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Virtus WalkThrough VRML 1.0

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Overview

Welcome to Virtus WalkThrough VRML 1.0!

VRML (Virtual Reality Modeling Language) is an exciting new technology which will soon change computing for the masses. We've been developing 3-D visualization products for Macintosh and Windows for the last five years and are excited about the release of Virtus WalkThrough VRML 1.0.

Our WWW address is HTTP://WWW.VIRTUS.COM. Please visit us and enter your VRML files (created with Virtus WalkThrough VRML 1.0) into our Model of the Month contest. Also, you'll want to explore other VRML worlds accessible from our home page.

About WalkThrough VRML 1.0

WalkThrough VRML is a "lite" version of Virtus WalkThrough Pro with VRML export added as its main feature. It fully demonstrates the ease of use and powerful features offered in the full version of Virtus WalkThroughPro 2.0. However, some valuable features found in WalkThrough Pro 2.0 have been removed including: texture mapping, smooth shading, importing, exporting (except VRML of course), making movies and the lighting editor. In addition, limitations of a single open model and library, and a single modeling layer have been imposed. That said, with this version you'll be able to build save models that you've created, and then easily export them to VRML format with a single menu selection.

We hope you enjoy Virtus WalkThrough VRML 1.0 so much that you'll purchase Virtus WalkThrough Pro 2.0 or one of the other quality software products in the Virtus family. WalkThrough Pro is widely available for sale on the internet, in major computer software mail-order catalogs, and directly from Virtus Corporation.

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The WalkThrough Interface

Click on an area to see information about it:
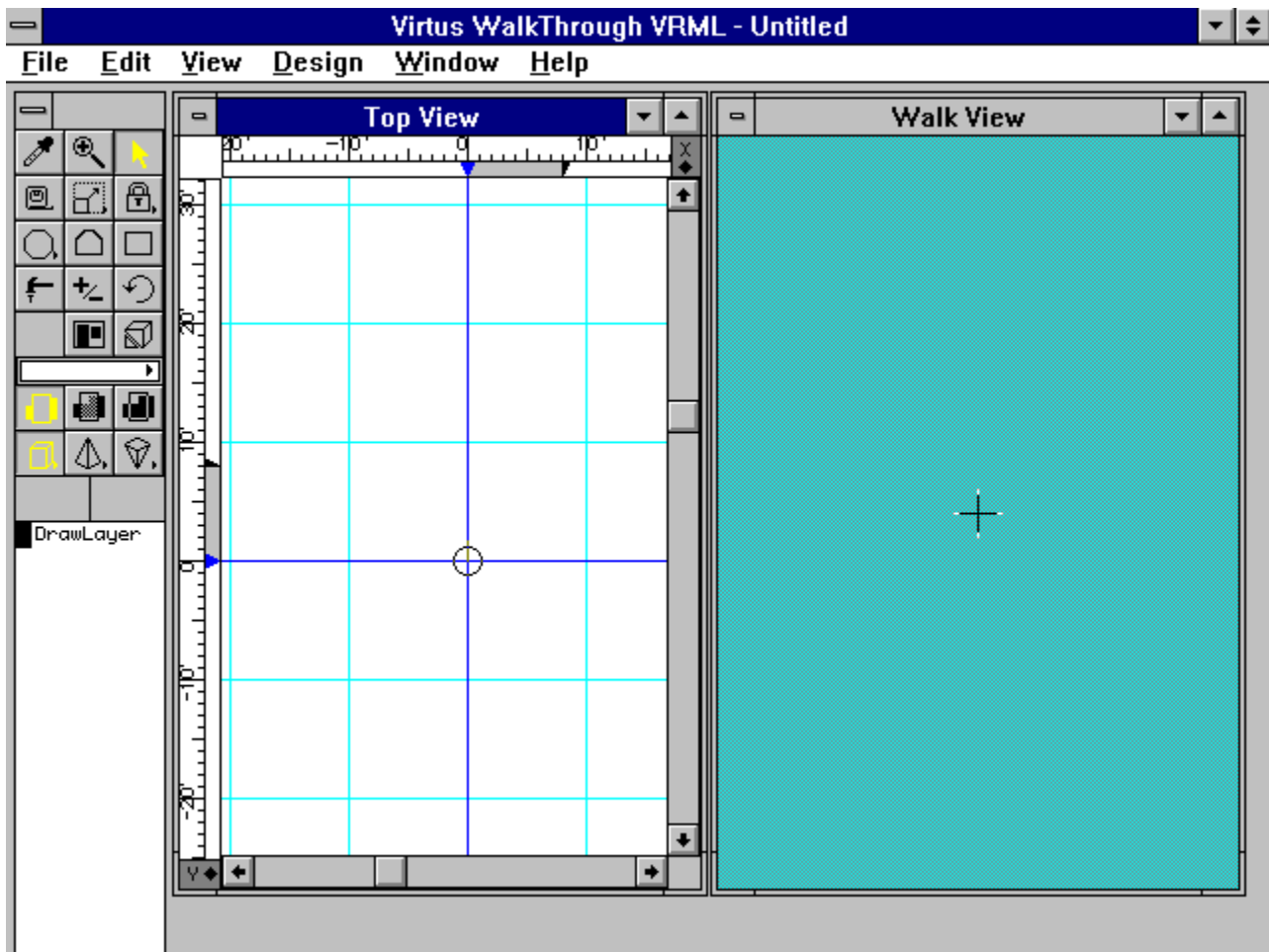
Other Virtus Products

Click on a product to view its description:

[Virtus WalkThrough Pro 2.0](#)

[Virtus VR](#)

[Virtus Galleries](#)

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Troubleshooting

Virtus WalkThrough VRML will work best in the 640x480 resolution with 256-colors mode. Keep in mind that selecting thousands of colors for your display or choosing a larger resolution (1280x1024, for example) will require more dynamic memory and these choices will slow your walk speed considerably.

When "Snapshot" in the File Menu is selected, some users may get the screen message "Can't interrogate driver". This means that the display card being used doesn't support the standard Windows call being made to create the snapshot. Short of upgrading to a card that supports all standard Windows calls, you could use the "Snapshot" command by going to Windows Setup and choosing another video driver; the Windows 3.11 (latest version) SVGA drivers work well.

Printing works with most combinations of video cards and printer drivers. However, you may experience some difficulty when printing. First, make sure that the active window is the view that you want to print, then print. If you still encounter difficulties, turn off FlashGraphics in the Rendering Preferences and try again. If you still experience problems, use the File Snaphot BMP command to save your Walk View as a BMP file and then print it with another application that you know works with your printer. You can also check with your printer manufacturer to see if you are using the latest printer driver available.

Only one Virtus WalkThrough VRML model and library may be open at anytime. When a library is open, the "Library" command under the File menu will be grayed out (unavailable). If your walk speed is very slow (e.g. 2 frames per second in a very simple model), you probably have an ATI Mach 32- or 64-bit board, neither of which supports our Flash Graphics utility. Check under Rendering in Preferences; if Flash Graphics is grayed out, turn off "devicebitmap" for your video board. Here's how:

ATI Mach 32: If you have an ATI Graphics Ultra Pro display card, you'll need to make an adjustment to its mach32 driver. In the "win.ini" file located in your Windows directory (open this file with Windows Notepad), find the section called "mach32" or "mach." Now find the line "devicebitmap=on" and change it to "devicebitmap=off." Save the file and restart Windows; Virtus WalkThrough VRML will run properly. If there is no "devicebitmap=" statement, you must go to the Flex Desk control panel in Program Manager. Open the control panel and select the advanced option. You should see a listing for devicebitmap. Turn it off, save your changes and restart Windows.

ATI Mach 64: Go to the Flex Desk control panel and hold down the Control and Shift keys while you type the letters, OPT. When the dialog box will appears, click OK.   A second dialog box will open that contains the option to turn off devicebitmap. Turn off "devicebitmap", save your changes and then restart Windows.

Models and libraries are organized in two subdirectories, Models and Library. You must be in the appropriate subdirectories in order to see them. Models have the .WLK extension and are located in the Models subdirectory. They can be accessed by performing a File Open command from the menu, and then opening the Models subdirectory to see the list of available models. Libraries have the .WLB extension and are located in the Library subdirectory. They can be accessed by performing a File Library command from the menu, and then opening the Library subdirectory to see the list of available libraries. You cannot open a library by doing the File Open command; you must perform a File Library command. Models and Libraries can be stored anywhere that you wish.

In rare instances, you may experience a GPF when running Virtus WalkThrough VRML, so remember to save your work often. When you get a GPF, it usually means that your display driver does not fully support our FlashGraphics utility. The VGA and SVGA display drivers

supplied with Windows work properly with Virtus WalkThrough VRML (provided that your display adapter supports them). Please consult your Windows manual for instructions on how to change your video driver.

Objects may appear to flash on and off as you walk through a file. Virtus WalkThrough VRML mathematically calculates each new view as you are walking. The more complicated your model, the more calculations are required to render your new position. Occasionally, WalkThrough has trouble rendering everything 100% correctly; we call these sorting errors. To improve rendering of objects, first check for overlapping objects. If there are no intersecting objects, then you may want to recreate the "flashing" object in a different design view.

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Technical Support

Registration

Registered users will receive special offers on Virtus Products and limited technical support. To register this software via email and be eligible for limited technical support, please send your name, address, and phone number to "info@virtus.com" with the message subject of "Virtus WalkThrough VRML Registration".

Technical Support

If you experience technical difficulties, we recommend that you first check your Virtus WalkThrough VRML documentation and Tutorial. If you can't find the answer to your question, we can help you best if you call us while sitting at your computer with Virtus WalkThrough VRML 1.0 running. Also, please have your serial number ready to give to us. You'll find it in the Virtus WalkThrough VRML 1.0 splash screen by selecting "About Virtus WalkThrough VRML..." from the Help menu.

Technical support is available from **9 a.m. to 6 p.m. EST Monday through Friday**. You must have your serial number or contract service number ready to give to us when you call, fax, or write us requesting technical support. When you write to us, always include your daytime phone.

Technical Support by Telephone

International customers outside the U.S. and Canada can phone for technical assistance and will receive special priority to minimize their toll charges. We regret that Virtus Customer Service cannot place or return technical support calls and faxes outside the U.S. and Canada.

919/467-9700 - Technical Support for Domestic and International Callers
919/460-4530 - Technical Support Fax for Domestic Callers

Technical Support by On-Line Services

Virtus Online World Wide Web: Server: www.virtus.com
The Virtus FTP Internet Host: ftp.virtus.com/pub/virtus
America Online: Select "Go To" and then type "VIRTUS"
CompuServe: Type "GO VIRTUS" at any prompt

Technical Support by Email

Internet Mail may be directed to info@virtus.com
America Online Mail may be directed to VirtusTech
CompuServe Mail may be directed to 75300,3251
AppleLink Mail may be directed to VIRTUS

Virtus Corporate Telephone Numbers

919/467-9700 - Main Number
800/847-8871 - Sales and Product Information
919/460-4530 - Corporate Fax

Virtus Corporate Mailing Address

Virtus Corporation
c/o Technical Support

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Cary, North Carolina 27511

Glossary

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Modeling Concepts

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Volumetricity

Space Modeling and Containment

When you draw a 2-D object in the Design View, it becomes a 3-D object in the Walk View. Though the object may appear solid in the Walk View, it is actually hollow. Every object has an interior space--it is volumetric. Volumetricity has three considerations you should be aware of. The first consideration of volumetricity is space modeling, that is, you are able to use Virtus WalkThrough VRML to model space itself. Think in terms of space (with infinitely thin walls) defining the environment rather than the environment defining the space.

A second consequence of volumetricity is containment. Every object in Virtus WalkThrough VRML knows what objects it contains and what object contains it. Containment provides you with some important benefits. For example, if you move a container, all objects contained within it also move.

In Virtus WalkThrough VRML, containment is an all-or-none state; an object is either fully contained within another object or it is distinct from other objects. Objects cannot overlap (but they can be joined at a common surface). Unfortunately, it is possible to draw overlapping objects, and the program does not warn you if you make this mistake; however, the result of overlapping objects is always the same: the three-dimensional rendered objects appear twisted and grotesque and sometimes just plain funky.

If you drag a small object into a larger object, a state of containment will exist when the mouse pointer reaches the interior of the large object. The program indicates containment by displaying small blocks called containment markers at the vertices of the large object. These markers will disappear when you release the mouse button. The figure at the left shows containment markers displayed as a small object is being dragged into a large object.

The third consequence of volumetricity is that each object surface has an inside and an outside.

In Virtus WalkThrough VRML, you can edit the inside or outside of any surface of an object to create surface features. Surface features are two-dimensional shapes that can be a different color or a different opacity than the object surface. Surface features are used to represent doorways, windows, holes and other items.

Dimensions

When speaking of three-dimensional space, the coordinate system is usually displayed or discribed in X, Y and Z axes (or planes). Such is the Virtus WalkThrough Pro world. Because the Top View is the default view when the program is started, the three dimensions are based on the Top View rather than the Front View, as in some other 3-D programs.

To demonstrate this, look at your Design View. Notice the rulers on the top edge and left edge of the Top View. At the bottom of the left ruler is the letter Y. This indicates the left ruler is associated with the Y dimension. At the right of the top ruler is the letter X. This indicates the top ruler is associated with the X dimension. So, when viewing or drawing objects in the Top View you are viewing or drawing the XY dimensions of objects.

Now, select the Front View from the Design menu. Like the Top View, you will see a ruler on the top edge and left edge of the view. But notice at the bottom of the left edge ruler is the letter Z indicating the ruler is associated with the Z dimension. The top ruler has not changed and is still associated with the X dimension. So, when viewing or drawing objects in the Front View you are viewing or drawing the X-Z dimensions of objects.

Now, select the right view from the Design menu. Notice the top ruler has changed to Y. So, when viewing or drawing objects in the Right View you are viewing or drawing the Y-Z dimensions of objects.

To put it another way:

X is the left/right dimension,
Y is the front/back dimension,
Z is the top/bottom dimension.

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The Virtus Rules of Modeling

When modeling, you would be wise to adhere to these rules....

1) Do not overlap objects.

2) Non-convex objects are not allowed.

3) Speed and Detail are inversely proportional.

4) Transparent and translucent objects and surfaces (as well as smooth shading) drain processing power.

5) You cannot draw a line. All objects drawn must have depth.

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The Tools Pad

The Tools Pad has two modes, one for the Design View and one for the Walk View.

Click on a tool to display its function (for more detailed information, refer to the manual supplied with Virtus WalkThrough Pro):

DrawLayer
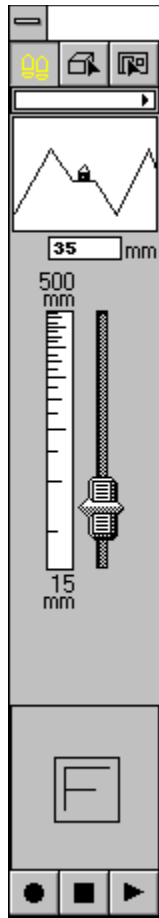
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The Design View

The Design View is a drawing area where you draw or view object outlines in two dimensions. There are six different Design Views: Top, bottom, Front, Back, Left, Right. You may draw in any Design View. More than one Design View can be open at any time; however, only one view can be active at any time.

The Design Views have a specific set of tools. When a Design View is active, the Design View tools are displayed in The Tools Pad.

Creating an Object

In the Design Views, an object is represented by a 2-D polygonal outline. To draw the polygonal outline of an object, select a drawing tool, point to a location in the active design view, click and drag.

The resulting polygonal outline is a 2-D cross section from which a 3-D object is derived. The polygonal outline may look flat, but it has depth and a position in space. WalkThrough Pro applies an inflation distance, or depth, to the outline and inflates the object in the same direction that you are viewing; you cannot see the inflation unless you change views.To change views, select a view from the Change View submenu under the View menu.

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The Walk View

The Walk View displays a three-dimensional rendering of the objects that you draw in a Design View. In the Walk View, you can walk around and through objects by moving the mouse. Also in this view, you can select objects or object surfaces to be edited. The Walk View has a set of tools specific to the Walk View. When the Walk View is active, the Walk View Tools are displayed in the Tools Pad.

To move forward, click the mouse about two inches above the cross hair.

To move backward, click the mouse about two inches below the cross hair.

To rotate left/right, click the mouse about two inches to the left/right of the cross hair

ADVANCED NAVIGATION:

Press Shift and To place cursor		Press Crtl and place cursor	To
Rise Up	Above cross hair	Above cross hair	Tilt your view up
Sink Down	Below the cross hair	Below cross hair	Tilt your view down
Slide Right	Right of cross hair	Right of cross hair	Roll your view right
Slide Left	Left of cross hair	Right of cross hair	Roll your view left

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File Menu

Many of the WalkThrough Pro File menu options and commands are standard for the Windows operating system. These include New, Open, Close, Save, Save As, Print Setup, Print and Quit. If you are unfamiliar these options and commands, please review your Windows system documentation.

New
New creates and opens a new WalkThrough VRML file.

Open...
Open displays the standard Windows Open dialog from which you can select an existing file to open.

Close
Close closes the current file. If you made any changes to the file since the last time you saved it, you will be prompted to save the changes before the file is closed.

Save
Save saves the current file under the currently used name.

Save As...
Save As... opens the standard Windows Save As dialog that allows you to save the current file under a new name.

Revert to Saved
Revert To Saved opens the last saved version of the current file. If you select this option, any changes made to the model since the last time you saved it will be lost unless you first use *Save As* and save the changes to the file under another name.

Print
Print prints the active window centered on the page and enlarged within the constraints of the page. What you see is what will print.

Print Setup
Print Setup opens the standard Windows dialog with which you choose printout size, paper orientation and other printing features.

Export
Export allows you to save the currently open WalkThrough VRML file to the standard VRML   file format.

Snapshot
Snapshot allows you to save a view of a WalkThrough VRML model in BMP file format. The saved view can be a particular perspective in the Walk View, the drawing in a Design View, the Surface Editor window, the Tumble Editor window, the Lighting Editor window or a recorded walk path.

Library
Library allows you to create a new object library or open an existing object library. Choosing *Library* displays the standard Open dialog from which you can select an existing library to open. In addition to the standard dialog buttons, the *New* button is displayed, which allows you to create a new library. Once a library is open, Library items can be added to or copied from the library. Only one library may be open at any time.

Exit
Exits WalkThrough VRML. If a model is open and changes were made since the last time it was

saved, you will be prompted to save any changes before exiting.

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Edit Menu

Undo

Undo undoes the last operation. This command is available in the Design Views as well as all Editors.

Cut

Cut removes any selected objects, surface features or slices and places them in the Clipboard. Cut objects, surface features and slices can then be pasted with the Paste command.

Copy

Copy copies any selected objects, surface features or slices to the clipboard. The difference between Copy and Cut is that Copy leaves the original in place, and Cut removes the original. Copied objects, surface features and slices can then be pasted with the *Paste* command.

Duplicate

Duplicate makes an exact copy of any selected object or surface feature and places it on or near the original. *Duplicate* does not copy to the Clipboard as does the Copy command.

Paste

Paste pastes the contents of the Clipboard into the model. Clipboard contents can include objects, surface features or slices. Different rules apply for where these types of Clipboard content can be pasted. For example, you cannot paste a slice in the Design View because a slice has no meaning there. A slice can be pasted in the Tumble Editor. Similarly, surface features have meaning only in the Surface Editor, and object polygonal outlines have meaning only in the Design View.

Delete

Delete removes (deletes) selected objects, surface features or slices without placing them into the Clipboard. Selected objects, surface features and slices can also be deleted by pressing the Delete key. The difference between Cut and Delete is that Delete removes objects completely, whereas Cut removes objects to the Clipboard so that they may be pasted again.

Modify Selected

Modify Selected is a pull-out submenu of modifiers that may be applied to selected objects in the Design View and to selected surface features in the Surface Editor. If a particular option is not available, it will be grayed. If the Walk View is active, all options are gray.

Select All

Select All selects all objects (displays all handles). If your entire model is being created as a library item, use the Select All command to select all the objects and then group them with *Group* under the Design menu.

All objects can also be selected by double-clicking the Select Object Tool .

UnSelect All

UnSelect All unselects objects or surface features (removes handles). Another method of unselecting is clicking on the background in the Design View or Surface Editor.

Hide Selected

Hide Selected hides selected objects and surface features. Hiding objects or surface features allows you to work with overlapping objects or surface features without having to shuffle them.

Show All

Show All displays all objects or surface features that have been hidden with either the Hide Object Tool or the Hide Selected command.

Lock Selected

Lock Selected locks selected objects in the Design View and selected surface features in the Surface Editor. Locking objects or surface features prevents them from being edited. When an object or surface feature is locked, its polygonal outline is dotted rather than solid.

UnLock All

Unlock All unlocks all objects or surface features locked with the Lock Object Tool   or with the Lock Selected command to allow editing.

Preferences

Preferences opens the Preferences dialog. The Preferences dialog allows you to set preferences for the appearance of the Design and Walk Views, navigation, measurement units and other application and model attributes. With the Preferences dialog, you can customize your application.

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View Menu

The View menu allows you to open new Design Views, change an open Design View to another view, make the Walk View active and manipulate the position of the Observer and the center of the active view.

Change View

Change View is a pull-out submenu that lists possible Design Views to which the current Design View window can be changed. *Change View* is only available when a Design View or the Surface Editor is active. If an option in the Change View submenu is not available, it will be grayed.

The Change View options are Top, Bottom, Front, Back, Left, Right and Opposite.

New View

New View is a submenu that lists possible views that can be opened in a new window. The new views that you can open include the Design Views and the Walk View.

Set Home to Editor

Set Home to Editor specifies home as the center of the current Design View window. By using the home position as a reference point, you can quickly move the Observer or the center of the active Design View to the home position from anywhere in the Design View window. To move the Observer home, use the *Home Observer* command. To move the center of the Design View home, use the *Home Editor* command.

Set Home to Observer

Set Home to Observer specifies home as the position of the Observer. By using the home position as a reference point, you can quickly move the Observer or the center of the active Design View to the home position from anywhere in the active Design View window. To move the Observer home, use the *Home Observer* command. To move the center of the Design View home, use the *Home Editor* command.

Home Editor

Home Editor returns the center of the active Design View to the home position. Home is specified with the *Set Editor to Home* command, the *Set Observer to Home* command or in the Preferences, Defaults dialog.

Home Observer

Home Observer returns the Observer to the home position. Home is specified with the *Set Editor to Home* command, the *Set Observer to Home* command or in the Preferences, Defaults dialog.

Center Observer

Center Observer moves the Observer to the center of the active Design View.

Reset Origin

Reset Origin resets the Origin to true 0,0 coordinates if it has been changed.

Level Observer

Level Observer orients the line of sight in the Walk View, making it level if it has been altered with the Shift key while navigating.

Design Menu

The Design menu is available only when a Design View is active. If the Surface Editor, Tumble Editor or Walk View is active, the Design menu is replaced with the active window's associated menu.

Snap to Grid

Snap to Grid snaps objects, surface features and slices to an invisible grid when they are created, moved or edited. The grid is based on the ruler tick marks in the Design View, Surface Editor and Tumble Editor. Handles of objects, surface features and slices will "snap to" the grid when *Snap to Grid* is selected.

If you zoom in or out, the ruler tick marks change and, therefore, the invisible grid changes. For example, if each tick mark represents one inch, handles snap to the nearest inch. If each tick mark represents one foot, handles snap to the nearest foot.

Zoom In

Zoom In increases the apparent scale and the apparent size of objects in the view by a factor of 2. With each *Zoom In*, the minor tick marks on the rulers represent a smaller unit of measurement. There is a limit to the range of the Zoom-In command. When you reach the limit, selecting *Zoom In* will have no affect.

Zoom Out

Zoom Out reduces the apparent scale and the apparent size of objects in the view by half. With each *Zoom Out*, the minor tick marks on the rulers represent a larger unit of measurement. There is a limit to the range of the Zoom-Out command. When you reach the limit, selecting *Zoom Out* will have no effect.

New Layer

New Layer lets you add a new layer to the Layer List. If you select *New Layer*, a dialog appears with a text box in which you can type the new layer name.

Delete Layer

Delete Layer deletes the selected layer in the Layer List. If you select *Delete Layer* you will be prompted to verify the deletion.

Group

Group groups all selected objects treating them a single object. A grouped object can be moved, copied, rotated and scaled. It is important to group library items with the Group command before copying them to a library.

UnGroup

UnGroup ungroups selected objects that were grouped with the Group command. Once you ungroup an object, all the objects that make up the group remain selected until you click somewhere else inside the view. This means that if you want to change the color of a grouped object, you can ungroup it, select a new color and group the objects again. This only works if you want all objects within the group to be the same color.

VRML Anchor

VRML Anchor brings up a dialog box where you can attach a URL (Universal Resource Locator) to an object or group of objects. For example, to create a link to the Virtus home page, you would type http://www.virtus.com.

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Window Menu

The Window menu displays the names of all open windows, views and models, and contains commands for displaying the Tools Pad and the Depth window. The Window menu helps you quickly navigate through open views and models.

Tools Window

Tools Window displays or hides the Tools Pad. There is only one Tools Pad, though there are several sets of tools (see Windows). If the Tools Pad is hidden in one view or editor, it is hidden for all views and editors.

Depth Window

Depth Window displays or hides the Depth window. The Depth window is a ruler, like the Design View rulers, that contains a Depth Control. The Depth window displays the position and inflation distance for the active design view. If you change to another design view, the Depth window will change to display the position and inflation distance for the new view.

Coordinates Window

The *Coordinates Window* identifies the position of the mouse cursor in the active drawing area. The information in the Coordinates Window helps you measure and draw accurately. The Coordinates Window does not function in the Walk View.

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Walk Menu

The Walk menu is available only when the Walk View is active. If the Design View, Surface Editor or Tumble Editor is active, the Walk menu is replaced with the active window's associated menu.

Button Down

Button Down controls how movement in the Walk View starts and stops. If *Button Down* is selected (is checked), movement begins when you press and hold down the mouse button. When you release the mouse button, movement stops.

If Button Down is not selected, movement stops when you press and hold down the mouse button and begins when you release the mouse button.

Cross Hair

Cross Hair turns on and off the display of the cross hair in the center of the Walk View. The cross hair orients the mouse pointer when navigating through the model.

Velocity Grid

Velocity grid marks are the horizontal and vertical marks in the Walk View that display the points at which walk speed changes. Novice WalkThrough VRML users may find the velocity grid helpful while learning to navigate. The default for the velocity grid marks is off (not visible).

Normal Speed

Normal displays all translucent and transparent object surfaces and surface features, and displays object color fill and wire frames.

Fast

Fast displays all translucent and transparent object surfaces and surface features and displays object color fill and wire frames, *but does not display textures.*

Faster

Faster speeds up your walk through by not allowing you to see through transparent or translucent object surfaces or surface features.

Fastest

Fastest speeds up your walk through by displaying only wire frames of objects; no object color fill is displayed.

Record

Record allows you to record a walk path. You may also record a walk path by selecting the Record Tool   in the Tools Pad. *Record* allows access to the recording function when in Full Screen mode.

Play

Play allows you to play back a recorded walk path. You may also play back a walk path by selecting the Playback Tool   in the Tools Pad. *Play* allows access to the playback function when in Full Screen mode.

Stop

Stop stops a recorded walk path if one is playing. You may also stop a recorded walk path by selecting the Stop Tool in the Tools Pad.

Aspect Ratio

Aspect Ratio reads the aspect ratio setting in the Preferences, Navigation dialog and applies it to the Walk View.

Full Screen

Full Screen opens the Walk View window to fully cover your computer screen, including the Menu Bar. The Menu Bar is still there, but it is hidden. If you point to the normal position of the Menu Bar, you can still pull down the menus.

To change back to a normal screen mode, find the Walk menu by pointing to its normal position and select *Full Screen* again.

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Help Menu

The Help menu allows you to search an on-line text file for help with WalkThrough VRML. The Virtus WalkThrough VRML 1.0 Help System is meant as an on-line reference guide only. It does not contain any tutorial information. The Help System is intended as a supplement to the manual supplied with this software, NOT a replacement. Please refer to the manual for more detailed descriptions and guides about WalkThrough VRML.

The Help menu is a standard Windows menu. See your Windows documentation for more about the Help menu.

Contents

Contents displays an alphabetical listing of all topics available in the on-line help file.

Search for Help On

Search for Help On allows you to enter a text string to search for specific information within the on-line help file.

How to Use Help

How to Use Help displays information about the Windows Help menu system and instructions for its use.

About WalkThrough VRML

About WalkThrough VRML displays the version number and copyright notice for your WalkThrough VRML application.

Virtus VR

Virtus VR is a unique 3-D modeling program that features an intuitive drag-and-drop approach to world creation. This method of object-oriented drawing allows users to choose basic 3-D shapes, from galleries supplied with the program, to build more complex objects and structures. Retailing for just $99, this affordable program features one cubic mile of cyberspace, construction and navigation tools, galleries of 3-D objects that can be added to any Virtus VR environment and six pre-built scenes that illustrate the program's modeling, texture mapping and real-time "walkthrough capabilities". The program is also supplemented by an on-going series of add-on galleries that greatly cut down on modeling time by providing commonly used, pre-constructed 3-D objects that bring life to virtual worlds. Virtus VR is available for Macintosh, Power Macintosh and Windows users.

To Order Virtus VR, call 1-800-847-8871 (1-800-VIRTUS1) 9:00am - 6:00pm EST

Windows System Requirements:

¥ 80386-based (or later) personal computer
¥ at least 4MB
¥ Microsoft Windows 3.1+
¥ VGA or SuperVGA display adapter

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Virtus WalkThrough Pro 2.0

Discover Virtus WalkThrough Pro, a powerful and intuitive 3-D visualization program that features robust modeling and editing tools, perspective-correct texture mapping, and the most effective and affordable combination of real-time 3-D rendering and walk through navigation available. With our award-winning program, you can envision, create and explore any idea without leaving your desktop. Build in our 2-D Design View and watch as your work is rendered instantly in a companion 3-D Walk View. Use texture mapping to add realistic surface details such as doors and windows, bricks and tile, landscapes, even corporate logos. Bring in a QuickTime movie (Macintosh version only) to enliven 3-D multimedia presentations. At any time, use your mouse or keyboard to quickly navigate in, around and through your models. And with Virtus Player, our freeware publishing utility and real-time player that ships with WalkThrough Pro, you can share your 3-D models with clients, collegues, friends and family who dont have Virtus software. Virtus WalkThrough Pro 2.0 is available for Macintosh, Power Macintosh and Microsoft Windows.

Windows System Requirements:

¥ 80386-based (or later) personal computer (Pentium recommended)
¥ at least 4MB
¥ Microsoft Windows 3.1+
¥ VGA or SuperVGA display adapter

Virtus VR

Virtus Galleries

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Virtus Galleries

Virtus Galleries are extremely useful because they provide many preconstructed 3-D objects and scenes that you can use in building your own models whether its an item or an entire room. Virtus Galleries are fully compatible for use with Virtus WalkThrough VRML (except for textures), Virtus VR and Virtus WalkThrough Pro 2.0.

To date, the Virtus gallery topics include:

Alphabet Rooms
Explore and modify virtual rooms based on letters of the alphabet.
- 26 scenes, including A is for Art, H is for House, M is for moon, etc.
- virtual alphabet blocks.
- 3-D galleries featuring numbers, and upper and lower case letters.
- textures including more than 100 colorful enamels, paints, minerals and more.

Archaeology
Explore and modify ancient ruins, temples, pyramids and more.
- 17 scenes, including the Temple of Neptune, Great Pyramid and Stonehenge.
- 3-D galleries featuring Roman and Viking weapons, temple parts, kitchen equipment and more.
- 2-D galleries featuring many openings and entrances.
- textures including stone, hieroglyphics, tiles and more.

Home Remodeling
Remodel your living space to create your dream home.
- 5 scenes, including a beach cabin, mountain home and country club estate.
- 27 models, featuring bathrooms, kitchens, living rooms, bedrooms, garages and more.
- 2-D galleries with home doors and windows (opaque, translucent and transparent).
- textures for indoors and outdoors.

Interior Design
Use the creations of famous designers to furnish your home or business.
- 12 scenes, including the Berlin House (Mies van der Rohe), Glass House (Philip Johnson) and Fallingwater (third floor, Frank Lloyd Wright).
- 11 models of sample rooms and suites.
- 2-D galleries with various styles of windows and doors.
- textures including cabinet surfaces, ceiling panels, wallpaper, cloth and more.

Office Design
Rearrange or redesign your work space.
- 5 scenes, including a general office, teleconference center and reception/conference room.
- 3-D galleries featuring desks, office equipment (copiers, computers, etc.), office furnishings and modular conference and storage units.
- 2-D galleries of doors and windows.
- textures including wood, stone, leather, tile and more.

Science Fiction
Build or modify fantasy worlds from far, far away.
- 5 scenes, including Dragonfly, Mirror World and Stellar Ark.
- 45 models, including space stations, vehicles and astronauts.
- 3-D galleries featuring spaceships, space vehicles, dissecting table and DNA dusters.
- 2-D galleries of windows and doors.
- textures including celestial bodies, lunar surface, starfields and more.

To Order Virtus Galleries, call 1-800-847-8871 (1-800-VIRTUS1) 9:00am - 6:00pm EST

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Tumble Menu

The Tumble menu is available only when the Tumble Editor is active. If the Design View, Surface Editor or Walk View is active, the Tumble menu is replaced with the active window's associated menu.

Snap to Grid

Snap to Grid snaps slices to an invisible grid when slices are created, moved or edited. The grid is based on the ruler tick marks. Handles of slices will "snap to" the grid when *Snap to Grid* is selected.

Zoom In

Zoom In increases the apparent scale and the apparent size of objects and surface features in the view by a factor of 2. With each *Zoom In,* the minor tick marks on the rulers represent a smaller unit of measurement. There is a limit to the range of the Zoom In command. When you reach the limit, selecting *Zoom In* will have no affect.

Zoom Out

Zoom Out reduces the apparent scale and the apparent size of objects and surface features in the view by half. With each *Zoom Out*, the minor tick marks on the rulers represent a larger unit of measurement. There is a limit to the range of the Zoom Out command. When you reach the limit, selecting *Zoom Out* will have no affect.

Reverse Slice

Reverse Slice changes which side of a slice is removed. The direction in which the slice is drawn through an object determines which side of the object is removed. If you drag from left to right or from top to bottom, the portion above or to the right of the line will be sliced off. If you drag from right to left or from bottom to top, the portion below or to the left of the line will be sliced off. *Reverse Slice* changes the slice direction.

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The Color Lifter Tool

By selecting this tool and then clicking on a surface in the Design View, that surfaces color becomes the currently selected color. (The Color Lifter cannot be used in the Walk View.)

The Magnify Tool

Each click of the Magnify Tool (in the Design View only) increases the apparent sixe of the drawing by a factor of two.There is a limit to how closely you can zoom in. When you reach the limit, clicking the Magnify Tool   will have no effect.

You can also zoom in by selecting Zoom In under the Design menu.

Zoom-Out Tool
This tool is accessed by selecting the Magnify Tool   and pressing the Ctrl key. Each click of the Zoom-Out Tool   decreases the apparent size of the drawing by a factor of 2. There is a limit to how far you can zoom out. When you reach the limit, clicking the Zoom-Out Tool   will have no effect.

You can also zoom out by selecting *Zoom Out* under the Design menu.

Select Object Tool

The Select Object Tool is used to select and edit objects. The Select Object Tool is used in the Design Views, Surface Editor and Tumble Editor. In the editors, the Select Object Tool functions differently than in the Design Views.

If you are working with another tool and wish to use the Select Object Tool , press the space bar and the Select Object Tool will automatically be selected. Press the space bar again to go back to the previously selected tool.

In the Design Views and Surface Editor, the Select Object Tool is used to select, move and change the size or shape of objects and surface features.

Tape Measure Tool

The Tape Measure Tool   finds the distance between two points. The distance is displayed in the Coordinates Window. *(See Coordinates Window in your WalkThrough Pro Manual.)*

Scale Object Tool

The Scale Object Tool   functions in the Design Views or Surface Editor, and scales an object or surface feature about its center or about a specified anchor point.

Objects may be scaled independently along any of the three coordinate axes.

Objects may also be scaled uniformly in all dimensions (X, Y and Z) by holding down the Shift key before dragging.

When an object is scaled, its contents and any surface features are scaled with it unless you hold down the Ctrl key while you are dragging.

Lock Object Tool

The Lock Object Tool   functions in the Design Views and in the Surface Editor, and allows you to lock objects or surface features so they cannot be edited. A locked object or surface feature appears with a dotted polygonal outline rather than a solid outline.

Create 8-Sided Object Tool

The Create 8-Sided Object Tool draws an 8-sided polygonal object outline or surface feature.

Create Irregular Object Tool

The Create Irregular Object Tool   draws an irregular-shaped polygonal outline, one segment at a time. This tool *does not* draw non-convex objects or surface features.

Create Rectangular Object Tool

The Create Rectangular Object Tool draws a rectangular polygonal outline.

Connect Surfaces Tool

The Connect Surfaces Tool functions in the Design View and is used to connect two objects together at a common surface. A connection between surfaces is necessary to see any common surface features such as the colored, transparent or translucent surface features representing doorways or windows. Without the connection, surface features between objects will not be shared and holes will not penetrate both surfaces.

A common misconception is that a connection will increase speed. This is not true. A connection should be made only where necessary, that is, where surface features are shared between two objects.

Add / Remove handle Tool

The Add/Remove Handle Tool   functions in the Design View and the Surface Editor, and is used to add a new handle to an object or surface feature or to remove an existing handle. A handle represents a vertex - the meeting of two object surfaces.

Rotate Object Tool

The Rotate Object Tool   functions in the Design Views and the Surface Editor, and is used to rotate an object or surface feature. When rotating an object, this tool works in any view, thus allowing rotation on more than one axis.

Surface Editor Tool

The Surface Editor Tool   functions in the Design Views and Tumble Editor and accesses the Surface Editor.

The Tumble Editor

The Tumble Editor Tool functions in the Design Views and accesses the Tumble Editor. The Tumble Editor allows you to add a surface to a selected object by slicing off a piece of the object. The Tumble Editor also allows you to edit the color and opacity of a selected object or object surface.

The Opacity Modifiers

Opacity Modifiers function in the Design Views, the Surface Editor and the Tumble Editor; these edit the opacity of entire objects, selected object surfaces or surface features. Object surfaces can be modified in the Tumble Editor or the Surface Editor, and surface features can be edited only in the Surface Editor.

The Inflation Modifiers

The Inflation Modifiers determine the inflation type, or shape, of an object. Inflation is the process of creating a 3-D object from a 2-D polygonal outline. The distance and the direction of object inflation are determined by the Depth Control Gauges.

Walk Mode Selector

The Walk Mode Selector, which enables navigation, is the default setting for the Walk View

The 3-D Object Selector

The 3-D Object Selector selects an object in the Walk View and centers that object in the Design View. When an object is difficult to locate in a complex model, the 3-D Object Selector is very helpful.

The 3-D Surface Selector

The 3-D Surface Selector allows the selection of an object's surface from the Walk View. This feature works just like the Design View's Surface Editor. A special feature of this tool allows for the surface selection of a grouped object (i.e. a chair or sofa as a library object).

Background Color Selector

The Color Bar at the top of the Tools Pad is the Background Color Selector used to change the color of the background within the Walk View.

Changing the background color
Mouse down on the Background Color Selector (Color Bar) that is used to reveal the color selector. Drag the mouse to the desired color and release.

The Lens Focal Length Tool

The lens size indicator and the sliding control beneath it are both parts of the Lens Focal Length Tool. If the sliding control is moved, the reading in the lens size indicator will change to display the new lens focal length. You can also adjust the lens focal length by highlighting the numbers in the lens size indicator, then typing a new number and pressing the Enter/Return key. You must press the Enter/Return key for the change to take effect.

Color Bar

The Color Bar functions in the Design Views, the Surface Editor and the Tumble Editor, and displays the default color for new objects. It also allows new colors to be selected, created and assigned to objects or surface features. Colors can be applied to translucent as well as opaque objects and surfaces.

The current color displayed in the Color Bar is the default color for all newly created objects or surface features. The default color and the color of existing objects or surface features can be changed.

The Orientation Cube

The Orientation Cube shows the orientation of the Observer inside the Virtus world. If any objects can be seen, the Orientation Cube will indicate the side(s) of the objects that the Observer is facing: F=Front, B=Back, L=Left, R=Right, T=Top, b=bottom.

You can always tell your orientation in the model by noting the display of the Orientation Cube. It is especially helpful in orienting you when viewing a model that someone else has created.

The Orientation Cube also appears in the Tumble Editor, but has added functionality there.

Record, Playback Path

As you navigate through a model in the Walk View, you can record and later play back the walk path with the Record Tool and Playback Tool .

The length of a recording is limited only by memory; however, it is unlikely that you will run out of memory because the requirement is small.

When you save a file, the recorded walk path is saved with it. When you open the file again, you can click the play button and view the recording. Only one recorded path can be saved with each model. If you record another, the previous path will be erased.

Surface Menu

The Surface menu is available only when the Surface Editor is the active window. If the Design View, Tumble Editor or Walk View is active, the Surface menu is replaced with the active window's associated menu.

Snap to Grid

Snap to Grid snaps surface features to an invisible grid when they are created, moved or edited. The grid is based on the ruler tick marks. Handles of surface features will "snap to" the grid when *Snap to Grid* is selected.

Zoom In

Zoom In increases the apparent scale and the apparent size of objects and surface features in the view by a factor of 2. With each *Zoom In,* the minor tick marks on the rulers represent a smaller unit of measurement. There is a limit to the range of the Zoom In command. When you reach the limit, selecting *Zoom In* will have no affect.

Zoom Out

Zoom Out reduces the apparent scale and the apparent size of objects and surface features in the view by half. With each *Zoom Out*, the minor tick marks on the rulers represent a larger unit of measurement. There is a limit to the range of the Zoom Out command. When you reach the limit, selecting *Zoom Out* will have no affect.

Move Forward

Used with multiple surface features that overlap, *Move Forward* shuffles the order of the overlapping features by moving a selected surface feature forward one position. For example, if the selected surface feature has three surface features in front of it, *Move Forward* will cause only two surface features to be moved in front of the selected feature. The third surface feature will move behind the selected feature.

Move to Front

Used with multiple surface features that overlap, *Move to Front* shuffles the order of the overlapping features by moving a selected surface feature to the front of all the overlapping features.

Move Back

Used with multiple surface features that overlap, *Move Back* shuffles the order of the overlapping features by moving a selected surface feature back one position. For example, if the selected surface feature has two surface features in front of it and two behind it, *Move Back* will cause three surface features to be moved in front of the selected feature and only one behind it.

Move to Back

Used with multiple surface features that overlap, *Move to Back* shuffles the order of the overlapping features by moving a selected surface feature to the back of all the overlapping features.

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Active Window

The window that you are currently working in. A window is active if its Title Bar is highlighted.

Aspect Ratio

The ratio of horizontal to vertical dimensions of the Walk View.

Collision Detection

Collision Detection is the feature that prevents you from walking through walls and other solid objects.

Color Selector

A spectrum of colors that can be assigned to objects or surface features.

Coordinates Window

The Coordinates Window displays object and cursor positions/measurements within the Design View.

Cross Hair

Located in the middle of the Walk View and used as a reference point for navigation.

Depth Control

Appears on each ruler in the Design Views and on the ruler in the Depth Window. It determines the inflation distance and the position of objects.

Depth Window

Contains a ruler and Depth Control that allow you to manipulate inflation distance and position of objects.

Design View

A two-dimensional area where you draw objects. There are six possible Design Views: Front, Back, Top, Bottom, Left and Right.

Drawing Tools

Allow you to draw 2-D polygonal outlines of basic shapes that are interpreted as 3-D objects or 2-D surface features.

Full Screen

This command opens the Walk View to cover the entire monitor screen, including the menu bar.

Group

This command groups all selected objects, treating them as a single object.

Handle

A small square block which represents the meeting of two or more planes, or in the case of an object, the meeting of two sides. If an object is selected, its handles are visible.

Home

A 3-D location in the Virtus World used as a base or reference for the Observer or for a Design View.

Inflation

The process of taking a 2-D polygonal outline and adding depth to create a 3-D object.

Inflation Distance

The depth or the distance that a 2-D polygonal outline is stretched to create a 3-D object.

Inflation Modifier

Determines the inflation type, or 3-D shape, of an object. Inflation is the process of interpreting a 2-D polygonal outline in the Design Views as a 3-D object in the Walk View.

Lens Focal Length Tool

Determines the zoom factor of the virtual camera. The Lens Focal Length Tool can be adjusted to give the effect of viewing the Walk View through a wide angle lens or a telephoto lens.

Levels

The number of decrementing sides of an object whose inflation type is rounded or double-rounded. The maximum number of levels allowed is 16.

Library Item

Can be a single Virtus WalkThrough VRML object, but is usually several objects grouped together to form a complex shape, such as a piece of furniture. Library Items are stored in a Virtus WalkThrough VRML Library.

Library

A collection of Virtus WalkThrough VRML objects (Library Items) that can be copied and pasted into multiple models.

Magnify Tool

The Magnify Tool increases the apparent size of the Design View drawing by factor of two, every time you click.

Navigation

The process of moving through the Walk View.

Non-Reproducing Guidelines

These help align objects. Non-Reproducing Guidelines are dragged out of the Dock and positioned anywhere on the ruler.

Observer

Represents your eyes in the virtual environment. In a Design View, the Observer is shown as a circle with a line that indicates the viewing direction.

Opacity Modifiers

Determine whether an entire object or a selected surface is opaque, translucent or transparent.

Opaque

Describes a selected object or surface feature that appears solid (you cannot see through it), even though it is volumetric.

Orientation Cube

Shows the orientation of the Virtus World as seen by the Observer in the Walk View. In the Tumble Editor, the Orientation Cube represents the selected object within the Virtus World and shows the side(s) of the object visible in the tumble window.

Placement Modifiers

Determine which side of a surface will be edited.

Preferences

The dialog box that allows you to set preferences for the appearance of the Design and Walk Views, navigation, measurement units and other application and model attributes. You can customize your application with the Preferences dialog.

Rendering

Translation of 2-D objects in the Design View to 3-D objects in the Walk View.

Rotation Constraint Tools

These affect how the selected object can be rotated.

Selection - Rectangle Method

A means to select objects by dragging the Select Object Tool to form a bounding box around the objects that you wish to select.

Slice List

Displays the word slice and a number for each slice that you make in an object while in the Tumble Editor. If you wish to edit a slice, click on the slice number of the slice and it will appear in the Tumble window.

Slice Tool

Adds a surface to an object by slicing off a piece of that object in the Tumble Editor.

Snapshot

This command allows you to save a Design View or Walk View perspective in BMP format.

Surface Editor

Accesses the Surface Editor from the Design Views or the Tumble Editor. The Surface Editor allows you to edit a selected object surface.

Surface Feature

A polygonal 2-D object that can represent items such as a door, window, or a floor or wall feature with a specified opacity and color on a surface. Surface Features are created and edited in the Surface Editor with the same tools as objects; however, Surface Features do not have depth.

3-D Object Selector

The 3-D Object Selector is the tool used to select an object in the walk view.

3-D Surface Selector

The 3-D Surface Selector is the tool used to select surfaces in the Walk View.

Translucent

Means that a selected object or surface feature is see-through, like glass.

Transparent

Means a selected object or surface feature is invisible except for a wire frame.

Tumble Editor Tool

Accesses the Tumble Editor from the Design Views. The Tumble Editor allows you to three-dimensionally rotate an object, edit a selected surface or slice off a piece of an object.

Velocity Grid

This is made up of the horizontal and vertical marks in the Walk View that determine the points at which the walk speed changes when you navigate through the Virtus World.

Virtus World

The overall area of the Walk View.

Walk View

The window that displays a three-dimensional rendering of the objects you draw in a Design View and allows you to walk through and around the objects.

Window

Displays information on the computer screen in a designated area. In Virtus WalkThrough VRML, a window can display a tool palette, a view or an editor.

Dock

A gray box that appears on the end of each ruler. The Dock displays the letter, X, Y or Z, which determines the axis the ruler is on. Docks also contain Non-Reproducing Guidelines, which you can drag to any position on the ruler.