Patterns

Please see "Group" in the "Menus" chapter for more information about grouping objects.

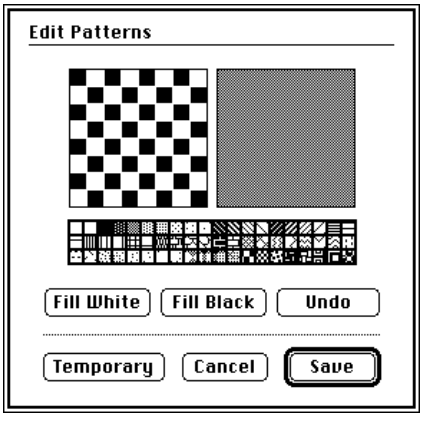
Changing the patterns for grouped objects can be slightly more involved, depending on what object within the group needs changing. Once an object is grouped, *3D WalkAround* treats all its component objects as a single object unit. This means that if you select a grouped object as described above and click a pattern, all components of the grouped object take on the pattern.

At times, you may only want to change an individual component object and not all objects within the group. To do this, you must first temporarily ungroup the object. To do so, simply select the grouped object and choose Ungroup from the Arrange menu. Click a blank area to unselect all the objects. Select the component object that you want to change and follow the same procedures described earlier for changing patterns. When done, select all the component objects and regroup them by selecting Group from the Arrange menu.

Editing Patterns

Though *3D WalkAround* comes with a variety of ready-made patterns, you may occasionally want or need a pattern that's not available among the provided patterns. For this reason, *3D WalkAround* lets you edit the existing patterns.

To edit a pattern, choose Edit Patterns under the Edit Menu. A dialog appears for editing the patterns.



Move onto the pattern palette in the dialog, and click the pattern you want to edit. The selected pattern displays at an enlarged size in the edit box on the left, and at it's normal size in the reference box on the right. Move into the enlarged, edit

box area and click (or drag) to edit the pattern. Clicking a white area changes it to black, and clicking a black area changes it to white.

A description of the dialog buttons follows.

Fill White. Click to quickly erase, or set to white, the entire edit box.

Fill Black. Click to quickly set the entire edit box to black.

Undo. Click to reverse the last change made to an edited pattern.

Temporary. Click Temporary to exit the edit dialog and continue using the edited patterns during the current work session. However, when you quit *3D WalkAround*, the edited patterns are discarded (use Save to keep them permanently). Any objects within a drawing that used any discarded patterns retain their correct patterns, since an object's pattern is kept independently with the object. Therefore, you might want to use Temporary to experiment with patterns, or to create unique patterns for immediate use, and not permanently alter the existing pattern palette (which is restored automatically the next time you start *3D WalkAround*).

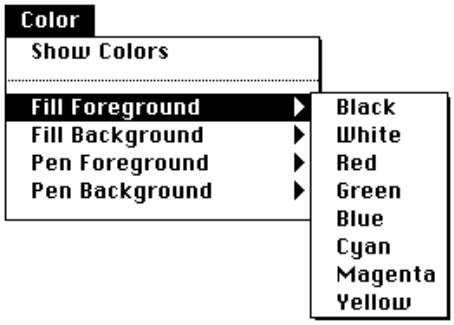
Cancel. Choose Cancel to exit the dialog and discard all changes made to the pattern palette since selecting Edit Patterns.

Save. Click Save to exit the dialog and retain all pattern changes. The patterns are saved and available even after quitting and restarting *3D WalkAround*. However, should you desire to at some later time, you can choose Default Patterns from the Edit Menu to replace the changed patterns with those that were originally provided with *3D WalkAround*.

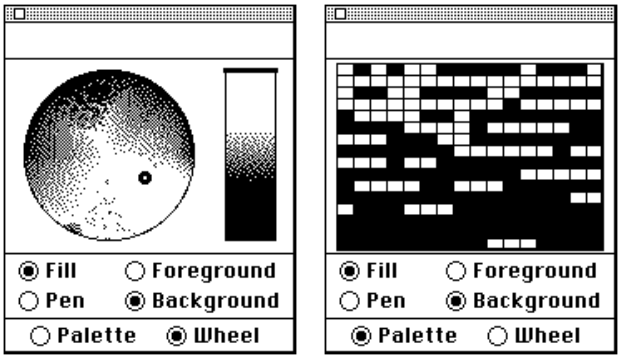
Using Colors

This section primarily describes the use of color as it relates to creating 2D floorplans, however, you can also use the color dialog described here to set the background color of the 3D window when it is the front/active window.

The Color menu lets you choose foreground and background colors for fill patterns and line, or pen, patterns. Note that the terms *pen pattern* and *line pattern* refer to the same thing, the pattern that's used to draw lines or object's borders. The Show Colors menu item lets you show a floating dialog for choosing colors, or you can choose any of the standard old-style Quickdraw colors directly from the Color menu. You might prefer using the menus for quickly setting colors to black, white, or any of the standard colors.



Choosing Show Colors from the Color menu causes the following floating dialog to display.



You can choose and edit colors from the color wheel dialog or from a color palette. Choose which by clicking the desired option.

Color Wheel

To use the color wheel, click the buttons for the color type (fill vs. pen, etc.). This is explained further later. Move onto the color wheel and click to choose a color, or drag the small circular selection bead. The chosen color displays near the top of the dialog. The brightness bar on the right side of the dialog lets you change a color's brightness (or darkness). Click the desired brightness bar location, or drag the thin horizontal selection bar upward or downward to the brightness you want. Each time you click a wheel color, the brightness bar is set to white. Hold the *command* key when selecting colors to retain the brightness setting.

Note: When holding *command* down, if the brightness bar is set to completely black, all colors you click on the wheel appear black as well.

The color wheel is designed to provide a broad range of color choices subject to the capabilities of your system. The wheel works with 256 or more colors up to the 16+ million available on some Macintosh systems that have 24-bit color. All possible colors are obtainable using the wheel and brightness bar.

Color Palette

Selecting the Palette button from the color dialog lets you choose from a palette of 256 colors. To choose a color, set the buttons for the color type (pen vs. fill, etc.), then move onto a palette color and click.

Fill Versus Pen Colors

The Fill Foreground and Fill Background menu items and color dialog buttons set colors for objects' interior fill patterns. The Pen Foreground and Pen Background items set colors for line patterns and object border patterns. The currently selected colors display near the top of the color dialog, and at the upper left corner of the drawing window.

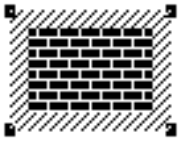
When *3D WalkAround* draws colored objects, what would normally have been black draws using the foreground colors, and what would have been white draws using the background colors. The following steps, which show how to change an existing object's colors, illustrate this more clearly.

Changing Objects' Colors

To change the color of an existing object:

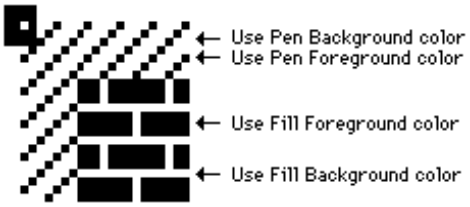
1. Activate the selector tool.

2. Select an object (or objects). We'll use the following object:



3. Set the object's colors. Use the Color menu items or from the color dialog, choose the desired colors according to the

following illustration, which is an enlargement of the preceding illustration's top left corner.



By experimenting with various textured patterns and different foreground and background color combinations, you can create an even wider variety of color blends.

Using The Eyedropper Tool

Since the color dialog provides a wide range of color choices, an eyedropper tool is provided so that you may easily continue working with a previously used color or pattern, or transfer an object's colors or patterns to other objects.

To set the current working colors or patterns to those of an existing object:

1. Click the eyedropper tool.

2. Move onto an object and click or *option*-click. Move onto an object whose colors you want to work with again, and click to set the working colors to the object's colors. Or**,** deselect all objects (click a blank area), then hold the *option* key down and click an object to set the working patterns to the object's patterns. The drawing tools use the new working colors or patterns the next time you draw.

You can also use the eyedropper tool to have one or more objects take on another object's colors or patterns.

To transfer an object's colors or patterns to other objects:

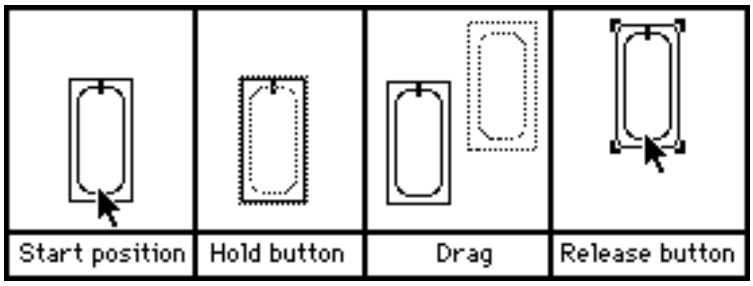
1. Click the eyedropper tool.

2. Select the object, or objects, whose colors or patterns you want to change. Click an object, or *shift*-click to select several objects.

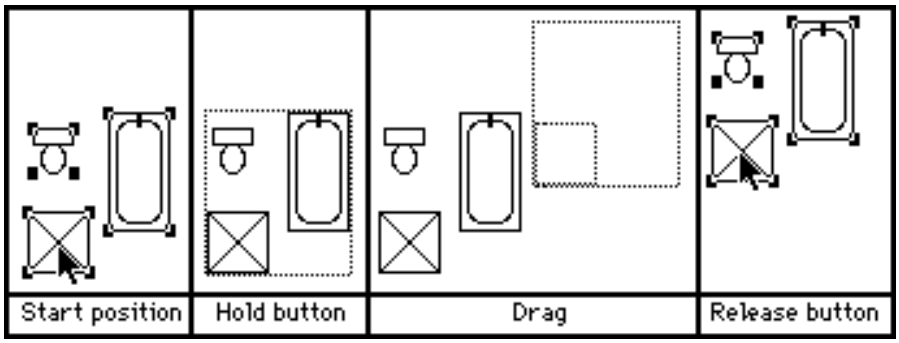
3. *Command*-click an object to transfer it's colors or *option*-click to transfer it's patterns. You may use both *command* and *option* at once if desired. The new colors or patterns also become the current working colors/patterns.

Moving Objects

To move an object: Click the selector tool. Move onto it and hold down the mouse button. A dotted outline of the object appears. Drag the outline to a new location and release the button.



To move several objects at once: Select the objects (see "Selecting Objects" for help with selecting). Move directly over any one of them and drag the resulting outlines to a new location.

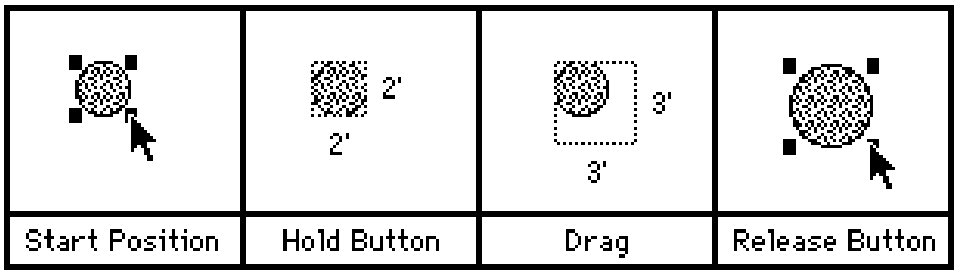


Nudging Objects

3D WalkAround also lets you fine-tune object positions by using the arrow keys to move objects. Simply select the objects you want to move, then press the desired arrow key, or use the arrows immediately after drawing an object to fine-tune its position.

Resizing Objects

To resize an object: Click the selector tool. Move onto the object you want to resize and click to select it. Move onto one of its handles and hold down the mouse button. Drag the object's outline (or enclosing box) inward or outward to a new size.



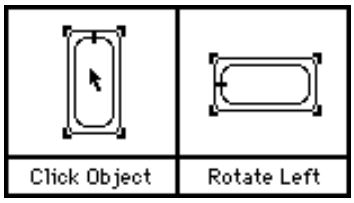
Resize in other directions by dragging with a different handle.

Rotating Objects

3D WalkAround lets you easily rotate objects in 90 degree increments, or you can use the rotate tool to rotate objects to any angle. Another choice is the Rotate By Degrees menu item, which lets you specify how many degrees to rotate an object.

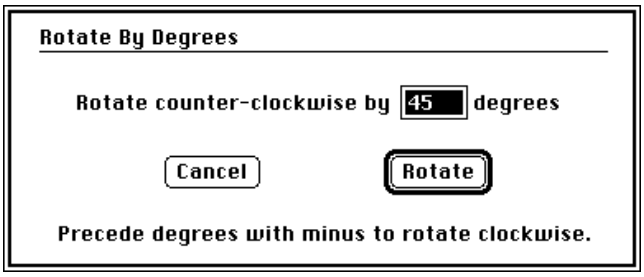
To rotate an object 90 degrees: Click the selector tool, select an object and choose Rotate Left under the Arrange menu. Or,

press the "<" keyboard character without using the *command* or *shift* key.



Follow the same procedure to rotate an object 90 degrees to the right, choosing Rotate Right (or pressing ">") instead.

To rotate objects by a specific number of degrees: Click the selector tool. Select one or more objects and choose Rotate By Degrees from the Arrange menu.



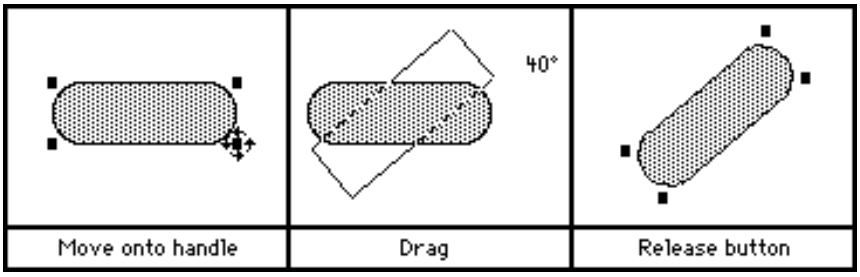
Type the amount of rotation, 1-359 degrees (45 degrees is used by default). A positive value causes objects to rotate to the left (counter-clockwise). Precede the amount with a minus sign to rotate clockwise. For example, -20 rotates selected objects 20 degrees to the right (clockwise). Click Rotate to initiate and complete the rotation of selected objects.

To use the rotate tool:

1. Click the rotate tool.

2. Select the objects you want to rotate. Click an object, or *shift*-click multiple objects. Note that the rotate tool works like the selector tool for selecting and moving objects. See "Selecting Objects" if you need help.

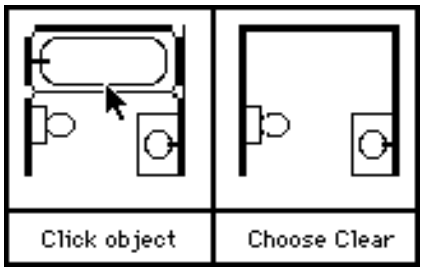
3. Drag from any one of the objects' handles. Move onto an object's handles, hold down the mouse button and drag the resulting outline to the desired angle. Release the mouse button. All selected objects rotate to the chosen angle.



Erasing Objects

The selector tool lets you erase (delete) unwanted objects. First, activate the selector tool.

To delete objects: Select the object (or objects) that you want to remove and press the delete key, or choose Clear from the Edit menu (for help with selecting, see "Selecting Objects").



You can also choose Cut from the Edit menu to remove selected objects and have them placed in the clipboard. From there, you can paste them back into the same window, or activate another window to paste into. See the "Edit Menu" section for more about cutting and pasting.

To reverse an accidental delete: Immediately select Undo from the Edit menu. If you click elsewhere, or perform other

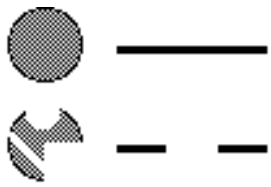
operations, Undo may be unavailable, since it works only for the last operation performed.

Erasing Parts Of Objects

3D WalkAround is an object-oriented drawing program. Unlike a painting program, each thing you draw, whether a line, circle, or rectangle, is a separate object based on coordinate locations. This is an ideal environment for designing programs like *3D WalkAround*, which must scale drawings and maintain a scaled relationship with real-world sizes. But since everything drawn is an object based on coordinates, it isn't possible to erase a portion of a single object like a rectangle (by rubbing away or cutting out a piece like in a paint program).

However, you can often simulate a partial erase by drawing on top of the unwanted part of an object with another white object. Or at other times, maybe you only need to resize an object. For example, if a line is too long, rather than erase the part that's too long, you can grab its handle and size it down (see "Resizing Objects").

To erase part of an object with a white object: First, click white for both the fill pattern and the line pattern (see "Using Patterns" if you need help). Click the desired tool and draw a white object over the part of the object that you want to erase.

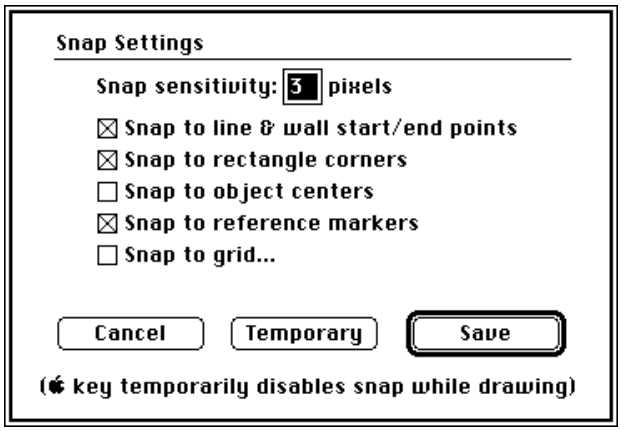


In the preceding illustration, portions of the original circle and line were erased by drawing over them with a white oval, rectangle, and line.

Using Snap

As an aid to precise drawing, *3D WalkAround* provides extensive grid and object snapping capabilities. While drawing, if snap is turned on, when you move near a snap point, it acts like a magnet, pulling the drawing location to it. You can specify whether to snap to grid points, line ends, object corners, and more. This is especially useful for drawing precise wall and floor corners.

To specify or change snap settings, select Snap from the Layout menu. A settings dialog displays.



Snap sensitivity. Type a snap sensitivity range. If you move within this pixel (or screen dot) distance from a snap point, the snap occurs.

Snap options. Click the box beside an option to enable or disable snapping for it. When you enable the “Snap to grid” option, a dialog appears for choosing a grid spacing. Simply click the desired spacing then click Ok. Please see “Measuring And Using Reference Markers” in the tutorial chapter for information about reference markers.

Cancel. Click this to exit the dialog and leave the settings unchanged.

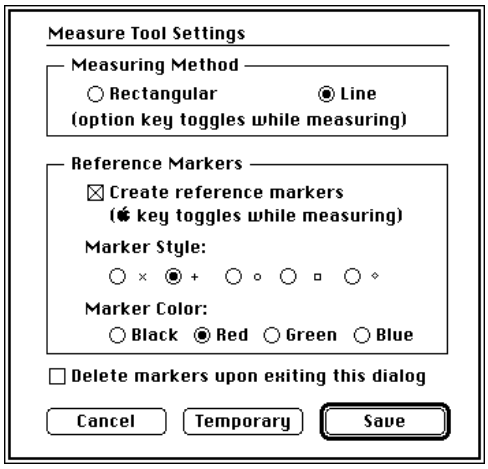
Temporary. Click Temporary to use the settings during the current drawing session only. The original settings are restored when you quit and restart *3D WalkAround*.

Save. Click this to use the settings and also save them for future use. The settings are retained after quitting and restarting *3D WalkAround*.

Measuring And Using Reference Markers

At times, you may want to know the size of an area or the distance between two points, or you might want to mark a location for future reference as an aid in positioning, drawing, and aligning objects. The measure tool lets you accomplish all this, and more.

To specify or change settings for the measure tool, select Measure Tool from the Layout menu, or click the tool icon after it is already highlighted. The settings dialog displays.



Measuring Method. Click Rectangular to show the width, height, and area of an enclosed, rectangular area. Click Line to show length and angle information. You can hold down the *option* key to temporarily switch to the opposite setting while using the measure tool.

Reference Markers. If "Create reference markers" is enabled, when you measure a rectangular area or linear distance (you

measure an area by dragging, like with the drawing tools), the measure tool leaves a reference marker after the mouse button is released. The marker style and marker color options control the reference marker's appearance. If you enable the "Delete markers upon exiting this dialog" option, then all existing reference markers in the active drawing are deleted (you may also use the selector tool to select, move, and delete individual markers).

Cancel. Click this to exit the dialog and leave the settings unchanged.

Temporary. Click Temporary to use the settings during the current drawing session only. The original settings are restored when you quit and restart *3D WalkAround.*

Save. Click this to use the settings and also save them for future use. The settings are retained after quitting and restarting *3D WalkAround.*

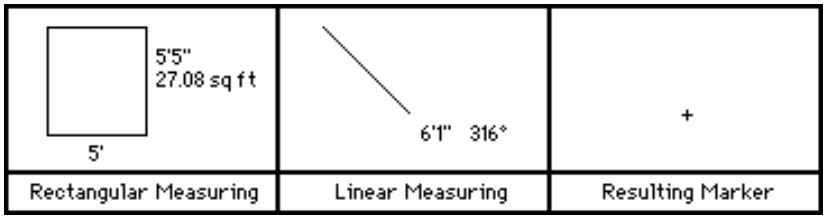
To measure an area:

1. Click the measure tool.

2. Specify the measure tool settings. If you want to change the current measure tool settings, click the measure tool icon a second time to bring up the settings dialog, then specify the desired settings as described earlier.

3. Move to the start position and drag. According to the current settings, line or rectangular measurements are shown while dragging. Hold the *option* key to dynamically switch between the type of measurements. If "Create reference markers" is enabled, when the mouse button is released, a reference marker is created at the *drag location* according to the current style and color settings. Hold the *command* key to temporarily switch to the opposite "Create reference markers" setting and leave, or not leave, a reference marker. If a reference marker is

created that isn't wanted, select Undo or use the selector tool to delete it.



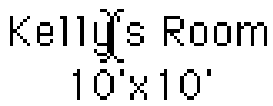
Editing Existing Text

You can use the procedures described here to change any type of text object. First, you'll see how to edit the actual text of an object, then you'll be shown how to change its font, size, or style. See the "Tools" chapter for more about the text tool.

To edit an existing text object:

1. Activate the text tool. You use the text tool to edit existing text, or to type new text.

2. Click the text you want to edit. When using the text tool, an *I-Beam* cursor displays when you move into a window's drawing area. Move the I-Beam cursor onto the text you want to change and click (see the following illustration). This reactivates the text for editing. A blinking bar cursor, the *insert* cursor, appears in the text at the position where you clicked the I-Beam cursor.



3. Edit the text. Use the arrow keys to move the blinking insert cursor within the text. Press the delete key to delete text, or from the keyboard, type any additional text you may want. What you type is inserted at the insert cursor's position. In the

preceding example, we used the right arrow to move between the “y” and the apostrophe, pressed the delete key, then typed “Linda” to end up with the following:

Linda's Room
10'x10'

4. Click another tool or new location when done. When finished, click another tool to stop editing text and use the clicked tool, or click another location in the window to start typing new text.

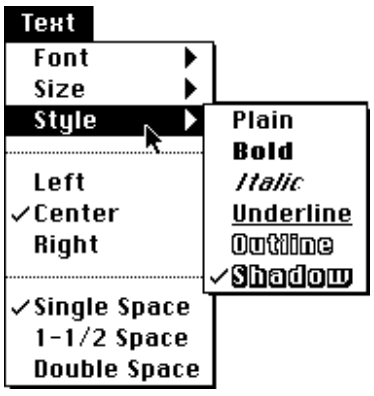
To change existing text’s font, size, or style:

1. Click the selector tool.

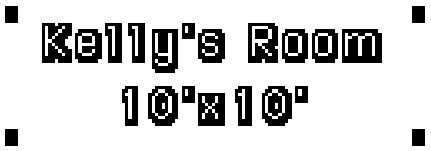
2. Click the text object you want to change. Move onto the text object that you want to change and click to select it. Handles should appear at its corners.

Kelly's Room
10'x10'

3. Select the desired item from the Text menu. Choose a new font, size, or style from the Text menu. While the text is selected, continue choosing additional menu items as desired (you can also choose one of the line spacing menu items for a text object that has multiple lines of text). The selected text changes according to the chosen menu item(s).



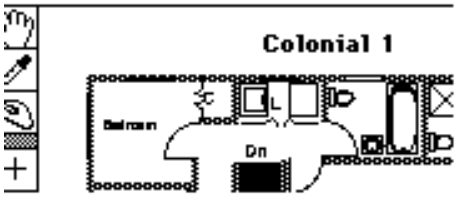
We changed the previous example's font from Plain to Shadow, which resulted in this:



For additional information about the text tool, see the "Tools" chapter. For more about the Text menu items, see the "Menus" chapter.

Zooming In And Out

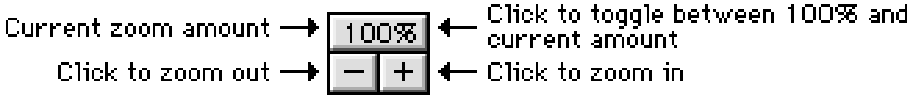
3D WalkAround lets you zoom a drawing in to magnify it, or zoom it out to reduce it. Zooming in provides a greater degree of control and precision for fine-tuning positions and object sizes. Zooming out lets you see and work with more of a drawing at one time (you can also see an instant overview of your entire drawing by selecting Overview from the Layout menu).



Zoomed Out Drawing

Zoomed In Drawing

The zoom controls are located at the lower left corner of a drawing window.



You can control the focus of the zoom by selecting an object first. Zooming then occurs based the selected object's location,

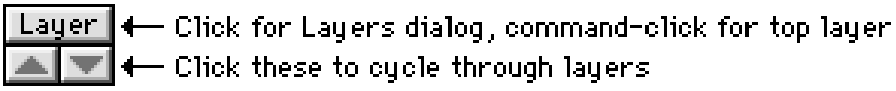
otherwise, zooming is based on the upper left corner of the window.

Using Multiple Layers

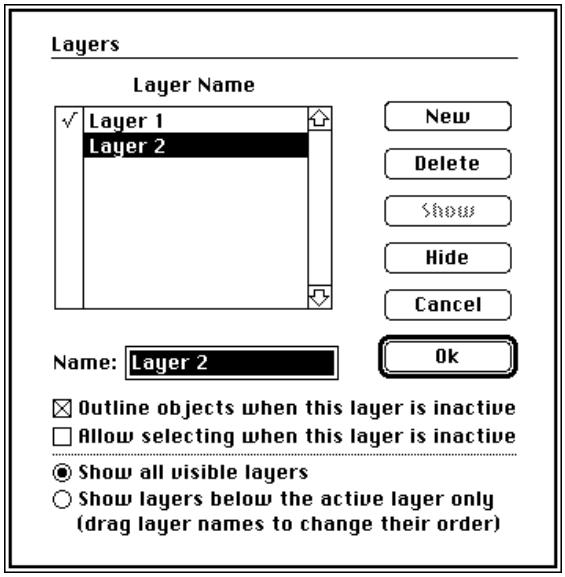
You may occasionally find it useful to keep portions of your drawing, such as walls, floors, wiring or plumbing diagrams, rooms, or levels separate from other parts. *3D WalkAround's* multiple layer support lets you easily accomplish this.

You can create, edit and view objects on a single layer, a combination of layers, or on all layers at once. And though it's easy to create and use multiple layers, it isn't required. Most of your drawings may only need the single default layer, Layer 1. The choice of whether to use additional layers is yours.

You'll find layer controls located near the lower left side of the drawing window.



The layers dialog lets you create, delete, and manipulate layers. To access the dialog, click "Layer" (see previous illustration), or select Layer from the Layout menu.



Initially the default layer, Layer 1, appears in the "Layer Name" list. Click New to add a new layer to the list. In preceding illustration, Layer 2 was added by clicking New.

Active layer. The active layer is the layer in the list that's preceded by a check mark. It's also the layer that is active for drawing and editing objects once you exit the dialog. Click in the column next to a layer name to make it the active layer. Also, when you cycle through visible layers using the layer controls shown earlier, you are changing the active layer. Only one layer may be active at a time.

Selected layer. The selected layer is the layer in the list that is highlighted. You need to select a layer to manipulate it (for example, to delete, hide, show, or name it).

Layer names. The names of existing layers appear in the "Layer Name" list. When a layer is created, the default name is "Layer" followed by a number. However, you can change layer names by selecting a name from the list, and typing a new name in the provided "Name:" box. When drawing, the active

layer's name follows the document name at the top of the drawing window.

Changing the layer stacking order. Move onto a layer name in the list, and drag to rearrange the stacking order of layers. Objects in the drawing window are displayed from the top-most layer (first in the list) to the bottom-most layer (last in the list).

New. Click New to add a new layer to the list (and your drawing). Afterwards, if desired, type a new name for the layer, or set other options.

Delete. To permanently remove a layer (and all objects it contains), click the desired layer name then click Delete.

Show. To make a layer visible (it must be visible to work with it and see it's objects), select the layer name then click Show. New layers are defaulted to visible.

Hide. Click Hide to temporarily not display objects on a layer. You cannot see or work with objects on a hidden layer. Use Show to make the layer visible again. Layer names (in the list) are dimmed to indicate they are hidden. Note that objects on hidden layers don't appear in the 3D view.

Cancel. Click Cancel to exit the layers dialog and reverse all layer changes.

Ok. Click Ok to exit the layers dialog and retain all layer changes.

Inactive layer options. For each layer, you can specify whether to allow object selecting (with the selector tool) or whether to show objects dimmed (outlined) when the layer isn't the active layer. Normally, you probably won't need to select or edit objects on layers you aren't working with, so the "Allow selecting..." option is disabled by default. If the "Out-

line objects...” option is disabled, objects are drawn normally, otherwise, only a dim outline appears. This lets you more easily determine which objects are on (or are not on) the currently active layer.

These options are mutually exclusive. Objects need to be displayed normally in order to select and edit them. However, you can disable both options at once if desired. Also, note that layers must be visible (not hidden with Hide) for these options to take effect.

Layer display options. You may choose to show all visible layers, or only layers which appear beneath the currently active layer. For example, if you had 3 layers and the active layer was layer 2, then if you enabled the option “Show layers below the active layer only”, only layers 2 and 3 would display. By default, all visible layers are shown so you can more intuitively hide specific layers using the Hide button. However, the flexibility to automatically hide higher-ordered layers is also available if needed.

Using New Layers

After creating new layers, they are empty until you draw or copy objects to them. To use a new layer, simply make it the active layer (using the layer controls or from the layers dialog), then begin drawing. To verify which layer is currently active, glance at the layer name that’s shown in the window’s title bar following the drawing name.

You can also copy objects between drawings and between layers. To do so, activate the window and/or layer containing the objects, select the objects and choose Copy, then activate the destination window and/or layer, and choose Paste.

In some cases, you may find it useful to dim inactive layers to use as a guideline for drawing on other layers. For example, you may want to see a floor plan’s walls while creating a

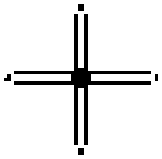
plumbing diagram or while placing furniture symbols on a different layer. Remember that you can change the front-to-back (or top-to-bottom) order of the layers if needed, as described earlier.

Creating Your Own Symbol Libraries

If you need to, you can create your own custom symbols, or other objects, then save them to a new or existing symbol library for use later, whenever they are needed.

Here's an overview of the process. Use the drawing tools to create the symbols in a new empty window, select the symbols, then select Library from the Symbols menu. To use the symbols, select Library, choose a symbol, then click Paste.

As a learning exercise, let's work through the steps for creating this ceiling fan symbol, which really consists of three separate objects:



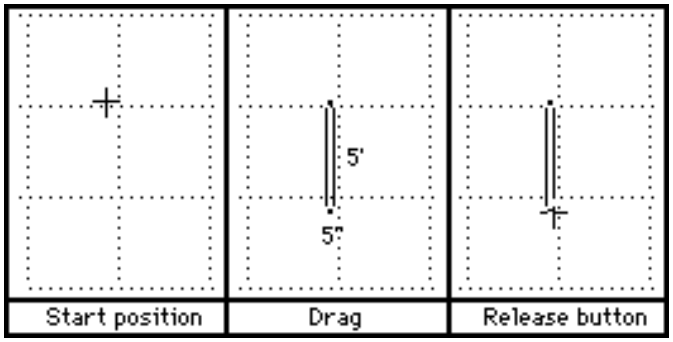
To make the example symbol:

1. Open an empty, untitled window to work in. If you already have an empty, untitled window open, skip to step 2. Otherwise, select New from the File menu to open an empty window.

2. Click the rounded rectangle tool to activate it for use.

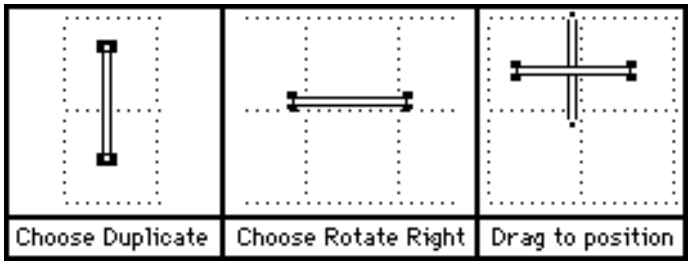
3. Move into the window and draw the symbol. The following illustration shows the drawing sequence. It's not important

that your symbol look exactly like the one shown here, since this is only for demonstration purposes.

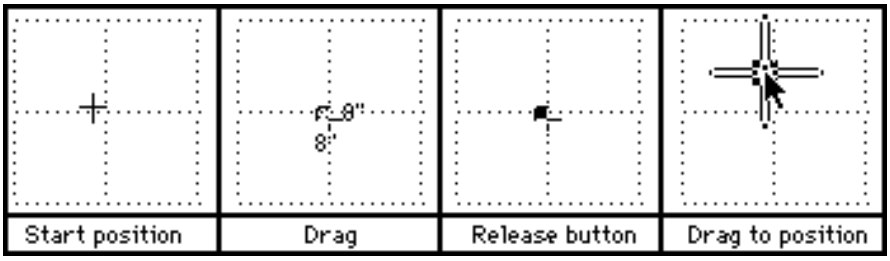


After drawing the object, if you don't like the result, you can select Undo from the Edit menu and try again. Our sample is 5" by 5' in size.

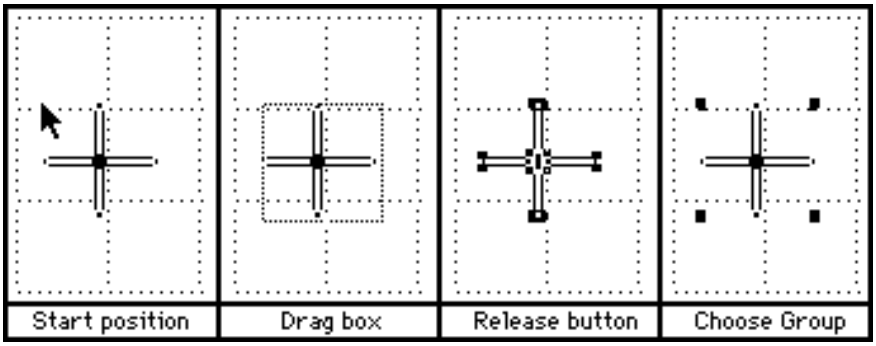
4. Create a second fan blade. Activate the selector tool. The object should automatically select, since it's the last object you drew. Select Duplicate from the Edit menu, rotate the duplicate to the right by choosing Rotate Right from the Arrange menu, then position the duplicate on the first object as shown.



5. Draw a circle to represent the light fixture. Click the oval tool and change the fill pattern to black by clicking the black pattern on the pattern palette. Draw an 8" by 8" circle. Then click the selector tool and position the circle as shown.



6. Group the objects. Refer to the following illustrations. Drag a selection box around the objects, then choose Group from the Arrange menu. The ceiling fan is now completed.



7. Save the symbol to a library. Choose Library from the Symbol menu, then either choose a library from the Library list (to save the symbol to an existing library), or choose New Library (to create a new library for your symbol). Click the Add button. Type "ceiling fan" for the name, then click Ok to copy the symbol into the library. See "Using Symbol Libraries" for more about the Library dialog.

Note: The preceding process is for creating 2D symbols. For a 2D symbol to appear in the 3D view, you must also specify a 3D image file for it (i.e., link it to an actual 3D symbol). Please refer to "Setting 3D Textures And Object Info" in the menus chapter for more. Also note that for 3D-linked symbols, the 3D Info should be specified before the symbol is saved to a library in step 7.

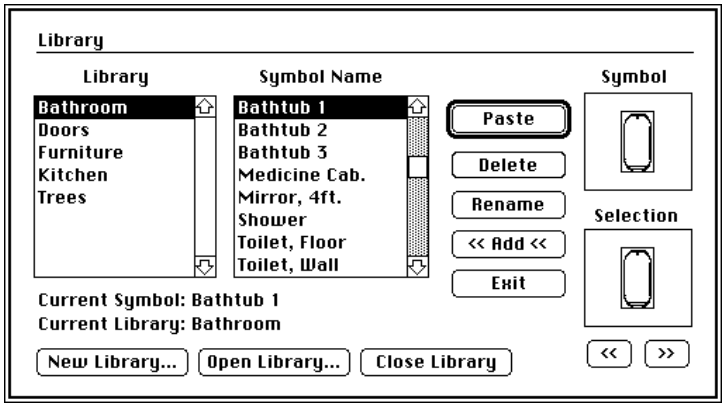
You can follow the same general procedure above to create as many symbols as you want in the same library, or save related groups of symbols in other libraries if you prefer.

Using Symbol Libraries

3D WalkAround provides extensive symbol library support. You can access symbols one of two ways, either by opening a library as a window, or by selecting Library from the Symbols menu.

To drag and drop library symbols into a design, choose Open Library Window from the Symbols menu. A file dialog appears. Move to the Symbol Libraries folder, then double-click the desired symbol library. A window opens displaying the library's symbols. Use the windows's scroll bars or the grabber tool as needed to scroll symbols into view. To add symbols to your design, click the selector tool, select one or more symbols, and drag them to your drawing window.

Select Library from the Symbols menu both to access symbols, or to edit or create your own symbol libraries. After selecting Library, a dialog appears.



Note: More libraries are available than initially appear in the library list. Please see "Open Library" below for how to access them.

A description of all the Library options follows.

Library list. A list of the working libraries. To work with a particular library, click its name in the list.

Symbol Name list. A list of the symbols in the currently selected library (from the library list). Click a symbol name, and its image appears in the Symbol box on the top right.

Symbol box. Shows the currently selected (highlighted) symbol from the Symbol Name list.

Selection box. If you use the selector tool to select objects before choosing the Library menu item, you can cycle through and view them in the Selection box, or add them to the working Library (see "<< Add <<", "<<", and ">>" below).

Paste. Click Paste, or double-click a symbol name, to paste a symbol into your drawing and exit the Library dialog.

Delete. Click Delete to remove the currently selected symbol from a library.

Rename. Use Rename to change a symbol's name.

<< Add <<. Click Add to copy the selected object shown in the Selection box into the currently selected library. A dialog appears for naming the object.

Exit. Click this to exit the library dialog without pasting an object into your drawing.

<<. Click this button to move backward through selected objects.

>>. Click this to move forward through selected objects.

New Library. Click this button to create a new empty library file. After selecting New Library, a file dialog appears. You'll probably want to create the library inside the Symbol Libraries folder. To do

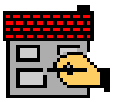
so, open the Symbol Libraries folder from within the file dialog, then type a name for your new library and click Save. The name is added to the Library list. Now you can add selected objects to the library (see “Selection box” and “<< Add <<“ above).

Open Library. This lets you open an existing symbol library and add its name to the list of working libraries. You need to open a symbol library file before you can access its symbols. After selecting Open Library, a file dialog appears. Move to the Symbol Libraries folder to find the provided symbol libraries, and double-click the desired library name. You may work with up to 10 libraries at once.

Close Library. Select a library name and click Close Library to remove it from the list of working libraries. Click Open Library to add the name back into the working library list when desired. Close Library doesn’t delete the library from disk. To delete a library file from your disk, first close it with Close Library, then use the Finder to drag the library file to the trash can.

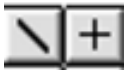
Important: If you edit existing libraries, or create your own, it's a good idea to make a back-up copy of the Symbol Libraries folder to use for restoring your originals should they ever become damaged.

Chapter 3



Tools

The tool palette is located along the left side of the drawing window.

Selector		Grabber
Rotate		Eyedropper
Measure		Shaper
Line		Constrained Line
Hollow Line		Wall
Rectangle		Rounded Rectangle
Oval		Arc
Polygon		Sketched Area
Stud Tool		Bezier
Multigon		Text
Status		Floor/Ceiling
Door Tool		Window Tool
Roof-Object Tool		Camera
Auto-Roof Tool		Remove Auto-Roof

To select a tool, move onto it and click. The currently selected tool is highlighted (darkened and outlined in red), which indicates it's activated for use.

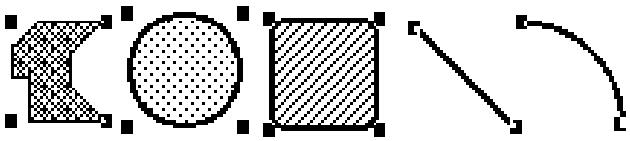
Selector Tool

Many of *3D WalkAround*'s features let you manipulate existing objects. You can copy objects, resize them, move them, rotate them, and much more. But for these features to work, they need to know which object, or objects, you want to change. That's where the selector tool comes in. Selecting objects using the selector tool lets other features know which objects you want to change.

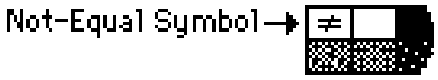
Selecting Objects

To select objects, you need to activate the selector tool.

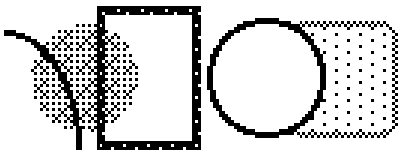
Handles. Small squares, called *handles*, indicate an object is selected. Here are some examples of selected objects:



Before showing you how to select objects, you need to know the difference between filled and unfilled objects. An object which has a white interior is still considered a filled object if the white pattern was used as its fill pattern. An unfilled object is one that was created using the not-equal symbol as its fill pattern (for more about patterns, see "Using Patterns" in the tutorial chapter).



Unfilled objects have no interior fill pattern at all, which means you can see through them. Here are some examples of both filled and unfilled objects.



Notice that the circle on the left is beneath an unfilled arc and an unfilled rectangle. You can see the circle through the interior of the arc and rectangle. The circle on the right has a white fill pattern, so you can't see the rounded rectangle through its interior.

To select a filled object: Move onto a visible part of the object and click.

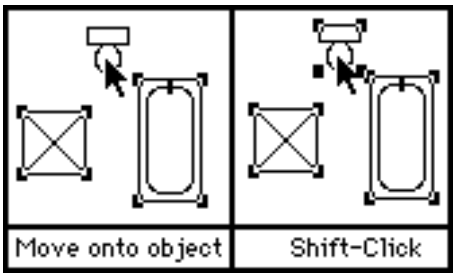
To select an unfilled object: Click its visible borders. For example, to select the unfilled arc and the unfilled rectangle shown in the earlier illustration, move onto their borders and click. If you clicked inside the rectangle on top of the circle, you would select the circle instead of the rectangle.

To select small objects, thin lines, or closely-spaced objects: These objects are sometimes slightly more difficult to select. It helps to remember that the tip of the arrow pointer is the active part of the arrow that's used for selecting. So when selecting small or closely-spaced objects, carefully place the tip of the arrow exactly on the object and click. If handles appear on an object other than the one you want, click an empty, blank area inside the drawing to unselect all objects, then try again. Sometimes, you may find it easier to select small objects by dragging the selection box onto them. This is described a little later.

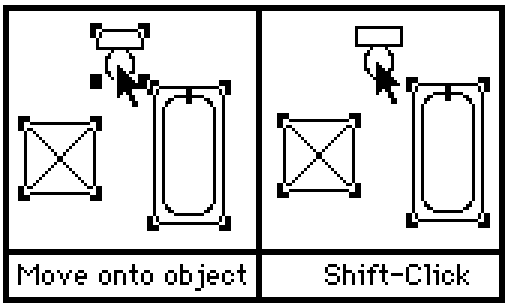
To unselect objects: Click any blank screen area inside the drawing window, or click an unselected object to select it and unselect all others.

Selecting Multiple Objects

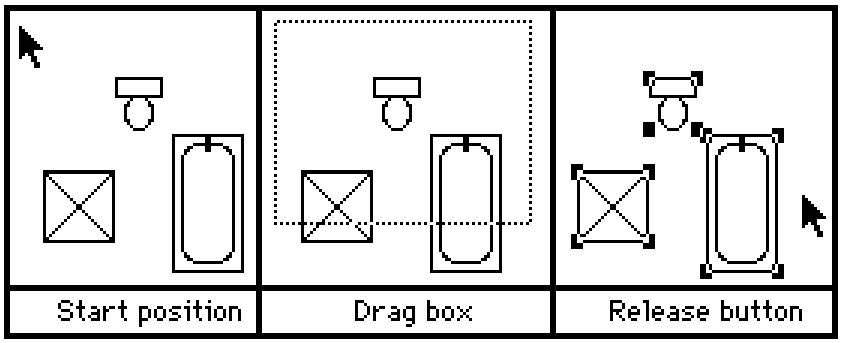
To select additional objects:



To unselect an object:



You can also select objects by dragging a selection box over them. Any object touched by the box is selected.



Choose Select All from the Edit menu to select all the objects in a drawing. You might want to do this sometime to adjust the position of (move) the entire drawing within the drawing window (see "Moving Objects").

 Grabber Tool

This tool lets you *grab* and move your drawing within the drawing window.

To use the grabber tool, click the tool's icon to activate it for use, move anywhere within the drawing area, hold the mouse button, then drag the drawing within the window. Note that this doesn't move the objects on the drawing page, it only moves the page within the window (like the scroll bars).

 Rotate Tool

Please see "Rotating Objects" in the tutorial chapter for detailed instructions for using this tool.

 Eyedropper Tool

Please see "Using the Eyedropper Tool" in the "Using Colors" section of the tutorial chapter for how to use this tool.

 Measure Tool

Please see "Measuring And Using Reference Markers" in the tutorial chapter for a detailed description of this tool.

 Shaper Tool

The shaper tool works similar to the selector tool for selecting and manipulating objects, except when selecting objects that have multiple vertices or control points,

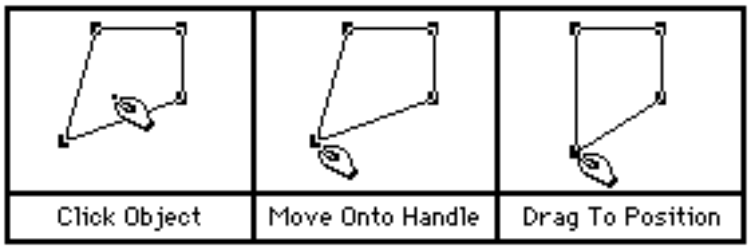
such as polygons and bezier curves, handles appear at all the vertices and control points.

You can drag a handle to reshape the object, *option*-click a handle to remove a vertex, or *option*-click a line segment to add a vertex.

To reshape an object:

1. Click the shaper tool.

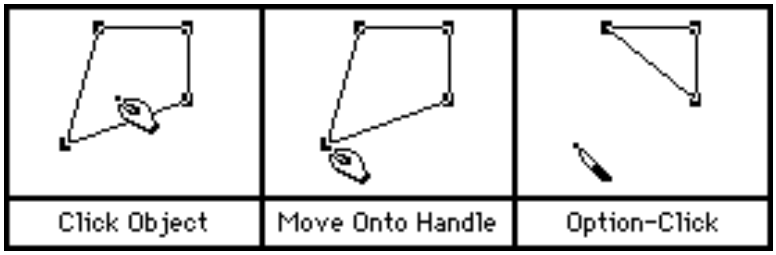
2. Click a polygon or bezier object and drag a handle.



To remove a vertex:

1. Click the shaper tool.

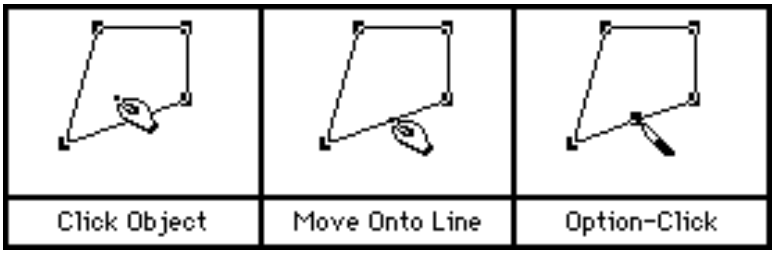
2. Select an object and *option*-click a handle. When the *option* key is held down, the cursor changes to a knife for cutting.



To insert a vertex:

1. Click the shaper tool.

2. Select an object and *option*-click a line segment.



In some cases, you can take a short-cut to creating a more complex object from another object primitive, such as a rectangle, oval, or arc by first converting it to a polygon (see "Change To Polygon" in the "Menus" chapter).

Line Tools

The line, constrained line, and hollow line tools draw lines between two points.

To draw a line: Click the desired tool, move to the start point and hold down the mouse button. Drag to the desired end point, then release the button. See the tutorial chapter for help with setting line patterns.

The constrained line tool draws lines at perfect 45 or 90 degree angles. You can also constrain other line tools by holding down the *shift* key as you draw. Here are some sample constrained lines.

The hollow line tool works like the line tools except when the line thickness is greater than one, only an outline of the line appears. Also, hollow lines can be filled with a pattern. Here are some examples.

Setting Line Thicknesses

The line thickness (or width) setting not only applies to the width that's used for lines, but also to the width used for other objects' borders. For example, here's what you get if you draw some objects with the line thickness set to 3 dots wide:

The line on the far right was drawn using the hollow line tool.

You can set the line width quickly by pressing a number (1-8) on the keyboard, or you can choose a new size from the Line menu.

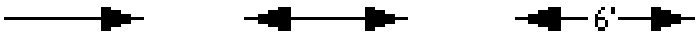
The working line thickness is also shown in the line pattern reference box.

Changing existing objects' line widths. To change an existing object's line or border width, click the selector tool, then select the object you want to change. Choose a width from the Line

menu or press 1-8 to set a new width. The selected objects take on the new width.

Using Dimension And Arrow Lines

You can also draw lines with an arrow on one end, on both ends, or auto-dimensioning lines which have two arrows and the length of the line placed at its center.

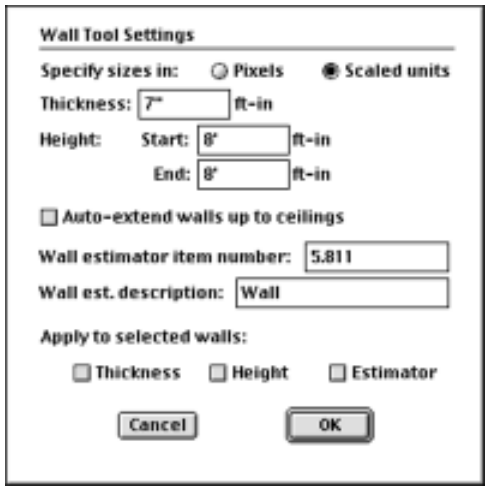


To draw an arrow line: Select the type of arrow line you want from the Line menu (you can also press the number 9 to select a dimension line). Click the line tool. Move to the line's start position and hold the mouse button down. Drag to the desired size, then release the button.

Wall Tool

The wall tool lets you draw lines which represent the walls of a floorplan, which automatically appear in the 3D view.

Draw walls in the same fashion as described for the line tools. If desired, you can edit wall patterns and colors just like with any other line. You can specify default wall tool settings by selecting Wall Tool under the Layout menu, or by clicking the tool icon after it is already highlighted for use.



You can specify the thickness and 3D height of walls in pixels (screen dots) or scaled measurements. The specified height is used to generate the walls in the 3D view. Enter scaled amounts as inches or feet-inches such as 7", 1’2", or 1.25. Simply type the desired sizes.

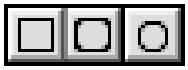
You can create slanted walls by entering different values for start and end points. The wall will slope proportionally between the two points.

Selecting the box next to “Auto Extend Walls Up To Ceiling” raises the wall height up to the roof line automatically.

If you have Abracadata's *Design Estimator* product, you have the ability to specify information for it as well. This is used when you export an estimator file.

If you would like to have any of the settings applied to selected wall objects, click the desired options indicating which settings to apply. Otherwise, the changes apply only to the wall tool. They are used the next time you use the wall tool.

You can specify 3D wall textures by choosing Set Object 3D Info under the Edit menu. To create walls for multiple floor levels, you can select walls with the selector tool and specify an altitude for them in the altitude box at the left side of the bottom scroll bar.

 Rectangle, Rounded Rectangle, And Oval Tools

As their names imply, these tools draw rectangles (or squares), rectangles with round corners, and ovals (or circles).

To draw using any of these tools: Click the desired tool, then place the pointer where you want one edge of the object to begin and hold down the mouse button. Drag the object to the size you want, then release the button.

Constraining Rectangles And Ovals. Hold down the *shift* key while drawing to constrain sizes to equal widths and heights.

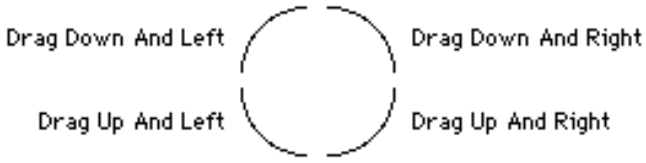
This lets you easily draw perfect circles and squares.

Please refer to “Using Patterns” in the tutorial chapter for information about setting object patterns. See “Setting Line Thicknesses” in the preceding section for information about setting border thicknesses.

Arc Tool

Use the arc tool to draw arcs that are filled with patterns, or arcs that are unfilled, consisting only of the arc lines.

To draw arcs: Click the arc tool, then move to the desired position and hold down the mouse button. Drag downward if you want the arc to represent the upper part of a circle or oval, and drag upward for the bottom part of a circle or oval (see the following illustration). Release the button.



Constraining Arcs. Hold down the *shift* key while drawing to constrain arc sizes to equal widths and heights. This lets you easily draw 90 degree arcs.

Polygon Tool

The polygon tool lets you draw a series of connected lines to create a multiple-sided object. Here are some examples:

To draw a polygon: Click the polygon tool, then move to the polygon's start point and click. Move to the first line’s end point (and next line’s start) and click again. Continue this

sequence until you've completed the object by ending at your original start point, or double-click to end.

Constraining polygon line segments. Hold the *shift* key down while drawing to constrain line segments to 45 and 90 degree angles.

Please see "Setting Line Thicknesses" and "Using Patterns" for information respective to setting these.

Sketch Tool

You can use the sketch tool when you need to create irregularly-shaped objects. Here are some sketched examples:

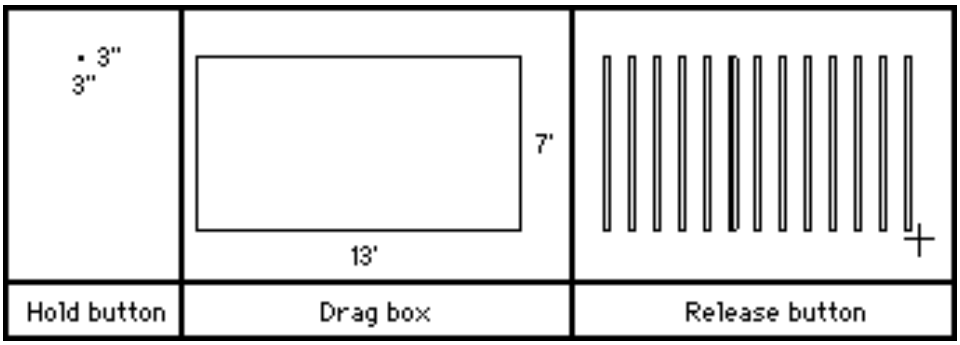
To sketch a region: Click the sketch tool, then move the pointer to the start position, hold down the mouse button and move the mouse. Release the button to stop drawing.

Please see "Setting Line Thicknesses" and "Using Patterns" for detailed information about setting sketched area's patterns and line thicknesses.

Stud Tool

This tool is a terrific time saver when you need to draw a series of rectangular objects like decks, fences, studs or rafters.

To draw with the Stud tool: Place the pointer where you want to begin drawing. Hold down the mouse button, drag the object to the size you want, then release the button.



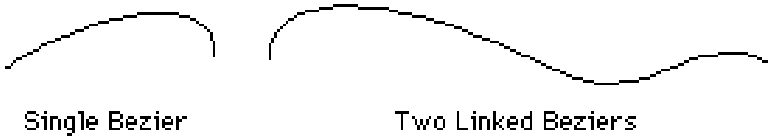
The area defined by the box becomes a single object filled with studs.

To see information such as lumber estimates for a stud object, select the object, then choose Info from the Edit menu.

Note: You can create a series of studs at other angles by drawing a single rectangle/stud and using Multiple Duplicate under the edit menu. Then, group all the objects and rotate to the desired angle.

Bezier Tool

The bezier tool lets you create smooth, free-form curves.

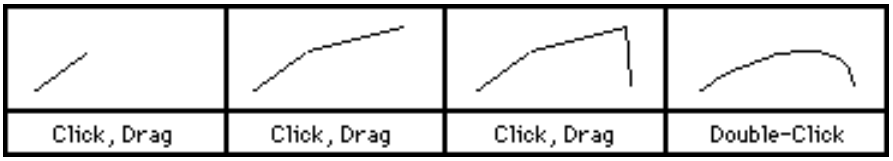


A single bezier requires 4 points, a start point, an end point, and 2 control points. While many implementations of this tool limit you to single beziers, *3D WalkAround* lets you create multiple, linked beziers containing additional points. The number of points needed for linked beziers is 3 times the number of beziers plus 1 (e.g., 7, 10, etc.), since a previous bezier's last point is also the first point of the next bezier. Though you should attempt to create beziers with the correct number of points, the program automatically deletes extra points should you miscalculate.

To create a bezier curve:

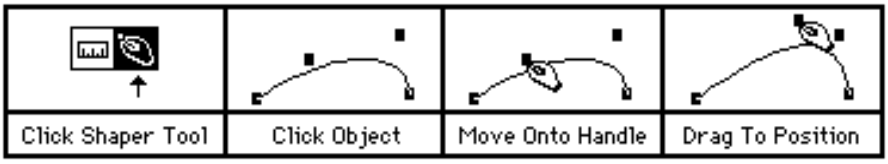
1. Click the bezier tool.

2. Draw the points. The bezier tool draws like the polygon tool. Move to a start position, click, drag to the next position and click again. Continue to move to each point and click. Move to the last position and double-click to end the curve.



If desired, you can move to more locations than shown here to create more complex curves (as described earlier).

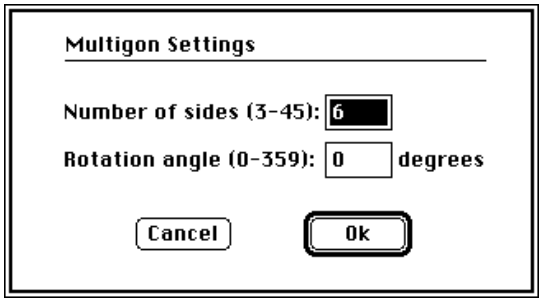
3. Reshape as needed. Click the shaper tool and drag the handles to reshape the bezier as desired.



If desired, you can speed up redraws while reshaping by holding the *shift* key down. The points are temporarily linked with lines, which draw faster. Please see the “Shaper Tool” section for more about it.

Multigon Tool

You can use the multigon tool to create polygon-type objects with a specified number of sides at a specified rotation. To change the multigon tool settings, click the tool icon after it is already highlighted, or select Multigon Tool from the Layout menu.



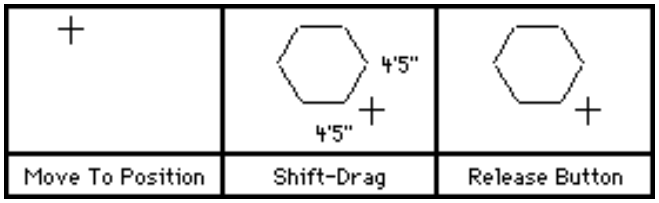
Type the number of sides you want, then type a rotation angle (use zero if uncertain). You can specify from 3 to 45 sides. The greater then number of sides, the closer the multigon resembles a circle. The rotation angle lets you adjust the orientation of the multigon. You can use it to control whether a vertex, or a side, is positioned at the top.

To draw a multigon:

1. Click the multigon tool.

2. If desired, click the tool a second time to bring up the settings dialog and change the settings.

3. Draw the multigon. Move to the desired start position, hold down the mouse button and drag to the desired size. To create regular polygons, hold the *shift* key down while dragging, which constrains the size to an equal width and height.



The final object that's created is a polygon, which can be reshaped using the shaper tool, if desired.

Text Tool

You can use the text tool to add names or other text labels to your drawings, or to edit existing text. First, click the text tool to activate it for use. Now, when you move into the drawing area, an I-Beam pointer appears.

To add text to a drawing: Move the I-Beam pointer to the spot where you want to begin typing and click. You'll see a flashing cursor appear. Go to the keyboard and type your text. Press the delete key if you make a mistake, or press return to end a line of text and start a new line below the previous line. When you have finished typing, simply select a different tool. The text you typed is converted into a single text object.

To type at a different location: If you want to continue typing but at a different location, move the mouse to the new location and click. The last text you typed is kept as an object and you can begin typing a new text object as before.

To edit existing text: You can reactivate an existing text object for further typing or editing by moving onto it and clicking. See "Editing Existing Text" in the tutorial chapter for more detailed instructions.

To edit using the mouse: Move onto the text, hold down the mouse button and drag to highlight the desired text, then release the button. Press the delete key or select Cut, Copy, or Paste from the Edit menu. Pasted text is inserted where the blinking cursor is located (or it replaces any currently highlighted text).

Manipulating Selected Text Objects

You can use the selector tool to select an existing text object, then use items from the Text and Edit menus to operate on it.

Items from the Edit menu operate on text objects just like they operate on any other object. First, select the text object using the selector tool, then select the desired item from the Edit menu.

Text menu items let you set the size, style, type of font, justification, and line spacing for your text. Simply select the desired menu item while typing text, or after selecting a text object with the selector tool.

See the “Menus” chapter for more about the menu items, and refer to “Editing Existing Text” in the tutorial chapter for additional information about editing existing text objects.

 Status Tool

This tool is provided for convenience. It displays a dialog showing information about the active drawing window. It performs the same function as selecting Status under the Apple menu.

 Floor/Ceiling Tool

The floor tool lets you draw polygons that represent floors or ceilings, which automatically appear in the 3D view.

To draw floors, you'll most likely want to trace a room's walls. Therefore, the floor tool works like the polygon tool so the floor will align with walls more precisely.

To draw a floor: Click the floor tool, then move to the floor's start point and click. Move to the first line’s end point (and next line’s start) and click again. Continue this sequence until you’ve completed the floor object by ending at your original start point, or double-click to end.

Once a floor is drawn, it is automatically moved below walls and other objects in the drawing. If desired, you can edit floor patterns and colors just like with any other polygon. Similarly, you can use the shaper tool to edit the shape of floors.

You can specify default floor tool settings by selecting Floor Tool under the Layout menu, or by clicking the tool icon after it is already highlighted for use.

This tool can also be used to create ceilings. Accordingly, the default texture that appears on the bottom of floors in the 3D view is stucco (a ceiling texture). You can change the 3D floor textures by selecting floors with the selector tool and choosing Set Object 3D Info under the Edit menu (see "Setting 3D Textures and Object Info in the tutorial chapter).

To create ceilings or floors at other levels, you can select floors and specify an altitude for them in the altitude text field at the bottom of the drawing window (see "Setting 2D/3D Object Altitudes"). And, see "Creating a Drawing" in the tutorial chapter for a hands-on demonstration of using the floor tool.

Door Tool

This tool allows you to place a door into your layout. To place a door, click the door tool and then click inside any wall in your design. This makes the door part of the wall, so even if the wall is moved or resized, the door is adjusted accordingly. You can only place a door within a wall.

Options for the Door Tool are available by double clicking the Door Tool, or selecting "Door Tool" from the Layout Menu. These options are discussed in Chapter 4.

Window Tool

This tool allows you to place a window into your layout. To place a window, click the window tool and then click inside any wall in your design. This makes the window part of the wall, so even if the wall is moved or resized, the window is adjusted accordingly. You can only place a window within a wall.

Options for the Window Tool are available by double clicking the Window Tool, or selecting “Window Tool” from the Layout Menu. These options are discussed in Chapter 4.

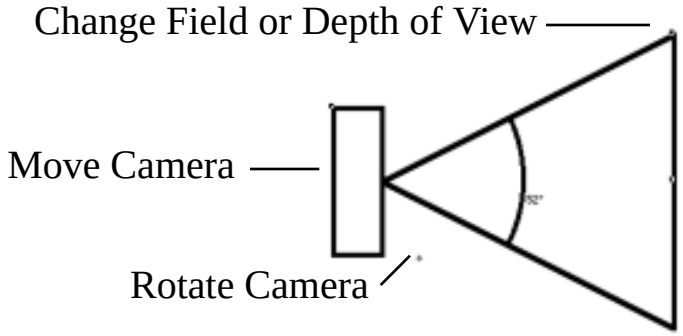
Roof-Object Tool

The Roof-Object Tool enables you to place a default roof object on your existing structure. To place a roof object, click and drag across your entire structure, encompassing the area for the roof to cover.

Options for the Roof-Object Tool are available by double clicking the Roof-Object Tool, or selecting “Roof-Object Tool” from the Layout Menu.

Camera Tool

The Camera tool allows you to place camera(s) anywhere in the plan view, which will enable you to view from specified areas in the 3D Window.



To move the camera, click and drag on the rectangle until the camera is in the desired location.

To rotate the camera, click on the small crosshair beside the camera and drag the camera to the desired angle.

To change the field or depth of view, click and drag the handle on the outer edge of the camera to the desired position.

Note that when you move the camera, your 3D view won't change until you release the mouse button.

 Auto-Roof Tool

Selecting this option will allow you to place a basic roof automatically. Once you have finished your structure, click this button to have a roof automatically placed atop your walls.

Options for this tool can be changed by selecting "Auto Roof Tool" from the Layout Menu.

Note that this tool is intended to quickly create basic roof structures. If your floorplan is fairly complex, it could be beyond the scope of what this tool can handle. In this case, you'll need to use the Roof-Object tool, or use the Floor/ Ceiling tool to create roof planes.

The Auto-Roof tool works best if you create the perimeter walls of your floorplan as one continuous series of connected walls, and don't extend any perimeter walls into the interior of a floorplan.

 Remove Auto-Roof Tool

Clicking on this tool will delete any Auto-Roof object that has been placed.

 3D Walk-Around View Button

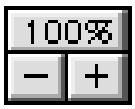
Click the 3D button to open a 3D window for the active 2D design window. If needed, the bottom of the 2D design window is sized down to make room for the 3D window, which displays beneath it. Please refer to the "3D Tools" section of this chapter for a description of the 3D window tools.

Simply click the desired window to change between the 3D window and the 2D layout window. You can adjust the posi-

tions, orientations, textures, and altitudes of objects in the 2D layout and the 3D window is automatically updated.

Layer Buttons

Click the Layer button to access the Layers dialog. Click the up/down buttons to move the previous or next layer and make it the currently active layer for editing or drawing. Please see "Using Multiple Layers" in the tutorial chapter for detailed information about the dialog and using layers.



Zoom Buttons

Click the zoom percentage button to toggle between 100% and the last used zoom percentage. Click the "-" and "+" buttons to zoom out and in. Please refer to the tutorial chapter for more about zoom.

Altitude Box

Please see "Setting Object Altitudes & Heights" in the tutorial chapter.

Height Box

Please see "Setting Object Altitudes & Heights" in the tutorial chapter.

3D Tools

Bird's-Eye View Button

Click this button to change from a walk-around side view to a 3D overhead bird's-eye view of the 2D design, or to re-center the overhead view. When you click the 3D button to open the 3D window, this is the default view. Please see "Going For A 3D Walk-Around" in the tutorial chapter for additional information.

Walk-Around Side View Buttons

Click these camera buttons to see one of four 3D side views, or to re-center a side view. Please see “Going For A 3D Walk-Around” in the tutorial chapter for additional information.

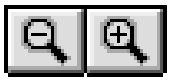
Light Intensity Buttons

Click the left-most button that has a down-arrow to lower the light intensity and the button with an up-arrow to increase the intensity. Click the center button to restore the default mid-range light intensity. The right-most button toggles the lighting between normal and slightly less reflective lighting.

Texture Buttons

Use these buttons to specify whether to apply textures to the 3D view. Click the left-most button for wireframe viewing, which shows object outlines only. Click the center buttons to show solid objects but without textures. Click the right-most button for a solid, fully texture-mapped view.

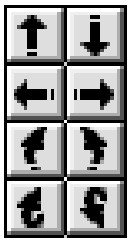
Since texture mapping is slower, if you desire to increase the walk-around speed, you can click one of the other options temporarily and switch back to a texture mapped view when desired. Of the three choices, the wireframe view displays most quickly. Plus, since the wireframe view lets you see through walls and objects, you might prefer to use this temporarily for quickly moving to a desired location. Then, you can switch back to fully textured viewing to see the details.



3D Zoom Buttons

Click these to zoom in or zoom out on the 3D view. On side views, it may seem that you are walking in or out, however, the camera is actually zooming and not changing positions. This is more easily seen in the overhead (bird’s-eye) view. Click one of

the walk-around view icons to re-center the view and set the zoom level back to normal.



3D Movement Buttons

You can use the mouse or arrow keys for virtual 3D walk-arounds, or you can use the movement control buttons to move. First, general movement is described, then ways to modify movement using modifier keys such as *option*, *shift*, and *control* is provided.

To move using the mouse, move the pointer into the 3D window and hold the mouse button down. The further away from the center of the window you are, the larger the steps and faster the movement.

To move using the keyboard, hold down one of the arrow keys.

To move with the movement buttons, move onto the desired button and hold down the mouse button. The top two buttons move forward/backward on side views and fly laterally up/down on the bird's-eye view. The second row buttons step left/right on side views (note that this can be toggled under Preferences to turn in place left/right instead) and fly left/right on the bird's-eye views. The third row buttons rotate left/right, and the bottom two buttons tilt forward/backward.

You can use modifier keys to alter mouse and key movement as follows:

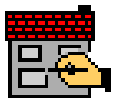
shift: For left/right movements; turns in-place/rotates

control: For up/down movements, tilts

option: For up/down button and mouse movements, changes altitude

Please see "Going For A 3D Walk-Around" in the tutorial chapter for related information.

Chapter 4



Menus

As with virtually all Macintosh applications, you can access many *3D WalkAround* features through the menu it displays along the top of the screen. This chapter describes these features.

Using Menus

Menu items that you cannot currently select are dim and will not highlight. In some cases, you may need to select an object or perform some other operation first.

You can access many frequently-used menu items using the keyboard. These menu items are indicated with a *command* key symbol and a keyboard character. For example, to choose Undo, you can hold down the *command* key and press the letter "Z".

Note: A few keys are treated special by *3D WalkAround.* To provide even easier menu access, some keys also select menu items without the *command* key held down. For example, to rotate a selected object left, you can press "<" without using the *command* key. You can find a complete listing of command keys in the Appendix.

Apple Menu

About

This shows information about *3D WalkAround* such as the copyright date, the company that published it, and the programmer's name.

Status

Select Status for information about your active drawing, such as its page size, scale, and the amount of free memory that's left or used.

File Menu

New

Select New to open a new, untitled document window. Up to 8 windows can be open at one time.

Open

Select Open from the File menu to bring up a file dialog and open an existing drawing from disk**.**

Simply find the file you want in the file dialog and double-click it's name or click the name once and click Open. If you need additional help using the file dialog, please refer to the *Owner's Guide* that came with your computer.

Note: *3D WalkAround* tries to open its own proprietary file type, *Design Your Own Home*: *Architecture* and *Interiors* files, and PICT files. However, importing non-*3D WalkAround* files may result in the loss of some information that *3D WalkAround* can't use. For example, *3D WalkAround* is object-oriented so bitmap data in PICT files (data from paint programs or scanned images) is ignored. In that case, try importing through the clipboard using Paste As Pict.

Also, opening layouts created with a previous version of *3D Walkaround* is done automatically. However, if you save an old layout with the current version, it may be incompatible with the previous version. To avoid this problem, make a copy of your previous version file before opening it in the new version.

Close

Select Close when you are completely finished with the drawing in the front-most window and want to remove the drawing and the window from the desktop. You can also click a window's close box to accomplish the same thing.

If asked whether to save changes, click Yes if you want to keep any changes and save the drawing to disk.

Save

Choose Save from the File menu to save the drawing in the front-most window to disk. If the window is untitled, a dialog appears so you can name it. Type a unique name for your drawing, then click Save (see "Save As" for more).

If the drawing already has a name, you are not prompted for a new name. The current name is used and the save is performed immediately. This lets you quickly save an updated version of your drawing.

To save even more quickly, hold down the *command* key and press "S".

Warning: Save replaces any previous version of your drawing with your current version. To keep a previous version, use Save As to give your current version a different name.

Use Save frequently so you'll always have a recent version of your drawing on disk. This provides added protection in case a power failure occurs or your computer quits working for any reason. If you update your disk version often, you'll lose only a few recent changes and not your entire drawing or hours of work.

Save As

Use Save As to save an untitled drawing, to save a drawing under a different name, or to save to a different disk. After the save, the name above the drawing window changes to the new name.

In the file dialog, move to the disk location where you want your drawing to be saved, type a name for it in the box provided for that purpose (below “Save document as:”), then click the Save button. This saves the drawing into the current folder and exits the save dialog.

Now that your drawing is saved, you can use Open from the File menu to retrieve it at a later time. If you need additional help using the file dialog, please refer to the *Owner's Guide* that came with your computer.

Backup your work. If you’ve made many changes, use Save As to save an additional backup copy of your work, preferably to a floppy disk as well. If your original disk or file becomes damaged, you can restore it from the backup copy. For important work, it's also a good idea to keep one additional copy of the previous session’s work and not touch it during the current work session. If, for some reason, both your current copy and the backup is damaged, you’ll have the previous session’s work to fall back on. For example, if a system failure causes your original file to save incorrectly, the same problem will most likely cause any backup to save incorrectly. Your only salvation may be an additional copy of your previous session’s work.

Export

The Export menu item contains two submenus which let you export (or save) a drawing as either a black and white PICT, color PICT (PICT2) or *Design Estimator* document. Please

refer to your product catalog or contact Abracadata for information about *Design Estimator*.

It's important to save your work in the normal way with Save or Save As also. *3D WalkAround* only opens PICT2 documents as a single PICT object, as with Paste As PICT. And, although *3D WalkAround* does open black and white PICT files, some information may be lost in the process.

Revert

This reloads the last version of a drawing that was saved to disk.

Select Revert from the File menu if you've made changes since last saving your work and decide that you don't want to keep the changes.

Browse

You can use Browse to look at or open *3D WalkAround, Architecture, Interiors,* and PICT drawings that are saved on a disk.

To Browse a folder:

1. Select Browse from the File menu. A file dialog displays. If you want, click the Drive or Desktop button to catalog a different drive.

2. Double-click the file you want to see. You may also click its name once and click Browse.

3. View the drawing then click the desired button. Click Previous or Next to view additional drawings from the cataloged list, click Open to quit browsing and open the drawing, or click Exit.

Page Setup

Choose Page Setup from the File menu to set the paper size and other printing options. This is optional. Standard settings are used if you don't change them.

After choosing Page Setup, the dialog you'll see varies depending on the printer you have. If you aren't using an Apple printer, the driver supplied with your printer displays the dialog and controls its content.

A brief description of some common options for the page setup dialog follows. Please refer to your computer and printer *User's Guide* for more information about Page Setup and printing documents.

US Letter. This is the default paper setting. Use it for normal printing to the Laserwriter on paper that's 8 1/2 by 11 inches.

US Legal. Use this option for paper that's 8 1/2 by 14 inches.

A4 Letter. This option is for European standard paper. Its size is 8 1/4 by 11 2/3 inches (210 by 296 mm).

B5 Letter. This option is for the Laserwriter only. Its paper size is 15 by 11 inches (381 by 279 mm).

Portrait Orientation. This refers to the left orientation icon. It lets you print drawings with the same upright orientation they have on the screen.

Landscape Orientation. Select this to print sideways (turned right 90 degrees).

Print

Select Print from the File menu to set the number of copies you want, the page range, and to print the drawing in the front-most window.

If you have problems printing, you may need to install printer resources or use the Chooser desk accessory (under the Apple

menu) to specify the type of printer you have and how it is connected to your computer.

As with Page Setup, the print dialog you'll see varies depending on the printer setup you have. If you aren't using an Apple printer, the driver supplied with your printer displays the dialog and controls its content. Please refer to your computer and printer *User's Guide* if you need help installing printer resources, using the Chooser, and for additional printing information. Following is a brief description of common options.

Copies. Type the number of copies you want to print.

Pages. This sets the range of pages you want to print for multiple-page drawings. Normally, you'll print an entire drawing; however, you have the option of specifying which pages to print. The pages print in vertical columns numbered as illustrated here:

4 page drawing	2 x 3 page drawing
1 3	1 4
2 4	2 5
	3 6

After setting the printing options, click the Ok button to start printing. Remember to make sure your printer is on and ready for printing. You can hold down the *command* key and press "." to stop printing.

Quit

Select Quit from the File menu when you are completely finished using *3D WalkAround*.

Edit Menu

Most choices under the Edit menu work with objects you select with the selector tool, or text you select with the text tool. These items are dim and unavailable until you select one or

more objects, or text. See “Selecting Objects” in the “Tools” chapter if you need help.

Undo

Choose Undo to reverse the last change made to a drawing. In most instances, you can select it again and reverse the undo (restore the last change you made).

Undo reverses the last operation performed so use it right away if you make a mistake. It may be dim and unavailable if you click in a window or perform some other operation first.

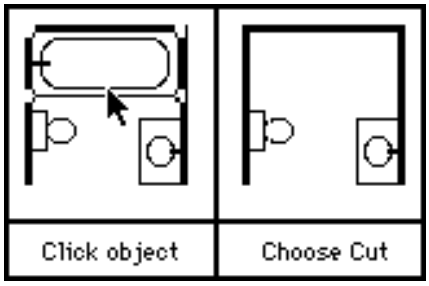
Cut

Cut lets you remove selected objects from your drawing and place them in the clipboard.

To Cut objects:

1. Click the selector tool.

2. Click the object(s) you want to remove, then choose Cut. You can also hold the *command* key and press the letter “X”.



You can choose Show Clipboard from the Edit menu to view the clipboard’s contents (see “Show Clipboard”). Use Paste to insert the clipboard’s contents into the front-most window (see “Paste”).

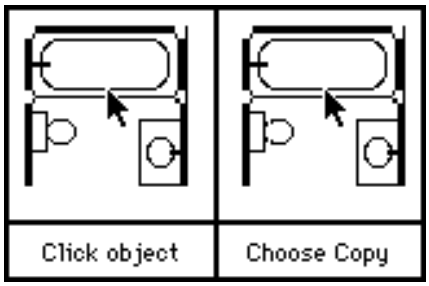
Copy

Copy lets you place a copy of selected objects in the clipboard without removing them from your drawing.

To Copy objects:

1. Click the selector tool.

2. Click the object(s) you want to copy, then choose Copy. You can also hold the *command* key and press the letter "C".



Selected objects are left in your drawing and a duplicate copy of them is placed into the clipboard.

Paste

Paste lets you copy the clipboard's contents into the front-most window. Choose Show Clipboard from the Edit menu to view the clipboard's contents.

To Paste the clipboard's contents into a drawing: If the window that you want to paste into is not currently the front-most window, click any part of it to bring it to the front. Select Paste from the Edit menu (or hold the *command* key and press the letter "V"). The pasted objects appear in the window and the selector tool is activated so you can easily move the objects to the desired position.

Clear

Clear lets you remove unwanted objects from the front-most window. You can also press the delete key to perform a clear.

The objects are not placed in the clipboard. Use Cut to remove objects and place them in the clipboard.

To Clear objects:

1. Click the selector tool.

2. Click the object(s) you want to remove, then choose Clear or press the delete key.

Selected objects are removed from your drawing. You can immediately choose Undo from the Edit menu to restore the deleted objects.

Select All

Choose Select All or hold down the *command* key and press the letter “A” to quickly select every object in the front-most window. If you are using the text tool and have typed text, this selects all of the text.

Duplicate

You can perform the equivalent of a Copy and Paste in one operation by selecting Duplicate.

To Duplicate objects:

1. Click the selector tool.

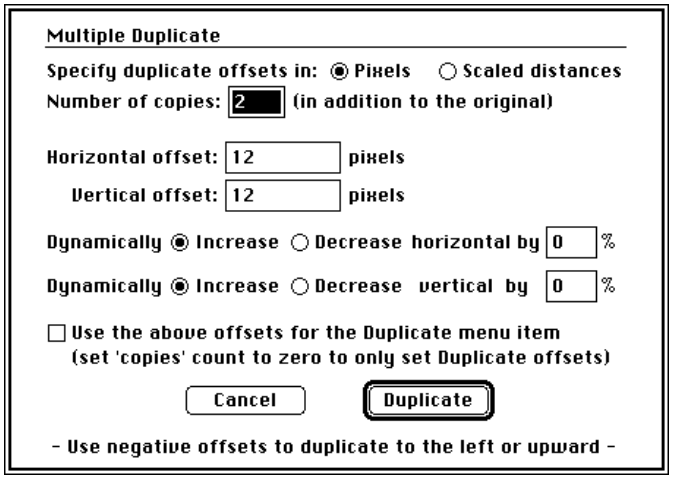
2. Click the object(s) you want a copy of, then choose Duplicate. You can also hold the *command* key and press the letter “D”.

A duplicate copy of the selected objects is placed in the clipboard and pasted back into your drawing. Since a copy is in the

clipboard, you can continue to paste additional copies using Paste.

Multiple Duplicate

Select an object, then choose Multiple Duplicate to display a parameters dialog for copying an object(s) a specified number of times.



Number of copies. Type the number of additional copies to make.

Offsets. This is the amount of space to use between each copy. You can specify a horizontal and vertical offset in either pixels (screen dots) or scaled distances such as 10", 2’6", or 2.5. Use a negative offset to duplicate toward the left (horizontal) or upward (vertical). Use the same amount for the horizontal and vertical offsets to move at 45 degree angles, and use zero for either of the offsets (but not both) to move in straight lines.

Dynamically changing the offsets. If desired, you can increase or decrease an offset by a specified percentage between each copy. Use a zero percentage to keep an offset constant, or

type the desired percentage. For example, 50% increases or decreases (depending on the option you choose) an offset by half it's previous amount between each copy. Using different horizontal and vertical percentages and offsets lets you create a series of objects along a curved path.

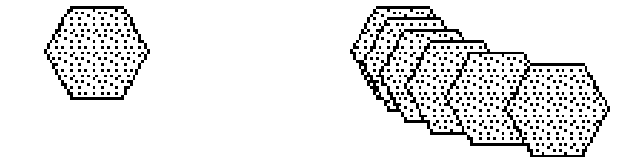
Setting the regular Duplicate offsets. You can also use this dialog to set the offsets for the regular Duplicate menu item. Simply click the box next to the option provided for this purpose. Then, if the number of copies specified is zero, no multiple duplicate is performed. Instead, the regular duplicate offsets are set to those shown in the dialog (the regular duplicate's defaults are 12 pixels). If this option is enabled and the number of copies is greater than zero, then the regular duplicate offsets are set, and the multiple duplicate is performed.

To do a multiple duplicate:

1. Activate the selector tool and select an object.

2. Choose Multiple Duplicate and set the desired parameters.

3. Click Duplicate. Here's an example of a multiple duplicate that specified 5 copies, used 4 pixels for both offsets, and dynamically increased the horizontal offset by 50%.



Original Object After Multiple Duplicate

Copy As Color PICT2

This works exactly like copy, except selected objects are placed in the clipboard as a color PICT2 document for possible exporting to other applications. The regular Copy menu item places a black and white PICT in the clipboard.

Paste As PICT

3D WalkAround is an object oriented drawing program, so it does not fully support bitmap image editing (from paint programs, scanners, etc.). However, it does support importing virtually any type of image, including bitmaps, and color, as PICT objects.

Use Paste As PICT to paste the clipboard's contents, whether bitmap images, or other objects, into a drawing and have them treated as a single PICT (or PICT2) object. A PICT object may be moved, resized, duplicated, and deleted using the selector tool, but is otherwise unchangeable.

Show Clipboard

Choose Show Clipboard to view the current contents of the clipboard.

If you select Paste, a copy of the clipboard's contents is inserted into the front-most window. You use Cut, Copy, or Duplicate to put objects or text into the clipboard.

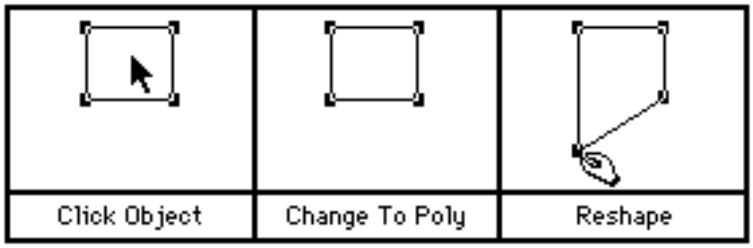
Change To Polygon

Sometimes you may find it convenient to change other objects such as ovals, arcs, rectangles, etc. into polygons. Afterwards, you can use the shaper tool to edit their vertices (see the "Shaper Tool" section for more about it).

To change an object into a polygon:

1. Click the selector tool and select the object.

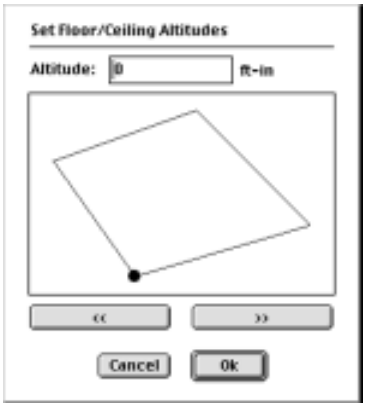
2. Choose Change To Polygon. Here's an example that changes a rectangle into a polygon, then reshapes it using the shaper tool.



Change Line To Wall

Choose this to change all lines selected with the selector tool into wall objects that will display in the 3D view. This might be useful for converting older imported *Design Your Own Home* floorplan walls.

Set Floor/Ceiling Altitudes



This option is used to create slanted floors and ceilings. To create a slanted floor or ceiling, simply enter the desired altitude for each point of the floor or ceiling. Change points by using the arrows until the desired point is selected. The sides of the floor or ceiling will slant proportionally between the two adjacent points.

Edit Patterns, Default Patterns

If you've customized the pattern palette using Edit Patterns, you can choose Default Patterns from the Edit Menu to replace the custom patterns with those that were originally provided with *3D WalkAround*. You cannot undo this operation, so be certain that you want to discard the custom patterns!

Please see "Editing Patterns" in the "3D WalkAround Tutorial" chapter for additional information and for how to edit patterns.

Object Info

Choose this to obtain information about a selected object. The type of information varies depending on the kind of object it is.

You may select and view information for only one object at a time. Object Info is dim and unavailable otherwise.

Set Object 3D Info

Please refer to "Setting 3D Textures And Object Info" in the tutorial chapter for a description of this feature.

Set Estimator Info

This lets you specify the settings that are exported with Export - Estimator File under the File menu for Abracadata's companion product, *Design Estimator*. Please see the product catalog or contact Abracadata for more information about *Design Estimator*.

Arrange Menu

All the items under the Arrange menu work with selected objects. If you need help selecting objects, please see "Selecting Objects" in the "Tools" chapter.

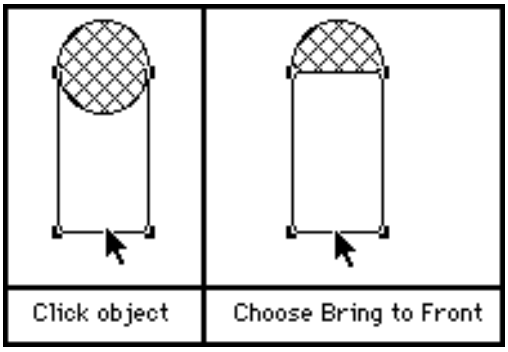
Bring Forward, Send Backward, Bring To Front, Send To Back

These menu items let you adjust the stacking order of selected objects. Use Bring Forward and Send Backward to move an object in front of, or behind, the first overlapping object that is found. Choose Bring To Front to move an object in front of all other objects, or use Send To Back to place it behind (beneath) all other objects.

To bring an object forward:

1. Click the selector tool.

2. Select the object(s) you want to bring forward, then choose the desired menu item.



Follow the same procedure to send an object to the back.

Rotate By Degrees

Please see “Rotating Objects” in the “3D WalkAround Tutorial” chapter for step-by-step instructions about rotating objects.

Rotate Left, Rotate Right

Please see “Rotating Objects” in the “3D WalkAround Tutorial” chapter for step-by-step instructions about rotating objects.

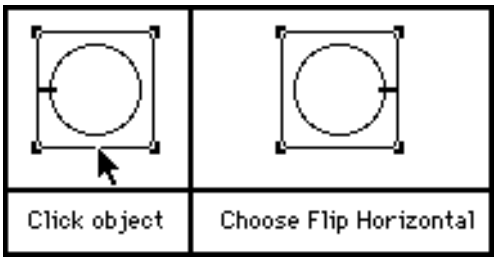
Flip Horizontal, Flip Vertical

Choose these menu items to flip the orientation of selected objects from left to right, or top to bottom.

To flip an object horizontally:

1. Click the selector tool.

2. Select the object(s) you want to flip, then choose Flip Horizontal. You can also press "" (quote) without using the *command* or *shift* key.



Follow the same procedure to flip an object vertically, choosing Flip Vertical instead (or press ":" without using the *command* or *shift* key).

Group, Ungroup

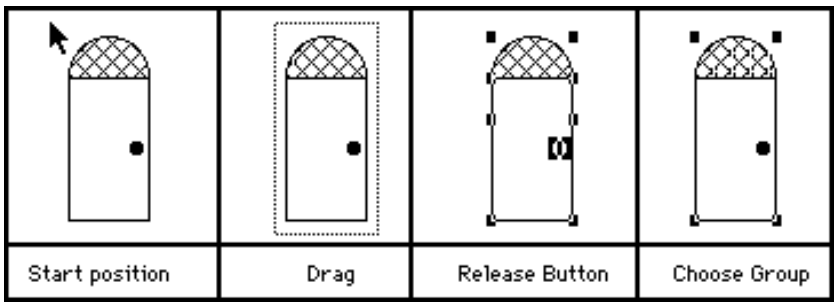
Group converts a collection of objects selected with the selector tool into a single grouped unit.

Once grouped, the objects are treated as a single object until they are ungrouped. For example, if you select a grouped object, then select a pattern, all the individual objects within the group take on the pattern.

To group objects:

1. Click the selector tool.

2. Select the objects you want to group, then choose Group. You can also hold the *command* key and press the letter "G".



Use Ungroup (*command* - "U") to separate grouped objects into their individual component objects again.

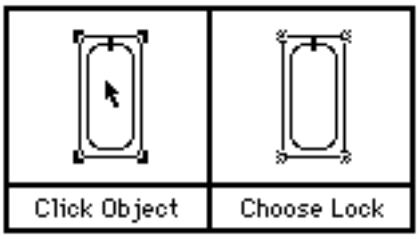
Lock, Unlock

You can use Lock to keep objects from being moved, grouped, deleted, or otherwise changed.

To lock an object:

1. Click the selector tool.

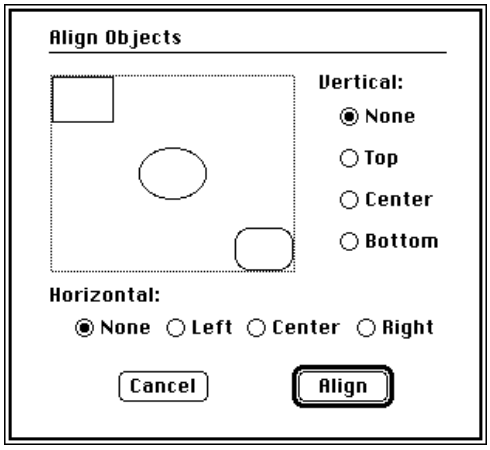
2. Select the object you want to make unchangeable, then choose Lock. You can also hold down the *command* key and press the letter "K".



Notice that the locked object has dimmed handles, indicating the object is locked. Use Unlock (*command* - "J") to make locked objects changeable again.

Align

Align lets you align a series of objects vertically by their top, center, or bottom positions, or you can align them horizontally by their left, center, or right positions.

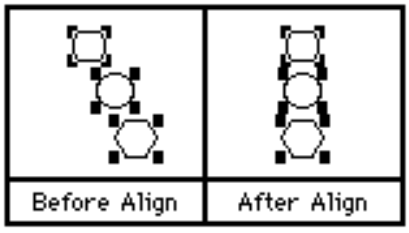


Click the None option for no alignment, or choose the desired alignment. The sample objects in the dialog take on the chosen alignment.

To align a series of objects:

1. Click the selector tool and select the objects.

2. Align the objects. Choose Align, set the desired alignment, then click the Align button. Here's an example that aligns 3 objects by their horizontal centers (the None setting was used for the vertical alignment).



Distribute

This lets you distribute a series of objects vertically by their tops, centers, bottoms, or edges, or you can distribute them horizontally in the same fashion.

To distribute a series of objects:

1. Click the selector tool and select the objects.

2. Distribute the objects. Choose Distribute, set the desired options. Use the example shown in the dialog as a reference to see how the objects will distribute based on the chosen options. Click the Distribute button to distribute selected objects accordingly.

Align to Grid

If grid snap is enabled, you can use Align to grid to align a selected object to the grid, using the coordinates of the object's upper left corner. If you want, you can select Show Grid Points from the Layout menu to see the grid.

The following instructions assume grid snap is enabled. Please see "Using Snap" in the tutorial chapter for how to turn on grid snap.

To align an object to the grid:

1. Click the selector tool.

2. Select the object you want to align.

3. Choose Align to Grid from the Arrange menu. The object aligns to the grid.

Scale Selection

You can rescale existing objects by a given percentage using Scale Selection.

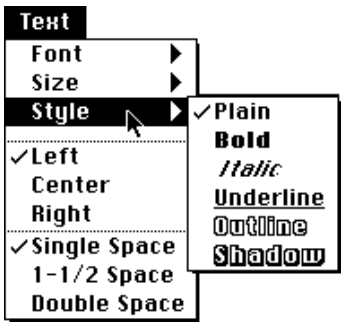
To rescale an object:

1. Click the selector tool.

2. Select one or more objects to rescale.

3. Choose Scale Selection and type the scaling percentage. Type a percentage, then click Scale to initiate the rescaling of selected objects. For example, type 50 percent to reduce objects by one-half, or type 200 percent to double their size.

Text Menu



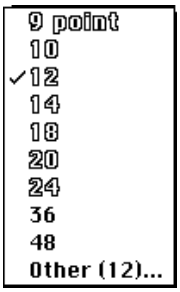
Font, Size, Style

As their names imply, the Font, Size, and Style menu items let you pick a font, it's size, and style. Your choices are used the next time you type with the text tool.

If a text object is selected, or you are currently typing text with the text tool, it also changes to the chosen font, size, or style. This lets you easily experiment and change existing text. See "Editing Existing Text" for more detailed information.

Font. Choose the font you want to use from the Font submenu.

Size. When you look at the size choices for a given font, you may notice that one or more of the sizes are shown with outlined numbers.



Outlined numbers indicate the sizes for which a real font actually exists. A font looks best at the outlined sizes. When you choose a size that isn't outlined, the font is scaled to the size.

Other. Choose Other from the Size submenu to specify a font size that isn't provided by the menu's size choices.

Style. A font's style refers to the way it looks. Style choices include plain, bold, italic, underline, outline, and shadow. Here's how they look:

Except for plain, which cancels all other styles, the styles are accumulative. For example, it's okay to use bold and outline at the same time.

Left, Center, Right

Use these menu items to specify how you want selected text, or text you type, to be aligned.

This sample shows text Left aligned.

Here is Center aligned text.

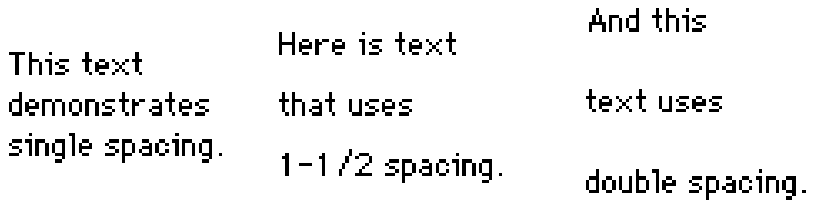
And here is Right aligned text.

The chosen alignment is used by the text tool the next time you type text.

If you have a text object selected, or are typing text, it also takes on the new alignment. See “Editing Existing Text” for more related information.

Single Space, 1-1/2 Space, Double Space

These choices let you set the spacing between lines of text. Single spacing is the normal spacing.



The chosen spacing is used by the text tool the next time you type text and press the *return* key. Any existing text objects selected with the selector tool also change to the new spacing. See “Editing Existing Text” for more related information.

Line Menu

Set line and object border widths by choosing the size you want under the Line menu. Please see “Setting Line Thicknesses” in the “Tools” chapter and “Using Patterns” in the tutorial chapter for additional information.

Color Menu

Use the Color menu items to change existing object colors or to specify colors to use when drawing. Please see “Using Colors” in the tutorial chapter for detailed information about working with colors.

Symbols Menu

Library, Open Library Window

Please refer to “Creating A Drawing” and “Using Symbol Libraries” in the tutorial chapter for a complete description of these menu items.

3D Preview

Selecting this option will bring up a 3D Preview of any selected object. Click on the Nearer and Farther buttons to cause the object to approach or recede. To rotate the object, click on the Adjust button and use the mouse (with the button depressed) to view the object from the desired angle. Use the Reset button to restore the original view.

Layout Menu

Overview

Select Overview from the Layout menu to see a scaled down version of your whole drawing.

Show 3D View

Selecting this option has the same effect as using the 3D button on the toolbar. By selecting this option, your 3D Window will be displayed.

Layers

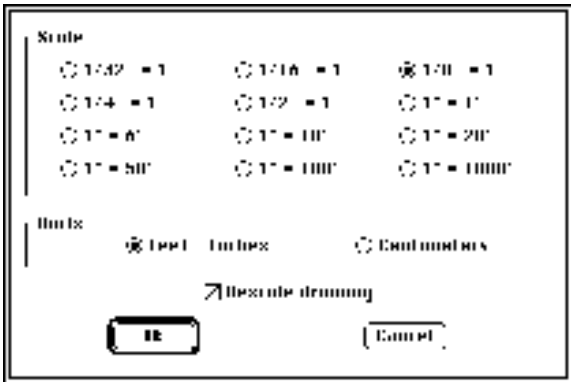
Please see “Using Multiple Layers” in the tutorial chapter for detailed information about layers.

Snap

Please see “Using Snap” in the tutorial chapter for detailed information about object and grid snapping.

Scale

Choose Scale to set the drawing scale and units you want to work within. The following dialog displays:



A description of the various options follows.

Scale. Click the button beside the desired scale. See “Choosing A Scale” below for help picking the best scale for your project.

Units. Click the button next to the type of units you want, either feet-inches or centimeters. If you select centimeters, the scale choices change to metric scales.

Rescale drawing. Click the box beside this option if you want objects rescaled (resized) when you change scales. See “About Changing Scales” for additional information.

Choosing A Scale

It's best to do some planning before choosing a scale. When *3D WalkAround* begins, the scale is 1/8" = 1' (unless you change the preferences). This means when you print a hard copy, 1 inch on paper is equal to 8 feet in the real world. Since a one-page, printed drawing is 8 inches wide (using the U.S. Letter page size from the Page Setup item), the real-world width of a page is 64 feet and the height is 84', using the start-up scale (note that you can Show Rulers and reference page breaks to help determine scaled page sizes).

If the design you are beginning will be larger than 64 feet wide, then you'll need to set a drawing size larger than one page, or choose a different scale if you want to keep your drawing size to one printed page (multiple-page drawings print on 2 or more pages of paper - see "Drawing Size" later in this chapter).

Each scale choice increases or decreases the drawing's real-world width and height. For example, if you choose 1/16" = 1', your drawing's page width increases to 128 feet (16' x 8 inches per page). The maximum page width for the scale choices is 8000' using the 1" = 1000' scale. If you need a drawing to be wider than 8000', you must select Drawing Size and create a multiple-page drawing, which can be up to 8x8 pages in size (up to 64000' in width).

The following list shows the width of a page for each of the scale choices using the U.S. Letter paper size.

Scale			Page Width
1/32"	=	1'	256'
1/16"	=	1'	128'
1/8"	=	1'	64'
1/4"	=	1'	32'
1/2"	=	1'	16'
1"	=	1'	8'
1"	=	6'	48'
1"	=	10'	80'
1"	=	20'	160'
1"	=	50'	400'
1"	=	100'	800'
1"	=	1000'	8000'

About Changing Scales

Although *3D WalkAround* rescales existing objects when you change scales, it's much better to choose the correct scale before you begin drawing and stay with that scale. Due to rounding, differences in line widths, screen resolution, etc.,

objects may become misaligned and distorted to some degree during the rescaling process.

Scale changes may also force the page size of a drawing to change. For example, a single-page drawing may become a multiple-page drawing if a scale change causes objects to grow in size, since they may extend beyond the boundary of a single page.

For the reasons mentioned above, before you rescale an existing drawing, always save a copy to disk as a safeguard first! Once objects have rescaled during a scale change, you may not be able to simply go back to the original scale and have them be as they were. The next scale change rescales objects based on their new, possibly slightly distorted, size.

Note that text is repositioned but not rescaled when you change scales because it can become unreadable with a relatively small scale change. If you need to, you can select the text and use Size under the Text menu to change its size.

Wall Tool

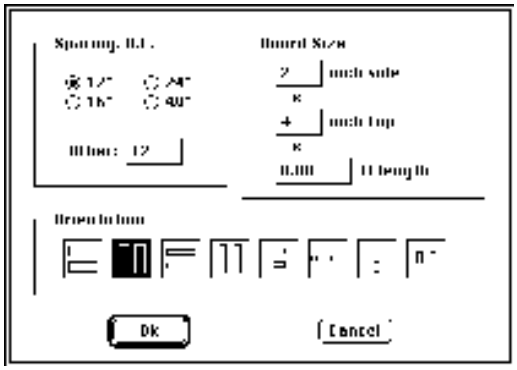
Please refer to “Wall Tool” in the “Tools” chapter for a description of this menu item.

Floor Tool

Please see “Floor Tool” in the “Tools” chapter for a description of this feature.

Stud Tool

This menu item lets you change the parameters for the Stud tool. The changes are used the next time you use the Stud tool.

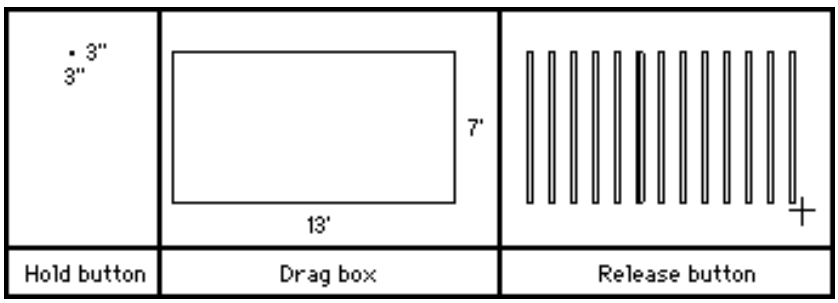


Spacing, O.C. O.C. stands for a contractor's term, On Center. It's the spacing between studs, measured from the center of one board to the center of the next adjacent board. You can change the O.C. spacing for studs by clicking the circle next to the spacing you want, or by clicking the box next to Other and typing in the amount of spacing you want.

Board Size. If you want to change the board size, click the box next to the measurement you want to change and type in the new measurement.

Orientation. Change the orientation of the boards by clicking the desired orientation icon. The current orientation is highlighted. The first four orientations are side views, the last four are end views.

When you're using the stud tool with a side view orientation, the length of the studs is determined by the size of rectangle you draw. The area the rectangle encloses is filled with studs. Here's an example using a vertical orientation.



If you have chosen a top view orientation, the length of the studs is determined by what you specify under Board Size in the settings dialog. The length is used for the information that appears in the Object Info dialog (from the Edit menu). Please see "Stud Tool" in the "Tools" chapter for more about drawing studs.

Measure Tool

Please see “Measuring And Using Reference Markers” in the tutorial chapter for a detailed description of this tool’s setting’s dialog, and its use.

Multigon Tool

Please see “Multigon Tool” in the “Tools” chapter for a detailed description of this tool’s settings dialog.

Window Tool & Door Tool

The Window and Door tools have exactly the same features.

The 3D Altitude value is for setting the height of the object above the floor. The 3D Height value is for changing the height of the object itself. The Width value sets the object width.

The Change 3D Object button allows you to select different windows and doors from the included libraries.

Checking the box next to “Apply to Selected Windows/Doors” changes the properties of the currently selected objects.

The preview window operates exactly like the 3D Preview option in the Layout Menu.

Roof Object Tool

Selecting this option will bring up a dialog displaying roof object properties.

The 3D Altitude value is for setting the height of the roof above the floor.

The Change 3D Object button allows you to select different roof objects from the included libraries.

Checking the box next to “Apply to Selected Roofs” changes the properties of the currently selected roof objects.

The preview window operates exactly like the 3D Preview option in the Layout Menu.

Auto Roof Tool

Selecting this option allows you to view the default properties for the Auto Roof Tool.

There are four options from which to base the 3D altitude of your auto-roof. Choosing “Lowest Wall’s Height” will place the bottom of the roof on the top of the lowest wall. Choosing “Highest Wall’s Height” will place the bottom of the roof on the top of the highest wall. Choosing “Selected Wall’s Height” will place the bottom of the roof on the top of the currently selected wall. Choosing “Custom” allows you to enter the height at which the bottom of the roof is set.

The value in the “Roof Overhang” box allows you to set the distance at which the roof extends beyond the walls.

The value in the “Roof Height” box allows you to set the height from roof base to roof top.

Drawing Size

You use Drawing Size to change the page size of your drawing, which increases or decreases the amount of space inside the drawing window. Each page in size corresponds to a printed page on paper. In some cases, you may want to print multiple page drawings, then trim the edges off the paper and attach the pages together.

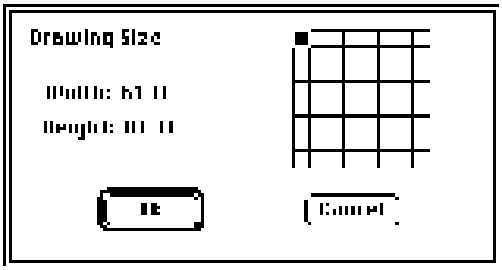
When *3D WalkAround* begins, the drawing size is set to 1 page wide by 1 page high (unless you save new preferences). You can create drawings that are up to 8 x 8 pages in size. However, you

should limit the size to what you really need for a given project. Remember that an 8 x 8 page drawing contains a total of 64 pages, which could take a considerable amount of time to print. The width and height do not have to be the same. The following drawing size examples are all okay:

Pages Wide x Pages High
1 x 2
2 x 1
2 x 2
2 x 4
4 x 4

To change the drawing size:

1. Select Drawing Size from the Layout menu. A dialog containing a grid of boxes appears.



Each box represents one page.

2. Set the desired size. Move the pointer onto the grid and click (or hold the button down and drag) to reduce or enlarge the drawing size. Click the Ok button when the size is what you want.

If you are changing the size of an existing drawing, you can't reduce its size below the number of pages that are currently used. You can select Status from the Apple menu to see a drawing's current size.

In some cases, a drawing's page size may change automatically. For example, if you use Page Setup and choose a paper size (page size) that is smaller than the current size, existing objects may extend beyond the boundaries for the new page size. If so, additional pages are added. This might occur when you change scales, too. If any rescaled objects extend beyond the drawing's current width or height, the drawing's size is automatically enlarged.

Preferences

Choose Preferences to specify the configuration of drawing windows that are created by New under the File menu, and to set other preferences.

Enable and disable the desired preferences by clicking the boxes next to them, then click Save to retain and use the settings.

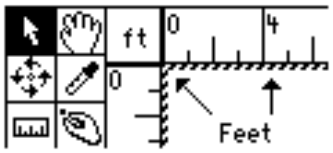
Show/Hide Markers

This lets you show or hide reference markers that are optionally created by the measure tool. Please see "Measuring And Using Reference Markers" in the "Tools" chapter for more information.

Show/Hide Rulers

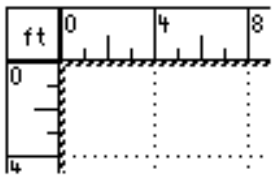
Choose Show Rulers if you want visible rulers while drawing. If rulers are currently being used, this item changes to Hide Rulers.

The ruler units change depending on the scale. Where the rulers meet at the top left corner of the drawing window, you'll see an abbreviation, "ft", "in", or "cm", indicating the working unit.



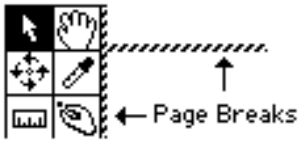
Show/Hide Ruler Lines

Select this to show and hide ruler reference lines that you may find helpful for drawing and positioning symbols more precisely.



Show/Hide Page Breaks

This lets you show or hide striped lines that indicate where each page of a multiple-page drawing begins and ends.



Since each page in a drawing corresponds to a printed page on paper, you'll probably want to show page breaks if your drawing is more than one page in size, and it doesn't hurt to leave them visible all the time.

Show/Hide Grid Points

Use this item to show or hide grid points. If grid snap is enabled, any object you draw will snap to the nearest grid points.

Show/Hide Measurements

Choose this to show or hide size measurements that appear as you stretch an object to size (when you draw).

For box, oval, and arc object, width and height measurements appear. Length and angle measurements are shown for line objects. Here's an example of what you'll see.

The measurements are useful when you need to draw lines or other objects (to scale) to a specific size. You can find an existing object's size by selecting it and choosing Object Info from the Edit menu.

Turn On/Off Scrolling

When you turn on scrolling, your drawing will scroll automatically if you draw beyond the edge of the window. This makes drawing objects that are larger than the viewing area much easier.

Index

O

P

Q

R

S

T

U

W

Z

Command Keys

Menu Command Keys

File Menu

Cmd-N	New
Cmd-O	Open
Cmd-W	Close
Cmd-S	Save
Cmd-P	Print
Cmd-Q	Quit

Edit Menu

Cmd-Z	Undo
Cmd-X	Cut
Cmd-V	Paste
Cmd-D	Duplicate
Cmd-A	Select All
Cmd-I	Object Info
Cmd-E	Set Object 3D Info

Arrange Menu

Cmd-F	Bring Forward
Cmd-B	Send Backward
Cmd-,	Rotate Left
Cmd-.	Rotate Right
Cmd-’	Flip Horizontal
Cmd-;	Flip Vertical
Cmd-G	Group
Cmd-U	Ungroup
Cmd-K	Lock
Cmd-J	Unlock

Symbol Menu

Cmd-Y	Library
Cmd-L	Open Library Window

Layout Menu

Cmd-H	Overview
Cmd-R	Show/Hide Rulers
Cmd--	Show/Hide Ruler Lines
Cmd-M	Show/Hide Measurements

Other Command/Modifier/Hot Keys

Note: Unless indicated, don't hold down the *command* key.

2D Layout Window

Hot keys for selecting tools:

g	Grabber tool
r	Rotate tool
e	Eyedropper tool
m	Measure tool
s	Shaper tool
l	Line tool
c	Constrained line tool
h	Hollow line tool
w	Wall tool
b	Rectangle tool (box)
x	Rounded rectangle tool
o	Oval tool
a	Arc tool
p	Polygon tool
k	Sketch tool
d	Stud tool
z	Bezier tool

m	Multigon tool
t	Text tool
f	Floor tool
space bar	Toggles back and forth between current tool and selector tool

Miscellaneous hot keys and modifiers:

Arrows	Move selected objects, or last object drawn when using drawing tools
+	Zoom in (don't need to hold *shift*)
-	Zoom out
<	Rotate left (90 degrees)
>	Rotate right (90 degrees)
"	Flip Horizontal
;	Flip Vertical
1–8	Set line/border thickness
9	Dimension line
0	No line/border (same as not equal pattern symbol)
command	Hold using selector, then drag objects to create duplicates, or to drag between different document windows
shift	Hold while drawing for perfect circles, squares, 45 degree line angles
shift	Hold using selection tools to select/deselect additional objects
command	Hold while drawing to temporarily disable all snapping options
command	Hold using eyedropper tool to transfer colors between objects
option	Hold using eyedropper tool to transfer patterns between objects
command	Hold and click the on-screen Layer button to go to first layer

option	Hold using measuring tool to change between line/rectangular measuring
command	Hold using measuring tool to override reference marker usage option
option	Hold using shaper to cut polygon line segments and delete vertices/handles
option	Hold when selecting Open Library Window to display symbols in columns (more efficient if a printout is desired)

3D Window

command	Hold when clicking 3D button to reset 3D view background color to the original default (use color dialog to change 3D background color)
Arrows	Use to walk-around in 3D view
shift	Hold to turn in place (or rotate) when performing left/right 3D movement
option	Hold to move higher/lower in altitude when performing up/down 3D movement
control	Hold to tilt when performing up/down 3D movement